



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

## **INVITATION TO TENDER ES-24-10**

### **2024 Landfill Gas Well Field Expansion Construction Project Foothills Boulevard Regional Landfill**

<b>Date Issued:</b>	June 6, 2024
<b>Closing Location:</b>	Regional District Office 3 <sup>rd</sup> Floor, 155 George Street, Prince George, BC V2L 1P8
<b>Mandatory Site Meeting:</b>	June 12, 2024 1:00 pm (Pacific Standard Time) Foothills Boulevard Regional Landfill
<b>Closing Date:</b>	June 26, 2024 2:00 pm (Pacific Standard Time) No Public Opening
<b>General Inquiries:</b>	Email Darwin Paton at <a href="mailto:dpaton@rdffg.bc.ca">dpaton@rdffg.bc.ca</a>
<b>Technical Inquiries:</b>	Email Rana Mandour at <a href="mailto:rana.mandour@tetrattech.com">rana.mandour@tetrattech.com</a>
<b>Note:</b>	Late submissions will not be considered

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## **INVITATION TO TENDER**

### **PART A – INTRODUCTION**

The Regional District of Fraser-Fort George (Regional District) invites tenders from qualified contractors for the 2024 Landfill Gas Well Field Expansion Construction Project at the Foothills Boulevard Regional Landfill.

This project includes the following elements:

1. Construction of 10 new vertical Landfill Gas (LFG) extraction wells.
2. Construction of new well field pipework (sub-headers and laterals) to tie in new LFG wells to existing wells to existing system.
3. New construction of isolation valves and sample ports.

The purpose of the project is to undertake the 2024 Landfill Gas Well Field Expansion Construction Project as per the Interim Phase 1 Landfill Gas Management Plan, issued November 2008, the Integrated Landfill Management Plan, Issued March 2010, and the Short-Term Fill Plan Updates, September 2022, and 2023, for the Foothills Boulevard Regional Landfill. Project will be based upon the drawings and specifications included in the Invitation to Tender.

The contract term is August 1, 2024 – December 31, 2024.

### **TENDER DOCUMENTS**

The Invitation to Tender (ITT) documents may be obtained on or after **June 6, 2024**

- (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.

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

The Regional District will accept Tenders submitted either by direct delivery (hand delivery, courier or by 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 **June 26, 2024** (the "**Closing Date**") 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.

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

The Closing Time for this Tender is **June 26, 2024** at 2:00 p.m.

"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.

Three (3) 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, ES-24-10  
2024 Landfill Gas Well Field Expansion  
Construction Project  
Foothills Boulevard Regional Landfill
3. Responding Tenderer's name and address

**Facsimile Tenders will NOT be accepted.**

**For Tenders to be submitted electronically, with Bid Security:**

The closing date and time for this tender is **June 26, 2024** at 2:00 p.m.

"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.

Other than the Bid Bond, Tenderers must submit all portions of their Tender by email in accordance with the following:

**Subject of the file to be: ES-24-10 – 2024 Landfill Gas Well Field Expansion – FBRL (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 30MB. 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). Other than the Bid Bond, do not deliver a physical copy of the tender package to the Regional District of Fraser Fort George.

**The Bid Bond must not be sent by email.** The Bid Bond must be received by the General Manager of Financial Services, at the Regional District of Fraser-Fort George, 3<sup>rd</sup> Floor, 155 George Street, Prince George, BC on or before the Closing Date. The Bid Bond must be submitted in a sealed envelope with the following information written on the outside of the envelope containing the Bid Bond, as well as on the outside of the Courier envelope if sent 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, ES-24-10  
2024 Landfill Gas Well Field Expansion  
Construction Project - Foothills Boulevard Regional Landfill
3. Responding Tenderer's name and address

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, and;
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.

The lowest or 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. Email Tenders will be accepted, with all documents to be submitted by email only, other than the Bid Security. All Tender Documents (including the Bid Security) must be received by the Closing Date in order for the Tender to receive consideration.

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

The Regional District of Fraser-Fort George, hereinafter referred to as the Regional District, invites Tenders for:

ES-24-10 - 2024 Landfill Gas Well Field Expansion Construction Project  
Foothills Boulevard Regional Landfill

Term: August 1, 2024 – December 31, 2024

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

Questions relating to the tender or project must be directed to:

General Inquiries:

Darwin Paton  
Environmental Services Technologist  
Regional District of Fraser-Fort George  
155 George Street  
Prince George, BC V2L 1P8  
Phone: (250) 960-4400  
Email: [dpaton@rdffg.bc.ca](mailto:dpaton@rdffg.bc.ca)

Technical Inquiries:

Rana Mandour, P. Eng.  
Project Engineer  
Tetra Tech Canada Inc.  
14940 – 123rd Avenue  
Edmonton AB T5V 1B4  
Phone: (587) 597-0484  
Email: [rana.mandour@tetrattech.com](mailto:rana.mandour@tetrattech.com)

**Deadline for question submissions is 5:00 p.m. (local time) June 19, 2024**

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.

**ACKNOWLEDGEMENT LETTER**

Upon receipt of this Invitation to Tender, a potential Tenderer should complete and sign the Acknowledgement Letter at Appendix A and email the signed Acknowledgement Letter to, Project Manager, Darwin Paton at [dpaton@rdffg.bc.ca](mailto:dpaton@rdffg.bc.ca). A Tenderer who signs and returns the Acknowledgement Letter is not obligated to submit a Tender.

**Any prospective Tenderer who does not submit the Acknowledgement Letter will not be sent any Addendum(s), or answers to questions and may be disqualified.**

**SITE MEETING**

All prospective Tenderers must attend the site meeting. The Project Manager or delegate will provide an overview of the contract expectations and be available for questions pertaining to this ITT. The purpose of the site meeting is for Tenderers to satisfy themselves as to the nature of the work in general, to clarify their understanding of the scope of work, to view the sites, to determine specifications, and to have the opportunity to ask questions regarding the project and any other circumstances which may influence their Tender.

Oral questions will be allowed at the Tenderers' meeting. However, questions of a complex nature, or questions where the Tenderer requires anonymity, should be forwarded in writing, prior to the meeting, to the Project Manager.

The Regional District will not, under any circumstances, make accommodations for rescheduling, or holding any additional site meetings or providing individuals access to the sites.

**The mandatory site visit will be held at the Foothills Boulevard Regional Landfill located at 6595 Foothills Boulevard, Prince George, BC on June 12, 2024 at 1:00 pm.**

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## **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 "**Tender**" means a submission in response to this ITT.
- 1.13 "**Tender Documents**" means the documents listed in section 2.1.
- 1.14 "**Tenderer**" means the person submitting a Tender.
- 1.15 "**Regional District**" means the Regional District of Fraser-Fort George.
- 1.16 "**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.
- 1.17 "**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 – Acknowledgment Letter;
  - ii. Appendix B – Bidder Checklist;
  - iii. Appendix C – Tender Form;
  - iv. Appendix D – Tender Form Summary;
  - v. Appendix E – Schedule of Prices – Tendered Price;
  - vi. Appendix F – Schedule of Additional Unit Prices;
  - vii. Appendix G – Preliminary Construction Schedule;
  - viii. Appendix H – Experience of Superintendent;
  - ix. Appendix I – List of Contractor's Personnel
  - x. Appendix J – List of Subcontractors
  - xi. Appendix K - Tender's Experience in Similar Work;
  - xii. Appendix L – Conflict of Interest Disclosure Statement;
  - xiii. Appendix M – Goods and Services Tax Information;
  - xiv. Appendix N – Specifications;
  - xv. Appendix O – Drawings;
  - xvi. Appendix P – Contract Agreement – (Refer to CCDC 4 2011); and
  - xvii. Appendix Q – Supplemental General Conditions

## **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 A and C through M,
- 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 A start to completion work plan: to include start of construction and completion dates and milestone dates for completion for the major components of this project. The proposed work plan needs to include consideration for alternative project tasks to help maintain project schedule should delays occur.
- 4.4 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.
- 4.5 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.
- 4.6 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 requests must be received prior to June 19, 2024, at 5:00 pm.
- 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 Tender 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 ninety (90) days from the Closing Date unless otherwise stated by the Regional District.

## **9.0 Payment**

- 9.1 Payment will be made by the Regional District within thirty (30) days of the Engineer approving the invoice.
- 9.2 Each progress payment claim is subject to a 10% hold back. All claims must be accompanied by supporting documentation as to its completion and proof of passing all required inspections.
- 9.3 The Regional District and/or the Engineer will inspect the work before making recommendation of payment.
- 9.4 The Regional District will withhold 10% of the total payment due under the Contract as a performance assurance holdback. The holdback will be released to the Contractor once the following two conditions have been satisfied:

- 1. The work has been completed to the satisfaction of the Regional District.

2. The Regional District has received notification from WorkSafeBC that all required WorkSafeBC assessments have been paid for the period covering the Contract term.

9.5 No payment will be made for materials supplied by the Regional District.

## **10.0 Bonding**

### **10.1 Bid Bond:**

The tender must be accompanied by a Bid Bond in an amount of ten percent (10%) of the total tendered price.

The Bid Bond must be issued by a Surety Company licensed to conduct business in the Province of British Columbia wherein the work is located.

If the successful bidder fails, for any reason, to execute the Contract, the portion of this Bid Bond will be forfeited to, and retained by, the Regional District of Fraser Fort George, in the amount for which the Regional District may legally contract with another party to perform the work, if the latter amount be in excess of the former.

The Bid Bonds submitted by unsuccessful bidders will be returned to them, without interest, as soon as the successful bidder has delivered, to the Regional District, a fully executed Contract for the work, or the period for which bids are irrevocable has elapsed, whichever shall happen first.

### **10.2 Performance Security:**

The successful bidder shall deposit, with the Regional District, when signing the Contract, the following:

Performance Bond:

A Performance Bond in the amount of fifty percent (50%) of the tendered price; and a

Labour and Materials Payment Bond:

A Labour and Materials Payment Bond in the amount of fifty percent (50%) of the tendered price

In the event of any breach, default, or non-performance by the successful bidder causing loss to the Regional District, then the Regional District may enforce the Labour and Materials Payment Bond, and/or Performance Bond as liquidated damages.

All bonds must be issued by a Surety Company authorized to do business in the Province of British Columbia.

## **11.0 Subcontractors**

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



- 11.2 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.

## **12.0 Rejection of a Tender**

- 12.3 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.
- 12.4 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.
- 12.5 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.
- 12.6 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.



### **13.0 Conflict of Interest**

- 13.1 When submitting a Tender, the Tenderer must complete, sign and include with their Tender a Conflict of Interest Disclosure Statement (Appendix L).
- 13.2 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.

### **14.0 Tender Evaluation**

- 14.1 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.
- 14.2 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:

#### **Tender Evaluation Methodology**

a. Proven, successful experience in providing similar works	30%
b. Acceptability of reference checks	10%
c. Preliminary construction schedule	20%
d. Price	40%
<b>TOTAL:</b>	<b>100%</b>

14.3 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.

14.4 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.

Price evaluation shall include the sum of the "Schedule of Prices" and "Schedule of Additional Unit Prices" as per the "Tender Form Summary". Quantities associated with the "Schedule of Additional Unit Prices" shall be used to calculate the total bid price in the "Tender Form Summary" only. The value of the contract will be the "Schedule of Prices" only.

The Contractor will have fourteen (14) calendar days to provide documentation verifying required Insurance coverage and WorkSafeBC coverage upon receiving notification that the Regional District has accepted its Tender.

14.5 Throughout the evaluation process, the Regional District, at its sole discretion, may request additional written clarification and/or supplemental information from selected tenderers as part of the evaluation process. Notwithstanding the results of the evaluation conducted by the committee, the Regional District reserves the right to select the tender that the Regional District considers provides best overall value,

#### **15.0 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.

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

16.1 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.

16.2 The Tenderer will examine the site and its surroundings and, before submitting their Tender will satisfy themselves as to the nature of the site, the quantities and nature of the work and equipment necessary for the completion of the work, and the means to access to 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.

#### **17.0 Site Location and Facility Information**

The Site is located in the northwest portion of the City of Prince George, British Columbia at 6595 Foothills Boulevard, northwest of the intersection with West Austin Road as shown on the Drawings included in Appendix O.

## **18.0 Liability for Errors**

- 18.1 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 Proponent's responsibility. If errors are discovered, they will be corrected by the Tenderer at their expense.
- 18.2 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.

## **19.0 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.

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

- 20.1 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.
- 20.2 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.

## **21.0 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.

## **22.0 Contract**

### **22.1 Form of Contract**

The Contract Form and General Conditions which will be utilized will be CCDC 4-2011 Unit Price Contract.

## **22.2 Award of Contract**

A contract for ES-24-10 - 2024 Landfill Gas Well Field Expansion - Construction Project - Foothills Boulevard Regional Landfill is anticipated to be awarded at Regional Board on July 18, 2024. All tenderers will be advised, in writing, as to the awarding of the Contract after that date.

The Regional District may, in its sole discretion, award Contract ES-24-10 - 2024 Landfill Gas Well Field Expansion - Construction Project - Foothills Boulevard Regional Landfill, or it may delay the date of awarding the Contract or cancel this ITT if deemed appropriate by the Regional District for any reason.

## **23.0 Start and Duration of Contract**

The term of the Contract will begin on August 1, 2024 at 12:01 a.m. and the Contract will remain in force until project completion. Construction will commence upon award and signing of the contract as laid out in Part 1 of the Tender.

A construction start date will be mutually agreed upon by the Regional District and the Contractor. Once construction works begin on-site, they will continue without interruption until project completion, on or before December 31, 2024 or later date as agreed upon by the Regional District and the Contractor.

In the event of an unanticipated work stoppage due to delays in material delivery or inclement weather and in the absence of alternative contractual related tasks, no fault should be found with either the Regional District or the Contractor and a revised schedule shall be agreed upon.

## **24.0 Term and Termination**

The term of this Contract shall commence as set out in Section 23.0 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 thirty (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.

## **25.0 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.

## **26.0 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.

## **27.0 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, the Contractor and the Contractor.

## **28.0 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 thirty (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 \$5,000,000 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 \$3,000,000 per occurrence.
  - b. Non-owned Automobile Liability insurance in an amount not less \$3,000,000 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.

## **29.0 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 seventy-two (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.

### **30.0 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.

The Contractor will maintain an Occupational Health and Safety Plan (OHSP) and ensure that their employees and Sub-Service Providers are well trained and aware of the OHSP.

### **31.0 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.

### **32.0 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 41.0 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 9.0 of this Agreement, as may be agreed by the Contractor, or as determined under Section 41.0 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 24.0 of this Agreement.

### **33.0 Ownership And Freedom of Information**

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 propriety information. Tenderers are responsible to review the Freedom of Information and Protection of Privacy Act for further information.

All documents, including tenders, submitted to the Regional District become the property of the Regional District. The Regional District will provide a debriefing for tenderers, upon request by a tenderer, subject to the Freedom of Information and Protection of Privacy Act.

Any material produced, received or provided by the Regional District to the Contractor as a result of this Contract and any equipment, machinery, or other property provided by the Regional District to the Contractor as a result of this Contract will be the exclusive property of the Regional District; and forthwith be delivered by the Contractor to the Regional District, or the manager giving written notice to the Contractor requesting delivery of the same, or at the end date of this Contract.

Any material produced by the Contractor, including but not limited to, drawings, schematics, equipment logs, reports, manuals, and any and all documents created that relate to the landfill gas well field expansion, shall be provided by the Contractor to the Regional District in an amenable format (i.e. Word, Excel, AutoCAD) and will become the property of the Regional District and the Regional District shall not be limited by Contractor's copyright or proprietary terms with regards to use by the Regional District.

### **34.0 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.

### **35.0 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.

### **36.0 Supervisor and Labour**

**The Contractor will keep a competent supervisor on the work site at all times and for the duration of the project.** The Contractor will identify the person who will act as the supervisor, in writing,

to the Regional District and the Engineering Contractor. The supervisor will represent the Contractor in their absence and directions given to them will be considered to have been given to the Contractor. The supervisor will have the ability to report to the Regional District and the Engineering Contractor and have the authority to act on contractual obligations on behalf of the Contractor. The Contractor shall employ at all times, qualified and experienced personnel to carry out the work.

The Contractor will comply with all federal and provincial legislation regarding wages and labour regulations including payment of any and all dues, levies, or charges made under or in relation to the Contract. The Contractor will make proof of payment available to the Manager when requested.

### **37.0 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 Regional District, 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 Regional District, 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 General Manager of Environmental Services.

### **38.0 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, or stoppage under Clause 24.0, 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.

### **39.0 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 thirty (30) days from the specified date of payment and fails to remedy such default within ten (10) days of the Contractor's written notice to do so.

### **40.0 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 (5) 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.

### **41.0 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.

#### **42.0 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 licences 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.

#### **43.0 Scope of Work**

The work generally comprises the following but is not limited to:

1. Construction of 10 new vertical Landfill Gas (LFG) extraction wells.
2. Construction of well field pipework (sub-headers and laterals) to tie in new LFG wells to existing wells to existing system.
3. New construction of isolation valves and sample ports.

#### **44.0 Local Conditions**

The Contractor will, by personal inspection, examination, calculations or tests, or by any other means, satisfy themselves with respect to the local conditions to be encountered and the quantities, quality and practicability of the Work and of their methods of procedure. No verbal agreements or conversations with any officer, agent or employee of the Regional District, either before or after the execution of the Contract, will affect or modify any of the terms or obligations herein contained.

#### **45.0 Project Manager Status**

The Project Manager or their delegate will be the Regional District's representative during the period of Construction and Commissioning 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 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.

#### **46.0 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.

#### **47.0 Goods and Services Tax (GST)**

Federal law states that five percent (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.

#### **48.0 Removal of Liens**

The Contractor will forthwith remove at their own expense liens, filed or registered against the Landfill and Facility properties and the Contractor will indemnify and save harmless the Regional District from liability arising out of any such claims of lien.

#### **49.0 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 (5) 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 (5) 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.

#### **50.0 Notice of Protest**

TO: General Manager of Environmental Services  
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

## APPENDIX A - ACKNOWLEDGEMENT LETTER

The undersigned has received the full set of Tender Documents.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company

\_\_\_\_\_  
Name (please print)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Title

\_\_\_\_\_  
City

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

\_\_\_\_\_  
Fax Number

\_\_\_\_\_  
Date

\_\_\_\_\_  
Email Address

We presently intend to \_\_\_\_\_ provide/\_\_\_\_\_ not provide a Tender as requested.

Please send any amendments to this Invitation to Tender via: email \_\_\_\_\_.

Return immediately to:

**Darwin Paton**  
[dpaton@rdffg.bc.ca](mailto:dpaton@rdffg.bc.ca)  
Regional District of Fraser-Fort George  
155 George Street  
Prince George BC V2L 1P8  
  
Phone: 250-960-4400

## APPENDIX B – BIDDER CHECKLIST

Before submitting your tender bid, check the following points:

- |                          |   |  |
|--------------------------|---|--|
| <input type="checkbox"/> | Has the Tender Form been signed and witnessed?  | _____  |
| <input type="checkbox"/> | Has the Bid Bond requirement been met?  | _____  |
| <input type="checkbox"/> | Is the Schedule of Prices completed?  | _____  |
| <input type="checkbox"/> | Are the following pages included?   | _____  |
|                          | <ul style="list-style-type: none"> <li>• Schedule of Prices – Tendered Price</li> <li>• Schedule of Additional Unit Prices</li> <li>• Preliminary Construction Schedule</li> <li>• Experience of Superintendent</li> <li>• List of Subcontractors</li> <li>• Tenderer's Experience in Similar Work</li> <li>• Conflict of Interest Disclosure Statement</li> <li>• Goods and Services Tax Information</li> <li>• Addendum(s)</li> </ul> | _____<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____ |
| <input type="checkbox"/> | Are the documents complete?   | _____  |

***Note: Your Tender may be disqualified if ANY of the applicable foregoing points have not been complied with.***

If submitting by hard copy:

Tenderers should ensure that the Tender is returned in a sealed envelope clearly marked on the outside with:

- |                          |  |
|--------------------------|--|
| <input type="checkbox"/> | Attention: General Manager of Financial Services<br>Regional District of Fraser-Fort George<br>155 George Street<br>Prince George, BC<br>V2L 1P8 |
| <input type="checkbox"/> | Invitation To Tender ES-24-10<br>2024 Landfill Gas well Field Expansion – Construction Project - FBRL  |
| <input type="checkbox"/> | Responding Organization's name and address.  |

If submitting by email:

Tenderer's should ensure that the files should not collectively exceed 30MB. Tenders must be submitted to [purchasing@rdffg.bc.ca](mailto:purchasing@rdffg.bc.ca).

Subject of the file to be:

ES-24-10 2024 Landfill Gas well Field Expansion – Construction Project – FBRL –  
(Insert Responding Tenderer's Name).

## APPENDIX C – TENDER FORM

Date: \_\_\_\_\_

Regional District of Fraser-Fort George  
3<sup>rd</sup> Floor, 155 George Street  
Prince George, BC V2L 1P8

ATTENTION: General Manager of Financial Services

Dear Sir/Madam:

Having carefully examined the Instructions to Tenderers, Form of Tender, Contract Agreement, General Conditions of Contract and Operational Specifications and subsequent written Addendum(s) (if any), and having visited the site(s) for purposes of examining site conditions and having satisfied myself/ourselves as to the sufficiency of the ITT, the undersigned agrees to furnish all labour, transportation, equipment, materials, supervision and services and to do all work necessary for and reasonably incidental, as specified in accordance with the ITT, to do the work.

I/We agree that in consideration of having my/our tender submission considered for the Total Contract Price as shown on the Schedule of Prices, this price is open for acceptance for ninety (90) days from the date of the tender opening and will not be withdrawn during that period of time.

It is understood that payment will be made for the work on the basis of the awarded Contract only and that any approved extras or refunds will be made by mutual agreement between the Regional District and me/us.

I/We agree that the Subcontractor(s) employed will be as listed on the List of Subcontractors and further agree that no changes or additions will be made to the list without written approval of the Regional District.

If I am/we are notified in writing of the acceptance of our tender, I/we agree that within fourteen (14) days of the date of the acceptance notice I/we will enter into a contract and execute an agreement for the stated sum in the form of the specimen submitted to guarantee completion of the contract in accordance with the contract documents and within the time stated in the Tender documents.

I/We agree that the Regional District reserves the right to waive informalities in tenders, reject any or all tenders, or accept the tender deemed most favourable in the interests of the Regional District.

I/We agree that tenders which contain qualifying conditions or otherwise fail to conform to the instructions contained in this ITT may be disqualified or rejected. I/We agree that 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 the ITT, whether or not such non-compliance is material.

Accompanying this Tender, please find our Bid Bond as the Bid Bond in the amount of ten percent (10%) of the contract value.

I/We agree that except for a claim for the reasonable cost of preparation of this tender, by submitting a tender, I/We irrevocably waive any claim, action, or proceeding against the Regional District including, without limitation, any judicial review or injunction application, and any claim against the 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(a) 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 D – TENDER FORM SUMMARY**

Total Schedule of Price \$ \_\_\_\_\_

GST as applicable \$ \_\_\_\_\_

**TOTAL TENDERED PRICE – INCLUDING GST** \$

APPENDIX E – SCHEDULE OF PRICES – TENDERED PRICE



### RDDFG 2024 LFG Wellfield Expansion – Schedule of Prices

Item No.	Item Description	Estimated Quantity	Unit	Unit Rate	Extension
<b>Schedule of Prices</b>					
01 35 29.06/01	Health and Safety Plan	1	LS		
01 71 13/01	Mobilization	1	LS		
01 71 13/02	Startup	1	LS		
01 73 00/01	Surveying	1	LS		
01 73 00/02	Nitrogen Purging – Well Field	1	LS		
01 77 00/01	Demobilization and Closeout	1	LS		
23 05 05/01	Subheader Pipe	240	LM		
23 05 05/02	Lateral Pipe	410	LM		
23 05 05/03	Condensate Trap CT#2 Insulation	1	LS		
23 05 05/04	Condensate Trap CT#4 Insulation	1	LS		
23 05 05/05	Hydrostatic Pressure Testing	1	LS		
23 05 06/01	150 mm Subheader Isolation Valve and Sample Ports	4	Per		
23 05 06/02	150 mm Horizontal Trench Isolation Valve and Sample Ports	3	Per		
33 21 14/01	Vertical Extraction Wells	10	Per		
33 21 14/02	Wellhead Assembly	10	Per		
<b>TOTAL (Excluding Taxes)</b>					
<b>Schedule of Additional Unit Prices</b>					
31 23 10/01	Over Excavation	100	m <sup>3</sup>		
33 21 14/01	Borehole Refusal	30	LM		
<b>TOTAL (Excluding Taxes)</b>					

## APPENDIX F – PRELIMINARY CONSTRUCTION SCHEDULE

Indicate Schedule with Bar Chart, Major Item Descriptions and Time

MILESTONE DATES \_\_\_\_\_

ACTIVITY	CONSTRUCTION SCHEDULE, (Week)									
	1	2	3	4	5	6	7	8	9	10

---

**APPENDIX G – EXPERIENCE OF SUPERVISOR**

Name: \_\_\_\_\_

Experience:

Dates: \_\_\_\_\_

Project Name: \_\_\_\_\_

Responsibility: \_\_\_\_\_

References: \_\_\_\_\_

\*\*\*\*\*

Dates: \_\_\_\_\_

Project Name: \_\_\_\_\_

Responsibility: \_\_\_\_\_

References: \_\_\_\_\_

\*\*\*\*\*

Dates: \_\_\_\_\_

Project Name: \_\_\_\_\_

Responsibility: \_\_\_\_\_

References: \_\_\_\_\_

## APPENDIX H – 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.

Name of Employee	Employee's Experience / Qualifications

Name of Onsite Supervisor	Supervisor's Experience / Qualifications

### APPENDIX I – 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 J – TENDERER'S EXPERIENCE IN SIMILAR WORK

The Contractor is to demonstrate that they have a minimum of five (5) years of current customer service experience as well as staff supervision experience. List professional and recent experience.

Year	Work Performed	Reference Contact (name and phone number)	Value

## APPENDIX K – CONFLICT OF INTEREST STATEMENT

ES-24-10  
2024 Landfill Gas Well Field Expansion  
Construction Project  
Foothills Boulevard Regional Landfill

Tenderer's Name: \_\_\_\_\_

The Tenderer, including its officers, employees, and any person or other entity working on behalf of or in conjunction with, the Tenderer on this Procurement Process:

- ☐ is free of any conflict of interest that could be perceived to improperly influence the outcome of this procurement process.
- ☐ has not, and will not, participate in any improper procurement practices that can provide the Tenderer with an unfair competitive advantage including obtaining and using insider type information to prepare a solicitation offer or participating in bid rigging.
- ☐ has an actual, perceived or potential conflict of interest regarding this procurement process as a result of:

State reason(s) for Conflict of Interest:

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By signing below I certify that all statements made on this form are true and correct to the best of my knowledge.

\_\_\_\_\_  
Print Name of Person Signing Disclosure

\_\_\_\_\_  
Authorized Representative of

\_\_\_\_\_  
Signature of Person Making Disclosure

\_\_\_\_\_  
Date Signed

## APPENDIX L – 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 M – SPECIFICATIONS

## TABLE OF CONTENTS

### General Specifications

Section		Pages
01 11 00	General Requirements	8
01 29 00	Payment Procedures	4
01 31 19	Project Meetings	3
01 32 16	Construction Progress Schedule	2
01 33 00	Submittal Procedures	5
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01 35 43	Environmental Procedures	4
01 42 19	Reference Standards	3
01 45 00	Quality Control	3
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01 55 26	Traffic Control	3
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01 61 00	Common Product Requirements	5
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### Civil Specifications

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23 05 06	Well Field Valves	6
31 23 10	Excavation and Trenching	7
31 23 33.02	Fill	9
33 21 14	Extraction Wells	10

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**PART 1      GENERAL**

**1.1          SCOPE**

- .1 Includes general project description, drawing list, project schedule, and date for substantial performance.

**1.2          SECTION INCLUDES**

- .1 Summary of Work.
- .2 Drawings.
- .3 Project Coordination.
- .4 Furnishing of Documents.
- .5 Construction Records.
- .6 Time.
- .7 Completion Date.
- .8 Schedule.
- .9 Hours of Work.
- .10 Conduct of the Work.
- .11 Oral Agreements.
- .12 Measurement and Payment.

**1.3          SUMMARY OF WORK**

- .1 Title and description of Work:
  - .1 Construction of 2024 Well Field Expansion at the Foothills Boulevard Regional Landfill, located at 6595 Foothills Boulevard. Prince George, British Columbia. The Landfill is situated approximately 6 km north of Prince George and is accessed via Foothills Blvd from the East side of the site.
- .2 The Works of this project include the construction of 2024 Well Field Expansion at the Foothills Boulevard Regional Landfill, for the Regional District of Fraser-Fort George (Owner).
- .3 The construction of the 2024 Well Field Expansion will generally consist of trenching for sub header installation, extraction well installation, well head assembly, upgrading existing condensate trap, and restoration of existing cover.
- .4 Work includes:
  - .1 Mobilization and demobilization of equipment to site, including construction of haul roads or drill pads from the work area to the stockpile areas, and any other haul roads required during construction, prime contractor duties, site safety, and all temporary works and facilities necessary to complete the project.

- .2 Insulate existing condensate trap #2.
- .3 Insulating existing condensate trap #4.
- .4 Excavation of trenches for sub header and lateral pipes.
- .5 Supply and installation of HDPE subheader and lateral pipelines.
- .6 Supply and installation of well heads and vertical extraction wells.
- .7 Supply and installation of the parts needed to upgrade the existing condensate trap.
- .8 Supply and installation of various fittings, valves, tracer wire, warning tape required for the piping assembly.
- .9 Supply and placement of bedding sand, bentonite, and pea gravel for backfilling boreholes and pipe trenches.
- .10 Restoring surface cover to original conditions.
- .11 Surveying, by a registered surveyor in the province of British Columbia as required for the completion of all portions of the Work, which must include a detailed as-built geodetic survey of the entire work area and all the work performed including the top of all placed pipes, locations of wells, location of valves, and top of each backfilled layer. To be provided to and approved by Engineer as construction progresses.

#### 1.4 Drawings

- .1 Drawings issued with and forming part of the contract documents are as follows:

Drawing No.	Revision No.	Date	Title
C101	-	MAY 2024	Existing Conditions
C102	-	MAY 2024	Proposed Layout
C201	-	MAY 2024	Plan and Profile – Subheader and Laterals 1
C202	-	MAY 2024	Plan and Profile – Subheader and Laterals 2
C203	-	MAY 2024	Plan and Profile – Subheader and Laterals 3
C204	-	MAY 2024	Plan and Profile – Subheader and Laterals 4
C301	-	MAY 2024	Details 1 of 4
C302	-	MAY 2024	Details 2 of 4
C303	-	MAY 2024	Details 3 of 4
C304	-	MAY 2024	Details 4 of 4

#### 1.5 PROJECT COORDINATION

- .1 Coordinate progress of the Work, progress schedules, submittals, use of site, temporary utilities and construction facilities and controls.

- .2 Maintain at job site, one copy each of the following:
  - .1 Contract drawings ,specifications and copy of entire contract.
  - .2 Addenda.
  - .3 Reviewed shop drawings.
  - .4 Change Orders/Instructions.
  - .5 Other modifications to Contract.
  - .6 Field test reports.
  - .7 Approved Work schedule.
  - .8 Manufacturer's installation and application instructions.
  - .9 Records of site safety meetings in compliance with the Workplace Safety and Health Act.
  - .10 Approved Health and Safety Plan.

## **1.6 FURNISHING OF DOCUMENTS**

- .1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of Conforming Contract Documents (including 11x17 Construction Plans). If the Contractor requires additional sets of the Bid Opportunity or drawings, they will be supplied in pdf format any hard copies will be supplied to him/her at cost.

## **1.7 CONSTRUCTION RECORDS**

- .1 Construction records shall be the responsibility of the Engineer whom the Owner comes to agreement with. The agreement will be separate from this Tender.
- .2 In addition to requirements in General Conditions, maintain on site one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to the Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
  - .9 Approved Submittals
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Further to the General Conditions, record actual site conditions on a set of marked up Contract Drawings. Identify the Drawings containing the Contractor's records of changes as the "Project Record Copy".
- .6 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .7 Contract Drawings and shop drawings: accurately and legibly mark each item to record actual construction, including:
  - .1 All deviations from Contract Documents caused by site conditions

- .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements
- .3 Locations of all pipes, valves and fittings to be buried.
- .4 Field changes of dimension and detail.
- .5 Changes made by change orders or ordered by the Engineer, including a full description of the change, date of the approved change, and reason for deviation from original design.
- .6 Details not on original Contract Drawings.
- .7 References to related shop drawings and modifications.
- .8 Project Record Copy of Specifications: legibly mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and change orders.
- .9 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .10 Make record documents and Project Record Copies available for inspection on site by the Engineer at all times.
- .11 Not less than four (4) weeks prior to application for the Final Certificate of Completion, submit the Project Record Copy of Drawings to the Engineer for review.

## **1.8 TIME**

- .1 Time is of the essence for this Work.

## **1.9 COMPLETION DATE**

- .1 Complete the Work by **October 31, 2024** (Substantial Performance).

## **1.10 SCHEDULE**

- .1 Schedules Required
  - .1 Construction Progress Schedule will be completed by the Contractor and submitted to the Owner and Engineer within five (5) days after Award of Contract.
- .2 Format
  - .1 Prepare schedules in form of horizontal bar chart.
  - .2 Provide separate bar for each trade or operation.
  - .3 Provide horizontal time scale identifying first work day of each week.
  - .4 Format for listings: Chronological order of start of each item of Work.
  - .5 Indicate the following:
    - .1 Commencement and completion of work of each section of the specification conforming to the Project milestones and daily operation requirements.
    - .2 The major items of work for this contract are as follows:
      - 1. Award.
      - 2. Shop Drawings.
      - 3. Mobilization.

4. Site Preparation.
5. LFG Well installation.
6. LFG header and sub header installation.
7. Restoring cover to original condition.
8. Insulation of existing condensate trap #2.
9. Demobilization.
- .3 Final completion date within time period required by Contract Documents.

## **1.11 HOURS OF WORK**

- .1 The Contractor shall carryout the Work during the daylight hours of 7 AM to 5 PM excluding statutory holidays and must not create a nuisance or disturb the peace unnecessarily. Permission to work outside of these times must be obtained from the Engineer and be conducted at no additional cost to the Contract.
- .2 The Contractor shall obtain the necessary permission and permits from the Owner to work on Sundays, nights, or statutory holidays, when this is necessary.

## **1.12 CONDUCT OF THE WORK**

- .1 Protection and Safety Precautions
  - .1 Comply with all requirements of provincial occupational health and safety regulations.
  - .2 The Contractor shall provide the necessary precautions to safeguard against any fire or explosion hazards during construction. The Contractor shall further provide adequate safety protection for personnel engaged on this Work and for all others who are exposed to the Work environment under this Contract.
  - .3 Adequate and sufficient guards for the prevention of accidents shall be installed and maintained by the Contractor at the construction site. The Contractor shall further provide adequate and sufficient safety lighting at night and during periods of poor visibility.
  - .4 The Contractor shall assume full responsibility for, and be liable for, any loss, injury or damage incurred to abutting property, structures, vehicles, pedestrians and animals caused through neglect by the Contractor or his employees during construction operations.
- .2 Cooperation with Others
  - .1 The Contractor's attention is directed to the fact that other contractors and landfill personnel may be working in the areas on or adjoining the site.
  - .2 The activities of these entities may coincide with the Contractor's execution of the Work, and it will be the Contractor's responsibility to cooperate to the fullest extent with personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of this Contract.
  - .3 The Contractor must be respectful of area residents with respect to not working outside the hours of work and minimizing noise.
- .3 Existing Services and Utilities
  - .1 No responsibility will be assumed by the Owner or the Engineer for correctness or completeness of the Drawings with respect to the existing utilities, pipes or other objects either underground or on the surface, and neither the Owner nor the Engineer shall be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.



- .2 The Contractor will arrange for the relocation of existing utilities, poles, traffic signals, signs and lamp posts which interfere with the proposed construction where noted on the construction drawings. The Contractor shall make the necessary arrangements for and pay the cost of all relocations required.
- .4 Contractor to Notify Utilities and Other Authorities
  - .1 Make timely application to authorities for required permits before starting work on a public right-of-way.
  - .2 Obtain utility clearances for underground plant in the vicinity of the Work before starting construction.
  - .3 Arrange with utilities to provide Safety Watch where required during construction.
- .5 Existing Trees, Shrubbery, Naturalized Plants Etc.
  - .1 No trees whatsoever shall be cut down without the written permission of the Engineer. Trees, shrubbery, fences, poles and all other private property and surface structures shall be protected unless their removal is shown on the drawings or authorized by the Engineer. When it is necessary to cut roots and tree branches, such cutting shall be done under the supervision and direction of the Engineer.
- .6 Damage to Streets and Structures
  - .1 Other than required to be done by the Contractor under the work of this Contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing pavements, streets, roads, boulevards, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the site of the Work. For all damage incurred thereto in the performance of the Work, the Contractor shall upon instructions from and to the satisfaction of the Engineer and the owners thereof, either replace or repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the Engineer and the owners thereof and the costs of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the Owner from all claims made directly or indirectly against it in respect to any such damage.
  - .2 Damage by the Contractor to existing utilities in the performance of the Work, the owners of the utilities gas pipes, electrical wires, communication cables, conduits will carry out the replacement or repairs owned of the utility. The Contractor shall still be responsible for the costs of the repairs.
- .7 Surface Restoration Following Underground Works
  - .1 Unless otherwise specified, the Contractor shall be responsible for all surface restoration equal to or better than the original condition.
  - .2 The Contractor shall make himself fully aware of the conditions in the Work area prior to submitting his Tender and no payment will be made for any Work required as per this item.
  - .3 Arrangements shall be made by the Contractor with the Authority concerned regarding restoration of surfaces, where such surface restoration is not specifically detailed herein. The Contractor shall bear the full expense involved in replacing the surfaces to the satisfaction of the Authority having jurisdiction.
  - .4 It shall be the Contractor's responsibility to maintain all surfaces over the pipe trench, including pavement, boulevards, curbs, sidewalks, culverts, etc., to the satisfaction of the Authorities until permanent repairs have been made.
  - .5 All ditches damaged during construction shall be graded and restored upon completion of the installation to conditions equal or better prior to construction. All costs for restoration is incidental to the Works performed.

- .6 The Contractor will also be responsible to maintain the drainage of the existing ditches during the construction period. Surface restoration and clean-up shall be done in a timely matter of two weeks behind the installation crews.
- .8 Protection of Survey Bars
  - .1 The Contractor shall not disturb, deface, alter, destroy or remove any survey post, monument or bar and if the same shall occur, then, and in every such case, the Engineer shall have such post, monument or bar replaced at the expense of the Contractor and to the satisfaction of the Owner. The Contractor shall pay all costs and expenses incurred in connection therewith.
  - .2 If the Contractor is in doubt about the location of the bars in the field, he will contact the Engineer before doing any Work in the area. Other survey posts, monuments, or bars may exist and the Contractor shall exercise care at intersections and other places where such survey posts, monuments or bars may exist.
  - .3 Where a survey bar lies in the line of the proposed work and must be disturbed, the Contractor shall provide the Engineer with seventy-two (72) hours notice to have the survey bar referenced and relocated. The survey bar shall be referenced and replaced at no cost to the Contractor.
- .9 Continued Facility Operation
  - .1 The Foothills Boulevard Regional Landfill shall remain operational throughout the duration of this Contract.
  - .2 Keep temporary interruptions to roadways and site infrastructure to an absolute minimum. Make such interruptions at the convenience of the occupants and obtain the approval of the Engineer, as to the time and duration.
  - .3 Any temporary roadway closures shall be coordinated with the Engineer and shall not impede access to the Site by the public or operations staff. Any temporary road closures shall be undertaken outside of the landfill's normal operating hours or by providing temporary alternative site access as approved by the Engineer.

### **1.13 ORAL AGREEMENTS**

- .1 In the case of misunderstandings, disputes, or interpretation of the Contract Documents, oral agreements will not be considered.

### **1.14 CHANGES TO THE WORK**

- .1 Refer to CCDC 4, Part 6, "Changes in the Work" regarding changes to the Work.
- .2 Addendum: issued prior to Tender closing to provide for certain revisions as noted therein. All such revisions will become part of the Contract and the effects shall be included in the Tender Price. The Work shall be performed in accordance with the Contract Documents.
- .3 Bid Revisions: issued after receipt of Tenders but prior to executing the Agreement to provide a detailed description of Contract Document amendments mutually agreed upon between the Owner and the successful Bidder. The Work shall be performed in accordance with the Contract Documents.
- .4 Contemplated Change Notice (CCN): issued after award of Contract, does NOT constitute an order to perform the change but is a notice of a proposed change only. Submit to the Owner within fourteen (14) days after receipt of "Contemplated Change Notice", a statement of cost adjustments and effect upon construction schedule required by the proposed change. Itemize statement in accordance with all items separately listed, and provide explanations for the proposed cost adjustments.

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**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**PART 4      MEASUREMENT AND PAYMENT**

- .1      No separate payment will be made for work under this Section.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1        This Section describes the basis of payment that will apply to this contract.

**1.2            SECTION INCLUDES**

- .1        Reference Standards.
- .2        Measurement.
- .3        Rejected Products.
- .4        Application for Progress Payment.
- .5        Schedule of Values.
- .6        Preparing Schedule of Unit Price Table Items.
- .7        Progress Payment.
- .8        Substantial Performance of Work.
- .9        Payment of Holdback Upon Substantial Performance of Work.
- .10      Progressive Release of Holdback.
- .11      Final Payment.
- .12      Measurement and Payment.

**1.3            REFERENCE STANDARDS**

- .1        Owner/Contractor Agreement.

**1.4            MEASUREMENT**

- .1        Measurement for Unit Price Work: As specified in individual Sections. Quantities indicated in the Schedule of Prices are for bidding and contract purposes only and are approximate. Quantities of material furnished and/or work performed as verified by Engineer determine payment.

**1.5            REJECTED PRODUCTS**

- .1        Non-payment for rejected products: Payment will not be made for any of the following:
  - .1        Products determined as unacceptable before or after placement.
  - .2        Products not completely unloaded from the transporting vehicle.
  - .3        Products placed beyond the lines and levels of the required Works.
  - .4        Products remaining after completion of the Works.
  - .5        Loading, hauling, and disposing of rejected products.

**1.6 APPLICATIONS FOR PROGRESS PAYMENT**

- .1 Make applications for payment on account as monthly as Work progresses.
- .2 Date applications for payment last day of agreed monthly payment period and ensure amount claimed is for value, proportionate to amount of Contract, of Work performed and Products delivered to Place of Work at that date.
- .3 Submit to Engineer, at least 14 days before first application for payment. Schedule of values for parts of Work, aggregating total amount of Contract Price, to facilitate evaluation of applications for payment.

**1.7 SCHEDULE OF VALUES**

- .1 Provide schedule of values supported by evidence as Engineer may reasonably direct and when accepted by Engineer, be used as basis for applications for payment.
- .2 Include statement based on schedule of values with each application for payment.
- .3 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as Engineer may reasonably require to establish value and delivery of products.

**1.8 PREPARING SCHEDULE OF UNIT PRICE TABLE ITEMS**

- .1 Submit separate schedule of unit price items of Work requested in Tender Form.
- .2 Make form of submittal parallel to Schedule of Values, with each line item identified same as line item in Schedule of Values. Include in unit prices only:
  - .1 Cost of material.
  - .2 Delivery and unloading at site.
  - .3 Sales taxes.
  - .4 Installation, overhead and profit.
- .3 Ensure unit prices multiplied by quantities given equal material cost of that item in Schedule of Prices.

**1.9 PROGRESS PAYMENT**

- .1 Engineer will issue to Owner, no later than 10 days after receipt of an application for payment, certificate for payment in amount applied for or in such other amount as Engineer determines to be due. If Engineer amends application, Engineer will give notification in writing giving reasons for amendment.

**1.10 SUBSTANTIAL PERFORMANCE OF WORK**

- .1 Prepare and submit to Engineer comprehensive list of items to be completed or corrected and apply for a review by Engineer to establish Substantial Performance of Work or substantial performance of designated portion of Work when Work is substantially performed if permitted by lien legislation applicable to Place of Work designated portion which Owner agrees to accept separately is substantially performed. Failure to include items on list does not alter responsibility to complete Contract.

- .2 No later than 10 days after receipt of list and application, Engineer will review Work to verify validity of application, and no later than 7 days after completing review, will notify Contractor if Work or designated portion of Work is substantially performed.
- .3 Engineer: state date of Substantial Performance of Work or designated portion of Work in certificate.
- .4 Immediately following issuance of certificate of Substantial Performance of Work, in consultation with Engineer, establish reasonable date for finishing Work.

#### **1.11 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK**

- .1 After issuance of certificate of Substantial Performance of Work:
- .2 Submit application for payment of holdback amount.
- .3 Submit sworn statement that accounts for labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in Substantial Performance of Work and for which Owner might in be held responsible have been paid in full, except for amounts properly retained as holdback or as identified amount in dispute.
- .4 After receipt of application for payment and sworn statement, Engineer will issue certificate for payment of holdback amount.
- .5 Where holdback amount has not been placed in a separate holdback account, Owner will, 10 days prior to expiry of holdback period stipulated in lien legislation applicable to Place of Work, place holdback amount in bank account in joint names of Owner and Contractor.
- .6 Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work. Where lien legislation does not exist or apply, holdback amount is due and payable in accordance with other legislation, industry practice, or provisions which may be agreed to between parties. Owner may retain out of holdback amount sums required by law to satisfy liens against Work or, if permitted by lien legislation applicable to Place of Work, other third party monetary claims against Contractor which are enforceable against Owner.

#### **1.12 PROGRESSIVE RELEASE OF HOLDBACK**

- .1 Where legislation permits, if Engineer has certified in writing that Work of subcontractor or supplier has been performed prior to Substantial Performance of Work, Owner will pay holdback amount retained for such subcontract Work, or products supplied by such supplier, on day following expiration of holdback period for such Work stipulated in lien legislation applicable to Place of Work.
- .2 In addition to provisions of preceding paragraph, and certificate wording, ensure that such subcontract Work or products is protected pending issuance of final certificate for payment and be responsible for correction of defects or Work not performed regardless of whether or not such was apparent when such certificates were issued.

#### **1.13 FINAL PAYMENT**

- .1 Submit application for final payment when Work is completed.

- .2 Engineer will, no later than 10 days after receipt of application for final payment, review Work to verify validity of application. Engineer will give notification that application is valid or give reasons why it is not valid, no later than 7 days after reviewing Work.
- .3 Engineer will issue final certificate for payment when application for final payment is found valid.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1        Arrange and conduct meetings to communicate vital information between Owner, Engineer, Contactor and Major Subcontractors.

**1.2            SECTION INCLUDES**

- .1        Related Requirements.
- .2        Administrative.
- .3        Preconstruction Meetings.
- .4        Progress Meetings.
- .5        Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 52 00 - Construction Facilities.
- .2        Section 01 56 00 - Temporary Barriers and Enclosures.

**1.4            ADMINISTRATIVE**

- .1        Schedule and administer project meetings throughout the progress of the work at the call of the Engineer.
- .2        Engineer shall prepare agenda for meetings, record the minutes of progress meetings, include significant proceedings and decisions. and identify "action by" parties and date for completion of duty.
- .3        Engineer shall distribute written notice of each meeting 5 days in advance of meeting date to Contractor.
- .4        The Contractor shall provide physical space, table and chairs for all participants.
- .5        Representatives of Contractor, Subcontractor and Suppliers attending meetings must be qualified and authorized to act on behalf of the party each represents.

**1.5            PRECONSTRUCTION MEETING**

- .1        Engineer will schedule and administer a pre-construction meeting at the Site after the date of the Notice to Proceed and prior to start of construction.
- .2        Engineer will make arrangements for meeting, prepare agenda with copies for participants, and preside at meeting. Provide data required to Engineer and be prepared to discuss all items on the agenda.
- .3        Minimum Attendance Required: Contractor, Contractor's health and safety officer, and major Subcontractors.



- .4 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .5 Agenda will include, but will not necessarily be limited to, the following:
  - .1 Appointment of official representative of participants in the Work.
  - .2 Schedule of Work.
  - .3 Schedule of submission of shop drawings.
  - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
  - .5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
  - .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
  - .7 Owner provided products.
  - .8 Monthly progress claims, administrative procedures, photographs, hold backs.
  - .9 Appointment of inspection and testing agencies or firms.
  - .10 Insurances, transcript of policies.
  - .11 Designation of responsible personnel.
  - .12 Lines of authority and communication.
  - .13 Health and safety.
  - .14 Submittal list and schedule.
  - .15 Use of the Site for storage, vehicle parking, access routes, and other Site requirements.
  - .16 Coordination with Owner.
- .6 Procedures for processing field decisions, submittals, substitutions, applications for payments, proposal requests, Field Orders, Work Change Directives, Change Orders, and closeout procedures

## **1.6 PROGRESS MEETINGS**

- .1 Schedule and administer progress meetings throughout the progress of the Work every week.
- .2 Contractor, major subcontractors involved in work, Engineer and Owner are to be in progress.
- .3 Notify parties minimum 5 days prior to meetings.
- .4 Engineer to record minutes of meetings and circulate to attending parties and affects parties not in attendance within 5 days after meeting.
- .5 Agenda for progress meetings to include the following:
  - .1 Review and approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems, and conflicts.
  - .4 Problems which impede construction schedule.
  - .5 Review of off-site fabrication delivery schedule.
  - .6 Corrective measures and procedures to regain projected schedule.

- .7 Revisions to construction schedule.
- .8 Progress, schedule, during succeeding work period.
- .9 Review submittal schedules: expedite as required.
- .10 Maintenance of quality standards.
- .11 Pending changes and substitutions.
- .12 Review proposed changes for effect on construction schedule and on completion date.
- .13 Other business.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SECTION INCLUDES**

- .1      Schedule.
- .2      Progress Reports.
- .3      Manpower/Overtime.

**1.2            SCHEDULE**

- .1      Within ten (10) days after acceptance of Tender, prepare and submit a detailed schedule for review to the Owner and Engineer.
- .2      Schedule shall show dates of commencement and completion of various parts of the Work, ordering and delivery dates of Products, phasing and timing for various subcontracts and all other detailed information to the satisfaction of the Owner and Engineer.
- .3      All orders for materials shall be placed in ample time for adherence to the schedule.
- .4      Make special note of those times when extra work shifts are required to complete the Work.
- .5      Prepare definitive schedules for the following specific items:
  - .1          Product delivery.
  - .2          Schedule of all shop drawings required.
  - .3          Schedule of all samples required.
  - .4          Schedule of material deliveries.
  - .5          Schedule of construction phases.
  - .6          Requirements for special site instructions, etc.
- .6      Revise and update schedule and submit to Owner and Engineer every two (2) weeks.

**1.3            PROGRESS REPORTS**

- .1      Maintain an accurate record of the progress of the Work.
- .2      Records shall state dates of commencement and percentage of Work completed by trades for the different parts of the Work and include particulars regarding daily weather conditions, number of workers for each trade, percentage of Work completed weekly by trades and shall relate to the Schedule. Make records available to Engineer upon request.

**1.4            MANPOWER/OVERTIME**

- .1      Should the Work fail to progress according to the approved progress schedule, work such additional time (including weekends and holidays), employ additional workers, or both, as may be required to bring the Work back on schedule, at no additional cost to the Owner.
- .2      Night work will be permitted only with written permission of the Engineer and in accordance with Owner and WorkSafeBC Regulations. Provide sufficient lighting to permit night work to be performed safely and satisfactorily.

**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**PART 4      MEASUREMENT AND PAYMENT**

- .1      No separate payment will be made for work under this Section.

**END OF SECTION**

**PART 1      GENERAL**

**1.1          SCOPE**

- .1      This Section covers procedures and requirements for submission of documents, data, drawings and samples related to the Works.

**1.2          SECTION INCLUDES**

- .1      Administrative.
- .2      Shop Drawings and Product Data.
- .3      Samples.
- .4      Measurement and Payment.

**1.3          ADMINISTRATIVE**

- .1      Submit to Engineer submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2      Do not proceed with Work affected by submittal until review is complete.
- .3      Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4      Where items or information is not produced in SI Metric units converted values are acceptable.
- .5      Review submittals prior to submission to Engineer. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6      Notify Engineer, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7      Verify field measurements and affected adjacent Work are coordinated.
- .8      Contractor's responsibility for errors and omissions in submission is not relieved by Engineer's review of submittals.
- .9      Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Engineer's review.
- .10     Keep one reviewed copy of each submission on site.

#### **1.4 SHOP DRAWINGS AND PRODUCT DATA**

- .1 The term shop drawings means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 When drawings required the seal of a Professional Engineer, such drawings will be stamped and signed by professional engineer registered or licensed in BC, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 5 days for Engineer's review of each submission.
- .5 Adjustments made on shop drawings by Engineer are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Engineer prior to proceeding with Work.
- .6 Make changes in shop drawings as Engineer may require, consistent with Contract Documents. When resubmitting, notify Engineer in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .8 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.

- .7 Operating weight.
- .8 Wiring diagrams.
- .9 Single line and schematic diagrams.
- .10 Relationship to adjacent work.
- .9 After Engineer's review, distribute copies.
- .10 Submit electronic copy or 4 printed copies of shop drawings for each requirement requested in specification Sections and as Engineer may reasonably request.
- .11 Submit electronic copy or 4 printed copies of product data sheets or brochures for requirements requested in specification Sections and as requested Engineer where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit electronic copy or 4 printed copies of test reports for requirements requested in specification Sections and as requested by Engineer.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Equipment testing must have been within 2 years of date of contract award for project.
  - .3 Materials testing must have been within 6 months of the date of contract award for project.
- .13 Submit electronic copy or 4 printed copies of certificates for requirements requested in specification Sections and as requested by Engineer.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic copy or 4 printed copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Engineer.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit electronic copy or 4 printed copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Engineer.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit electronic or 4 printed copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Engineer.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
  - .1 Shop drawings will be returned to the Contractor with one (1) of the following notations:

- .1 When stamped "ACCEPTED", issue construction copies as required for execution of the Work.
- .2 When stamped "ACCEPTED AS NOTED" make the necessary revisions consistent with the Contract before issuing for Construction.
- .3 When stamped "REVISE AND RE-SUBMIT", make the necessary revisions, consistent with the Contract, and submit again for review.
- .4 When stamped "REJECTED", submit other drawings, brochures, etc., for review consistent with the Contract.
- .5 Only shop drawings bearing "ACCEPTED" or "ACCEPTED AS NOTED" and have been stamped "ISSUED FOR CONSTRUCTION" shall be used on the Work and for fabrication of the products unless otherwise authorized by the Engineer.
- .2 After submittals are stamped "ACCEPTED" or "ACCEPTED AS NOTED", no further revisions are permitted unless re-submitted to the Engineer for further review.
- .3 Any adjustments made on shop drawings by the Engineer are not intended to change the Contract Price. If it is deemed that such adjustments affect the Contract Price, clearly state as such in writing prior to proceeding with fabrication and installation of the work.
- .4 Fabrication of products shall not commence until shop drawings have been reviewed by the Engineer and found not to require re-submission.
- .5 Shop drawings indicating design requirements not included in the Contract Documents require the seal of a Professional Engineer, registered in the province of BC. Engineering calculations must be submitted for review, if requested, and must be signed by a Professional Engineer.

## **1.5 SAMPLES**

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Engineer.
- .3 Notify Engineer in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples Engineer are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Engineer prior to proceeding with Work.
- .6 Make changes in samples which Engineer may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.



**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**PART 4      MEASUREMENT AND PAYMENT**

- .1      No separate payment will be made for work under this Section.

**END OF SECTION**

**PART 1 GENERAL**

**1.1 SCOPE OF WORK**

- .1 Develop a written Site Specific Health and Safety Plan (HASP) prior to commencing any on Site work and continue to implement, maintain, and enforce the plan until final demobilization from the Site. Submit HASP to Owner and Engineer for review and acceptance.

**1.2 SECTION INCLUDES**

- .1 Related Requirements.
- .2 Reference Standards.
- .3 Action and Informational Submittals.
- .4 Filing of Notice.
- .5 Safety Assessment.
- .6 Meetings.
- .7 General Requirements.
- .8 Responsibility.
- .9 Compliance Requirements.
- .10 Unforeseen Hazards.
- .11 Health and Safety Coordinator.
- .12 Posting of Documents.
- .13 Correction of Non-Compliance.
- .14 Work Stoppage.
- .15 Measurement and Payment.

**1.3 RELATED REQUIREMENTS**

- .1 Section 01 29 00 – Payment Procedures.
- .2 Section 01 33 00 – Submittal Procedures.

**1.4 REFERENCE STANDARDS**

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Province of BC – Occupational Health and Safety Act.

**1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1 Results of site specific safety hazard assessment.
  - .2 Results of safety and health risk or hazard analysis for site tasks and operation.
- .3 Engineer will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Engineer within 5 days after receipt of comments from Engineer.
- .4 Engineer's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

**1.6 FILING OF NOTICE**

- .1 File notice of project with Provincial authorities prior to beginning of Work as required.

**1.7 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

**1.8 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Owner and Engineer prior to commencement of Work.

**1.9 GENERAL REQUIREMENTS**

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

Owner and/or Engineer may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

**1.10 RESPONSIBILITY**

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan

**1.11 COMPLIANCE REQUIREMENTS**

- .1 Comply with Occupational Health and Safety Act, General Safety Regulation.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

## **1.12 SITE CHARACTERIZATION**

- .1 Work at the Site may involve contact with solid waste and associated contaminants including but not limited to landfill leachate and landfill gas.
- .2 Landfill Gas:
  - .1 Landfill gas may be present in the landfill and in the soil adjacent to the landfill during excavation.
  - .2 Landfill gas results from the decomposition of refuse and is primarily composed of approximately 50 percent methane and 50 percent carbon dioxide, with trace gases including mercaptans, hydrocarbons, solvents, water vapor, and hydrogen sulfide.
  - .3 Methane is explosive in concentrations between 5 and 15 percent by volume in air.
  - .4 Methane, carbon dioxide, and nitrogen are simple asphyxiants.
  - .5 Trace gases in landfill gas may be toxic and odorous. Odorous gases cause nausea in some persons. Toxic gases may also be present at concentrations above or below the levels deemed safe for human exposure; there is always a potential for levels to be sufficient to cause permanent and irreversible damage and even death.
- .3 Landfill Leachate: Landfill leachate is wastewater containing organic and inorganic compounds that is produced when water and other liquids seep through the landfilled waste. Landfill leachate characteristics and rate of production vary based on waste type and climate. Landfill leachate may be present in all excavations within, and immediately adjacent to, the landfilled waste. General safety considerations used for handling non-hazardous wastes should be used where there is the potential to come into contact with landfill leachate.
- .4 Landfill Stability: Landfilled waste must be considered prone to instability that may cause slope or sidewall failure due to the high void ratio, irregularity of material composing the waste, and a typically lesser degree of compaction than soil.
- .5 A compressed air line, with an operating pressure of up to 100 PSI is located adjacent to the perimeter landfill gas header pipe which runs around the limit of waste as shown on drawings.

## **1.13 UNFORESEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of BC and advise Engineer and Owner verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety Coordinator and follow procedures in accordance with Acts and Regulations of BC and advise Engineer and Owner verbally and in writing.

## **1.14 HEALTH AND SAFETY COORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:
  - .1 Have site-related working experience specific to activities associated with building construction and earthworks.
  - .2 Have working knowledge of occupational safety and health regulations.

- .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .5 Be on site during execution of Work and report directly to and be under direction of the site supervisor].

**1.15 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of BC, and in consultation with Engineer.

**1.16 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Owner or Engineer.
- .2 Provide Owner and Engineer with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Owner or Engineer may stop Work if non-compliance of health and safety regulations is not corrected.

**1.17 WORK STOPPAGE**

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

**4.1 GENERAL**

- .1 Refer to Section 01 29 00 – Payment Procedures.

**4.2 HEALTH AND SAFETY PLAN**

- .1 Schedule of Prices Item No. 01 35 29.06/01
- .2 Payment Basis: Lump sum price. Includes development, submittal, and implementation of Health and Safety Plan.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE OF WORK**

- .1        Be responsible for environmental control requirements for the overall site within the limits of the contract, including monitoring of erosion and sedimentation control and maintenance.

**1.2            SECTION INCLUDES**

- .1        Related Requirements.
- .2        Reference Standards.
- .3        Definitions.
- .4        Submittals.
- .5        Fires.
- .6        Disposal of Waste.
- .7        Drainage.
- .8        Site Clearing and Plant Protection.
- .9        Work Adjacent to Waterways.
- .10      Pollution Control.
- .11      Notification.
- .12      Cleaning.
- .13      Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 33 00 – Submittal Procedures.
- .2        Section 01 73 00 – Execution.
- .3        Section 01 77 00 – Closeout Procedures and Submittals.

**1.4            DEFINITIONS**

- .1        Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
- .2        Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

**1.5 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

**1.6 FIRES**

- .1 Fires and burning of rubbish on site is not permitted.

**1.7 DISPOSAL OF WASTE**

- .1 Do not bury waste on-Site unless approved by Owner.
- .2 Waste to be hauled and disposed of at the active landfill area as directed by Owner.
- .3 Do not dispose of waste or volatile materials, such as spirits, oil or paint thinner into waterways, storm or sanitary sewers.

**1.8 DRAINAGE**

- .1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan.
- .2 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .3 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .4 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.
- .6 The Contractor shall provide erosion control devices such as silt fences as required to satisfy local authority requirements, or as directed by ENGINEER.

**1.9 SITE CLEARING AND PLANT PROTECTION**

- .1 Protect trees and plants on site and adjacent properties.
- .2 Protect trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 metre minimum.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.
- .4 Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .5 Minimize stripping of topsoil and vegetation.
- .6 Restrict tree removal to areas designated by Owner.

**1.10 WORK ADJACENT TO WATERWAYS**

- .1 Construction equipment to be operated on land only.
- .2 Use waterway beds for borrow material only after written receipt of approval from Engineer.
- .3 Waterways to be kept free of excavated fill, waste material and debris.
- .4 Design and construct temporary crossings to minimize erosion to waterways.
- .5 Do not skid logs or construction materials across waterways.
- .6 Avoid indicated spawning beds when constructing temporary crossings of waterways.

**1.11 POLLUTION CONTROL**

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
  - .1 Provide temporary enclosures where indicated.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

**1.12 NOTIFICATION**

- .1 Engineer and/or Owner will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection Plan.
- .2 Contractor: after receipt of such notice, inform Engineer and/or Owner of proposed corrective action and take such action for approval by Engineer and/or Owner.
  - .1 Take action only after receipt of written approval by Engineer and/or Owner.
- .3 Engineer and/or Owner will issue stop order of work until satisfactory corrective action has been taken.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.1 CLEANING**

- .1 Progress Cleaning:
  - .1 Site cleaning in accordance with Section 01 73 00 – Execution.
  - .2 Leave Work area clean at end of each day.



- .2 Bury rubbish and waste materials on site where directed after receipt of written approval from Owner.
- .3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.
- .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 77 00 – Closeout Procedures and Submittals.

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section.

**END OF SECTION**

## **PART 1      GENERAL**

### **1.1      LATEST EDITIONS**

- .1 All references to specifications, standards, or methods of technical associations refer to the latest adopted revision, including all amendments, in effect on the date of submission of bids, except where a date or issue is specifically noted.

### **1.2      ABBREVIATIONS**

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
API	American Petroleum Institute
ARI	Air Conditioning and Refrigeration Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWMAC	Architectural Woodworkers Manufacturers Association of Canada
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CAN	Canadian National Standard
CBM	Certified Ballast Manufacturers
CBTIC	Clay Brick and Tile Institute of Canada
CEC	Canadian Electrical Code
CEMA	Canadian Electrical Manufacturers Association
CGA	Canadian Gas Association
CGRA	Canadian Good Roads Association
CGSB	Canadian General Standards Board
CISC	Canadian Institute of Steel Construction
CITC	Canadian Institute of Timber Construction
CLA	Canadian Lumbermen Association
CMAA	Crane Manufacturers Association of America
CMHC	Canada Mortgage and Housing Corporation
CPCA	Canadian Painting Contractors Association
CPCI	Canadian Prestressed Concrete Institute
CRCA	Canadian Roofing Contractors Association

CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSSBI	Canadian Sheet Steel Building Institute
CUA	Canadian Underwriters Association
CWB	Canadian Welding Bureau
CWC	Canadian Wood Council
CSPI	Corrugated Steel Pipe Institute
EEI	Edison Electric Institute
EEMAC	Electrical and Electronic Manufacturers of Canada
FFPC	Federal Fire Prevention Committee
FM	Factory Mutual Engineering Corporation
IAO	Insurers' Advisory Organization
IBRM	Institute of Boiler and Radiator Manufacturers
IEC	International Electrotechnical Commission
IEE	Institution of Electrical Engineers (U.K.)
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IGMAC	Insulated Glass Manufacturers Association of Canada
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ISO	International Standardization Organization
LEMA	Lighting Equipment Manufacturers Association
LTIC	Laminated Timber Institute of Canada
MMA	Millwork Manufacturers Association
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NBC	National Building Code of Canada
NEC	National Electrical Code
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NLGA	National Lumber Grade Authority
NSF	National Sanitation Foundation
OECI	Overhead Electrical Crane Institute
OH & S	Occupational Health and Safety
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
RLM	RLM Standards Institute
RTAC	Road and Transportation Association of Canada
SAE	Society of Automotive Engineers
SBI	Steel Boilers Institute
ESABC	Employment Standards Act of British Columbia
SJI	Steel Joist Institute

SSPC	Steel Structures Painting Council
TTMAC	Terrazzo, Tile and Marble Association of Canada
ULC	Underwriters' Laboratories of Canada
USFG	United States Federal Government
WCB	Workers' Compensation Board

**1.3 CONFORMANCE**

- .1 Conform to these standards, in whole or in part as specifically requested in the specifications.
- .2 If there is question as to whether any product or system is in conformance with applicable standards, the Engineer reserves the right to have such products or systems tested to prove or disprove conformance.
- .3 The Owner will bear testing costs where the results of testing confirm conformance. In the event of determination of non-conformance, the Contractor will be required to bear all costs.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for Work under this Section.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1        This Section covers the portions of Work that involve Quality Control by Contractor to manage, control, and document activities to ensure compliance with the Contract Documents, including, but not limited to inspections, testing, and administrative requirements.

**1.2            SECTION INCLUDES**

- .1        Inspection.
- .2        Independent Inspection Agencies.
- .3        Access to Work.
- .4        Quality Assurance
- .5        Procedures.
- .6        Rejected Work.
- .7        Reports.
- .8        Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 33 00 – Submittal Procedures.
- .2        Section 01 73 00 – Execution.
- .3        Section 23 05 05 – Well Field Pipework.
- .4        Section 31 23 33.02 – Fill.

**1.4            INSPECTION**

- .1        Allow Engineer and/or Owner access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2        Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Engineer Instructions, or law of Place of Work.
- .3        If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4        Contractor is responsible for providing all quality assurance submittals, inspections, and testing required.

- .5 Owner's Engineer may order any part of the Work to be reviewed or inspected if Work is suspected to be not in accordance with Contract Documents.
- .6 If, upon review such work is found not in accordance with Contract Documents, correct such Work and pay cost of additional review and correction.

## **1.5 INDEPENDENT INSPECTION AGENCIES**

- .1 Unless otherwise allowed for in the Contract, Independent Inspection/Testing Agencies will be engaged by Contractor for purpose of conducting Quality Control Testing and inspecting the Work. Cost of such services will be borne by Contractor. The testing agency shall report all test results directly to the Engineer with original copies. Photocopies addressed to the Contractor will be unacceptable.
- .2 The intention of this Testing is for determination by the Engineer of satisfactory compliance with the Contract Documents, and completed work for progress payment.
- .3 It is the Contractor's responsibility to carry out whatever additional testing is required to ensure that the work is in conformance with the Contract Documents.
- .4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Engineer at no cost to Engineer/Owner. Pay costs for retesting and reinspection.

## **1.6 ACCESS TO WORK**

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

## **1.7 QUALITY ASSURANCE**

- .1 In addition to Contractor Quality Control, the Engineer may take samples and conduct laboratory tests on materials and the finished product. Such tests are for the purpose of assuring compliance with the Contract Documents. If any test results indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.
- .2 The Engineer may, at their sole discretion, make available test results to the Contractor for information purposes. The Contractor makes use of this information at their own discretion and cannot rely on the correctness or accuracy of those results as a substitute for a quality control program.

## **1.8 PROCEDURES**

- .1 Notify Engineer 72 hours in advance of requirement for tests, in order that attendance arrangements can be made.

- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

**1.9 REJECTED WORK**

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

**1.10 REPORTS**

- .1 Submit daily summary report to Engineer. Report to include at minimum date, hours worked, weather, daily observations and highlights / task performed, daily QC testing summary and samples taken, two to three representative photos. All reports and testing results to be available to Engineer and Owner.
- .2 Submit 3 copies of inspection and test reports to Engineer.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1        This Section covers Temporary Utilities required in a short-term capacity for construction of the Works.

**1.2            SECTION INCLUDES**

- .1        Related Requirements.
- .2        Reference Standards.
- .3        Submittals.
- .4        Installation and Removal.
- .5        Dewatering.
- .6        Water Supply.
- .7        Temporary Heating and Ventilation.
- .8        Temporary Power and Light.
- .9        Temporary Communication Facilities.
- .10       Fire Protection.
- .11       Temporary Sanitary Facilities.
- .12       Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 33 00 – Submittal Procedures.
- .2        Section 0 71 13 – Mobilization and Startup.

**1.4            SUBMITTALS**

- .1        Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

**1.5            INSTALLATION AND REMOVAL**

- .1        Provide temporary utilities controls in order to execute work expeditiously.
- .2        Remove from site all such work after use.



**1.6 DEWATERING**

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

**1.7 WATER SUPPLY**

- .1 Water is available for construction use only as coordinated with RDFFG from on-site fire hydrant.
- .2 Contractor shall be responsible for supplying all potable water required for constructing the Works, including potable water required to achieve specified compaction density.

**1.8 TEMPORARY HEATING AND VENTILATION**

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel only as approved by Owner due to landfill gas.
- .2 Construction heaters used inside building must be vented to outside or be flameless (vent free) type only as approved by Owner due to landfill gas. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation only as approved by Owner due to landfill gas in enclosed areas as required to:
  - .1 Facilitate progress of Work.
  - .2 Protect Work and products against dampness and cold.
  - .3 Prevent moisture condensation on surfaces.
  - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
  - .5 Provide adequate ventilation to meet health regulations for safe working environment.

**1.9 TEMPORARY POWER AND LIGHT**

- .1 Contractor shall provide necessary power service.

**1.10 TEMPORARY COMMUNICATIONS FACILITY**

- .1 Contractor shall provide telephone service at the construction site office for Contractor's own use. Cellular telephone service is acceptable as a substitute for land-line telephone service.

**1.11 FIRE PROTECTION**

- .1 Contractor shall provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on Site.

**1.12 TEMPORARY SANITARY FACILITIES**

- .1 Contractor shall provide on-site toilet and wash-up facilities for the work force that comply with applicable laws, ordinances, and regulations pertaining to the public health and sanitation.

- .2 Provide sufficient sanitary facilities for workers in accordance with local health authorities.
- .3 Maintain in clean condition.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section. Included in Payment Item No. 01 71 13/01.

**END OF SECTION**

**PART 1      GENERAL**

**1.1          SCOPE**

- .1      This Section covers Facilities, Infrastructure, Signage, Parking and Traffic Control required in a short-term capacity for the construction of the Works.

**1.2          SECTION INCLUDES**

- .1      Related Requirements.
- .2      Submittals.
- .3      Site Office.
- .4      Installation and Removal.
- .5      Site Storage/Loading.
- .6      Construction Parking.
- .7      Construction Signage.
- .8      Protection and Maintenance of Traffic.
- .9      Clean Up.
- .10     Temporary Erosion and Sedimentation Control.
- .11     Measurement and Payment.

**1.3          RELATED REQUIREMENTS**

- .1      Section 01 33 00 – Submittal Procedures.
- .2      Section 01 35 43 – Environmental Procedures.
- .3      Section 01 55 26 – Traffic Control.
- .4      Section 0 71 13 – Mobilization and Startup.

**1.4          SUBMITTALS**

- .1      Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

**1.5          SITE OFFICE**

- .1      The Contractor shall supply a site office meeting the following requirements:
  - .1      The site office shall be conveniently located near the Work Area.
  - .2      The building shall be suitable for all-weather use. It shall be capable of maintaining a temperature range between 16°C and 25°C.

- .3 The building shall be supplied with lighting and electrical wall outlets.
- .4 The building shall be furnished with a meeting table and a minimum of six chairs.
- .5 All Contractors' temporary structures located at the site shall be stabilized in a manner sufficient to prevent such temporary structures from being overturned by wind forces as defined in applicable building codes.
- .6 Provide adequate first aid facilities.
- .2 The Contractor shall maintain copies of Drawings, specifications, material safety data sheets (MSDS) for all products to be used on site, and other Contract documents, available for review and use at all times, at the site office.

**1.6 INSTALLATION AND REMOVAL**

- .1 Prepare site plan indicating proposed location and dimensions of area to be used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

**1.7 SITE STORAGE/LOADING**

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

**1.8 CONSTRUCTION PARKING**

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

**1.9 EQUIPMENT, TOOL AND MATERIALS STORAGE**

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

**1.10 CONSTRUCTION SIGNAGE**

- .1 Provide and erect project sign, within 2 weeks of signing Contract, in a location designated by Owner.
- .2 No other signs or advertisements, other than warning signs, are permitted on site.

**1.11 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Traffic Control: Refer to Section 01 55 26 – Traffic Control.
- .2 Provide access and temporary relocated roads as necessary to maintain traffic.
- .3 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Engineer.
- .4 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- .5 Protect travelling public from damage to person and property.
- .6 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .7 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .8 Construct access and haul roads necessary upon written permission of Owner.
- .9 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .10 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .11 Dust control: adequate to ensure safe operation at all times.
- .12 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Owner.
- .13 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .14 Provide snow removal during period of Work.
- .15 Remove, upon completion of work, haul roads designated by Owner.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion and sediment control (ESC) plan in accordance with 01 35 43.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section. Included in Payment Item No. 01 71 13/01.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1        This Section covers traffic control measures to be employed in construction of the Works.

**1.2            SECTION INCLUDES**

- .1        Reference Standards.
- .2        Traffic Regulation.
- .3        Protection of Public Traffic.
- .4        Informational and Warning Devices.
- .5        Control of Public Traffic.
- .6        Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 29 00 – Payment Procedures.
- .2        Section 01 33 00 – Submittal Procedures.
- .3        Section 01 35 43 – Environmental Procedures.
- .4        Section 01 52 00 – Construction Facilities.

**1.4            REFERENCE STANDARDS**

- .1        British Columbia Ministry of Transportation and Infrastructure:
  - .1        2020 Traffic Management Manual for Work on Roadways (TMM), 2020 Office Edition.

**1.5            TRAFFIC REGULATION**

- .1        Confine construction traffic to designated haul routes.
- .2        Provide all required traffic control permits and signage when construction operations or traffic encroach on public or commercial traffic lanes.
- .3        Control construction vehicular parking to prevent interference with access by emergency vehicles, and Owner's operations.
- .4        Monitor parking of construction personnel's vehicles. Maintain vehicular access to and through parking areas.
- .5        Prevent construction parking on or adjacent to access roads or in non-designated areas.
- .6        Repair damage caused by installation and removal or contractor and temporary facilities.

## **1.6 PROTECTION OF PUBLIC TRAFFIC**

- .1 It will be the responsibility of the Contractor under the Contract to maintain traffic during the entire period of the Contract and to ensure that maximum protection is afforded to the road user and that the Contractor's operations in no way interfere with the safe operation of traffic.
- .2 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .3 When working on travelled way:
  - .1 Place equipment in position to minimize interference and hazard to travelling public.
  - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
  - .3 Do not leave equipment on travelled roadways overnight.
- .4 Close lanes of road only after receipt of written approval Engineer.
  - .1 Before re-routing traffic erect suitable signs and devices.
- .5 Keep travelled way graded, free from pot holes and of sufficient width for required number of lanes of traffic.
  - .1 Provide 8 m wide minimum temporary roadway for traffic in two-way sections through Work and on detours.
  - .2 Provide 5 m wide minimum temporary roadway for traffic in one-way sections through Work and on detours.
- .6 Provide gravelled detours or temporary roads as indicated by Engineer to facilitate passage of traffic around restricted construction area.
- .7 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of Engineer.

## **1.7 INFORMATIONAL AND WARNING DEVICES**

- .1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning.
- .3 Meet with Engineer prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Engineer.
- .4 Continually maintain traffic control devices in use:
  - .1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
  - .2 Remove or cover signs which do not apply to conditions existing from day to day.

## **1.8 CONTROL OF PUBLIC TRAFFIC**

- .1 Provide competent flag personnel, trained in accordance with, and properly equipped for situations as follows:



- .1 Regulate traffic during normal landfill operating hours, when construction operations or related traffic encroaches on either on-site and off-site public traffic lanes including site entrance, scale house bypass lane, public tipping area, and perimeter haul road.
- .2 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
- .3 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
- .4 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
- .5 Where temporary protection is required while other traffic control devices are being erected or taken down.
- .6 For emergency protection when other traffic control devices are not readily available.
- .7 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
- .8 At each end of restricted sections where pilot cars are required.
- .9 Delays to public traffic due to contractor's operators:15 minutes maximum.
- .2 Where roadway, carrying two-way traffic, is restricted to one lane, for 24 hours each day, provide portable traffic signal system.

**1.9 CONTROL OF PUBLIC TRAFFIC – TEMPORARY HAUL ROAD**

- .1 Provide competent flag personnel, trained in accordance with, and properly equipped for as follows:
  - .1 Regulate traffic during normal landfill operating hours, when construction operations or related traffic encroaches on-site public traffic lanes.
  - .2 A minimum of two flag personnel shall be deployed to address inbound and outbound public traffic.
  - .3 Delays to public traffic due to contractor's operators:15 minutes maximum.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1        This Section covers the temporary barriers and enclosures required during construction of the Works to ensure safety for construction personnel and the public, and to reduce potential time losses due to preventable incidences.

**1.2            SECTION INCLUDES**

- .1        Installation and Removal.
- .2        Guard Rails and Barricades.
- .3        Security Fencing.
- .4        Vehicular Access to Site.
- .5        Public Traffic Flow.
- .6        Fire Routes.
- .7        Protection for Off-Site and Public Property.
- .8        Protection of Building Finishes.
- .9        Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 33 00 – Submittal Procedures.

**1.4            INSTALLATION AND REMOVAL**

- .1        Provide temporary controls in order to execute Work expeditiously.
- .2        Remove from site all such work after use.

**1.5            GUARD RAILS AND BARRICADES**

- .1        Contractor shall provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities from damage during construction operations.
- .2        Provide as required by governing authorities and good practice, secure, rigid guard railings and barricades around deep excavations, open shafts.
- .3        Signage shall be used to delineate the Work.

**1.6            SECURITY FENCING**

- .1        Contractor shall provide and maintain temporary security fencing where chain link fence is removed to facilitate Work, and along the public tipping area to ensure public cannot access excavation areas.

**1.7 VEHICULAR ACCESS TO SITE**

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.
- .2 Existing Roads: Reasonable use of existing on-Site roads for construction traffic is permitted subject to the following conditions:
- .3 Do not interrupt or interfere with traffic on roads at any time except where open trench crossings are specified on the Drawings and proper notice regarding open trench crossings has been given to Engineer and Owner.
- .4 Tracked vehicles are not allowed on paved areas.

**1.8 PUBLIC TRAFFIC FLOW**

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

**1.9 FIRE ROUTES**

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

**1.10 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY**

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

**1.11 PROTECTION OF BUILDING FINISHES**

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Engineer locations and installation schedule 5 days prior to installation.
- .4 Contractor shall be responsible for damage incurred due to lack of or improper protection.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section.

**END OF SECTION**

**PART 1      GENERAL**

**1.1          SCOPE**

- .1      This Section covers general procedures and requirements for transportation, storage, handling, protection, installation and execution of common products not covered in the general detailed or manufacturer's specifications.

**1.2          SECTION INCLUDES**

- .1      Related Requirements.
- .2      Quality.
- .3      Availability.
- .4      Product Substitution.
- .5      Storage, Handling and Protection.
- .6      Transportation.
- .7      Manufacturer's Instruction.
- .8      Quality of Work.
- .9      Coordination.
- .10     Concealment.
- .11     Remedial Work.
- .12     Location of Fixtures.
- .13     Fastenings.
- .14     Protection of Work in Progress.
- .15     Existing Utilities.
- .16     Measurement and Payment.

**1.3          QUALITY**

- .1      Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2      Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

- .3 Should disputes arise as to quality or fitness of products, decision rests strictly with Engineer based upon requirements of Contract Documents.
- .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout construction of the Works.
- .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

#### **1.4 AVAILABILITY**

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Engineer of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Engineer at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Engineer reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

#### **1.5 PRODUCT SUBSTITUTION**

- .1 Document each request with complete data substantiating compliance of proposed substitution with the Contract Documents.
- .2 A request for substitution constitutes a representation that Contractor:
  - .1 Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - .2 Will provide the same warranty for the substitution as for the specified product.
  - .3 Will coordinate installation and make changes to other Works which may be required for the Works to be complete at Contractor's expense and at no additional cost to Owner.
  - .4 Waives claims for additional costs or time extension which may subsequently become apparent.
  - .5 Substitutions will not be considered when they are indicated or implied on Shop Drawings or product data submittals without separate written request.
  - .6 Substitutions only accepted after written approval from the Engineer.

#### **1.6 STORAGE, HANDLING AND PROTECTION**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.

- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction Engineer.
- .9 Touch-up damaged factory finished surfaces to Engineer's satisfaction. Use touch-up materials to match original. Do not paint over name plates.
- .10 Contractor shall be fully responsible for loss or damage to stored products, materials, and equipment.

#### **1.7 TRANSPORTATION**

- .1 Pay costs of transportation of products required in performance of Work.

#### **1.8 MANUFACTURER'S INSTRUCTION**

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Engineer in writing, of conflicts between specifications and manufacturer's instructions, so that Engineer will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Engineer to require removal and re-installation at no increase in Contract Price or Contract Time.

#### **1.9 QUALITY OF WORK**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Engineer if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Engineer reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Engineer, whose decision is final.

#### **1.10 COORDINATION**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

**1.11 CONCEALMENT**

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Engineer if there is interference. Install as directed by Engineer.

**1.12 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

**1.13 LOCATION OF FIXTURES**

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Engineer of conflicting installation. Install as directed.

**1.14 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

**1.15 PROTECTION OF WORK IN PROGRESS**

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Engineer.

**1.16 EXISTING UTILITIES**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**PART 4      MEASUREMENT AND PAYMENT**

- .1      No separate payment will be made for work under this Section.

**END OF SECTION**



**PART 1        GENERAL**

**1.1            SCOPE**

- .1        Scope of work includes utility locations, establishing survey control points, and layout.

**1.2            SECTION INCLUDES**

- .1        Related Requirements.
- .2        Reference Standards.
- .3        Qualifications of Surveyor.
- .4        Survey Reference Point.
- .5        Survey Requirements.
- .6        Existing Services.
- .7        Location of Equipment and Fixtures.
- .8        Records.
- .9        Submittals.
- .10      Subsurface Conditions.
- .11      Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 29 00 – Payment Procedures.
- .2        Section 01 33 00 – Submittal Procedures.
- .3        Section 01 71 13 – Mobilization and Startup.

**1.4            REFERENCE STANDARDS**

- .1        Owner's identification of existing survey control points and property limits.

**1.5            QUALIFICATIONS OF SURVEYOR**

- .1        Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Engineer and Owner.

**1.6            SURVEY REFERENCE POINT**

- .1        Existing base horizontal and vertical control points are designated on drawings.
- .2        Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

- .3 Make no changes or relocations without prior written notice to Engineer and Owner.
- .4 Report to Engineer and Owner when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

## **1.7 SURVEY REQUIREMENTS**

- .1 Setting Out:
  - .1 The Contractor will give the Engineer a minimum of 48 hours notice in writing before requiring any levels, lines or stakes.
  - .2 Before commencing Work, the Contractor shall satisfy themselves as the meaning and correctness of all stakes, markers, and grade sheets.
  - .3 Contractor shall cooperate by making the Work available for such checking at suitable times, as required by the Engineer. This checking does not relieve the Contractor from his responsibility for the correctness of the layout Work.
- .2 The Contractor shall establish two permanent benchmarks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .3 Establish lines and levels, locate and lay out, by instrumentation.
- .4 Stake for grading, fill, topsoil placement and landscaping features.
- .5 Stake slopes and berms.
- .6 Establish pipe invert elevations.
- .7 Verify layout with Engineer and adjust as required.
- .8 Verify material lengths with Engineer prior to ordering materials for construction of the Works.
- .9 The Contractor to supply and pay for all stakes, markers, tools, and any help reasonably required in driving in stakes and setting out of work.
- .10 The Contractor shall have the same person available when a request for any help is made. This person shall be available from the first day of the start of construction through the Date of Substantial Performance.

## **1.8 EXISTING SERVICES**

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify Engineer of findings.
- .2 Remove abandoned service lines within 4 metres of structures. Cap or otherwise seal lines at cut-off points as directed by Engineer.

## **1.9 LOCATION OF EQUIPMENT AND FIXTURES**

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Engineer of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Engineer.

**1.10 RECORDS**

- .1 The Contractor shall record all changes made during construction and provide record drawings to the Engineer upon completion of the Work.
- .2 Maintain a complete, accurate log of control and survey work as it progresses.
- .3 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .4 Record locations of maintained, re-routed and abandoned service lines.

**1.11 SUBMITTALS**

- .1 Submit name and address of Surveyor to Engineer and Owner.
- .2 On request of Engineer or Owner, submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

**1.12 SUBSURFACE CONDITIONS**

- .1 Promptly notify Engineer and Owner in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Engineer determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

- .1 No separate payment will be made for work under this Section. Included in Payment Item 01 73 00/01.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1 Contractor shall be responsible for all preparatory work and operations required prior to beginning Work.

**1.2            SECTION INCLUDES**

- .1 Mobilization and Startup.
- .2 Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1 Section 01 29 00 – Payment Procedures.
- .2 Section 01 33 00 – Submittal Procedures.
- .3 Section 01 51 00 – Temporary Utilities.
- .4 Section 01 52 00 – Construction Facilities.
- .5 Section 01 71 00 – Examination and Preparation.

**1.4            MOBILIZATION AND STARTUP**

- .1 Contractor shall not mobilize to the site without the Owner's written authorization.
- .2 Mobilization shall include, but not limited to, the following:
  - .1 Performance of planning and scheduling activities necessary for the performance of the Works.
  - .2 Purchase of materials and mobilize equipment, supplies, and incidentals to the Site.
  - .3 Movement of personnel, tools, equipment, materials, supplies, and incidentals to the Project site and all preparatory work
  - .4 Establishment of all necessary facilities, including acquisition of easements for the Contractor's convenience.
  - .5 Obtaining permits necessary for the execution of the Work.
  - .6 Providing required bonds, workers' compensation board status, and proof of insurance.
- .3 Startup shall include, but not limited to the following:
  - .1 Establish Site temporary utilities and facilities in areas designated by Engineer.
  - .2 Coordinate scheduling, submittals, and work of the various Sections of the Project Specifications.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**PART 4 MEASUREMENT AND PAYMENT**

**4.1 GENERAL**

- .1 Refer to Section 01 29 00 Payment Procedures: Requirements for measurement and payment.

**4.2 MOBILIZATION AND STARTUP**

- .1 Mobilization
- .1 Schedule of Prices Item No. 01 71 13/01.
  - .2 Payment Basis: Lump sum price. Includes furnishing and maintaining insurance required by the Contract Documents; mobilization, prime contractor duties, site safety, any and all associated overhead and administration, temporary utilities and construction facilities; and procuring necessary permits. Payment is based on successful completion of mobilization and turnover of Original Ground survey data.
- .2 Startup
- .1 Schedule of Prices Item No. 01 71 13/02.
  - .2 Payment Basis: Lump sum price. Includes establishing site access, and temporary controls, field engineering, establishing survey control points, surveying and site layout; resource and material procurement activities. Payment is based on turnover of Original Ground survey data.

**END OF SECTION**

**PART 1      GENERAL**

**1.1          SCOPE**

- .1      Scope includes general execution requirements for constructing the Works and survey requirements for unit based payment items.

**1.2          SECTION INCLUDES**

- .1      Related Requirements.
- .2      Submittals.
- .3      Materials.
- .4      Preparation.
- .5      Execution.
- .6      Measurement and Payment.

**1.3          RELATED REQUIREMENTS**

- .1      Section 01 29 00 – Payment Procedures.
- .2      Section 01 33 00 – Submittal Procedures.
- .3      Section 01 77 00 – Closeout Procedures and Submittals.

**1.4          SUBMITTALS**

- .1      Submittals: In accordance with Section 01 33 00 – Submittal Procedures
- .2      Submit written request in advance of cutting or alteration which affects:
  - .1          Structural integrity of elements of project.
  - .2          Integrity of weather-exposed or moisture-resistant elements.
  - .3          Efficiency, maintenance, or safety of operational elements.
  - .4          Visual qualities of sight-exposed elements.
  - .5          Work of Owner or separate contractor.
- .3      Include in request:
  - .1          Identification of project.
  - .2          Location and description of affected Work.
  - .3          Statement on necessity for cutting or alteration.
  - .4          Description of proposed Work, and products to be used.
  - .5          Alternatives to cutting and patching.
  - .6          Effect on Work of Owner or separate contractor.
  - .7          Written permission of affected separate contractor.
  - .8          Date and time work will be executed.

**1.5 MATERIALS**

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 – Submittal Procedures.

**1.6 PREPARATION**

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

**1.7 EXECUTION**

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .3 Restore work with new products in accordance with requirements of Contract Documents.
- .4 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

**PART 2 PRODUCTS (NOT USED)**

**2.1 NITROGEN**

- .1 Compressed nitrogen gas with purity of 90 percent or greater.

**PART 3 EXECUTION**

**3.1 GENERAL**

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.

- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry Work without prior approval.
- .10 Restore Work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

### **3.2 SURVEY**

- .1 Reference point for elevations and lines will be provided by the Engineer. Establish all other required lines and grades from the Engineer's reference points.
- .2 Give forty-eight (48) hours' notice of need for reference points and ensure that line for reference points has been cleared.
- .3 Supply all stakes, hubs, pins templates, flagging, spray paint, poles, etc. required for the Work.
- .4 Be satisfied as to the correct meaning of all reference points. Discontinue Work and advise Engineer immediately if an error is suspected in drawings, specifications, reference points, grade sheets, etc.
- .5 Surveys shall be completed for all pipe alignments at 10 metre spacing, at all tees, wyes, blind flanges, condensate traps, header cleanouts, extraction wells, and isolation valve locations.
- .6 Survey of all components of the wellfield collection system and Piping Network at a spacing determined by the Engineer.
- .7 Owner may confirm survey data through an independent survey.
- .8 Contractor shall submit survey data to the Engineer within 24 hours of the data being collected. The Engineer shall have a minimum of two working days from the time of reception to review and approve the survey data. Approval of survey data shall be granted to the Contractor by the Engineer through the Owner.
- .9 Contractor must ensure that duplicate point/shot numbers are not submitted.



- .10 Survey files submitted to the Engineer shall contain only one type of data. Separate files must be created and submitted for different types of data, i.e., Original ground, topsoil stripping, and subsoil stripping shall be submitted in three different files.
- .11 Survey file names shall contain the date of data collection and a description of the data collected. Points contained within the survey file shall bear descriptions that clearly indicate the data they represent. Point names and file names should be very similar in nature. For example, topsoil stripping data collected on June 2, 2019 shall be submitted in a file named "June 2, 2019 – Topsoil Stripping", and the points contained within the file shall be named "Topsoil Stripping".
- .12 Only newly collected survey data shall be submitted. Previously submitted data shall not be included with new data.
- .13 Correct geosynthetic and earthwork terminologies, consistent with the contract documents, shall be used in descriptions of survey data pertaining to these items.
- .14 The following list presents the deliverables for the survey from the Contractor to the Engineer:

Item No.	Survey Submittals	Submittal Requirement	% of Line Item
1	Initial Site Layout	Layout of Works to be constructed prior to commencement of construction. Layout to be approved by Engineer.	40%
2	Adjusted Site Layout	Re-survey extraction well and pipe alignments adjusted by Engineer.	10%
3	Vertical Extraction Wells	Survey grade elevation of all vertical extraction wells upon completion of regrading restoration works.	20%
4	Pipe Works	Survey pipe inverts for all pipe works and prior to backfilling.	30%
5	Final As-Built ground topography of entire Work area, bottom of trench. top of each layer of backfill and the top of restored cover structure. This item will also include any item requested by the Engineer throughout the duration of the contract that is not specifically listed above.	Survey must be submitted and approved prior to payment of Demobilization	Included in Payment Item 01 77 00/01

### 3.3 NITROGEN PURGING – WELL FIELD

- .1 Notify Consultant five (5) working days prior to commencing nitrogen purging of well field.
- .2 Contractor to supply nitrogen, regulator, hoses, connections, and labour to undertake nitrogen purging of all existing well field pipe works prior to commencement of excavation related activities, existing extraction well retrofit, and connection to existing pipe works.
- .3 Consultant and Owner to coordinate and assist contractor with purging activities, including determining purge points and the monitoring of gas composition.

- .4 Coordinate isolate all Control Plant valves with Consultant and Owner prior to commencing nitrogen purge.
- .5 The Contractor will purge the existing well field pipe works with two volumes of nitrogen (50 m<sup>3</sup> at standard atmospheric conditions) until the methane concentration in the pipe works is less than 0.5 percent (volumetric basis) or 10 percent of the lower explosive limit.
- .6 Nitrogen shall be added to the landfill gas piping through the isolation valve sample ports at a pressure not to exceed the 20 kPA and flow rate adequate to reduce mixing with air.

### **3.4 PROTECTION OF INSTALLED WORK**

- .1 Protect installed Work and provide special protection where specified in individual Sections.
- .2 Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- .3 Prohibit traffic upon landscaped areas.

### **3.5 CLEAN UP**

- .1 Remove construction debris, waste materials, packaging material from Work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- .1 Refer to Section 01 29 00 Payment Procedures: Requirements for measurement and payment.

### **4.2 SURVEYING**

- .1 Schedule of Prices Item No. 01 73 00/01.
- .2 Payment Basis: Lump sum price. Includes all survey requirements to be paid upon submission and approval of completed survey as per the percentages in this specification.

### **4.3 NITROGEN PURGING – WELL FIELD**

- .1 Schedule of Prices Item No. 01 73 00/2.
- .2 Payment Basis: Lump sum price. Includes supply of nitrogen, equipment and labour to undertaken well field nitrogen purging activities.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1       Scope includes final closeout and submittal requirements including final cleaning and surveying, and warranties.

**1.2            SECTION INCLUDES**

- .1       Related Requirements.
- .2       Administrative Requirements.
- .3       Final Cleaning.
- .4       Submittals.
- .5       Format.
- .6       Contents – Project Record Documents.
- .7       As-Built Documents.
- .8       Recording Information on Project Record Documents.
- .9       Final Survey.
- .10      Warranties and Bonds.
- .11      Equipment and Systems.
- .12      Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1       Section 01 29 00 – Payment Procedures.
- .2       Section 01 33 00 – Submittals.
- .3       Section 01 73 00 – Execution.

**1.4            ADMINISTRATIVE REQUIREMENTS**

- .1       Acceptance of Work Procedures:
  - .1       Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
    - .1       Notify Engineer in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
    - .2       Request Engineer's and Owner's inspection.
  - .2       Engineer's and Owner's Inspection:
    - .1       Engineer and Contractor to inspect Work and identify defects and deficiencies.

- .2 Contractor to correct Work as directed.
- .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
  - .1 Work: completed and inspected for compliance with Contract Documents.
  - .2 Defects: corrected and deficiencies completed.
  - .3 Equipment and systems: tested, balanced, adjusted and fully operational.
  - .4 Certificates required by regulatory authorities submitted.
  - .5 Operation of systems: demonstrated to Owner's personnel.
  - .6 Work: complete and ready for final inspection.
- .4 Final Inspection:
  - .1 When completion tasks are done, request final inspection of Work by Engineer and Owner, and Contractor.
  - .2 When Work incomplete according to Engineer, complete outstanding items and request re-inspection.

## **1.5 DRILL PAD DECOMMISSIONING**

- .1 When Work is Substantially Performed, blade and repair haul roads, drill pads, and all other areas affected by construction activities and restore them to original condition.
- .2 Remove drill cuttings, waste, deleterious materials, dirt and other disfiguration from exterior surfaces.
- .3 Haul and place surplus suitable soil to stockpiles as directed by Engineer.
- .4 Haul and place drill cuttings and deleterious material to the active landfill face as directed by Engineer.
- .5 Remove any temporary culverts, or other temporary control features.
- .6 Restore landfill cover system to original grade and elevation.

## **1.6 RESTORATION**

- .1 As a minimum, restoration shall mean replacement, repairs, or reconstruction to a condition at least as good as or better than the condition prior to commencement of the Works.
- .2 Except where specifically required otherwise by other Sections, restore areas of the Works and areas affected by the performance of the Works to conditions that existed prior to commencement of the Works and to match condition of similar adjacent, undisturbed areas.
- .3 Ensure that restored areas match existing grade and surface drainage characteristics, except as otherwise specified, and ensure a smooth transition from restored surfaces to existing surfaces.
- .4 Do not alter original conditions without prior written approval from Owner and Engineer.
- .5 Without limiting the generality of the foregoing or other requirements of the Contract Documents, preserve and protect existing features encountered at the Site during the performance of the Works.
- .6 Remove from the Site clean material not approved for reuse.

**1.7 FINAL CLEANING**

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others and leave Work clean and suitable for occupancy.
- .3 Waste Management: separate waste materials for recycling and/or reuse.
- .4 Remove waste materials and debris from site at regularly scheduled times or dispose of as directed by Engineer. Do not burn waste materials on site.
- .5 Clean debris from drainage and storm water management systems.
- .6 Repair pavement, roads, sod, and all other areas affected by construction operations and restore them to original condition or to minimum condition specified.
- .7 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .8 Sweep paved areas and rake clean landscaped surfaces.
- .9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .10 Remove dirt and other disfiguration from exterior surfaces.
- .11 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .12 Sweep and wash clean paved areas.
- .13 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .14 Clean roofs, downspouts, and drainage systems.
- .15 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

**1.8 SUBMITTALS**

- .1 Provide closeout submittals in accordance with Section 01 33 00 - Submittal Procedures.

**1.9 FORMAT**

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
  - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

- .5 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .6 Text: manufacturer's printed data, or typewritten data.
- .7 Drawings: provide with reinforced punched binder tab.
  - .1 Bind in with text; fold larger drawings to size of text pages.
- .8 Provide final survey data on USB hard drive.

#### **1.10 CONTENTS – PROJECT RECORD DOCUMENTS**

- .1 Table of Contents for Each Volume: provide title of project;
  - .1 Date of submission; names.
  - .2 Addresses, and telephone numbers of Engineer and Contractor with name of responsible parties.
  - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

#### **1.11 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS**

- .1 Record information on set of drawings provided by Engineer.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
  - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by change orders.
  - .6 Details not on original Contract Drawings.
  - .7 Referenced Standards to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:

- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain field test records, inspection certifications and manufacturer's certifications required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

#### **1.12 FINAL SURVEY**

- .1 Field survey data, including all installed works. Pipe installations shall be surveyed, prior to backfilling, at a minimum of one survey point every 10 metres, including all pipe junctions, tees, valves, pipe ends and connections.
- .2 Final ground elevation above pipe shall be surveyed, at a minimum of one survey point every 10 metres.
- .3 For any sump or vault structure and for isolation valves, centre point at top of structure shall be surveyed.
- .4 For vertical wells, centre point of wellhead shall be provided with invert, ground level at well location as well as bottom elevation/depth of well.
- .5 For locations where final landfill cover is re-instated, thickness confirmations for each layer will be provided through spot elevations as directed by Engineer.
- .6 For locations where surface water ditching is re-instated provide sufficient survey points to allow confirmation of positive drainage.

#### **1.13 WARRANTIES AND BONDS**

- .1 Provide Warranties and Bonds fully executed and notarized.
- .2 Execute transition of Performance and Labour and Materials Payment Bond to Warranty Period requirements.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION (NOT USED)**

### **PART 4 MEASUREMENT AND PAYMENT**

#### **4.1 GENERAL**

- .1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

#### **4.2 DEMOBILIZATION AND CLOSEOUT**

- .1 Schedule of Prices Item No. 01 77 00/01.

- .2      Payment Basis: Lump sum price. Includes final cleaning of equipment, construction facilities, and materials to be removed from the Site; removal of temporary construction and support facilities provided by Contractor; restoring temporary areas and facilities (laydown area, haul roads, etc.) to their original state; drill pad decommissioning, final Site cleanup, final grading, adjusting, field surveying of final works, restoration, record documents, warranties and bonds.

**END OF SECTION**



**PART 1      GENERAL**

**1.1          DESCRIPTION**

- .1      The Contractor shall furnish all labour, materials, tools, supervision, transportation, and equipment necessary to install well field HDPE pipe, condensate trap #4 insulation, accessories, insulate existing condensate trap #2, appurtenances and connections as shown on the Drawings and specified herein.

**1.2          SECTION INCLUDES**

- .1      Related Requirements.
- .2      Reference Standards.
- .3      Definitions.
- .4      Submittals.
- .5      Quality Assurance.
- .6      Delivery, Storage and Handling.
- .7      Subheader Pipe.
- .8      Lateral Pipe.
- .9      Hydrostatic Pressure Testing.
- .10     Warning Tape.
- .11     Tracer Wire.
- .12     Execution.
- .13     Measurement and Payment.

**1.3          RELATED REQUIREMENTS**

- .1      Section 01 29 00 – Payment Procedures.
- .2      Section 01 33 00 – Submittal Procedures.
- .3      Section 01 42 19 – Reference Standards.
- .4      Section 01 45 00 – Quality Control.
- .5      Section 01 73 00 – Execution.
- .6      Section 31 23 10 – Excavation and Trenching.
- .7      Section 31 23 33.02 – Fill.

## 1.4 REFERENCE STANDARDS

- .1 Section 01 42 19 – Reference Standards.
- .2 American Society for Testing and Materials (ASTM):
  - .1 ASTM A536 – Standard Specification for Ductile Iron Castings.
  - .2 ASTM D1248 – Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
  - .3 ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
  - .4 ASTM D2837 – Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
  - .5 ASTM D3212 – Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
  - .6 ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
  - .7 ASTM D4976-00b – Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.
  - .8 ASTM D3350-00 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
  - .9 ASTM F405 – Standard Specification for Corrugated Polyethylene Tubing and Fittings.
  - .10 ASTM F667 – Standard Specification for Large Diameter Corrugated Polyethylene Tubing and Fittings.
  - .11 ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (SDRPR) Based on Outside Diameter.
  - .12 ASTM F2306 – Standard Specification for 12 to 60 in. (300 to 1500 mm) Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
- .3 American National Standards Institute (ANSI):
  - .1 ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
  - .2 ANSI B18.2.1 – Square and Hex Bolts, and Lag Screws (Inch Series)
- .4 Canadian Standards Association (CSA):
  - .1 CSA B1373.3 – Rigid Polyvinyl Chloride Pipe.
  - .2 CSA B182.8-02 – Profile Polyethylene Storm Sewer and Drainage Pipe and Fittings.
  - .3 CSA G401 – Corrugated Steel Pipe Products.

## 1.5 DEFINITIONS

- .1 CSP: Corrugated Steel Pipe.
- .2 HDPE: High Density Polyethylene.
- .3 LFG: Landfill Gas.
- .4 SMDD: Standard Maximum Dry Density and in the context of this Contract means maximum dry unit weight determined in accordance with ASTM D698.
- .5 DR: Dimension Ratio. Actual outside pipe diameter divided by the wall thickness.

## **1.6 SUBMITTALS**

- .1 Submit in accordance to Section 01 33 00 – Submittal Procedures.
- .2 Product Data: Piping and fitting dimensions including test reports and material property sheets.
- .3 Manufacturer's Certificate: Quality control certificates pertaining to each lot of pipe produced.
- .4 Manufacturer's Instructions: Indicate special procedures required to install products specified.

## **1.7 QUALITY ASSURANCE**

- .1 HDPE Pipe
  - .1 Pipe Resin: ASTM D1248 for material indicating a Type 3, Category 5, Class C, Grade PE4710 (ASTM D3350 Cell Classification 3453C).
  - .2 Raw Material: Containing a minimum 2 percent carbon black, well dispersed by recompounding to protect the pipe from degradation by ultraviolet light.
  - .3 Pipe shall not contain any recycled compound except that generated in the manufacturer's own plant from resin of the same specification from the same raw material supplier.
  - .4 Pipe Sizes: ASTM F714. Pipe sizes are specified in metric units; however, equivalent IPS pipe sizes shall be used to avoid fitting problems.

## **1.8 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver and store piping with labeling in place.
- .2 Deliver, store, and handle pipe in accordance with applicable requirements of the specified references, the manufacturer's instructions, and as specified herein.
- .3 Contractor is responsible for conducting an inspection at the time of delivery to verify that the correct products and the expected quantities are received. Pipes and accessories should be visually inspected for damage such as cuts, gouges, delamination, bulges, flat areas and ovality that may have occurred during shipment.
- .4 Use every precaution to prevent damage to the pipe. Do not permit metal tools or heavy objects to unnecessarily come in contact with the pipe.
- .5 All pipe shall be lifted off trailer such that any damage while unloading is avoided.
- .6 Contractor is responsible for each pipe shipment to ensure that there has been no loss or damage.
- .7 Pipe shall be stored on level surfaces to avoid deformation. Supports shall be spaced to prevent bending and deformation to the ends of the pipe. When stacked, the weight of upper units shall not cause deformation to pipe in the lower units.

**PART 2 PRODUCTS**

**2.1 SUBHEADER PIPE**

- .1 HDPE Pipe: DR 17, 150 mm diameter.
- .2 Joints: Thermal butt fusion except flanged and electrofusion connections as shown on Drawings.
- .3 Bedding Sand: See Section 31 23 33.02 – Fill.
- .4 Accessories:
  - .1 Flanges: ASTM A536 ductile iron backing flanges with Class 150 ANSI B 16.5 standard drilling and corrosion resistant coatings. Complete with 1-piece molded polyethylene stub ends unless otherwise indicated on drawings. Connections shall have same or greater pressure rating as pipes.
  - .2 Gaskets: Neoprene, minimum 3.2 mm thick.
  - .3 Bolt Sets: Hexagonal type 304 Stainless steel unless otherwise indicated in Drawings.
  - .4 Fittings: DR 17 Wye connections and reducers.
  - .5 Blind Flanges: SCH 80 PVC.
  - .6 Electrofusion couplers:
    - .1 SDR 17.
    - .2 Pressure Rating: 860 KPA (125 PSI) Natural Gas rated.
  - .7 Warning Tape: See Article 2.3.
  - .8 Tracer Wire: See Article 2.4.

**2.2 LATERAL PIPE**

- .1 HDPE Pipe: DR 17, 100 mm diameter.
- .2 Joints: Thermal butt fusion except flanged connections as shown on Drawings.
- .3 Bedding Sand: See Section 31 23 33.02 – Fill.
- .4 Accessories:
  - .1 Flanges: ASTM A536 ductile iron backing flanges with Class 150 ANSI B 16.5 standard drilling and corrosion resistant coatings. Complete with 1-piece molded polyethylene stub ends unless otherwise indicated on drawings. Connections shall have same or greater pressure rating as pipes.
  - .2 Gaskets: Neoprene, minimum 3.2 mm thick.
  - .3 Bolt Sets: Hexagonal type, 304 Stainless steel unless otherwise indicated in Drawings.
  - .4 Fittings: DR 17 Wye connections and reducer.
  - .5 Long Sweep Elbow: DR 17 90 degrees, 5 section elbow.
  - .6 Warning Tape: See Article 2.3.
  - .7 Tracer Wire: See Article 2.4.

**2.3 WARNING TAPE**

- .1 Standard, 4-mil polyethylene 76 mm (3 inch) wide tape, detectable type, yellow with black letters, and imprinted with "BURIED GAS LINE BELOW". Tape shall be installed as shown on Drawings.

**2.4 TRACER WIRE**

- .1 TWU No. 12 Gauge Solid Copper Wire: 3.2 mm diameter.
- .2 Minimum Roll Length: 300 m.
- .3 Wire Connectors: 3M DBR watertight connectors for No. 12 gauge wire or approved equivalent.

**2.5 CONDENSATE TRAP CT#4 AND CT#2 INSULATION**

- .1 Rigid insulation: 100 mm thick extruded rigid polystyrene insulation, moisture resistant, minimum R-5 per 25 mm thickness.
  - .1 Location: Outside of condensate trap vault and underside of lid.
- .2 Flexible insulation: Mineral wool flexible insulation, all service jacket, minimum R-10, wrapped around condensate .
- .3 Heat Shrink Wrap: PVC, Industrial Grade.
- .4 Adhesive: Lepage PL Premium Max or approved equivalent.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- .1 Section 01 73 00 – Execution: Verification of existing conditions before starting work.
- .2 Verify that the excavation is ready to receive work and the bedding, slopes, dimensions, and elevations are as shown on the Drawings.
- .3 Verify items provided by other Sections are properly sized and located.

**3.2 PREPARATION**

- .1 Excavate to grades as shown on drawings, as per Section 31 23 10 – Excavation and Trenching.
- .2 Pipe shall be inspected for cuts, scratches, or other damages prior to installation. Any pipe showing damage which in the opinion of the Engineer will affect the performance of the pipe must be removed from the site. Replace any materials found to be defective.
- .3 Hand trim excavations to required elevations.
- .4 Ensure that the excavation remains dry and groundwater elevation remains below the base excavation elevation until adequate backfill is placed to ensure that the installed pipe will not be dislodged.

- .5 Ensure that excavation foundation is suitable for pipe bedding placement. Excavation foundation should be free of large stones, clumps of soil, frozen soil, refuse protruding into trench, and debris.
- .6 Trench width shall be sufficiently wide to allow compaction of pipe bedding in the haunches and adjacent to the sides of the pipe.
- .7 Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.
- .8 Unsuitable materials and waste excavated from trench alignments shall be disposed of on-site as directed by Owner or Engineer.

### **3.3 PIPE INSTALLATION**

- .1 Prevent debris and water from entering inside of pipe.
- .2 Do not bend in a radius smaller than recommended by Manufacturer when staged on Site or installed in the trench.
- .3 Perform thermal fusion in sheltered areas with temperature maintained in accordance with Manufacturer's instructions.
- .4 Avoid excess transportation and possible damage to the pipe.
- .5 Prior to thermal fusion in the field on any pipe on a given date, provide a test weld and operating data to Engineer including welding temperature, machine number, date of last service, and clearance certificate.
- .6 Install pipe, fittings, and accessories in accordance with Manufacturer's instructions.
- .7 Lay pipe to slope gradients as shown on Drawings with maximum variation from true slope of 1 cm in 3 m. Maintain positive drainage for all pipe sections.
- .8 Use laser equipment for controlling grade of pipe installation.
- .9 Fasten tracer wire to pipe and risers.
- .10 Backfill to lines and grades indicated on Drawings.
- .11 Place buried pipe tape as shown on Drawings.
- .12 The Contractor shall stockpile all excavated materials not used for backfilling or cover soil on site as directed by Engineer.
- .13 Soil used for backfill shall be placed in a loose lift that results in a compacted lift thickness of no greater than 100 mm (4 inches). The maximum permissible pre-compaction soil clod size is 100 mm.
- .14 Surplus waste excavated from trenches shall be hauled to the landfill active area.

### **3.4 TRACER WIRE**

- .1 Install tracer wire as per manufacturer's recommendations using approved connectors.

- .2 Tracer wire should not be wrapped around pipe or connectors except at the riser.
- .3 The contractor shall install insulated tracer wire, in the trench above the polyethylene pipe.
- .4 The tracer wire shall be installed so that electrical continuity is maintained throughout the pipe system.

### **3.5 THERMAL PIPE WELDING**

- .1 All pipe fusion shall be performed by a supplier or a factory supplied and/or certified fusion operator.
- .2 Join the polyethylene pipe by the method of thermal butt fusion, outlined in ASTM D 2657, or saddle fusion, depending on the type of joint. Of particular importance is the use of proper interface pressures and heater plate temperatures.
- .3 Pipe cuts shall be square and perpendicular to the centerline of the pipe for butt fusion joints.
- .4 Do not perform pipe fusion in water or when trench conditions are unsuitable for the work. Keep water out of the trench until joining is complete. Secure open ends of pipe and close valves when work is not in progress, so that no trench water, earth, or other substance will enter the pipe or fittings. Plug, cap or valve pipe ends left for future connection.
- .5 In order to allow the joining operation to continue in adverse weather conditions, a shelter may be required for the joining machine. Particular caution should be exercised to prevent water from entering the pipe and from coming in contact with the heater plate and electrical connections. All electric lines used in field operations shall be fitted with ground fault current interrupters (GFCI).
- .6 Only fully-trained personnel will be allowed to perform the installation, supervision, or inspection of polyethylene-fusion joints.

### **3.6 CONDENSATE TRAP CT#4 AND CT#2**

- .1 Excavate soils around existing condensate trap vault to base of vault assembly.
- .2 Prepare exterior vault box surface for adhesive as per manufacturer's recommendations.
- .3 Install exterior insulation to lines and grades as shown on drawings.
- .4 Adhere insulation to exterior of vault with adhesive as per manufacturer's recommendations.
- .5 Wrap insulation with shrink wrap as per manufacturer's recommendations.
- .6 Backfill exterior vault and restore to original grade.
- .7 Cut insulation to fit underside of vault lid. Adhere in insulation with adhesive as per manufacturer's recommendations.

### **3.7 FIELD QUALITY CONTROL**

- .1 Section 01 45 00 – Quality Control: Inspection for field inspection and testing.
- .2 Request inspection prior to placing aggregate cover over pipe.

- .3 Compaction testing will be performed in accordance with Section 31 23 33.02 – Fill.
- .4 Hydrostatic Pressure and Leakage Test for sub-header and lateral pipes. Test as follows:
  - .1 Provide labor, equipment, and materials required to perform hydrostatic and leakage tests herein specified; notify Engineer and Owner at least 24 hours in advance of all proposed tests; perform tests in the presence of Engineer and Owner.
  - .2 Test at one time as much of the piping system as practical and authorized by Engineer.
  - .3 Test well field pipework as follows:
    - .1 Subheader pipes: 30 kPa.
    - .2 Lateral pipes: 30 kPa.
  - .4 Utilize air, nitrogen, or potable water to charge the pipelines and maintain pressure for adequate period to allow for expansion of the piping. Fittings, valves, and expansion joints shall be accessible for inspection during the pressure test. A pressure test will be deemed successful if the designated pressure is maintained for a period of not less than 1 hour with no measurable pressure drop during the term of the test. The temperature must be constant to within 1 degree C during this period or adjusted with the appropriate correction factor.
  - .5 Cap and seal testing ports at the termination of the pressure test.
  - .6 Examine joints for leakage and remove any joints showing leakage from the pipeline, rejoin and retest the system.
  - .7 Ensure that normal safety precautions are observed for exposed piping.
  - .8 Locate and repair defects if leakage occurs.
  - .9 Repeat test until pressure drop is within specified allowance for full length of pipe.
- .5 If tests indicate that the Works do not meet specified requirements, remove Works, replace, and retest.

### **3.8 PROTECTION OF FINISHED WORKS**

- .1 Section 01 73 00 – Execution: Protection of Installed Work.
- .2 Protect pipe and cover from damage or displacement prior to and during backfilling operations.
- .3 Prevent debris from entering system.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- .1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

### **4.2 SUBHEADER PIPE**

- .1 Schedule of Prices Item No. 23 05 05/01.
- .2 Measurement Basis: By the linear metre measured along the centerline of the pipe.



- .3 Payment Basis: Unit price. Includes excavation, segregation intermediate cover, transporting suitable materials to temporary stockpiles, temporary stockpiling, and hauling and disposal of waste, unsuitable material or excess excavated materials at the active landfill area; supply and install bedding sand, sub-header pipe, fittings and accessories, flanges, gaskets, bolt sets, warning tape, and tracer wire; hauling, placing, compacting of backfill, placement and compaction of intermediate cover, and regrading to grades as shown in Drawings.

#### **4.3 LATERAL PIPE**

- .1 Schedule of Prices Item No. 23 05 05/02.
- .2 Measurement Basis: By the linear metre measured along the centerline of the pipe.
- .3 Payment Basis: Unit price. Includes excavation, segregation of intermediate cover, transporting suitable materials to temporary stockpiles, temporary stockpiling, and hauling and disposal of waste, unsuitable material or excess excavated materials at the active landfill area; supply and install bedding sand, lateral pipe, fittings and accessories, flanges, gaskets, bolt sets, warning tape and tracer wire; hauling, placing, compacting of backfill, placement and compaction of intermediate cover, and regrading to grades as shown in Drawings.

#### **4.4 CONDENSATE TRAP CT#2 INSULATION**

- .1 Schedule of Prices Item No. 23 05 05/03.
- .2 Payment Basis: Lump Sum. Includes excavation and preparation of surfaces; supply and install insulation, adhesive and shrink wrap; backfill, compact, and restore to original grades as shown in Drawings.

#### **4.5 CONDENSATE TRAP CT#4 INSULATION**

- .1 Schedule of Prices Item No. 23 05 05/04.
- .2 Payment Basis: Lump Sum. Includes excavation and preparation of surfaces; supply and install insulation, adhesive and shrink wrap; backfill, compact, and restore to original grades as shown in Drawings.

#### **4.6 HYDROSTATIC PRESSURE TESTING**

- .1 Schedule of Prices Item No. 23 05 05/03.
- .2 Payment Basis: Lump Sum. Includes supply of equipment, materials and labour to undertake hydrostatic pressure testing of all well field pipeworks.

**END OF SECTION**

**PART 1      GENERAL**

**1.1      DESCRIPTION**

- .1      The Contractor shall furnish all labour, materials, tools, supervision, transportation, and equipment necessary to install new well field isolation valves as shown on Drawings.

**1.2      SECTION INCLUDES**

- .1      Related Requirements.
- .2      Reference Standards.
- .3      Definitions.
- .4      Progress Submittals.
- .5      Delivery, Storage and Handling.
- .6      Subheader Isolation Valve and Sample Ports.
- .7      Isolation Valve Sample Ports.
- .8      Execution.
- .9      Measurement and Payment.

**1.3      RELATED REQUIREMENTS**

- .1      Section 01 29 00 – Payment Procedures.
- .2      Section 01 33 00 – Submittal Procedures.
- .3      Section 01 42 19 – Reference Standards.
- .4      Section 01 45 00 – Quality Control.
- .5      Section 01 61 00 – Common Product Requirements.
- .6      Section 01 73 00 – Execution.
- .7      Section 03 41 00 – Precast Concrete.
- .8      Section 23 05 05 – Well Field Pipework.
- .9      Section 31 23 33.02 – Fill.

**1.4      REFERENCE STANDARDS**

- .1      Section 01 42 19 – Reference Standards.
- .2      American Society of Mechanical Engineers (ASME):

- .1 ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard
- .2 ASME B18.2 - Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series).
- .3 American Society for Testing and Materials (ASTM):
  - .1 ASTM D1248 – Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
  - .2 ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
  - .3 ASTM D2837 – Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
  - .4 ASTM D3212 – Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
  - .5 ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
  - .6 ASTM D4976-00b – Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.
  - .7 ASTM D3350-00 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
  - .8 ASTM F405 – Standard Specification for Corrugated Polyethylene Tubing and Fittings.
  - .9 ASTM F667 – Standard Specification for Large Diameter Corrugated Polyethylene Tubing and Fittings.
  - .10 ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe SDRPR Based on Outside Diameter.
  - .11 ASTM F2306 – Standard Specification for 12 to 60 in. (300 to 1500 mm) Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
- .4 American National Standards Institute (ANSI):
  - .1 ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
  - .2 ANSI B18.2.1 – Square and Hex Bolts, and Lag Screws (Inch Series)
- .5 Canadian Standards Association (CSA):
  - .1 CSA B1373.3 – Rigid Polyvinyl Chloride Pipe.
  - .2 CSA B182.8-02 – Profile Polyethylene Storm Sewer and Drainage Pipe and Fittings.

## **1.5 DEFINITIONS**

- .1 HDPE: High Density Polyethylene.
- .2 PE: Polyethylene.
- .3 PVC: Polyvinyl Chloride.

## **1.6 SUBMITTALS**

- .1 Section 01 33 00 – Submittal Procedures.

- .2 Product Data: Specifications and dimensions including test reports and material property sheets.
- .3 Manufacturer's Instructions: Indicate special procedures required to install products specified.

## **1.7 DELIVERY, STORAGE AND HANDLING**

- .1 Section 01 61 00 – Common Product Requirements.
- .2 Deliver and store products with labeling in place.
- .3 Deliver, store, and handle valve assemblies with applicable requirements of the specified references, the Manufacturer's instructions, and as specified herein.
- .4 Use every precaution not to damage products.

## **PART 2 PRODUCTS**

### **2.1 150 MM SUBHEADER ISOLATION VALVE AND SAMPLE PORTS**

- .1 Manufacturer: Lyall, SDR11 HDPE Poly Ball Valve PE4710 Full Port or approved equivalent.
- .2 Diameter: 150 mm.
- .3 Process Fluid: Landfill Gas.
- .4 Body: PVC.
- .5 Ends: Flanged, AMSE B16.5.
- .6 Body and Stem Seal: Viton.
- .7 O-Ring: Viton.
- .8 Seat: PTFE.
- .9 Accessories:
  - .1 Municipal Operating Nut.
  - .2 Bolt Set: ASME B 18.2.1, 304 stainless steel unless otherwise indicated on Drawings. Project bolt ends 6 millimeters beyond surface of nuts.
  - .3 Gasket: Neoprene, minimum 3.17 millimeters thick, full faced.
  - .4 Riser: 200 mm diameter SCH 80 PVC riser.
  - .5 Cap: Royer aluminium locking well cap or approved equivalent.
- .10 Isolation valve sample ports: Article 2.3.
  - .1 Quantity: 2 per Subheader Isolation Valve location.

### **2.2 150 MM HORIZONTAL TRENCH ISOLATION VALVE AND SAMPLE PORTS**

- .1 Manufacturer: Lyall, SDR11 HDPE Poly Ball Valve PE4710 Full Port or approved equivalent.
- .2 Diameter: 150 mm.

- .3 Process Fluid: Landfill Gas.
- .4 Body: PVC.
- .5 Ends: Flanged, AMSE B16.5.
- .6 Body and Stem Seal: Viton.
- .7 O-Ring: Viton.
- .8 Seat: PTFE.
- .9 Accessories:
  - .1 Municipal Operating Nut.
  - .2 Bolt Set: ASME B 18.2.1, 304 stainless steel unless otherwise indicated on Drawings. Project bolt ends 6 millimeters beyond surface of nuts.
  - .3 Gasket: Neoprene, minimum 3.17 millimeters thick, full faced.
  - .4 Riser: 200 mm diameter SCH 80 PVC riser.
  - .5 Cap: Royer aluminium locking well cap or approved equivalent.
  - .6 Electrofusion Coupler: 150 mm diameter DR 11.
- .10 Isolation valve sample ports: Article 2.3.
  - .1 Quantity: 2 per Subheader Isolation Valve location.

## **2.3 SAMPLE PORT**

- .1 Valve: Asahi, 12 mm diameter PVC ball valve or approved equivalent.
- .2 Sample fitting: 12 mm diameter stainless steel male NPT to 6 mm diameter hose barb end, Swagelok or approved equivalent.
- .3 Tube compression fittings: 12 mm diameter stainless steel male NPT to 12 mm diameter tubing, Swagelok compression tubing fitting male connector or approved equivalent. Quantity: 2 per sample port assembly.
- .4 HDPE Riser
  - .1 HDPE Pipe: DR17, diameter as shown on Drawings.
  - .2 Flanges: ASTM A536 ductile iron backing flanges with Class 150 ANSI B 16.5 standard drilling and corrosion resistant coatings. Complete with 1-piece molded polyethylene stub ends unless otherwise indicated on drawings. Connections shall have same or greater pressure rating as pipes.
  - .3 Gaskets: Neoprene, minimum 3.2 mm thick.
  - .4 Bolt Sets: Hexagonal type 304 Stainless steel unless otherwise indicated in Drawings.
  - .5 Fittings: DR 17 Wye connections and reducers.
  - .6 Flange: SCH 80 PVC.
- .5 Tubing: 12 mm diameter flexible Polyethylene tubing.
- .6 PVC Riser: 150 mm diameter SCH 80 PVC Riser.
- .7 Cap: PVC Slip-On Cap.

.8 Bedding Sand: Refer to Section 31 23 33.02 – Fill.

.9 Quantity: 2 per location.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

.1 Section 01 73 00 – Execution.

.2 Verify that excavated and prepared area is ready to receive work, and dimensions and elevations are as shown on Drawings.

#### **3.2 INSTALLATION OF SUB-HEADER ISOLATION VALVES AND SAMPLE PORTS**

.1 Confirm location of isolation valves and sample ports with Engineer prior to commencement of work.

.2 Install valve and sample port as indicated in Drawings.

.3 Conduct pressure testing prior to backfilling.

#### **3.3 INSTALLATION OF HORIZONTAL TRENCH ISOLATION VALVES AND SAMPLE PORTS**

.1 Confirm location and orientation of isolation valves and samples ports with Engineer prior to commencement of work.

.2 Disconnect, remove and salvage existing horizontal trench at locations as indicated on Drawings.

.3 Install valve and sample port as indicated in Drawings.

.4 Install electrofusion coupler per Manufacturer's specifications.

.5 Conduct pressure testing prior to backfilling.

#### **3.4 CLEANING**

.1 If required, clean exposed work face by washing and brushing only. Use potable water, if required, as cleaner to remove debris from valve assembly prior to placing the PVC riser pipe and backfilling. Remove immediately materials that may set up or harden.

#### **3.5 FIELD QUALITY CONTROL**

.1 Section 01 45 00 – Quality Control.

#### **3.6 PROTECTION OF FINISHED WORK**

.1 Section 01 73 00 – Execution: Requirements for protection of installed work.

**PART 4 MEASUREMENT AND PAYMENT**

**4.1 GENERAL**

- .1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

**4.2 150 MM SUBHEADER ISOLATION VALVE AND SAMPLE PORTS**

- .1 Schedule of Prices Item No. 23 05 06/01
- .2 Measurement Basis: Per valve installation.
- .3 Payment Basis: Unit Price. Includes excavation, transporting suitable materials to temporary stockpiles, temporary stockpiling, hauling and disposal of waste and unsuitable or excess excavated materials in active landfill area; supply and install valve, fittings, accessories and sample ports, bedding sand and fill, connection to piping, hauling, placing, compacting of fill, backfilling and compacting cover material, and regrading to grades as shown on Drawings.

**4.3 150 MM HORIZONTAL TRENCH ISOLATION VALVE AND SAMPLE PORTS**

- .1 Schedule of Prices Item No. 23 05 06/02
- .2 Measurement Basis: Per valve installation.
- .3 Payment Basis: Unit Price. Includes excavation, transporting suitable materials to temporary stockpiles, temporary stockpiling, hauling and disposal of waste and unsuitable or excess excavated materials in active landfill area; supply and install valve, fittings, accessories and sample ports, bedding sand and fill, connection to piping, hauling, placing, compacting of fill, backfilling and compacting cover material, and regrading to grades as shown on Drawings.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE**

- .1        This section covers the requirements for excavation and trenching related activities required to install the Works as shown on the Drawings.
- .2        All excavation, backfilling, and compacting to be completed as specified herein and as needed for a complete and proper installation of all works.

**1.2            SECTION INCLUDES**

- .1        Related Requirements.
- .2        Reference Standards.
- .3        Definitions.
- .4        Submittals.
- .5        Environmental Requirements.
- .6        Sequencing and Scheduling.
- .7        Execution.
- .8        Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 29 00 – Payment Procedures.
- .2        Section 01 33 00 – Submittal Procedures.
- .3        Section 01 35 29.06 – Health and Safety Requirements.
- .4        Section 01 35 43 – Environmental Procedures.
- .5        Section 01 42 19 – Reference Standards.
- .6        Section 01 45 00 – Quality Control.
- .7        Section 01 73 00 – Execution.
- .8        Section 23 05 05 – Well Field Pipework.
- .9        Section 31 23 33.02 – Fill.

**1.4            REFERENCE STANDARDS**

- .1        Section 01 42 19 – Reference Standards.
- .2        American Society of Testing and Materials (ASTM):



- .1 ASTM D698: Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft lbf/ft<sup>3</sup> (600 kN m/m<sup>3</sup>)).
- .2 ASTM D1556: Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
- .3 ASTM D1557: Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft lbf/ft<sup>3</sup> (2,700 kN m/m<sup>3</sup>)).
- .4 ASTM D2216: Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
- .5 ASTM D6938: Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- .6 ASTM D3740: Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- .7 ASTM D4253: Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
- .8 ASTM D4318: Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

## **1.5 DEFINITIONS**

- .1 Common excavation: Excavation of materials of whatever nature, which are not included under definitions of solid rock, topsoil, or subsoil; including but not limited to dense tills, hardpan, frozen materials and partially cemented materials which can be ripped and excavated with heavy construction equipment.
- .2 Waste Material: Excavated material unsuitable for use in Work or surplus to requirements.
- .3 Subgrade: Original ground surface or prepared surface upon which clay liner or embankments are constructed.
- .4 Embankment: Selected material derived from useable excavation and placed above original ground or prepared subgrade to the requirements for density and moisture required by these Specifications.
- .5 Excavation: Removal of materials of whatever nature encountered, whether wet, frozen, or otherwise, including landfill refuse, dense tills, hardpan, frozen materials, cemented materials, concrete fragments, asphalt pavement, boulders or rock fragments less than 1 cubic metres in volume, and weathered rock which can be removed by ripping or excavating with heavy duty mechanical construction equipment without drilling and blasting.
- .6 Excavation Limits: Areal excavation limits shown on the Drawings to specified depth or as directed by Engineer and does not include areas shown as being on hold pending further sampling and analysis by Engineer.
- .7 Additional Excavation: Excavation beyond initial excavation limits either horizontally or in depth, as directed by Engineer following sampling and analysis.
- .8 SMDD: Standard Maximum Dry Density and in the context of this Contract means the maximum dry unit weight determined in accordance with ASTM D698.

## **1.6 SUBMITTALS**

- .1 Refer to Section 01 33 00 – Submittal Procedures.

**1.7 ENVIRONMENTAL REQUIREMENTS**

- .1 Section 01 35 43 – Environmental Procedures.

**1.8 SEQUENCING AND SCHEDULING**

- .1 Section 01 33 00 – Submittal Procedures: Requirements for coordination.
- .2 Do not commence excavation operations until the Site-specific Health and Safety Plan has been reviewed and accepted by Engineer.
- .3 Coordinate and sequence excavation operations to minimize the need for temporary stockpiling of excavated materials until required for backfilling. Make reasonable effort to balance cut and fill operations and to ensure that excavated material designated for backfill is immediately placed as backfill in the Works. Keep the time during which excavations remain open to a minimum.
- .4 Excavations shall not be left open over night unless approved by Engineer.
- .5 Do not allow or cause any of the work performed to be covered up or enclosed prior to required inspections, survey, tests, or approvals.

**PART 2 PRODUCTS**

**2.1 NOT USED**

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- .1 Section 01 73 00 – Execution: Verification of existing conditions before starting work.
- .2 Verify that survey bench marks and existing and intended elevations for the Works are as shown on the Drawings.
- .3 Undertake pre-excavation and post-excavation survey of all unit price material quantities.
- .4 Monitoring Wells Requiring Protection: Engineer will locate and mark locations prior to commencement of excavation.
- .5 Determine excavation depths and soil types required for shoring design. Expediently carry out investigation to prevent delay to the schedule and with sufficient detail in order to complete the design.

**3.2 PREPARATION**

- .1 Identify required lines, levels, contours, and datum locations.
- .2 Locate, identify, and protect utilities from damage.
- .3 Arrange for utility company to identify utilities.

- .4 Maintain and protect from damage wells, utilities, buildings, building foundations, surface features, and structures encountered, and not designated for demolition or removal. In the event of disturbance of or damage to any such well, utility, buildings, building foundations, surface features, or structures, immediately notify Engineer. Repair or replace, as directed by Engineer, any well, utility, building, building foundation, surface feature, or structure damaged by Contractor operations unless specified for demolition or removal.
- .5 Protect existing buildings, wells, facilities, surface features, tanks, and structures where temporary unbalanced earth pressures or uplift are liable to develop utilizing bracing, shoring, or other approved methods to counteract unbalance.
- .6 Employ procedures for excavation such that disturbance of wells, utilities, buildings, building foundations, surface features, and structures is avoided.
- .7 Protect excavations from contamination.
- .8 Obtain direction from Engineer before moving or otherwise disturbing wells, utilities, building, building foundations, surface features, and structures.
- .9 Remove surface features or obstructions including, but not necessarily limited to, trees, shrubs, bush, and other vegetation from surfaces to be excavated, within the limits shown on the Drawings or as required to construct the finished work. Dispose of such obstructions to an on-site spoil area as directed by Engineer.

### **3.3 EXCAVATING - GENERAL**

- .1 Excavations shall not be left open overnight unless approved by Engineer.
- .2 Excavate to lines, grades, elevations, and dimensions shown on the Drawings or as directed by Engineer.
- .3 Slope banks with machine to angle of repose or shallower, as required by Laws and Regulations.
- .4 Grade top perimeter of excavation to prevent surface water from draining into excavation.
- .5 Remove debris and other obstructions encountered.
- .6 Loose rock, rock fragments, earth and debris shall be removed and the surface shall be cleaned by mechanical and/or manual means such that structures bear on sound subgrade.
- .7 Remove boulders and fragments that may slide or roll into excavated areas.
- .8 Trim, shape and level the trench bottom so to be free of irregularities. Provide recesses for pipe joints to ensure bearing will occur along barrel of pipe.
- .9 Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- .10 Hand trim, make firm, and remove loose material and debris from excavations. Where natural or fill material at bottom of excavation is disturbed, compact disturbed soil to density at least equal to undisturbed soil or to the density specified for the succeeding layer of backfill, whichever is greater, or remove disturbed soil and refill the space as directed by Engineer.

- .11 Do not disturb soil within the branch spread of trees or shrubs that are to remain. If excavating through roots, excavate by hand and cut roots with sharp axe or saw. Seal cuts with approved tree wound dressing.
- .12 Open excavations shall be Contractor's sole responsibility.
- .13 Stockpile excavated material in area designated on the Site in accordance with Article 3.6.

### **3.4 DISPOSAL OF UNSUITABLE OR EXCESS EXCAVATED MATERIAL**

- .1 Unsuitable Excavated Materials: Soil containing rocks larger than 300 mm measured through any axis, roots, organic matter, very soft clays, fine uniform sands, soils which are not compactable to the specified density, and landfill refuse.
- .2 Dispose of excavated material determined by Engineer as unsuitable for backfill or excess excavated material, in a designated on-site spoil area as directed by Owner or Engineer.

### **3.5 OVER EXCAVATING**

- .1 Notify Engineer when soil at the bottom of the excavation appears unsuitable and proceed as directed by Engineer. Where, in Engineer's opinion, the undisturbed condition of the soils is inadequate for the support of installations, over excavate to adequate supporting soils as directed by Engineer and refill the excavated space with approved material to the proper elevation in accordance with the procedure specified for backfill. Where so directed by Engineer and except as otherwise specified, the excavation and removal of inadequate material as specified, supply and installation of such material in excess of quantities shown on the Drawings will be paid for under the appropriate item of the Schedule of Provisional Unit Prices. Use such over excavated material in the Works or stockpile on the Site as approved by Engineer.
- .2 Backfill in accordance with Section 31 23 33.02 – Fill.
- .3 Should unauthorized excavation be carried below the lines and grades shown on the Drawings and in excess of specified limits and tolerance because of Contractor's operations including errors, methods of construction, or to suit his convenience, correct unauthorized excavation as follows:
  - .1 Fill unauthorized over excavation areas by extending the indicated bottom elevation of the base of the material specified to be placed to the unauthorized excavation bottom without altering the required top elevation and compact in accordance with Section 31 23 33.02 unless otherwise directed by Engineer.
- .4 Additional excavation to remove weakened or disturbed soil or any additional activity caused by Contractor's error, unsuitable construction methods or procedures, or to suit Contractor's convenience and subsequent additional backfill and compaction to correct deficiencies shall be at no additional cost to Owner.

### **3.6 TEMPORARY STOCKPILING**

- .1 Stockpile excavated materials on the Site at locations determined by the Owner and designated by Engineer.
- .2 Construct stockpile sites so that they are well drained, free of foreign materials, and of adequate bearing capacity to support the weight of materials to be placed thereon.
- .3 Provide and maintain access to stockpiles.

- .4 Separate differing materials with substantial dividers or stockpile apart to prevent mixing.
- .5 Prevent contamination or segregation of soil types.
- .6 Direct surface water away from stockpile sites to prevent erosion or deterioration of materials.
- .7 Stockpiling of excavated materials must be located so that the toe of the stockpile is located at a location defined by a 1H:1V slope line extended from the bottom of the excavation trench or 3 m from top of excavation slope, whichever is more.
- .8 Maintain area surrounding stockpiles in neat and tidy condition.
- .9 Cover stockpiled material with robust tarpaulin to withstand adverse weather, wind, and other detrimental forces. Provide total protection of stockpiled material from rain and other adverse weather effects.

### **3.7 TOLERANCES**

- .1 Excavation Depth: Within 50 mm or less than specified depth but not uniformly greater or less.
- .2 Trench Depth: Within 25 mm greater or less than specified depth but not uniformly greater or less.
- .3 Trench Width: Within 100 mm greater or less than specified width but not uniformly greater or less.

### **3.8 FIELD QUALITY CONTROL**

- .1 Section 01 45 00 – Quality Control.
- .2 Engineer will provide for visual inspection of bearing surfaces.

### **3.9 CLEANING**

- .1 Section 01 73 00 – Execution: Requirements for cleaning installed work.
- .2 Clean and reinstate work areas and areas affected by equipment outside areas specified to be excavated.

### **3.10 PROTECTION OF FINISHED WORK**

- .1 Section 01 73 00 – Execution: Requirements for protecting installed work.
- .2 Protect bottom of excavations and soil adjacent to and beneath foundation from freezing and disturbance.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- .1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

**4.2 OVER EXCAVATION**

- .1 Schedule of Additional Unit Prices Item No. 31 23 10/01.
- .2 Measurement Basis: By the cubic metre measured in place.
- .3 Payment Basis: Unit price. Includes, transporting suitable materials to temporary stockpiles, temporary stockpiling, and disposal of unsuitable or excess excavated material on landfill property.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SECTION INCLUDES**

- .1      Related Requirements.
- .2      Reference Standards.
- .3      Definitions.
- .4      Submittals.
- .5      Approvals.
- .6      Quality Assurance.
- .7      Materials – General.
- .8      Native Backfill.
- .9      Pea Gravel.
- .10     Bedding Sand.
- .11     Bentonite Chips.
- .12     Execution.
- .13     Measurement and Payment.

**1.2            RELATED REQUIREMENTS**

- .1      Section 01 33 00 - Submittal Procedures.
- .2      Section 01 35 29 – Health and Safety Requirements.
- .3      Section 01 42 19 – Reference Standards.
- .4      Section 01 45 00 - Quality Control.
- .5      Section 01 73 00 – Execution.
- .6      Section 23 05 05 – Well Field Pipework.
- .7      Section 23 05 06 – Well Field Isolation Valves.
- .8      Section 31 23 10 – Excavation and Trenching
- .9      Section 33 21 14 – Extraction Wells.

### 1.3 REFERENCE STANDARDS

- .1 Section 01 42 19 – Reference Standards.
- .2 Abbreviations for electrical terms shall be to CSA Z85-1983.
- .3 Abbreviations of standards organizations referenced in this and other sections are as follows:

ACI	American Concrete Institute
CSA	Canadian Standards Association
CEC	Canadian Electrical Code
IEEE	Institute of Electrical and Electronic Engineers
ANSI	American National Standards Institute
NBC	National Building Code
NFPA	National Fire Protection Association
EEMAC	Electrical & Electronic Manufacturers Association of Canada (formerly CEMA)
FM	Factory Mutual
NEMA	National Electrical Manufacturers Association (U.S.)
JIC	Joint Industry Conference
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
IES	Illuminating Engineering Society
NETA	National Electrical Testing Association
CUL	Canadian Underwriters Laboratories Inc.
ETL	Electrical Testing Laboratories, Inc.
- .4 ASTM American Society for Testing and Materials
- .5 ASTM International (ASTM)
  - .1 ASTM C117, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.
  - .2 ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - .3 ASTM D422-63, Standard Test Method for Particle-Size Analysis of Soils.
  - .4 ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup>) (600 kN-m/m<sup>3</sup>).
  - .5 ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>) (2,700 kN-m/m<sup>3</sup>).
  - .6 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- .6 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-8.1, Sieves, Testing, Woven Wire, Inch Series.
  - .2 CAN/CGSB-8.2, Sieves, Testing, Woven Wire, Metric.
- .7 CSA Group (CSA)
  - .1 CAN/CSA-A3000, Cementitious Materials Compendium.
    - .1 CSA-A3001, Cementitious Materials for Use in Concrete.



- .2 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

## 1.4 DEFINITIONS

- .1 Common excavation – excavation of materials of whatever nature, which are not included under definitions of solid rock, topsoil, or subsoil; including but not limited to dense tills, hardpan, frozen materials and partially cemented materials which can be ripped and excavated with heavy construction equipment.
- .2 Borrow material: material obtained from locations outside area to be graded and required for construction of fill areas or for other portions of Work.
- .3 Unsuitable materials:
  - .1 Weak, chemically unstable, and compressible materials.
  - .2 Frost susceptible materials under excavated areas.
    - .1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM D422 and ASTM C136: Sieve sizes to [CAN/CGSB-8.2] [CAN/CGSB-8.1].
    - .2 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.
- .4 SMDD: Standard Maximum Dry Density in accordance with ASTM D698.
- .5 Corrected maximum dry density is defined as (correction applied for plus 20 mm material):
  - .1 1.4.9.1  $D = (F1 \times D1) + (0.9 \times D2 \times F2)$ .
  - .2 Where: D = corrected maximum dry density kg/m. F1 = fraction (decimal) of total field sample passing 5 mm sieve. F2 = fraction (decimal) of total field sample retained on 5 mm sieve. (equal to 1.00 – F1) D1 = maximum dry density, kg/m of material passing 5 mm sieve determined in accordance with ASTM D698. D2 = bulk density, kg/m, of material retained on 5mm sieve, equal to 1000 G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127.
  - .3 For free draining aggregates, determine D1 (maximum dry density) to ASTM D4253 wet method when directed by the Engineer.

## 1.5 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Quality Control: in accordance with Section 01 45 00 - Quality Control.
  - .1 Submit condition survey of existing conditions.
  - .2 Submit to Engineer Testing/Inspection results as described in PART 3 of this Section.
- .3 Preconstruction Submittals:
  - .1 Submit construction equipment list for major equipment to be used in this section prior to start of Work.
- .4 Samples:
  - .1 Submit samples in accordance with Section 01 33 00 – Submittal Procedures.

- .2 Inform Engineer at least 2 weeks prior to beginning Work, of proposed source of fill materials and provide access for sampling.
- .3 Submit 70 kg samples of type of fill specified including representative samples of excavated material.
- .4 Ship samples prepaid to Engineer, in tightly closed containers to prevent contamination and exposure to elements.
- .5 At least 2 weeks prior to beginning Work, inform Engineer source of fly ash and submit samples to Engineer.
  - .1 Do not change source of fly ash without written approval Engineer.

## **1.6 APPROVALS**

- .1 At least 4 weeks prior to commencing delivery of granular materials, the contractor must provide the Engineer with documentation specifying the source (i.e., origin) and environmental quality of all proposed materials and provide samples as required by the Engineer.
- .2 If, in opinion of the Engineer, materials from the proposed off-site source do not meet, or cannot reasonably be processed to meet specified requirements, locate alternative source or demonstrate that material from source in question can be processed to meet specified requirements.
- .3 Should a change of off-site material source be proposed during Work, advise Engineer 2 weeks in advance of proposed change to allow sampling and testing.
- .4 Acceptance of material does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.

## **1.7 QUALITY ASSURANCE**

- .1 Qualification Statement: submit proof of insurance coverage for professional liability.
- .2 Submit design and supporting data at least 2 weeks prior to beginning Work.
- .3 Design and supporting data submitted to bear stamp and signature of qualified professional engineer registered or licensed in Alberta, Canada.
- .4 Keep design and supporting data on site.
- .5 Engage services of qualified professional Engineer who is registered or licensed in Alberta, Canada in which Work is to be carried out to design and inspect cofferdams, shoring, bracing and underpinning required for Work.
- .6 Do not use soil material until written report of soil test results are approved by Engineer.
- .7 Health and Safety Requirements:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 29 – Health and Safety Requirements.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS – GENERAL**

- .1 Materials to be composed of inert, durable material, reasonably uniform in quality and free from soft or disintegrate particles.
- .2 Materials should be free of unsuitable materials including:
  - .1 Frozen material or material containing snow or ice.
  - .2 Tree stumps, branches, roots, or other wood or lumber.
  - .3 Wire, steel, cast iron, cans, drums, or other foreign material.
  - .4 Materials containing hazardous or toxic constituents at hazardous or toxic concentrations.
- .3 Compactable to specified density.

### **2.2 BACKFILL**

- .1 Native excavated soil used to construct the Works on the Site, free of unsuitable materials.
- .2 Unsuitable materials: Materials not approved for use as determined by the Engineer and include the following:
  - .1 Material containing loam, roots or organic matter.
  - .2 Clay which are classified as inorganic clays of high plasticity in accordance with ASTM D2487.
  - .3 Soft and/or organic clays and silts of low strength.
  - .4 Rock and lumps of material with dimensions greater than specified layer thickness before compaction.

### **2.3 PEA GRAVEL**

- .1 Size: 10 mm washed round stone
- .2 Gradation:

<u>ASTM Sieve Size</u>	<u>Percent Passing by Weight</u>
12.5 mm	100%
6.3 mm	0%
- .3 Content: No more than 3 percent limestone.
- .4 Free of fine material prior to placement.

### **2.4 BEDDING SAND**

- .1 Sand.
- .2 Gradation:

<u>ASTM Sieve Size</u>	<u>Percent Passing by Weight</u>
------------------------	----------------------------------

4.76 mm 100%

0.074 mm 0%

- .3 Free of clay and other deleterious materials.

## 2.5 BENTONITE CHIPS

- .1 The bentonite shall be high-swelling, sodium montmorillonite (in pellet form) containing no added organic polymers. The material shall exhibit the following properties:
- .1 Plasticity Index: 54 per ASTM D4318.
  - .2 Expansion Index: 289 per UBC 29-2.
- .2 The bentonite shall be placed in thin lifts with each lift properly hydrated prior to placement of the subsequent lift. Water added to bentonite shall be of suitable quality and free of pollutants and contaminants.
- .3 Manufacturer's cut sheets shall be submitted a minimum of seven days prior to the start of construction. Manufacturer's product certifications shall be provided prior to delivery of the material to the site.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- .1 Ensure that all grades and elevations are as per Drawings.
- .2 Suspend operations whenever climatic conditions, as determined by the Engineer, are unsatisfactory for placing fill to the requirements of this Section.
- .3 Do not allow or cause any of the work performed or installed to be covered up or enclosed by work of this Section prior to required inspections, measurements, tests, or approvals.
- .4 Obtain approval from Engineer for completed excavations and previously placed material prior to placement of successive lifts.
- .5 Obtain approval from Engineer prior to placing fill against structures or around exposed buried utilities.
- .6 Ensure areas to be backfilled are free from debris or water.

### 3.2 SITE PREPARATION

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
- .2 Locate, identify, and protect utilities that remain from damage. Confirm locations of buried utilities and structures by careful test excavations or other suitable means.
- .3 Protect plant life, vegetation, and other features which will be part of the final landscaping.

- .4 Protect bench marks, survey control points, existing structures, fences, paving and curbs from excavating equipment and vehicular traffic.
- .5 Maintain and protect wells, utilities, and structures encountered. In event of disturbance or damage to any wells, utilities, or structures, immediately notify the Engineer. Repair or replace any damaged wells, utilities, or structures damaged by Contractor operations.
- .6 Protect existing surface features which may be affected by the Works.
- .7 Protect existing structures where temporary unbalanced earth pressures may develop due to the Works. Utilize bracing, shoring or other approved methods to counteract unbalance.
- .8 Protect excavations and trenches from contamination.
- .9 Obtain directions from Engineer prior to moving or otherwise disturbing utilities or structures.
- .10 Compact sub-grade to density requirements.
- .11 Remove soft areas of sub-grade which are not capable of compaction in place. Backfill these areas with approved native fill and compact to density requirements.
- .12 Remove debris, contamination, or water from areas to be backfilled.
- .13 Proof roll sub-grade surface to identify soft spots. Fill and compact to required density.

### **3.3 PLACEMENT**

- .1 Place material only on a clean unfrozen surface, properly shaped and compacted and free from snow or ice.
- .2 Place material using methods which do not lead to segregation or degradation.
- .3 Place material in uniform layers not exceeding 150 mm when compacted or to such other depth as approved.
- .4 Shape each layer to a smooth contour and compact before succeeding layer is placed.
- .5 Remove and replace portion of layer in which material has become segregated during spreading.

### **3.4 FILLING – BACKFILLING**

- .1 Place and compact suitable Native Backfill, stockpiled or excavated from the Site, as directed by Engineer.
- .2 Place in equal continuous layers not exceeding 300 mm compacted depth.
- .3 Fill areas to grades and elevations as shown on the Drawings.
- .4 Employ a placement method that does not disturb or damage other Works.
- .5 Maintain optimum moisture content of backfill materials to attain required compaction density.

- .6 Do not use fill material which is determined unsuitable by Engineer.
- .7 Do not operate heavy compaction equipment closer than 1 meter to foundations, underground utilities, monitoring wells, or landfill gas extraction wells.
- .8 Backfill around installations as follows:
  - .1 Do not dump directly against or over installations.
  - .2 Place layers on both sides of the installed Works to equalize loading and minimize movement of the installed Works.
- .9 Do not operate heavy compaction equipment closer than 1 meter to foundations, underground utilities, monitoring wells, or landfill gas extraction wells.
- .10 Do not backfill around or over cast-in-place concrete within 7 days of concrete placement.
- .11 Grade changes shall be made gradual.
- .12 Place backfill continuously and in uniform layers not exceeding specified compacted thickness up to grades shown on the Drawings.
- .13 Compact each layer to specified densities specified in this Section prior to placing subsequent layers.

### **3.5 COMPACTION – GENERAL**

- .1 Apply water as necessary during compaction to obtain specified density. Excessively moist material shall be aerated with suitable equipment and methods until optimum moisture content is achieved. In areas where the use of rolling equipment is not possible, compact materials to specified density with mechanical tampers.
- .2 When fill material is wetted to achieve desired moisture, ensure that finer materials are not washed out by jets of water.
- .3 Compaction Equipment: The type, size, and efficiency of compaction equipment shall be capable of achieving the specified degree of compaction.

### **3.6 TOLERANCES**

- .1 Finish compaction surface to within  $\pm 10$  mm of established grade but not uniformly high or low.
- .2 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.
- .3 Payment will not be made for material placed outside the tolerance limits unless directed by Engineer.

### **3.7 QUALITY CONTROL**

- .1 Section 01 45 00 – Quality Control: Inspection for field inspection and testing.
- .2 Engineer shall test installed materials to confirm compliance with specifications.

- .3 Methods of Testing:
  - .1 Particle size analysis shall be performed in accordance with ASTM D422 or ASTM D1140, whichever is appropriate for the material tested.
  - .2 Field compaction density analysis shall be performed in accordance with ASTM-D698.
- .4 Verification Testing by Engineer:
  - .1 Engineer may select samples of uncompacted fill intended for the Works and samples of compacted fill of the Works.
  - .2 Engineer may perform tests in the field and/or in the laboratory on samples of backfill and imported fill to determine if materials meet specifications. Imported fill tests will include analysis for the presence of contaminants, grain size analysis, moisture content, bulk wet density, maximum dry density, and permeability. Backfill testing will include moisture content determination, maximum dry density, and bulk wet density. Copies of the test reports will be supplied to the Contractor on request.

### **3.8 ADJUSTING**

- .1 Section 01 73 00 – Execution: Requirements for adjusting installed works.
- .2 Finish compacted soil surfaces within 25 mm of grades shown in Drawings. Correct surface irregularities by loosening and adding or removing materials until the surface is within the specified grades.
- .3 Grade works with slopes to permit proper drainage and free of depressions that can lead to ponding or collection of water and/or debris which may restrict flow.

### **3.9 CLEANING**

- .1 Section 01 73 00 – Execution: Requirements for cleaning installed works.
- .2 Clean and reinstate work areas and areas affected by the Works to specified restoration condition.
- .3 Upon completion of backfilling, remove excess materials and debris from work areas and travel routes.

### **3.10 PROTECTION OF FINISHED WORKS**

- .1 Section 01 73 00 – Execution: Requirements for protecting installed works.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- .1 No separate payment will be made for Work under this Section.

**END OF SECTION**

**PART 1        GENERAL**

**1.1            SCOPE OF WORK**

- .1        This section includes the supply and installation of the vertical extraction wells as shown in the Drawings. This section must be referenced and interpreted simultaneously with all Other sections pertinent to the Works described herein.
- .2        A wellhead assembly will be installed on each vertical well.

**1.2            SECTION INCLUDES**

- .1        Related Requirements.
- .2        Reference Standards.
- .3        Submittals.
- .4        Quality Assurance.
- .5        Qualifications.
- .6        Existing Conditions.
- .7        Sequencing and Scheduling.
- .8        Vertical Wellhead Assembly.
- .9        Vertical Extraction Wells (Riser Pipe and Well Screen).
- .10       Well Aggregate.
- .11       Bentonite Chips.
- .12       Membrane Seal.
- .13       Execution.
- .14       Measurement and Payment.

**1.3            RELATED REQUIREMENTS**

- .1        Section 01 29 00 – Payment Procedures.
- .2        Section 01 33 00 – Submittal Procedures.
- .3        Section 01 35 29 – Health and Safety Requirements.
- .4        Section 01 42 19 – Reference Standards.
- .5        Section 23 05 05 – Well Field Pipework.
- .6        Section 31 23 33.02 – Fill.



## **1.4 REFERENCE STANDARDS**

- .1 Section 01 42 19 – Reference Standards.
- .2 Latest version of the ASTM Standards:
  - .1 ASTM D2487 – Classification of Soils for Engineering Purposes.
  - .2 ASTM D2488 – Description and Identification of Soils (Visual - Manual Procedure).
  - .3 ASTM D1784 – Standard Specification for Rigid PVC Compounds and CPVC Compounds.
  - .4 ASTM D1785 – 12 Standard Specification for PVC Plastic Pipe, Schedules 40, 80, and 120.
  - .5 ASTM F480 – 12 Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in SDR, SCH 40, and SCH 80.
  - .6 ASTM C33 – Standard Specification for Concrete Aggregates.
  - .7 ASTM C136 – Test Method for Sieve Analysis for Fine and Course Aggregate.
  - .8 ASTM A106 – Standard Specification for Seamless Carbon Steel Pipe for High Temperature Service.
  - .9 ASTM D3350 – Specification for Polyethylene Plastic Pipe and Fitting Materials.
  - .10 Most Current set of CSA Standards Contract Drawings and Standard Details.

## **1.5 SUBMITTALS**

- .1 Submit driller qualifications, including the driller's license number.
- .2 Provide the Engineer with a drilling log prepared by an engineer or geologist at the site with the following information included:
  - .1 Name of supervising professional engineer, registered geologist, or other qualified person completing the form.
  - .2 Description of materials encountered, including generalized composition, level of decomposition, and level of compaction.
  - .3 Coordinates of all well locations (with horizontal and vertical accuracy to 5 cm).
- .3 The Contractor shall submit to the Engineer, a final well record log with the following information included:
  - .1 Borehole diameter.
  - .2 Bottom of casing and bottom of borehole depth.
  - .3 Casing material, diameter, and wall thickness (SDR or Schedule).
  - .4 Perforated and/or screened interval.
  - .5 Type, size and intervals of pea gravel, bentonite seals and fill.
  - .6 Name of supervising professional engineer, registered geologist, or other qualified person completing the log.
- .4 The Contractor shall review the specifications and identify all required project submittals. The submittals listed below are intended as a general summary of the submittal items contained within this section. This submittal list does not release the Contractor from the responsibility of identifying and providing all information requested:
  - .1 Wellhead assemblies.
  - .2 LFG Pipe Inlet.
  - .3 Vertical well casing.

- .4 Slip joint assembly.
- .5 Vertical well aggregate.
- .6 Bentonite.
- .7 Membrane seals.

**1.6 QUALITY ASSURANCE**

- .1 Procure permits, certificates, and license required by law for the execution of the Works. Comply with Laws and Regulations relating to the performance of the Works.

**1.7 QUALIFICATIONS**

- .1 Drilling Firm:
  - .1 Company specializing in performing the Works identified in this Section.
- .2 Drilling Crew:
  - .1 One (1) crew member shall have a minimum of five (5) years' experience in performing the Works outlined in this section.

**1.8 EXISTING CONDITIONS**

- .1 Due to the nature of activities which take place at the location of the Works, the extraction well will penetrate through landfill waste and may encounter asbestos.
- .2 Assume that work undertaken at or below the surface of the landfill cover will have landfill gas present. Landfill gas is comprised of methane, carbon dioxide, and a wide range of trace gasses as identified in Section 01 35 29 – Health and Safety Requirements.

**1.9 SEQUENCING AND SCHEDULING**

- .1 Submit in accordance to Section 01 33 00 – Submittal Procedures.
- .2 Sequence and schedule the work subject to the following conditions:
  - .1 Contractor shall survey and layout all well field components prior to the commencement of work.
  - .2 The Engineer will determine the location and sequence of drilling events, and completion of wells.
  - .3 Uncompleted wells are to be covered at the end of the day to prevent access to the hole and minimize the release of landfill gas.
  - .4 Complete drilling and installation activities at each well in its entirety before commencing work on other wells.
  - .5 The Engineer will determine if and when refusal in a borehole has occurred and whether the borehole is to be abandoned.

**PART 2 PRODUCTS**

**2.1 VERTICAL WELLHEAD ASSEMBLY**

- .1 QED 50 mm (2 inch) ORP215M vertical wellhead or approved equivalent.

- .1 Standard product design shall include a precision gas control valve, Quick-change Orifice Plate Assembly, thermometer control port, access and sampling ports with the following specifications:
  - .1 The Wellhead shall incorporate a housing that will allow the operator to quickly change the orifice plates if necessary.
  - .2 Orifice Plate Kit: QED model 40640 or approved equivalent.
    - .1 1.59 mm (1/16") laser cut stainless steel orifice plates
    - .2 6 sizes ranging from 10mm to 35mm orifice size.
  - .3 Each plate shall have an easy to read tab with the plate size. The plate size shall be legible without removing the plate from the housing.
  - .4 Each well head will be provided with a 1.9 cm (3/4 inch) orifice plate for the flow range 5.9 – 19.6 SCFM.
- .2 Accessories:
  - .1 Transition Adapter: Landtec transition adapter or approved equivalent.
    - .1 Size: 75mm x 50mm.
  - .2 PVC Flex Hose:
    - .1 QED Solarguard Flex Hose or approved equivalent.
    - .2 Diameter: 50 mm.
    - .3 Working Pressure: 275 kPa (40 psi)
    - .4 Stainless Steel Banding Kit.
  - .3 Hose Clamps: SS band clamps
  - .4 Insulation
    - .1 Wellhead: QED Polar Guard or approved equivalent.
    - .2 Flex Hose: Crossroads C&I Crosswrap Insulation or approved equivalent.
      - .1 R-13 fiberglass insulation with 5 mil UV resistant PE sheath.
  - .5 PVC Flanges: SCH 80 as shown on Drawings.
  - .6 PVC Pipe: SCH 80 as shown on Drawings.
  - .7 PVC Fittings: SCH 80 as shown on Drawings.

## **2.2**

### **LATERAL PIPE INLET ASSEMBLY**

- .1 PVC Flanges: SCH 80 as shown on Drawings.
- .2 PVC Pipe: SCH 80 as shown on Drawings.
- .3 Fittings: SCH 80 tee connections, wyes, elbows, bushings, reducers, plugs as shown on Drawings.
- .4 PVC Ball Valve: Asahi, PVC, True Union Type 21 manual ball valve or approved equivalent.
  - .1 Diameter: 50 millimeter.
  - .2 Process Fluid: Landfill Gas.
  - .3 Body: PVC.
  - .4 Ends: SOC.
  - .5 Body and Stem Seal: Viton.
  - .6 O-Ring: Viton.
  - .7 Seat: Viton.
  - .8 Actuator: manual.

- .5 Labcock: Asahi, 13 mm diameter Type 27 PVC ball valve, Teflon seat, female threads both ends.
- .6 Labcock fitting: 13 mm diameter stainless steel male NPT to 6 mm diameter hose barb end, Swagelok or approved equivalent.
- .7 Flanges: ASTM A536 ductile iron backing flanges with Class 150 ANSI B 16.5 standard drilling and corrosion resistant coatings. Complete with 1-piece molded polyethylene stub ends unless otherwise indicated on drawings. Connections shall have same or greater pressure rating as pipes.
- .8 Gaskets: Neoprene, minimum 3.2 mm thick.
- .9 Bolt Sets: Hexagonal type, 304 Stainless steel unless otherwise indicated in Drawings.

### **2.3 VERTICAL EXTRACTION WELLS (RISER PIPE AND WELL SCREEN)**

- .1 Riser Pipe
  - .1 Upper Section (PVC): CSA B137.3, Schedule 80, 75 mm diameter, non-perforated as shown on the Drawings.
- .2 Perforated Pipe
  - .1 Lower Section (PVC): CSA B137.3, Schedule 80, 100 mm diameter, perforated as shown on Drawings.
- .3 Well Base Pipe Insulation:
  - .1 Insulation: Mineral wool molded one piece 50mm thick pipe insulation.
  - .2 Aluminum Jacket: 0.5 mm thickness, stucco-finished aluminum jacket, conforming to ASTM B209.
- .4 Bentonite Chips: Refer to Section 31 23 33.02 – Fill.
- .5 Pea Gravel: Refer to Section 31 23 33.02 – Fill.
- .6 Accessories:
  - .1 O-rings: neoprene, sized to fit tightly between the 75 mm diameter riser pipe and the 100 mm diameter perforated pipe. Quantity: 3 per well.
  - .2 Caps: End cap 100 mm diameter PVC cap (SOC), bottom of perforated pipe, solvent welded. Temporary top cap 75 mm diameter, SOC, do not solvent weld.
  - .3 Slip joint: 100 mm diameter x 75 mm diameter PVC flush style reducer bushing (spigot x socket), with drilled 75 mm diameter hole to provide snug fit for 75 mm non-perforated PVC riser pipe.
  - .4 Geotextile: nonwoven geotextile, 200 grams per square meter or as approved by Engineer.
  - .5 Fittings (PVC): CSA B137.3, SCH 80, as shown on drawings.
  - .6 Fasteners: Stainless steel sheet metal screws, corrosion resistant, Phillips pan head. Sized flush with inside of pipe.

### **2.4 MEMBRANE SEAL**

- .1 The membrane seal shall be a LANDTEC-WBS membrane seal or approved equal and shall consist of a PVC membrane panel, integral pipe boot, butyl sealing tape, and stainless steel

- hose clamp. The seal shall have minimum dimensions of 3 m x 3 m (approximately 10 feet x 10 feet).
- .2 The integral membrane pipe boot shall be located in the center of the seal. The boot shall fit over the well or other protrusion, and be approximately 76.2 cm (30-inch) high in its uncompressed state.
  - .3 The seal shall be capable of withstanding the rigors of landfill gas recovery application including weathering, gas constituent, settling, and normal ultraviolet light exposure.
  - .4 The membrane seal shall be suitable for use with pipes between 7.5 cm and 20.3 cm (3-inch and 8-inch) nominal diameter.
  - .5 The hose clamp used to secure the boot to the pipe shall be stainless steel and have a nominal width of at least 6.35 mm (1/4-inch). It shall be adjustable with a standard screwdriver and nut driver.
  - .6 Manufacturer's cut sheets shall be submitted a minimum of seven days prior to the start of construction. Manufacturer's product certifications shall be provided prior to delivery of the material to the site.

### **PART 3 EXECUTION**

#### **3.1 GENERAL**

- .1 The Contractor shall install the wellheads at the locations as shown on the Drawings.
- .2 The Contractor shall provide all necessary components for assembly of the wellhead assembly.
- .3 The valve operation shall be checked by CQA Monitor to confirm that the valve turns freely and that the valve is left in the CLOSED position.
- .4 Contractor to provide a Letter of Conformance once the wells have been installed and tested confirming the system is ready for commissioning and start up.

#### **3.2 PREPARATION**

- .1 Survey and mark all vertical well locations.
- .2 Review well locations with Engineer and adjust as required to facilitate construction of Works.
- .3 Construct temporary drilling platforms and roadways to facilitate drill rig access to the vertical well locations. Alter landfill side slopes as approved by Engineer.

#### **3.3 DRILLING**

- .1 Use drilling equipment and methods approved by Engineer.
- .2 Well boring shall utilize flight auger drilling and shall provide a nominal borehole diameter of 300 mm minimum for each LFG well. Air rotary or mud rotary drilling is not suitable for this work.

- .3 Drill borehole minimum 300 mm diameter to a minimum depth of 15 m at locations shown on Drawings or as directed by Engineer.
- .4 Drill boreholes true to line and plumb.
- .5 Construct each well in accordance with the details as shown on Drawings and as directed by Engineer.
- .6 Exercise extreme caution when drilling wells to follow depth information provided and to ensure extraction wells do not extend closer than 3 m to the base of the landfill.
- .7 If perched groundwater or the bottom of the landfill refuse is encountered prior to reaching the indicated Well Schedule depth, the Contractor shall install a bentonite seal extending up 1,500 mm from the bottom of the boring. The bentonite shall be #8 and shall be placed in thin lifts with each lift properly hydrated prior to placement of the subsequent lift.
- .8 Borings shall be logged, in addition to the contractor's daily drilling log.
- .9 The Contractor shall provide fans to control emissions at surface while undertaking drilling activities.
- .10 The Contractor shall not leave any borings open when work is not actively in progress unless an approved cover is placed over the surface of the well.
- .11 The Contractor shall place drill cuttings (construction spoils) on a liner and cover the cuttings with plastic sheeting. These temporary stockpiles of construction spoils shall not exceed 50 cubic yards. Well cuttings shall be disposed of at the active landfill face, as directed by the Engineer.
- .12 Boring Depths: Actual depths be dependent on conditions encountered during drilling.

### **3.4 BOREHOLE LOGGING**

- .1 Maintain a log or record of each borehole which shall include the following information:
  - .1 The general character, thickness, and type of material encountered.
  - .2 The depth at which leachate was encountered, if encountered.
  - .3 The total depth of the extraction well.
  - .4 The depth below ground surface of perforated and non-perforated pipe sections.
  - .5 Quantities of materials placed in the boreholes.
  - .6 Elevation of top of well riser.

### **3.5 WELL ABANDONMENT**

- .1 In the event of well abandonment because of loss of tools or equipment, caving-in of the drilled borehole, or due to Contractor negligence, if requested and as directed by Engineer, fill the abandoned hole with drill cuttings and place a 500 mm bentonite seal directly below the landfill cover soil layer. Well abandonment due to Contractor negligence will be at Contractor's expense. Ensure bentonite seal contacts interim landfill cover.
- .2 Restore landfill cover to existing grades.
- .3 Abandonment of a borehole due to refusal and not due to Contractor equipment loss, equipment failure, caving-in of the borehole, or negligence, which is beyond Contractor's

control, will be compensated at the rates provided in the Schedule of Prices. Engineer will make determination on whether borehole is abandoned due to refusal.

- .4 Refusal is the demonstrated inability to advance a borehole to the design depth for installation of a well being installed in the waste. To qualify for payment in accordance with the provisional unit prices, Contractor will have to demonstrate that the equipment is working properly at full power and that advance of the auger tip has been less than 150 mm over a continuous 30 minute period of continuous application under full power.

### **3.6 VERTICAL GAS EXTRACTION WELL INSTALLATION**

- .1 PVC pipe joints shall be flush thread connected.
- .2 Cap base of perforated PVC extraction well pipe. Secure base cap with PVC solvent cement.
- .3 Construction of slip joint:
  - .1 Construct slip joint as shown on Drawings with neoprene O-rings to fit tightly between 75 mm non-perforated riser and 100 mm perforated riser.
  - .2 Machine SCH 80 PVC reducer bushing to allow for clearance of 75 mm non-perforated pipe without binding.
  - .3 Install stainless steel sheet metal screws in 75 mm riser pipe 1000 mm from end of non-perforated 75 mm riser pipe. Ensure that ends of screws filed smooth and are flush with inside of the PVC pipes.
  - .4 Secure reducer bushing to top of 100 mm perforated pipe section with PVC solvent cement and 4 stainless steel screws. Ensure stainless steel screws do not penetrate through the PVC bushing and bind to the 75 mm non-perforated pipe.
  - .5 Wrap nonwoven geotextile around well slip joint and fasten with plastic ties.
- .4 Place riser pipe and perforated pipe immediately after drilling. Set firmly in place centrally located in borehole.
- .5 Pea Gravel Placement:
  - .1 Place Pea Gravel in annular space of borehole to 300 mm above perforated depth.
  - .2 To prevent bridging, pour aggregate gradually and carefully into annular space as determined by volume measurements and sounding with a weighted tape. Sound enough so that placement is accurate to within 50 mm.
- .6 Bentonite Chip Placement:
  - .1 Bentonite shall be placed at the depths and thicknesses indicated on the drawings.
  - .2 Bentonite shall be placed in thin lifts with each lift properly hydrated prior to placement of the subsequent lift.
  - .3 Water added to bentonite shall be of suitable quality and free of pollutants and contaminants. The top of the bentonite seals shall be sounded to ensure that no bridging occurred during placement.
- .7 Maintain riser pipe free of contaminating materials.
- .8 Extend riser to minimum 1.0 metre above grade.
- .9 Place temporary PVC slip cap on riser. Do not solvent weld.

**3.7 MEMBRANE SEAL**

- .1 The membrane shall be sealed to the well casings with stainless steel clamps and sealing tape as specified and as shown on Drawings.
- .2 The Contractor shall ensure the surface surrounding the well casing, on which the membrane seal will lay, is free from abrupt breaks, sharp objects, or other foreign materials that may inhibit placement or damage the membrane seal. All construction stakes, hubs, or other items used for grade control shall be removed and the voids shall be filled. The subgrade shall be unyielding, smooth and uniform. The surface shall not be pebbly, or tracked and rutted by equipment. No loose, coarse-grained materials shall remain on the surface of the subgrade.
- .3 Fill, free of rocks, clods, or other materials that may damage the membrane seals shall be spread over the PVC membrane to a thickness of approximately 150 mm (6-inches), prior to placing any additional fill. Equipment placing fill within 18 inches above the PVC membrane shall be limited to track equipment exerting a ground pressure less than 6 psi.

**3.8 WELLHEAD ASSEMBLY**

- .1 The Contractor shall install the wellheads at the locations as shown on the Drawings.
- .2 The wellhead assembly shall be connected to the HDPE lateral piping via the 50 mm flex hose as shown on the Drawings.
- .3 The Contractor shall provide all necessary components for installation of the wellhead assembly.
- .4 The valve operation shall be checked by CQA Monitor to confirm that the valve turns freely and that the valve is left in the CLOSED position.
- .5 The wellhead shall be airtight and leak free.
- .6 It is the intent of this Specification that the wellhead assembly shall be supplied as a complete manufactured unit.

**3.9 DISPOSAL OF CUTTINGS**

- .1 Dispose drill cuttings and solid waste generated during drilling in the active landfill area as directed by the Engineer.

**3.10 RESTORATION AND CLEANING**

- .1 Clean drill augers and drilling rig before leaving place of Work.
- .2 Regrade and restore drill pad and access road areas, including existing cover system, to original conditions.
- .3 Clean, reinstate and restore work areas and areas affected by equipment, including access roads and drill pads.

**3.11 PROTECTION OF FINISHED WORKS**

- .1 Protect completed wells and wells under construction from contamination.



**PART 4 MEASUREMENT AND PAYMENT**

**4.1 GENERAL**

- .1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

**4.2 VERTICAL EXTRACTION WELLS**

- .1 Schedule of Prices Item No. 33 21 14/01
- .2 Measurement Basis: Per linear metre drilled and installed, measured vertically from the landfill surface to the bottom of each borehole.
- .3 Payment Basis: Unit Price. Includes surveying, access road and drill pad preparation, all costs associated with drilling, disposal of drill cuttings in active landfill area, supply and installation of extraction well and well components (solid and perforated pipes, pipe casing, membrane seals, slip joints, end caps, geotextile, accessories, fasteners, bentonite, pea gravel), testing of joints prior to installation and QA/QC to ensure proper installation of wells, restoring access roads and drill pads to original condition, placing and compacting original barrier soil layer, subsoil and topsoil, and regrading to original grades.

**4.3 WELLHEAD ASSEMBLY**

- .1 Schedule of Prices Item No. 33 21 14/02
- .2 Measurement Basis: Per wellhead assembly.
- .3 Payment Basis: Unit Price. Includes supply and installation of well head assemblies, lateral pipe inlet assemblies, and accessories, connection to lateral pipes, and testing.

**4.4 BOREHOLE REFUSAL**

- .1 Schedule of Additional Unit Prices Item No. 33 21 14/01
- .2 Measurement Basis: By the linear metre drilled.
- .3 Payment Basis: Unit price. Includes drilling, backfilling drill cuttings, and supply and installation of bentonite.

**END OF SECTION**

## APPENDIX N – DRAWINGS



# FOOTHILLS BOULEVARD REGIONAL LANDFILL

## 2024 LFG WELLFIELD EXPANSION - ISSUED FOR TENDER

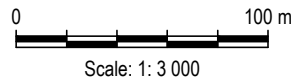




SHEET LIST INDEX

SHEET NUMBER	SHEET TITLE
C101	EXISTING CONDITIONS
C102	PROPOSED LAYOUT
C201	PLAN AND PROFILE - SUBHEADER AND LATERALS 1
C202	PLAN AND PROFILE - SUBHEADER AND LATERALS 2
C203	PLAN AND PROFILE - SUBHEADER AND LATERALS 3
C204	PLAN AND PROFILE - SUBHEADER AND LATERALS 4
C301	DETAILS 1 OF 4
C302	DETAILS 2 OF 4
C303	DETAILS 3 OF 4
C304	DETAILS 4 OF 4




Prince George,  
British Columbia





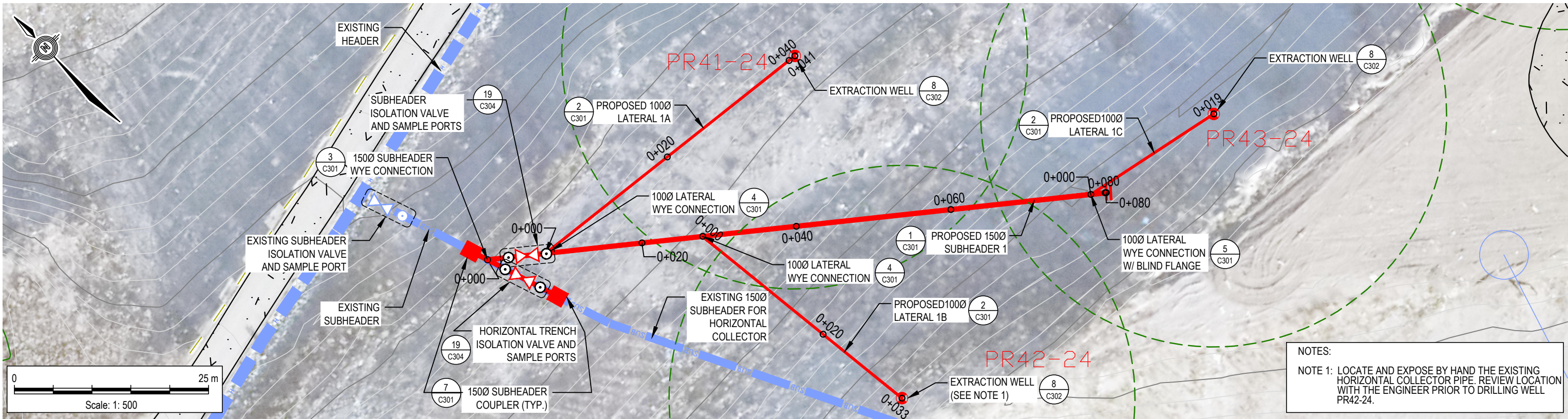
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							<div>EXISTING CONDITIONS</div>					
NUM	DATE	APR	DESCRIPTION									
REVISIONS												
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C	MAY 22/24	ML	ISSUED FOR REVIEW - 95%									
B	APR 19/24	ML	ISSUED FOR REVIEW - 60%									
A	MAR 20/24	ML	ISSUED FOR REVIEW - 30%									
NUM	DATE	APR	DESCRIPTION									
DRAWING STATUS												
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							DATE: May 2024	SHEET No. 1 of 10	DWN AF	APP ML	STATUS D	



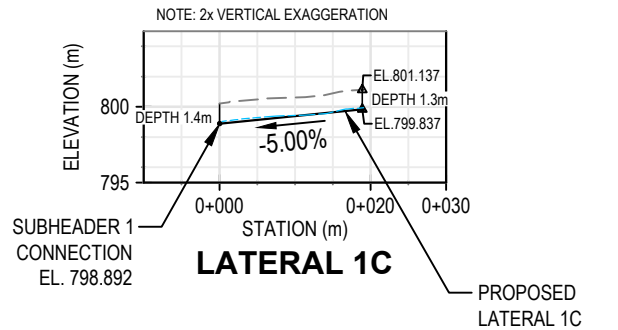
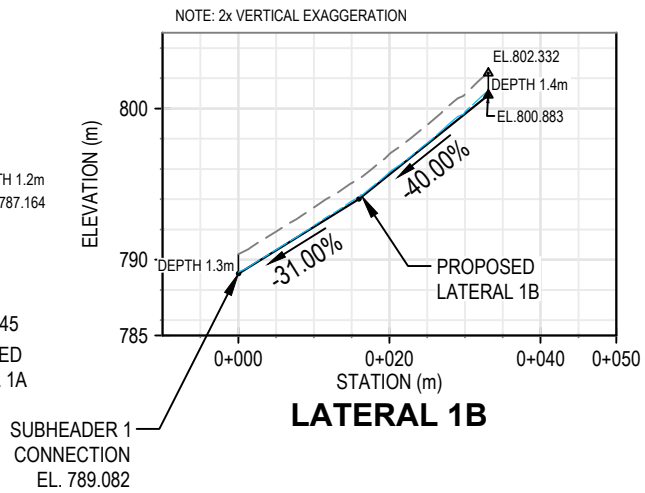
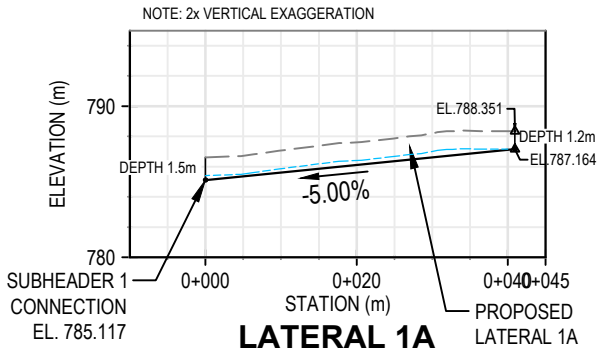
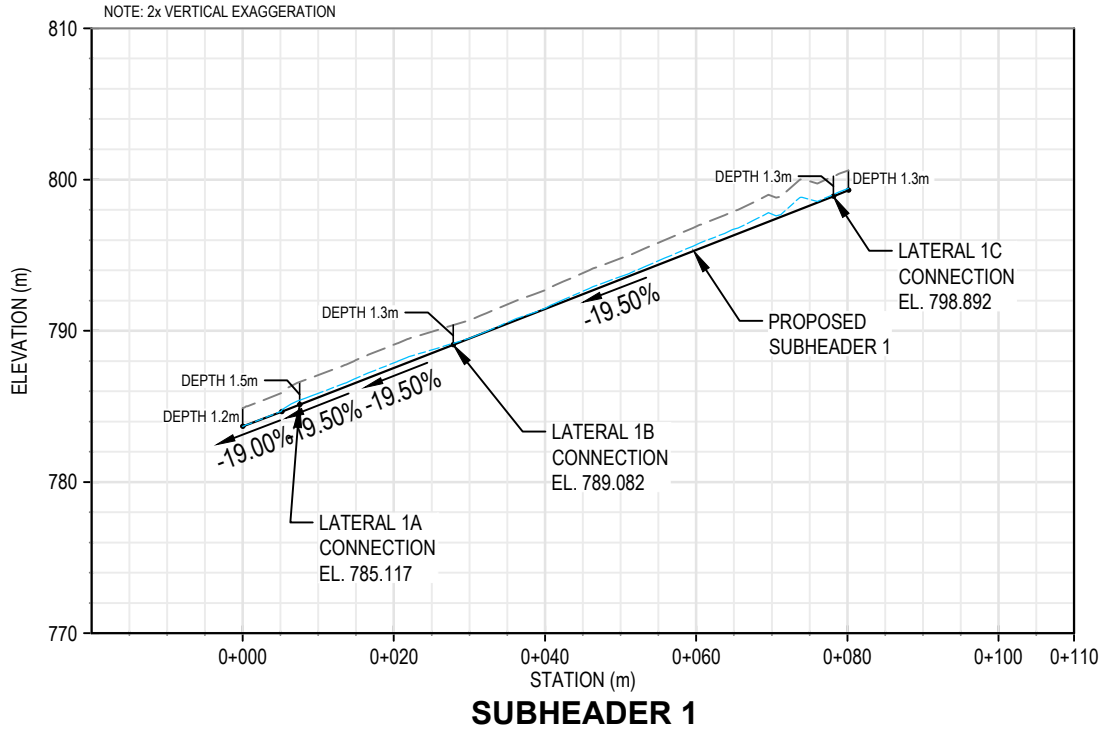
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A	MAR 20/24	ML	ISSUED FOR REVIEW - 30%										
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DRAWING STATUS				PERMIT		PROFESSIONAL SEAL							



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NOTES:  
NOTE 1: LOCATE AND EXPOSE BY HAND THE EXISTING HORIZONTAL COLLECTOR PIPE. REVIEW LOCATION WITH THE ENGINEER PRIOR TO DRILLING WELL PR42-24.



LEGEND:  
--- EXISTING GROUND (OCTOBER 26 2023)  
- - - 1.2m OFFSET FROM EXISTING GROUND

NUM	DATE	APR	DESCRIPTION
REVISIONS			
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C	MAY 22/24	ML	ISSUED FOR REVIEW - 95%
B	APR 19/24	ML	ISSUED FOR REVIEW - 60%
A	MAR 20/24	ML	ISSUED FOR REVIEW - 30%
NUM	DATE	APR	DESCRIPTION
DRAWING STATUS			

PERMIT TO PRACTICE  
TETRA TECH CANADA INC.  
PERMIT NUMBER: 1001972

PERMIT

2024-06-06

PROFESSIONAL SEAL

CLIENT

**REGIONAL DISTRICT**  
of Fraser-Fort George

**TETRA TECH**

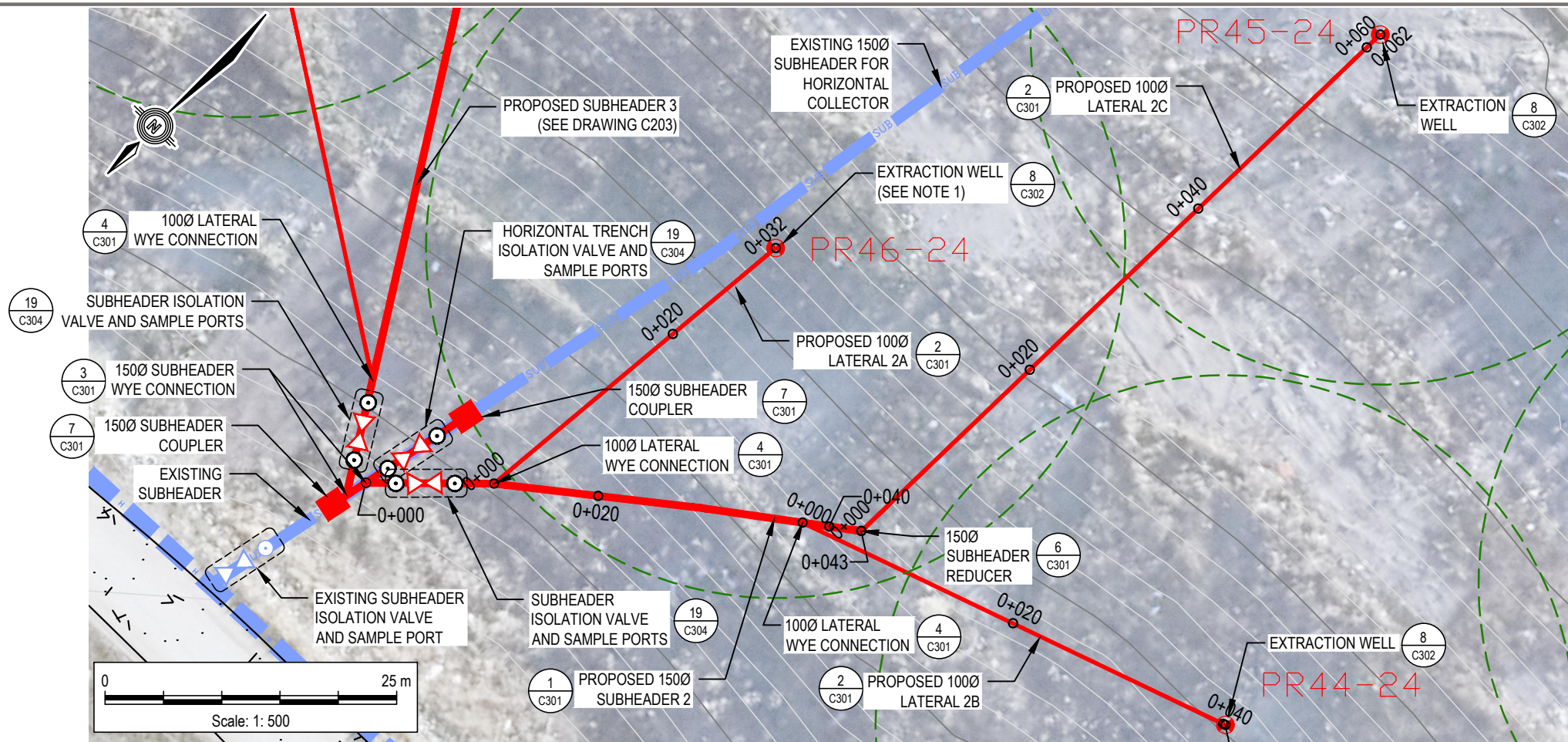
LFG WELLFIELD EXPANSION  
FOOTHILLS BOULEVARD REGIONAL LANDFILL

PLAN AND PROFILE - SUBHEADER AND LATERALS 1

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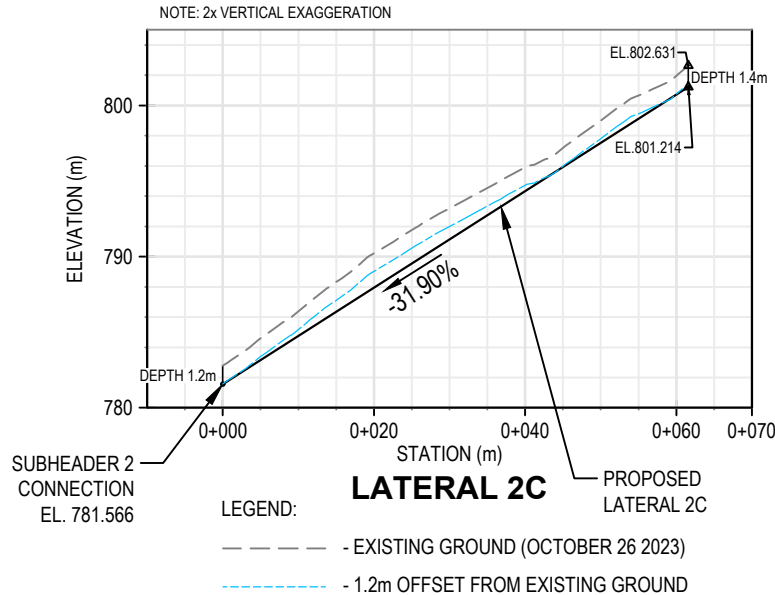
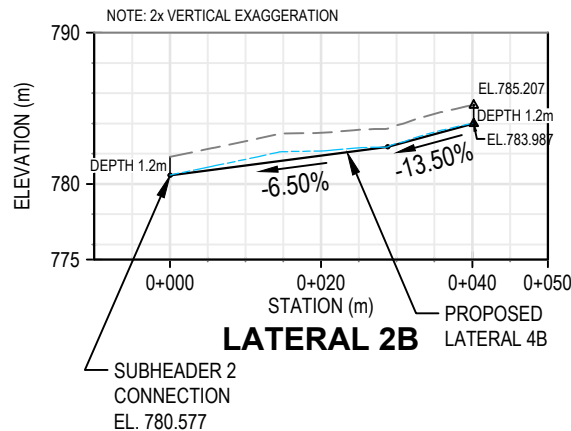
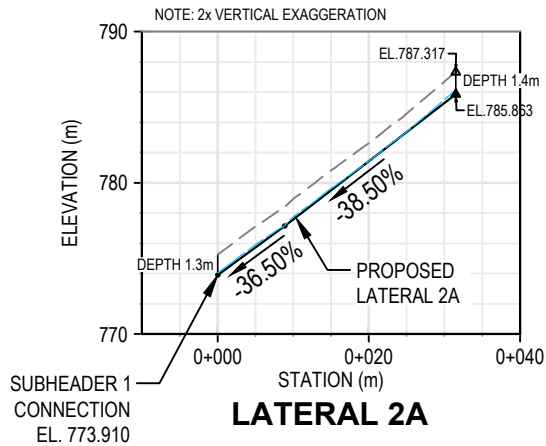
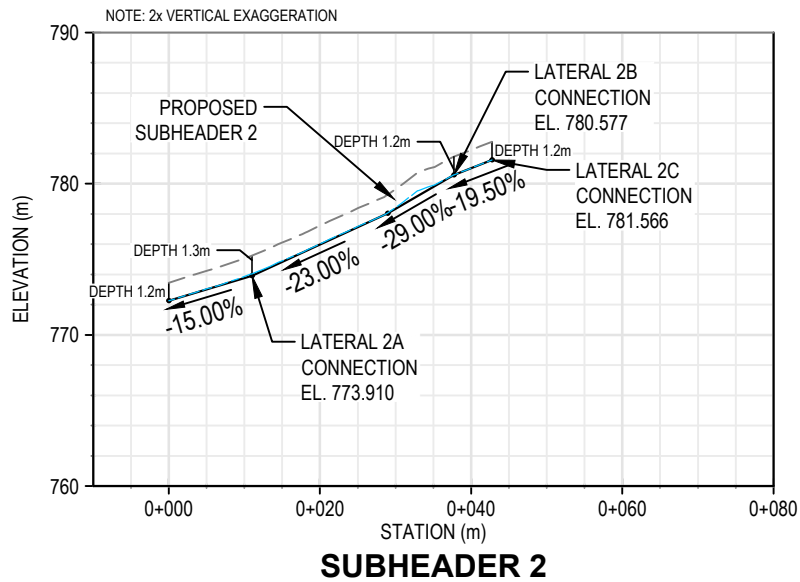


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NOTES:

NOTE 1: LOCATE AND EXPOSE BY HAND THE EXISTING HORIZONTAL COLLECTOR PIPE. REVIEW LOCATION WITH THE ENGINEER PRIOR TO DRILLING WELL PR46-24.



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NUM	DATE	APR	DESCRIPTION
DRAWING STATUS			

PERMIT TO PRACTICE  
TETRA TECH CANADA INC.  
PERMIT NUMBER: 1001972

PERMIT

2024-06-06

PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT  
of Fraser-Fort George

TETRA TECH

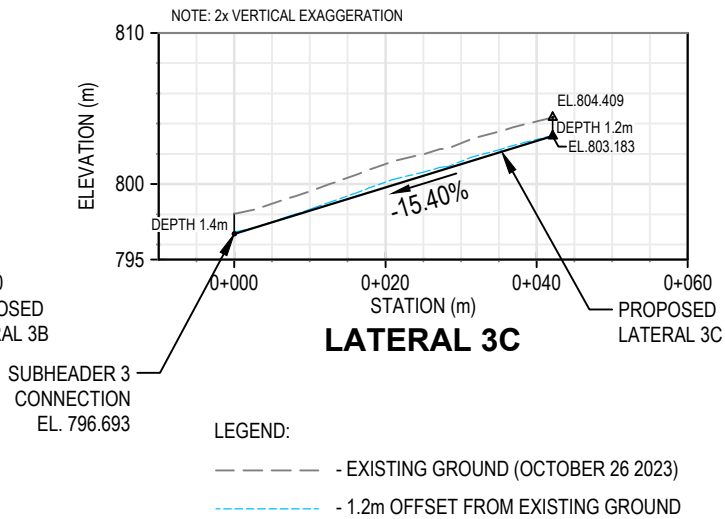
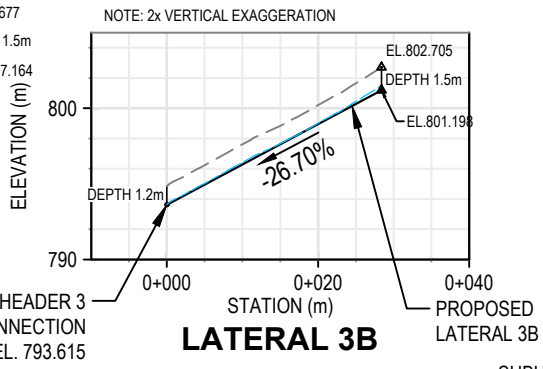
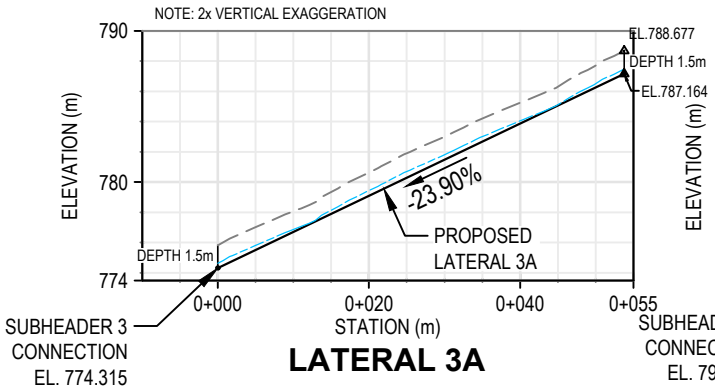
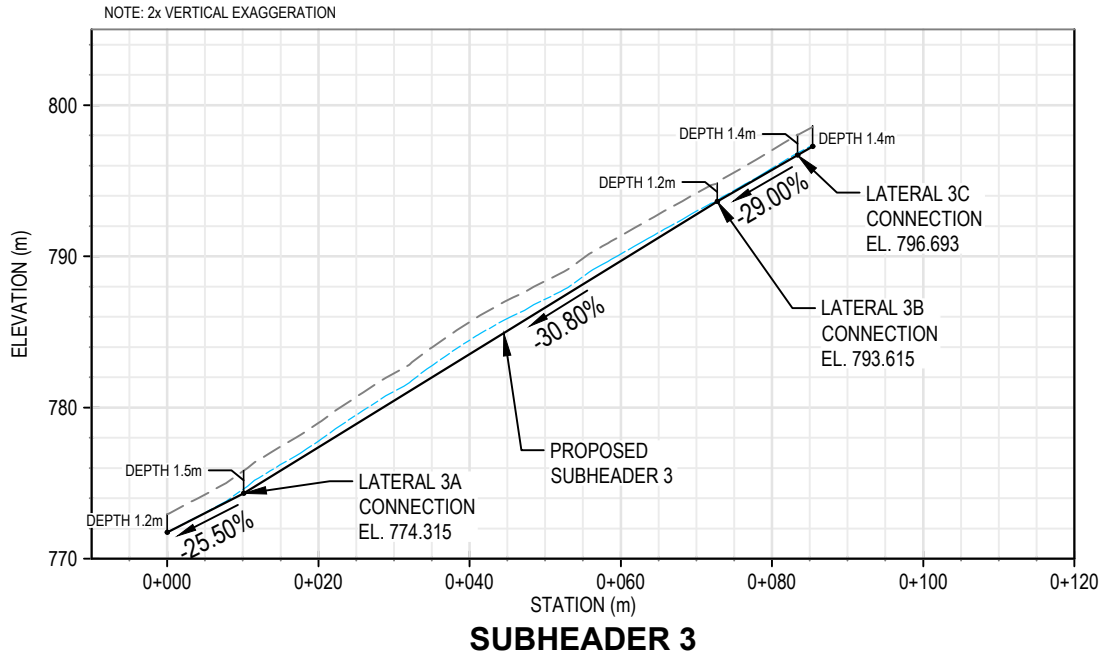
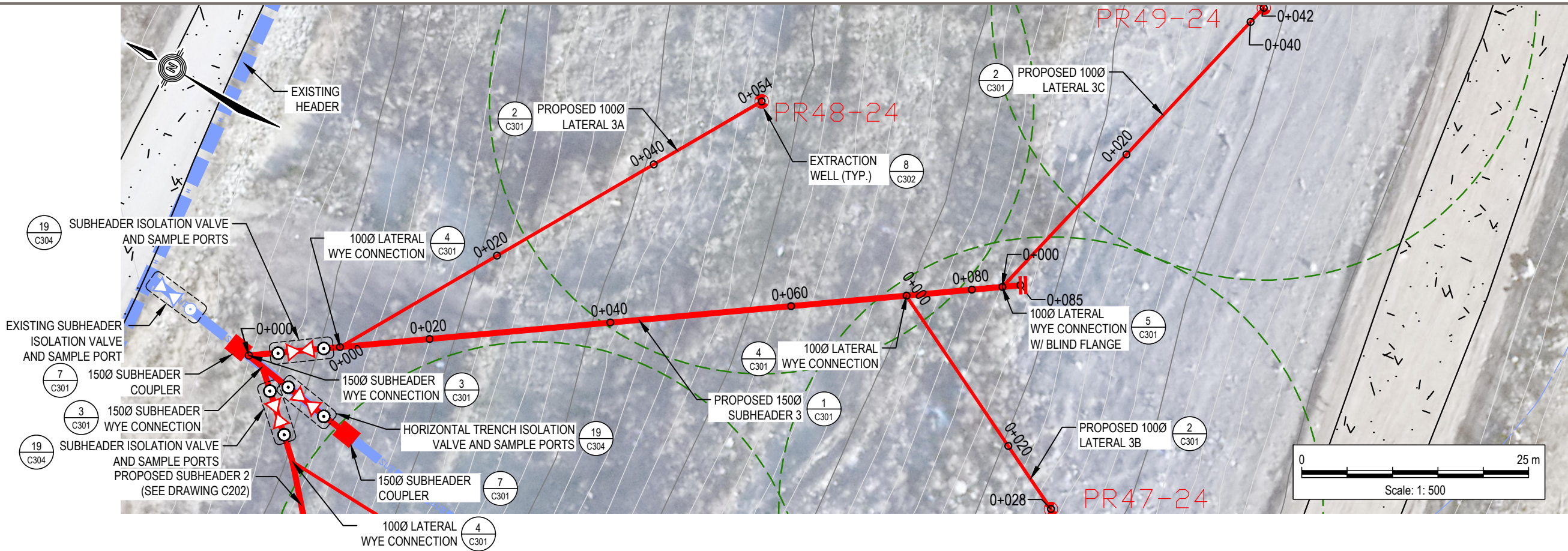
LFG WELLFIELD EXPANSION  
FOOTHILLS BOULEVARD REGIONAL LANDFILL

PLAN AND PROFILE - SUBHEADER AND LATERALS 2

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DATE: May 2024	SHEET No. 4 of 10	DWN AF	APP ML	STATUS D	



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DRAWING STATUS			

**PERMIT TO PRACTICE**  
**TETRA TECH CANADA INC.**  
**PERMIT NUMBER: 1001972**

PERMIT

2024-06-06

PROFESSIONAL SEAL

CLIENT

**REGIONAL DISTRICT**  
of Fraser-Fort George

**TETRA TECH**

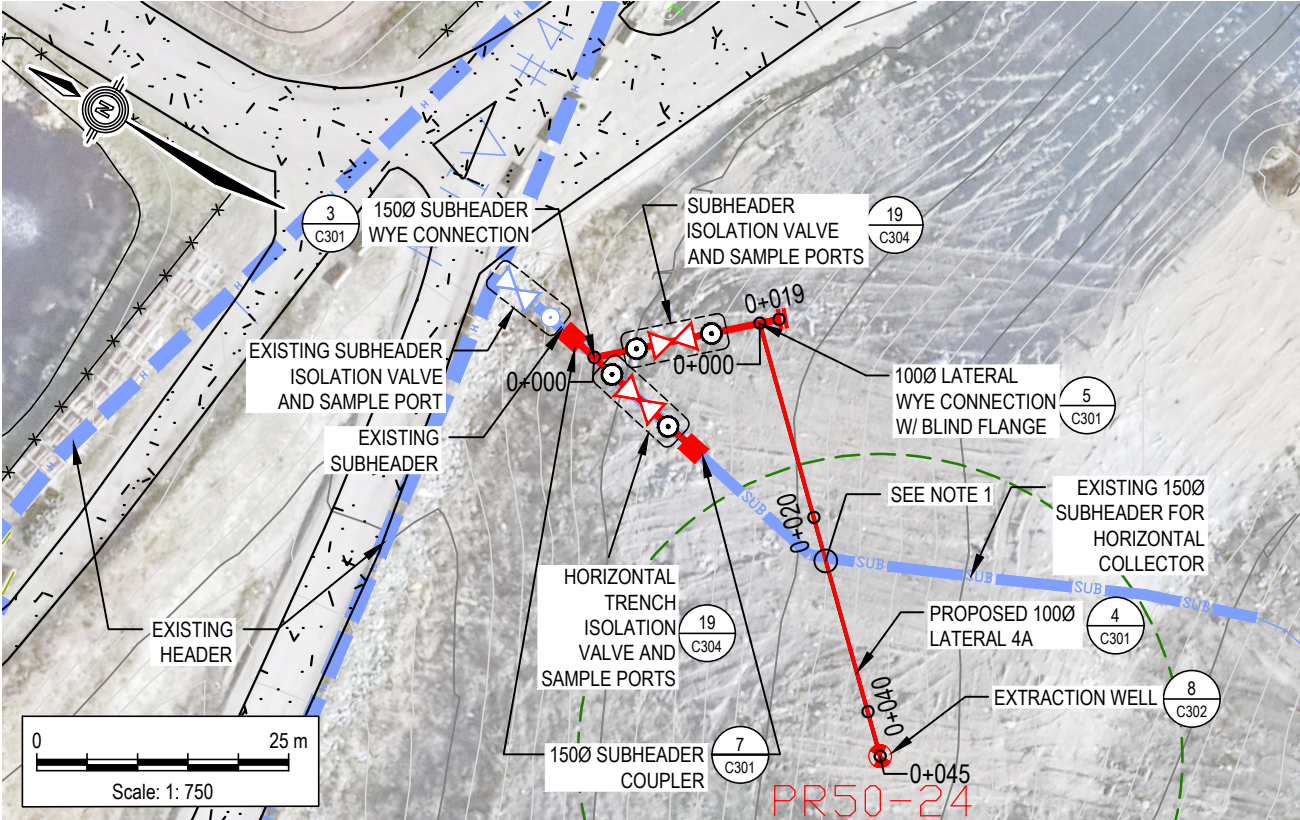
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**PLAN AND PROFILE - SUBHEADER AND LATERALS 3**

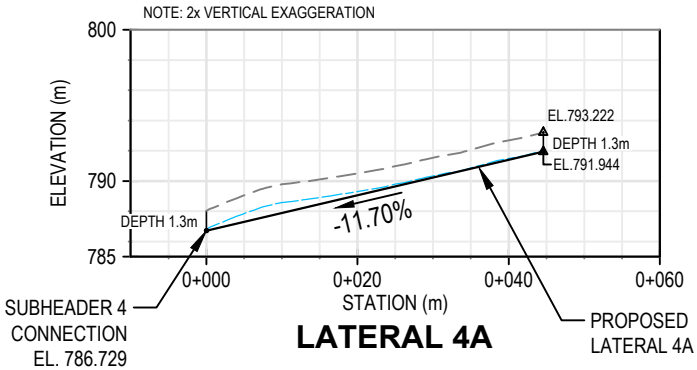
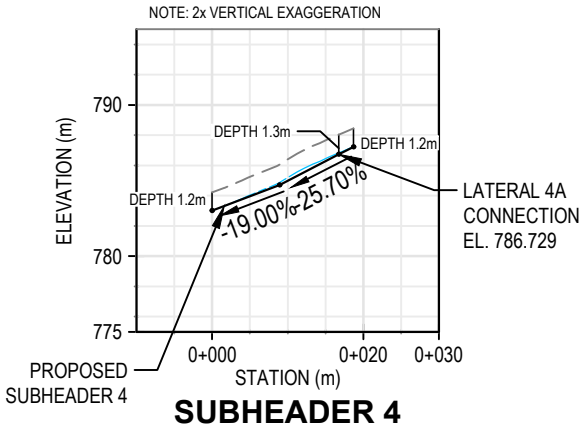
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NOTES:  
NOTE 1: ELEVATION (BURIED DEPTH) OF THE HORIZONTAL COLLECTOR PIPE IS UNKNOWN. HAND EXPOSE LATERAL TRENCH WITHIN 2m OF EXISTING PIPE.



LEGEND:  
- - - - - EXISTING GROUND (OCTOBER 26 2023)  
- - - - - 1.2m OFFSET FROM EXISTING GROUND

NUM	DATE	APR	DESCRIPTION
REVISIONS			
D	MAY 31/24	ML	ISSUED FOR TENDER
C	MAY 22/24	ML	ISSUED FOR REVIEW - 95%
B	APR 19/24	ML	ISSUED FOR REVIEW - 60%
A	MAR 20/24	ML	ISSUED FOR REVIEW - 30%
NUM	DATE	APR	DESCRIPTION
DRAWING STATUS			

PERMIT TO PRACTICE  
TETRA TECH CANADA INC.  
PERMIT NUMBER: 1001972

PERMIT

2024-06-06

PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT  
of Fraser-Fort George

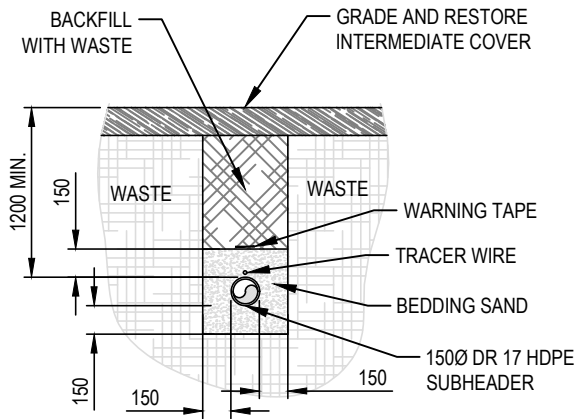
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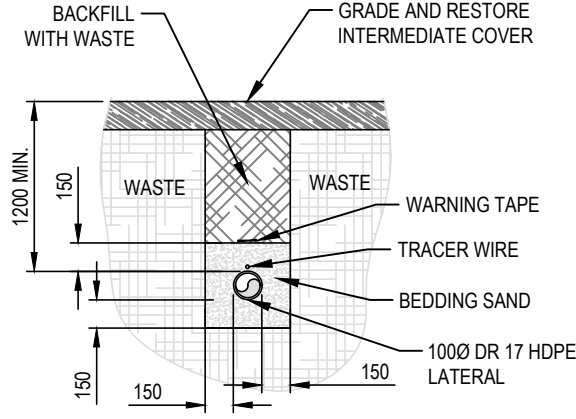
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DATE: May 2024	SHEET No. 6 of 10	DWN AF	APP ML	STATUS D	

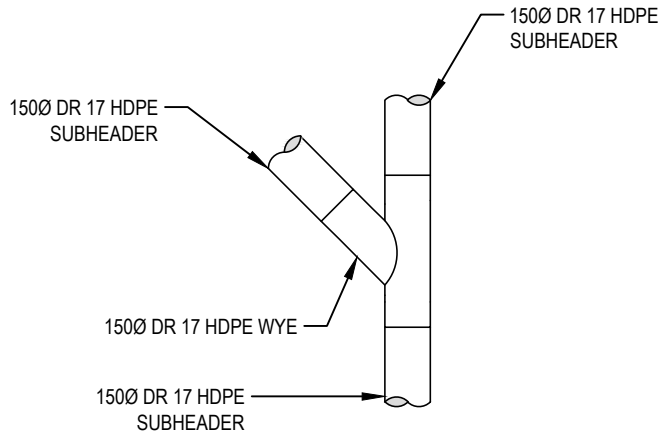
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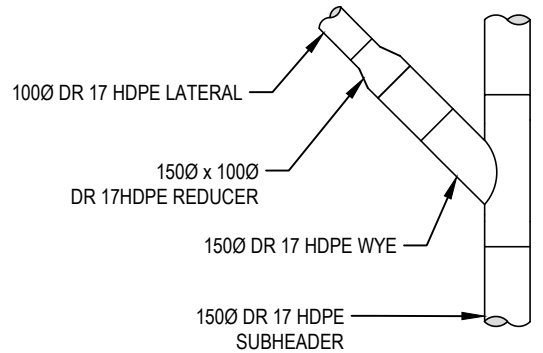
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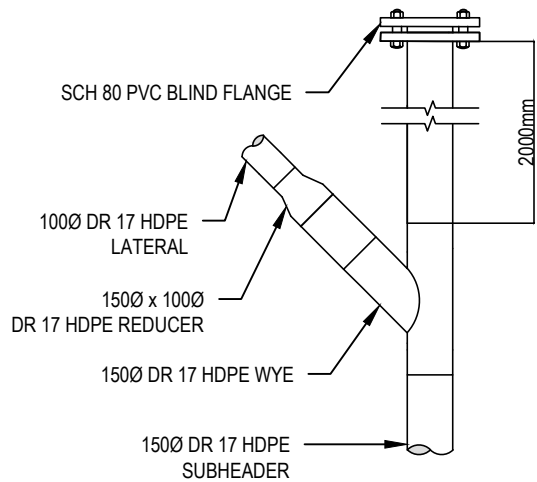
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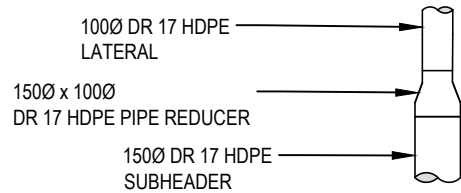
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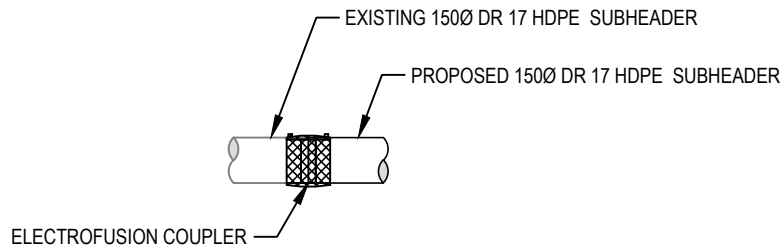
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C201 N.T.S



5 1000 LATERAL WYE CONNECTION W/ BLIND FLANGE  
C201 N.T.S



6 1500 SUBHEADER REDUCER  
C202 N.T.S



7 1500 SUBHEADER COUPLER  
C201 N.T.S

NUM	DATE	APR	DESCRIPTION
REVISIONS			
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DRAWING STATUS			

PERMIT TO PRACTICE  
TETRA TECH CANADA INC.  
PERMIT NUMBER: 1001972

PERMIT

2024-06-06

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REGIONAL DISTRICT  
of Fraser-Fort George

TETRA TECH

LFG WELLFIELD EXPANSION  
FOOTHILLS BOULEVARD REGIONAL LANDFILL

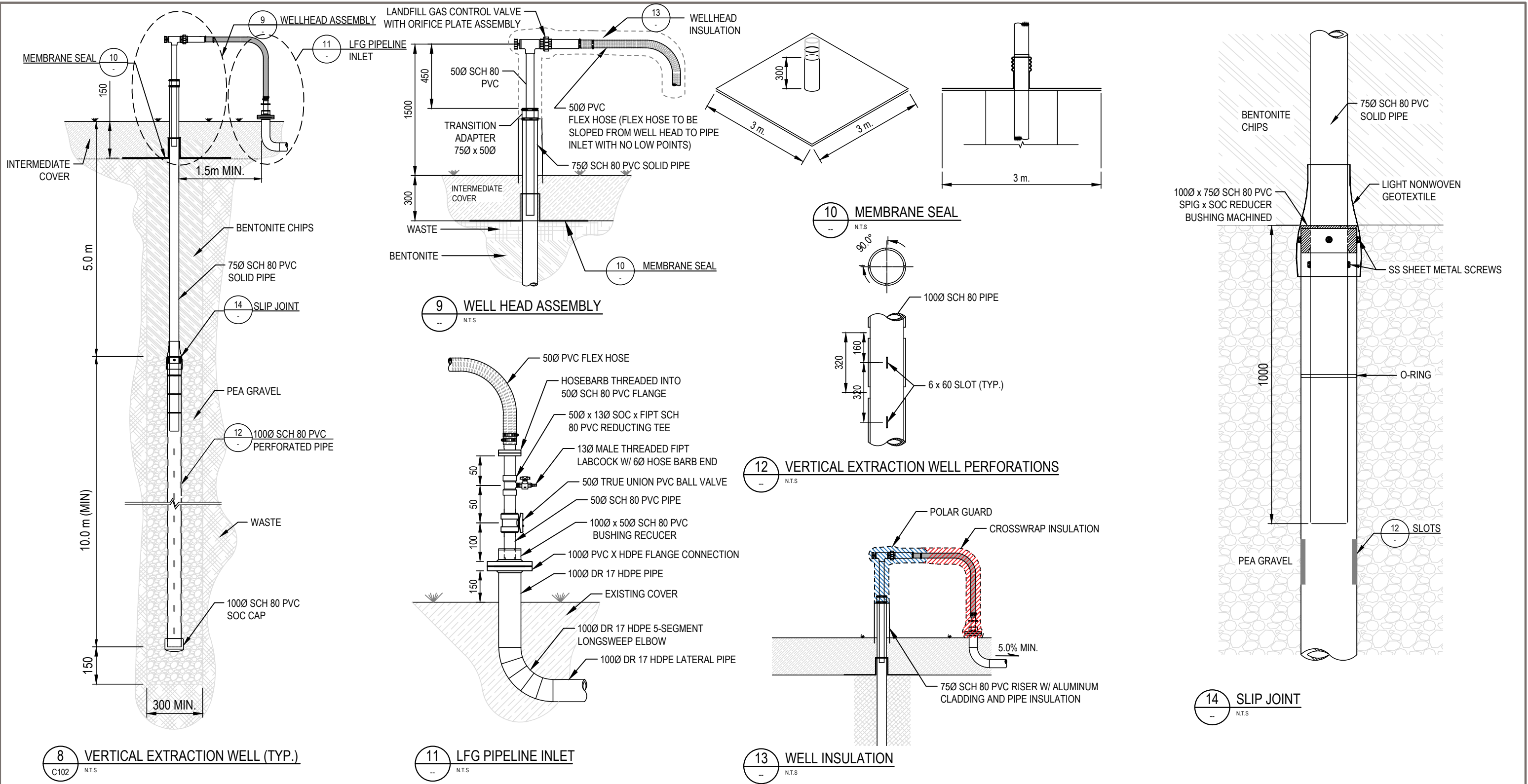
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DATE: May 2024	SHEET No. 7 of 10	DWN AF	APP ML	STATUS D	C301

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C	MAY 22/24	ML	ISSUED FOR REVIEW - 95%
B	APR 19/24	ML	ISSUED FOR REVIEW - 60%
A	MAR 20/24	ML	ISSUED FOR REVIEW - 30%
NUM	DATE	APR	DESCRIPTION
DRAWING STATUS			

PERMIT TO PRACTICE  
TETRA TECH CANADA INC.  
PERMIT NUMBER: 1001972

PERMIT

2024-06-06

PROFESSIONAL SEAL

CLIENT

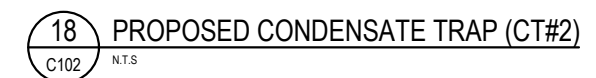
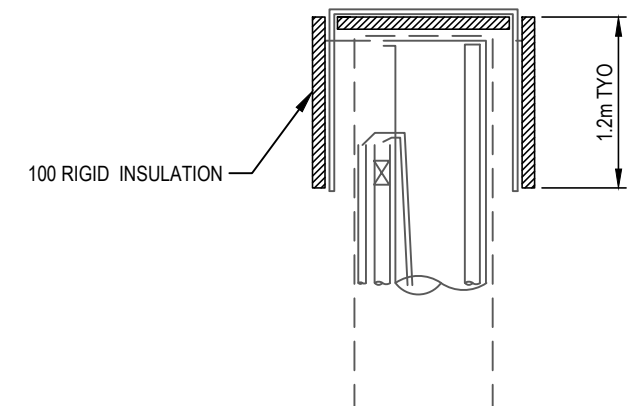
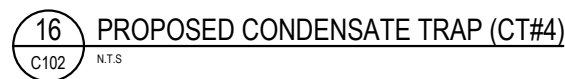
**REGIONAL DISTRICT**  
of Fraser-Fort George




**TETRA TECH**

LFG WELLFIELD EXPANSION  
FOOTHILLS BOULEVARD REGIONAL LANDFILL

DETAILS 2 OF 4

PROJECT No. SWM.SWOP05006-01	OFFICE CGY	DES DB	CKD ML	REV -	DRAWING
DATE: May 2024	SHEET No. 8 of 10	DWN AF	APP ML	STATUS D	C302

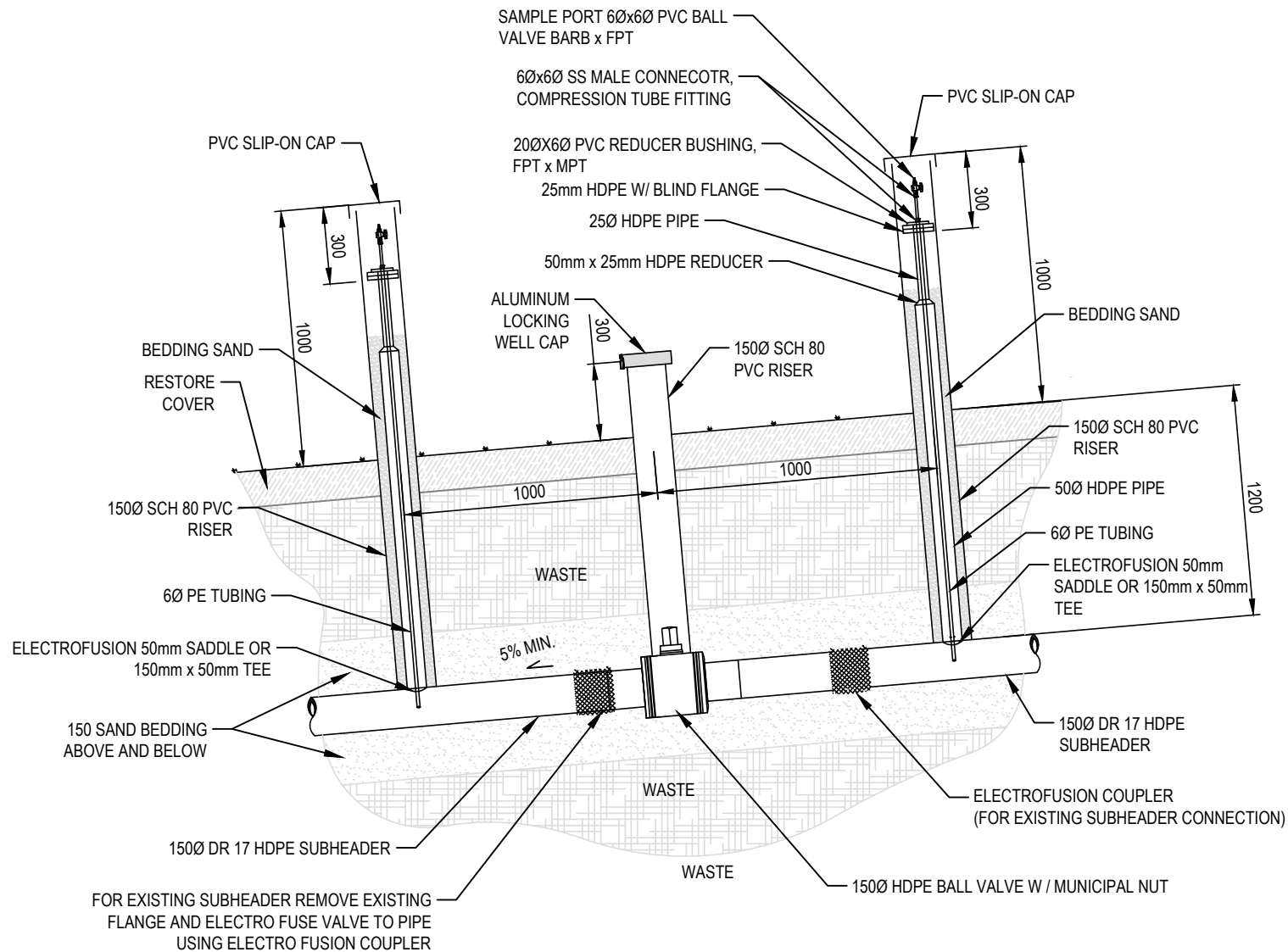


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						<div>DETAILS 3 OF 4</div>					
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NUM	DATE	APR	DESCRIPTION
DRAWING STATUS			

PERMIT TO PRACTICE TETRA TECH CANADA INC.  PERMIT NUMBER: 1001972	PERMIT
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19 SUBHEADER/ HORIZONTAL TRENCH ISOLATION VALVE  
C201 N.T.S

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C	MAY 22/24	ML	ISSUED FOR REVIEW - 95%
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PERMIT TO PRACTICE  
TETRA TECH CANADA INC.  
PERMIT NUMBER: 1001972

PERMIT

2024-06-06

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CLIENT

REGIONAL DISTRICT  
of Fraser-Fort George

TETRA TECH

LFG WELLFIELD EXPANSION  
FOOTHILLS BOULEVARD REGIONAL LANDFILL

DETAILS 4 OF 4

PROJECT No. SWM.SWOP05006-01	OFFICE CGY	DES DB	CKD ML	REV -	DRAWING <b>C304</b>
DATE: May 2024	SHEET No. 10 of 10	DWN AF	APP ML	STATUS D	

## APPENDIX O – CONTRACT AGREEMENT AND GENERAL CONDITIONS

(Refer to CCC 4 2011)

# Unit Price Contract

## CCDC 4 — 2011

Name of the Work

Apply a CCDC 4 copyright seal here.  
The application of the seal demonstrates the intention of the party proposing the use of this document that it be an accurate and unamended form of CCDC 4 - 2011 except to the extent that any alterations, additions or modifications are set forth in supplementary conditions.

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- A-7 Language of the Contract
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- Construction Equipment
- Consultant
- Contract
- Contract Documents
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- Schedule of Prices
- Shop Drawings
- Specifications
- Subcontractor
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- GC 6.6 Claims for a Change in Contract Price
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- GC 7.1 Owner's Right to Perform the Work, Terminate the Contractor's Right to Continue with the Work or Terminate the Contract
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#### PART 12 INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY

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CCDC 4 is the product of a consensus-building process aimed at balancing the interests of all parties on the construction project. It reflects recommended industry practices. CCDC 4 can have important consequences. The CCDC and its constituent member organizations do not accept any responsibility or liability for loss or damage which may be suffered as a result of the use or interpretation of CCDC 4.



## AGREEMENT BETWEEN OWNER AND CONTRACTOR

For use when unit prices are the primary basis of payment.

This Agreement made on the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_.

by and between the parties

hereinafter called the *Owner*

and

hereinafter called the *Contractor*

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

### ARTICLE A-1 THE WORK

The *Contractor* shall:

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

located at

*insert above the name of the Work*

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

*insert above the Place of the Work*

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

*insert above the name of the Consultant*

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

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

## ARTICLE A-2 AGREEMENTS AND AMENDMENTS

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

## ARTICLE A-3 CONTRACT DOCUMENTS

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

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

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

## ARTICLE A-4 CONTRACT PRICE

4.1 The *Schedule of Prices* forms the basis for determining the *Contract Price*. Quantities for *Unit Price* items in the *Schedule of Prices* are estimated.

Schedule of Prices					
Item No.	Description of Work	* Unit of Measure	* Estimated Quantity (EQ)	Unit Price (UP)	Amount (EQ x UP)
Page Subtotal Carried Forward from Page					\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
Page Sub-total					\$

\* Lump sum items are denoted as lump sum (LS) as the unit of measure and have a quantity of one (1).

Page of

Schedule of Prices					
Item No.	Description of Work	* Unit of Measure	* Estimated Quantity (EQ)	Unit Price (UP)	Amount (EQ x UP)
Page Subtotal Carried Forward from Page					\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
Total Amount					\$

\* Lump sum items are denoted as lump sum (LS) as the unit of measure and have a quantity of one (1).

Page of

4.2 The estimated *Contract Price*, which is the total amount indicated in the *Schedule of Prices*, and which excludes *Value Added Taxes*, is:

/100 dollars \$

4.3 *Value Added Taxes* (of %) payable by the *Owner* to the *Contractor*, based on the estimated *Contract Price*, are:

/100 dollars \$

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

/100 dollars \$

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

4.6 All amounts are in Canadian funds.

## ARTICLE A-5 PAYMENT

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

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

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

5.3 Interest

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

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

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

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

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

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

### Owner

*name of Owner\**

*address*

*Facsimile number*

*e-mail address*

### Contractor

*name of Contractor\**

*address*

*Facsimile number*

*e-mail address*

### Consultant

*name of Consultant\**

*address*

*Facsimile number*

*e-mail address*

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

## ARTICLE A-7 LANGUAGE OF THE CONTRACT

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

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



## ARTICLE A-8 SUCCESSION

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

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

SIGNED AND DELIVERED  
in the presence of:

**WITNESS**

**OWNER**

*name of owner*

*signature*

*signature*

*name of person signing*

*name and title of person signing*

*signature*

*signature*

*name of person signing*

*name and title of person signing*

**WITNESS**

**CONTRACTOR**

*name of Contractor*

*signature*

*signature*

*name of person signing*

*name and title of person signing*

*signature*

*signature*

*name of person signing*

*name and title of person signing*

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

## DEFINITIONS

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

### **Change Directive**

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

### **Change Order**

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

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

### **Construction Equipment**

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

### **Consultant**

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

### **Contract**

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

### **Contract Documents**

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

### **Contract Price**

The *Contract Price* is the sum of the products of each *Unit Price* stated in the *Schedule of Prices* multiplied by the appropriate actual quantity of each *Unit Price* item that is incorporated in or made necessary by the *Work*, plus lump sums, if any, and allowances, if any, stated in the *Schedule of Prices*.

### **Contract Time**

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

### **Contractor**

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

### **Drawings**

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

### **Notice in Writing**

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

### **Owner**

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

### **Place of the Work**

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

### **Product**

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

**Project**

The *Project* means the total construction contemplated of which the *Work* may be the whole or a part.

**Provide**

*Provide* means to supply and install.

**Schedule of Prices**

The *Schedule of Prices* is the schedule included in Article A-4 - CONTRACT PRICE and, subject to adjustments as provided in the *Contract Documents*, identifies:

- the items of work;
- the units of measure, estimated quantity, and *Unit Price* for each *Unit Price* item;
- the price for each lump sum item, if any; and
- allowances, if any.

**Shop Drawings**

*Shop Drawings* are drawings, diagrams, illustrations, schedules, performance charts, brochures, *Product* data, and other data which the *Contractor* provides to illustrate details of portions of the *Work*.

**Specifications**

The *Specifications* are that portion of the *Contract Documents*, wherever located and whenever issued, consisting of the written requirements and standards for *Products*, systems, workmanship, quality, and the services necessary for the performance of the *Work*.

**Subcontractor**

A *Subcontractor* is a person or entity having a direct contract with the *Contractor* to perform a part or parts of the *Work* at the *Place of the Work*.

**Substantial Performance of the Work**

*Substantial Performance of the Work* is as defined in the lien legislation applicable to the *Place of the Work*. If such legislation is not in force or does not contain such definition, or if the *Work* is governed by the Civil Code of Quebec, *Substantial Performance of the Work* shall have been reached when the *Work* is ready for use or is being used for the purpose intended and is so certified by the *Consultant*.

**Supplemental Instruction**

A *Supplemental Instruction* is an instruction, not involving adjustment in the *Contract Price* or *Contract Time*, in the form of *Specifications*, *Drawings*, schedules, samples, models or written instructions, consistent with the intent of the *Contract Documents*. It is to be issued by the *Consultant* to supplement the *Contract Documents* as required for the performance of the *Work*.

**Supplier**

A *Supplier* is a person or entity having a direct contract with the *Contractor* to supply *Products*.

**Temporary Work**

*Temporary Work* means temporary supports, structures, facilities, services, and other temporary items, excluding *Construction Equipment*, required for the execution of the *Work* but not incorporated into the *Work*.

**Unit Price**

A *Unit Price* is the amount payable for a single *Unit Price* item as stated in the *Schedule of Prices*.

**Value Added Taxes**

*Value Added Taxes* means such sum as shall be levied upon the *Contract Price* by the Federal or any Provincial or Territorial Government and is computed as a percentage of the *Contract Price* and includes the Goods and Services Tax, the Quebec Sales Tax, the Harmonized Sales Tax, and any similar tax, the collection and payment of which, have been imposed on the *Contractor* by the tax legislation.

**Work**

The *Work* means the total construction and related services required by the *Contract Documents*.

**Working Day**

*Working Day* means a day other than a Saturday, Sunday, statutory holiday or statutory vacation day that is observed by the construction industry in the area of the *Place of the Work*.

## GENERAL CONDITIONS OF THE UNIT PRICE CONTRACT

### PART 1 GENERAL PROVISIONS

#### GC 1.1 CONTRACT DOCUMENTS

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

#### GC 1.2 LAW OF THE CONTRACT

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

#### GC 1.3 RIGHTS AND REMEDIES

- 1.3.1 Except as expressly provided in the *Contract Documents*, the duties and obligations imposed by the *Contract Documents* and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights, and remedies otherwise imposed or available by law.

- 1.3.2 No action or failure to act by the *Owner*, *Consultant* or *Contractor* shall constitute a waiver of any right or duty afforded any of them under the *Contract*, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

#### **GC 1.4 ASSIGNMENT**

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

### **PART 2 ADMINISTRATION OF THE CONTRACT**

#### **GC 2.1 AUTHORITY OF THE CONSULTANT**

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

#### **GC 2.2 ROLE OF THE CONSULTANT**

- 2.2.1 The *Consultant* will provide administration of the *Contract* as described in the *Contract Documents*.
- 2.2.2 The *Consultant* will visit the *Place of the Work* at intervals appropriate to the progress of construction to become familiar with the progress and quality of the work and to determine if the *Work* is proceeding in general conformity with the *Contract Documents*.
- 2.2.3 If the *Owner* and the *Consultant* agree, the *Consultant* will provide at the *Place of the Work*, one or more project representatives to assist in carrying out the *Consultant's* responsibilities. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in writing to the *Contractor*.
- 2.2.4 The *Consultant* will promptly inform the *Owner* of the date of receipt of the *Contractor's* applications for payment as provided in paragraph 5.3.1.1 of GC 5.3 – PROGRESS PAYMENT.
- 2.2.5 Based on the *Consultant's* observations and review of the *Contractor's* applications for payment, the *Consultant* will determine the amounts owing to the *Contractor* under the *Contract* and will issue certificates for payment as provided in Article A-5 of the Agreement - PAYMENT, GC 5.3 - PROGRESS PAYMENT and GC 5.7 - FINAL PAYMENT.
- 2.2.6 The *Consultant* will not be responsible for and will not have control, charge or supervision of construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs required in connection with the *Work* in accordance with the applicable construction safety legislation, other regulations or general construction practice. The *Consultant* will not be responsible for the *Contractor's* failure to carry out the *Work* in accordance with the *Contract Documents*. The *Consultant* will not have control over, charge of or be responsible for the acts or omissions of the *Contractor*, *Subcontractors*, *Suppliers*, or their agents, employees or any other persons performing portions of the *Work*.
- 2.2.7 Except with respect to GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER, the *Consultant* will be, in the first instance, the interpreter of the requirements of the *Contract Documents*.
- 2.2.8 Matters in question relating to the performance of the *Work* or the interpretation of the *Contract Documents* shall be initially referred in writing to the *Consultant* by the party raising the question for interpretations and findings and copied to the other party.
- 2.2.9 Interpretations and findings of the *Consultant* shall be consistent with the intent of the *Contract Documents*. In making such interpretations and findings the *Consultant* will not show partiality to either the *Owner* or the *Contractor*.
- 2.2.10 The *Consultant's* interpretations and findings will be given in writing to the parties within a reasonable time.
- 2.2.11 With respect to claims for a change in *Contract Price*, the *Consultant* will make findings as set out in GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.

- 2.2.12 The *Consultant* will have authority to reject work which in the *Consultant's* opinion does not conform to the requirements of the *Contract Documents*. Whenever the *Consultant* considers it necessary or advisable, the *Consultant* will have authority to require inspection or testing of work, whether or not such work is fabricated, installed or completed. However, neither the authority of the *Consultant* to act nor any decision either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the *Consultant* to the *Contractor*, *Subcontractors*, *Suppliers*, or their agents, employees or other persons performing any of the *Work*.
- 2.2.13 During the progress of the *Work* the *Consultant* will furnish *Supplemental Instructions* to the *Contractor* with reasonable promptness or in accordance with a schedule for such instructions agreed to by the *Consultant* and the *Contractor*.
- 2.2.14 The *Consultant* will review and take appropriate action upon *Shop Drawings*, samples and other *Contractor's* submittals, in accordance with the *Contract Documents*.
- 2.2.15 The *Consultant* will prepare *Change Orders* and *Change Directives* as provided in GC 6.2 - CHANGE ORDER and GC 6.3 - CHANGE DIRECTIVE.
- 2.2.16 The *Consultant* will conduct reviews of the *Work* to determine the date of *Substantial Performance of the Work* as provided in GC 5.4 - SUBSTANTIAL PERFORMANCE OF THE WORK.
- 2.2.17 All certificates issued by the *Consultant* will be to the best of the *Consultant's* knowledge, information and belief. By issuing any certificate, the *Consultant* does not guarantee the *Work* is correct or complete.
- 2.2.18 The *Consultant* will receive and review written warranties and related documents required by the *Contract* and provided by the *Contractor* and will forward such warranties and documents to the *Owner* for the *Owner's* acceptance.

### **GC 2.3 REVIEW AND INSPECTION OF THE WORK**

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

### **GC 2.4 DEFECTIVE WORK**

- 2.4.1 The *Contractor* shall promptly correct defective work that has been rejected by the *Consultant* as failing to conform to the *Contract Documents* whether or not the defective work has been incorporated in the *Work* and whether or not the defect is the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the *Contractor*.
- 2.4.2 The *Contractor* shall make good promptly other contractors' work destroyed or damaged by such removals or replacements at the *Contractor's* expense.

- 2.4.3 If, in the opinion of the *Consultant*, it is not expedient to correct defective work or work not performed as provided in the *Contract Documents*, the *Owner* may deduct from the amount otherwise due to the *Contractor* the difference in value between the work as performed and that called for by the *Contract Documents*. If the *Owner* and the *Contractor* do not agree on the difference in value, they shall refer the matter to the *Consultant* for a determination.

## **PART 3 EXECUTION OF THE WORK**

### **GC 3.1 CONTROL OF THE WORK**

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

### **GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS**

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

### **GC 3.3 TEMPORARY WORK**

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

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

#### **GC 3.4 DOCUMENT REVIEW**

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

#### **GC 3.5 CONSTRUCTION SCHEDULE**

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

#### **GC 3.6 SUPERVISION**

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

#### **GC 3.7 SUBCONTRACTORS AND SUPPLIERS**

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



- 3.7.6 The *Owner*, through the *Consultant*, may provide to a *Subcontractor* or *Supplier* information as to the percentage of the *Subcontractor's* or *Supplier's* work which has been certified for payment.

### **GC 3.8 LABOUR AND PRODUCTS**

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

### **GC 3.9 DOCUMENTS AT THE SITE**

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

### **GC 3.10 SHOP DRAWINGS**

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

### **GC 3.11 USE OF THE WORK**

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

### **GC 3.12 CUTTING AND REMEDIAL WORK**

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

### **GC 3.13 CLEANUP**

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

## **PART 4 ALLOWANCES**

### **GC 4.1 CASH ALLOWANCES**

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

### **GC 4.2 CONTINGENCY ALLOWANCE**

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

## PART 5 PAYMENT

### GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

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

### GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

- 5.2.1 Applications for payment on account as provided in Article A-5 of the Agreement - PAYMENT may be made monthly as the *Work* progresses.
- 5.2.2 Applications for payment shall be dated the last day of each payment period, which is the last day of the month or an alternative day of the month agreed in writing by the parties.
- 5.2.3 As of the last day of the payment period, the amount claimed shall be:
1. the value of *Unit Price* work performed, being the sum of the products of each *Unit Price* stated in the *Schedule of Prices* multiplied by the appropriate actual quantity of each *Unit Price* item that is incorporated in or made necessary by the *Work*; plus
  2. the value of lump sum work performed, proportionate to the amount of the lump sum item, plus
  3. the value of *Products* delivered to the *Place of the Work*.
- 5.2.4 The *Contractor* shall submit to the *Consultant*, at least 15 calendar days before the first application for payment, a schedule of values for the lump sum items of work, aggregating the total amount of each lump sum item, so as to facilitate evaluation of applications for payment.
- 5.2.5 The schedule of values for lump sum items of work shall be made out in such form and supported by such evidence as the *Consultant* may reasonably direct and when accepted by the *Consultant*, shall be used as the basis for applications for payment for lump sum items, unless it is found to be in error.
- 5.2.6 The *Contractor* shall include with each application for payment:
1. a statement based on the schedule of values for the lump sum items of work; and
  2. quantity measurements and other evidence as requested by the *Consultant* for each *Unit Price* item.
- 5.2.7 Applications for payment for *Products* delivered to the *Place of the Work* but not yet incorporated into the *Work* shall be supported by such evidence as the *Consultant* may reasonably require to establish the value and delivery of the *Products*.

### GC 5.3 PROGRESS PAYMENT

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

#### **GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK**

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

#### **GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK**

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

#### **GC 5.6 PROGRESSIVE RELEASE OF HOLDBACK**

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

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

#### **GC 5.7 FINAL PAYMENT**

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

#### **GC 5.8 WITHHOLDING OF PAYMENT**

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

#### **GC 5.9 NON-CONFORMING WORK**

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

### **PART 6 CHANGES IN THE WORK**

#### **GC 6.1 OWNER'S RIGHT TO MAKE CHANGES**

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

#### **GC 6.2 CHANGE ORDER**

- 6.2.1 When a change in the *Work* is proposed or required, the *Consultant* will provide the *Contractor* with a written description of the proposed change in the *Work*. The *Contractor* shall promptly present, in a form acceptable to the *Consultant*, a method of adjustment or an amount of adjustment for the *Contract Price*, if any, and the adjustment in the *Contract Time*, if any, for the proposed change in the *Work*.

- 6.2.2 The method of adjustment or the amount of adjustment to the *Contract Price* presented by the *Contractor* may be one of or a combination of the following:
- .1 Change to the estimated quantities for *Unit Price* items listed in the *Schedule of Prices* that are applicable to the change in the *Work*;
  - .2 Lump sum quotation for the change in the *Work*;
  - .3 *Unit Price* quotation for the change in the *Work*;
  - .4 Cost of the *Contractor's* actual expenditures attributable to the change plus a fee for the *Contractor's* overhead and profit as agreed by the parties;
  - .5 Cost of the *Contractor's* actual savings attributable to the change.
- 6.2.3 When the *Owner* and *Contractor* agree to the adjustments in the *Contract Price* and *Contract Time* or to the method to be used to determine the adjustments, such agreement shall be effective immediately and shall be recorded in a *Change Order*. The value of the work performed as the result of a *Change Order* shall be included in the application for progress payment.

### GC 6.3 CHANGE DIRECTIVE

- 6.3.1 If the *Owner* requires the *Contractor* to proceed with a change in the *Work* prior to the *Owner* and the *Contractor* agreeing upon the corresponding adjustment in *Contract Price* and *Contract Time*, the *Owner*, through the *Consultant*, shall issue a *Change Directive*.
- 6.3.2 A *Change Directive* shall only be used to direct a change in the *Work* which is within the general scope of the *Contract Documents*.
- 6.3.3 A *Change Directive* shall not be used to direct a change in the *Contract Time* only.
- 6.3.4 Upon receipt of a *Change Directive*, the *Contractor* shall proceed promptly with the change in the *Work*.
- 6.3.5 For the purpose of valuing *Change Directives*, changes in the *Work* that are not substitutions or otherwise related to each other shall not be grouped together in the same *Change Directive*.
- 6.3.6 The adjustment in the *Contract Price* for a change carried out by way of a *Change Directive* shall be determined on the basis of the cost of the *Contractor's* actual expenditures and savings attributable to the *Change Directive*, valued in accordance with paragraph 6.3.7 and as follows:
- .1 If the change results in a net increase in the *Contractor's* cost, the *Contract Price* shall be increased by the amount of the net increase in the *Contractor's* cost, plus the *Contractor's* percentage fee on such net increase.
  - .2 If the change results in a net decrease in the *Contractor's* cost, the *Contract Price* shall be decreased by the amount of the net decrease in the *Contractor's* cost, without adjustment for the *Contractor's* percentage fee.
  - .3 The *Contractor's* fee shall be as specified in the *Contract Documents* or as otherwise agreed by the parties.
- 6.3.7 The cost of performing the work attributable to the *Change Directive* shall be limited to the actual cost of the following:
- .1 salaries, wages and benefits paid to personnel in the direct employ of the *Contractor* under a salary or wage schedule agreed upon by the *Owner* and the *Contractor*, or in the absence of such a schedule, actual salaries, wages and benefits paid under applicable bargaining agreement, and in the absence of a salary or wage schedule and bargaining agreement, actual salaries, wages and benefits paid by the *Contractor*, for personnel
    - (1) stationed at the *Contractor's* field office, in whatever capacity employed;
    - (2) engaged in expediting the production or transportation of material or equipment, at shops or on the road;
    - (3) engaged in the preparation or review of *Shop Drawings*, fabrication drawings, and coordination drawings; or
    - (4) engaged in the processing of changes in the *Work*.
  - .2 contributions, assessments or taxes incurred for such items as employment insurance, provincial or territorial health insurance, workers' compensation, and Canada or Quebec Pension Plan, insofar as such cost is based on wages, salaries or other remuneration paid to employees of the *Contractor* and included in the cost of the work as provided in paragraphs 6.3.7.1;
  - .3 travel and subsistence expenses of the *Contractor's* personnel described in paragraphs 6.3.7.1;
  - .4 all *Products* including cost of transportation thereof;
  - .5 materials, supplies, *Construction Equipment*, *Temporary Work*, and hand tools not owned by the workers, including transportation and maintenance thereof, which are consumed in the performance of the *Work*; and cost less salvage value on such items used but not consumed, which remain the property of the *Contractor*;
  - .6 all tools and *Construction Equipment*, exclusive of hand tools used in the performance of the *Work*, whether rented from or provided by the *Contractor* or others, including installation, minor repairs and replacements, dismantling, removal, transportation, and delivery cost thereof;
  - .7 all equipment and services required for the *Contractor's* field office;
  - .8 deposits lost;

- .9 the amounts of all subcontracts;
  - .10 quality assurance such as independent inspection and testing services;
  - .11 charges levied by authorities having jurisdiction at the *Place of the Work*;
  - .12 royalties, patent licence fees and damages for infringement of patents and cost of defending suits therefor subject always to the *Contractor's* obligations to indemnify the *Owner* as provided in paragraph 10.3.1 of GC 10.3 - PATENT FEES;
  - .13 any adjustment in premiums for all bonds and insurance which the *Contractor* is required, by the *Contract Documents*, to purchase and maintain;
  - .14 any adjustment in taxes, other than *Value Added Taxes*, and duties for which the *Contractor* is liable;
  - .15 charges for long distance telephone and facsimile communications, courier services, expressage, and petty cash items incurred in relation to the performance of the *Work*;
  - .16 removal and disposal of waste products and debris; and
  - .17 safety measures and requirements.
- 6.3.8 Notwithstanding any other provisions contained in the General Conditions of the *Contract*, it is the intention of the parties that the cost of any item under any cost element referred to in paragraph 6.3.7 shall cover and include any and all costs or liabilities attributable to the *Change Directive* other than those which are the result of or occasioned by any failure on the part of the *Contractor* to exercise reasonable care and diligence in the *Contractor's* attention to the *Work*. Any cost due to failure on the part of the *Contractor* to exercise reasonable care and diligence in the *Contractor's* attention to the *Work* shall be borne by the *Contractor*.
- 6.3.9 The *Contractor* shall keep full and detailed accounts and records necessary for the documentation of the cost of performing the work attributable to the *Change Directive* and shall provide the *Consultant* with copies thereof when requested.
- 6.3.10 For the purpose of valuing *Change Directives*, the *Owner* shall be afforded reasonable access to all of the *Contractor's* pertinent documents related to the cost of performing the work attributable to the *Change Directive*.
- 6.3.11 Pending determination of the final amount of a *Change Directive*, the undisputed value of the work performed as the result of a *Change Directive* is eligible to be included in progress payments.
- 6.3.12 If the *Owner* and *Contractor* do not agree on the proposed adjustment in the *Contract Time* attributable to the change in the *Work*, or the method of determining it, the adjustment shall be referred to the *Consultant* for determination.
- 6.3.13 When the *Owner* and the *Contractor* reach agreement on the adjustment to the *Contract Price* and to the *Contract Time*, this agreement shall be recorded in a *Change Order*.

#### **GC 6.4 CONCEALED OR UNKNOWN CONDITIONS**

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

## GC 6.5 DELAYS

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

## GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

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



## **GC 6.7 QUANTITY VARIATIONS**

- 6.7.1 The provisions of GC 6.7 - QUANTITY VARIATIONS apply to the estimated quantities identified in the *Schedule of Prices*, or where the estimated quantities have been amended by *Change Order*, the provisions apply to the amended estimated quantities.
- 6.7.2 The *Owner* or the *Contractor* may request an adjustment to a *Unit Price* contained in the *Schedule of Prices* provided the actual quantity of the *Unit Price* item in the *Schedule of Prices* exceeds or falls short of the estimated quantity by more than 15%.
- 6.7.3 Where the actual quantity exceeds the estimated quantity by more than 15%, a *Unit Price* adjusted pursuant to paragraph 6.7.2 shall apply only to the quantity that exceeds 115% of the estimated quantity.
- 6.7.4 Where the actual quantity falls short of the estimated quantity by more than 15%, a *Unit Price* adjusted pursuant to paragraph 6.7.2 shall apply to the actual quantity of the *Unit Price* item. The adjusted *Unit Price* shall not exceed a *Unit Price* that would cause the payment amount to exceed that derived from the original *Unit Price* and estimated quantity.
- 6.7.5 The party that intends to request for an adjustment to a *Unit Price* shall give timely *Notice in Writing* to the other party and to the *Consultant*.
- 6.7.6 The *Consultant's* findings, with respect to a claim made by either party, will be given by *Notice in Writing* to both parties within 30 *Working Days* after receipt of the claim by the *Consultant*, or within such other time period as may be agreed by the parties.
- 6.7.7 If such finding is not acceptable to either party, the claim shall be settled in accordance with Part 8 of the General Conditions - DISPUTE RESOLUTION.

## **PART 7 DEFAULT NOTICE**

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

- 7.1.1 If the *Contractor* is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the *Contractor's* insolvency, or if a receiver is appointed because of the *Contractor's* insolvency, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, terminate the *Contractor's* right to continue with the *Work*, by giving the *Contractor* or receiver or trustee in bankruptcy *Notice in Writing* to that effect.
- 7.1.2 If the *Contractor* neglects to prosecute the *Work* properly or otherwise fails to comply with the requirements of the *Contract* to a substantial degree and if the *Consultant* has given a written statement to the *Owner* and *Contractor* that sufficient cause exists to justify such action, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, give the *Contractor Notice in Writing* that the *Contractor* is in default of the *Contractor's* contractual obligations and instruct the *Contractor* to correct the default in the 5 *Working Days* immediately following the receipt of such *Notice in Writing*.
- 7.1.3 If the default cannot be corrected in the 5 *Working Days* specified or in such other time period as may be subsequently agreed in writing by the parties, the *Contractor* shall be in compliance with the *Owner's* instructions if the *Contractor*:
- .1 commences the correction of the default within the specified time, and
  - .2 provides the *Owner* with an acceptable schedule for such correction, and
  - .3 corrects the default in accordance with the *Contract* terms and with such schedule.
- 7.1.4 If the *Contractor* fails to correct the default in the time specified or in such other time period as may be subsequently agreed in writing by the parties, without prejudice to any other right or remedy the *Owner* may have, the *Owner* may:
- .1 correct such default and deduct the cost thereof from any payment then or thereafter due the *Contractor* provided the *Consultant* has certified such cost to the *Owner* and the *Contractor*, or
  - .2 terminate the *Contractor's* right to continue with the *Work* in whole or in part or terminate the *Contract*.

- 7.1.5 If the *Owner* terminates the *Contractor's* right to continue with the *Work* as provided in paragraphs 7.1.1 and 7.1.4, the *Owner* shall be entitled to:
- .1 take possession of the *Work* and *Products* at the *Place of the Work*; subject to the rights of third parties, utilize the *Construction Equipment* at the *Place of the Work*; finish the *Work* by whatever method the *Owner* may consider expedient, but without undue delay or expense, and
  - .2 withhold further payment to the *Contractor* until a final certificate for payment is issued, and
  - .3 charge the *Contractor* the amount by which the full cost of finishing the *Work* as certified by the *Consultant*, including compensation to the *Consultant* for the *Consultant's* additional services and a reasonable allowance as determined by the *Consultant* to cover the cost of corrections to work performed by the *Contractor* that may be required under GC 12.3 - WARRANTY, exceeds the unpaid balance of the *Contract Price*; however, if such cost of finishing the *Work* is less than the unpaid balance of the *Contract Price*, the *Owner* shall pay the *Contractor* the difference, and
  - .4 on expiry of the warranty period, charge the *Contractor* the amount by which the cost of corrections to the *Contractor's* work under GC 12.3 - WARRANTY exceeds the allowance provided for such corrections, or if the cost of such corrections is less than the allowance, pay the *Contractor* the difference.
- 7.1.6 The *Contractor's* obligation under the *Contract* as to quality, correction and warranty of the work performed by the *Contractor* up to the time of termination shall continue after such termination of the *Contract*.

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

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

## **PART 8 DISPUTE RESOLUTION**

### **GC 8.1 AUTHORITY OF THE CONSULTANT**

- 8.1.1 Differences between the parties to the *Contract* as to the interpretation, application or administration of the *Contract* or any failure to agree where agreement between the parties is called for, herein collectively called disputes, which are not resolved in the first instance by findings of the *Consultant* as provided in GC 2.2 - ROLE OF THE CONSULTANT, shall be settled in accordance with the requirements of Part 8 of the General Conditions - DISPUTE RESOLUTION.
- 8.1.2 If a dispute arises under the *Contract* in respect of a matter in which the *Consultant* has no authority under the *Contract* to make a finding, the procedures set out in paragraph 8.1.3 and paragraphs 8.2.3 to 8.2.8 of GC 8.2 - NEGOTIATION, MEDIATION AND ARBITRATION, and in GC 8.3 - RETENTION OF RIGHTS apply to that dispute with the necessary changes to detail as may be required.

- 8.1.3 If a dispute is not resolved promptly, the *Consultant* will give such instructions as in the *Consultant's* opinion are necessary for the proper performance of the *Work* and to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by so doing neither party will jeopardize any claim the party may have. If it is subsequently determined that such instructions were in error or at variance with the *Contract Documents*, the *Owner* shall pay the *Contractor* costs incurred by the *Contractor* in carrying out such instructions which the *Contractor* was required to do beyond what the *Contract Documents* correctly understood and interpreted would have required, including costs resulting from interruption of the *Work*.

## **GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION**

- 8.2.1 In accordance with the Rules for Mediation of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing, the parties shall appoint a Project Mediator
- .1 within 20 *Working Days* after the *Contract* was awarded, or
  - .2 if the parties neglected to make an appointment within the 20 *Working Days*, within 10 *Working Days* after either party by *Notice in Writing* requests that the Project Mediator be appointed.
- 8.2.2 A party shall be conclusively deemed to have accepted a finding of the *Consultant* under GC 2.2 - ROLE OF THE CONSULTANT and to have expressly waived and released the other party from any claims in respect of the particular matter dealt with in that finding unless, within 15 *Working Days* after receipt of that finding, the party sends a *Notice in Writing* of dispute to the other party and to the *Consultant*, which contains the particulars of the matter in dispute and the relevant provisions of the *Contract Documents*. The responding party shall send a *Notice in Writing* of reply to the dispute within 10 *Working Days* after receipt of such *Notice in Writing* setting out particulars of this response and any relevant provisions of the *Contract Documents*.
- 8.2.3 The parties shall make all reasonable efforts to resolve their dispute by amicable negotiations and agree to provide, without prejudice, frank, candid and timely disclosure of relevant facts, information and documents to facilitate these negotiations.
- 8.2.4 After a period of 10 *Working Days* following receipt of a responding party's *Notice in Writing* of reply under paragraph 8.2.2, the parties shall request the Project Mediator to assist the parties to reach agreement on any unresolved dispute. The mediated negotiations shall be conducted in accordance with the Rules for Mediation of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing.
- 8.2.5 If the dispute has not been resolved within 10 *Working Days* after the Project Mediator was requested under paragraph 8.2.4 or within such further period agreed by the parties, the Project Mediator shall terminate the mediated negotiations by giving *Notice in Writing* to the *Owner*, the *Contractor* and the *Consultant*.
- 8.2.6 By giving a *Notice in Writing* to the other party and the *Consultant*, not later than 10 *Working Days* after the date of termination of the mediated negotiations under paragraph 8.2.5, either party may refer the dispute to be finally resolved by arbitration under the Rules for Arbitration of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing. The arbitration shall be conducted in the jurisdiction of the *Place of the Work*.
- 8.2.7 On expiration of the 10 *Working Days*, the arbitration agreement under paragraph 8.2.6 is not binding on the parties and, if a *Notice in Writing* is not given under paragraph 8.2.6 within the required time, the parties may refer the unresolved dispute to the courts or to any other form of dispute resolution, including arbitration, which they have agreed to use.
- 8.2.8 If neither party, by *Notice in Writing*, given within 10 *Working Days* of the date of *Notice in Writing* requesting arbitration in paragraph 8.2.6, requires that a dispute be arbitrated immediately, all disputes referred to arbitration as provided in paragraph 8.2.6 shall be
- .1 held in abeyance until
    - (1) *Substantial Performance of the Work*,
    - (2) the *Contract* has been terminated, or
    - (3) the *Contractor* has abandoned the *Work*,whichever is earlier; and
  - .2 consolidated into a single arbitration under the rules governing the arbitration under paragraph 8.2.6.

## **GC 8.3 RETENTION OF RIGHTS**

- 8.3.1 It is agreed that no act by either party shall be construed as a renunciation or waiver of any rights or recourses, provided the party has given the *Notice in Writing* required under Part 8 of the General Conditions - DISPUTE RESOLUTION and has carried out the instructions as provided in paragraph 8.1.3 of GC 8.1 – AUTHORITY OF THE CONSULTANT.

- 8.3.2 Nothing in Part 8 of the General Conditions - DISPUTE RESOLUTION shall be construed in any way to limit a party from asserting any statutory right to a lien under applicable lien legislation of the jurisdiction of the *Place of the Work* and the assertion of such right by initiating judicial proceedings is not to be construed as a waiver of any right that party may have under paragraph 8.2.6 of GC 8.2 – NEGOTIATION, MEDIATION AND ARBITRATION to proceed by way of arbitration to adjudicate the merits of the claim upon which such a lien is based.

## **PART 9 PROTECTION OF PERSONS AND PROPERTY**

### **GC 9.1 PROTECTION OF WORK AND PROPERTY**

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

### **GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES**

- 9.2.1 For the purposes of applicable legislation related to toxic and hazardous substances, the *Owner* shall be deemed to have control and management of the *Place of the Work* with respect to existing conditions.
- 9.2.2 Prior to the *Contractor* commencing the *Work*, the *Owner* shall,
- .1 take all reasonable steps to determine whether any toxic or hazardous substances are present at the *Place of the Work*, and
  - .2 provide the *Consultant* and the *Contractor* with a written list of any such substances that are known to exist and their locations.
- 9.2.3 The *Owner* shall take all reasonable steps to ensure that no person's exposure to any toxic or hazardous substances exceeds the time weighted levels prescribed by applicable legislation at the *Place of the Work* and that no property is damaged or destroyed as a result of exposure to, or the presence of, toxic or hazardous substances which were at the *Place of the Work* prior to the *Contractor* commencing the *Work*.
- 9.2.4 Unless the *Contract* expressly provides otherwise, the *Owner* shall be responsible for taking all necessary steps, in accordance with applicable legislation in force at the *Place of the Work*, to dispose of, store or otherwise render harmless toxic or hazardous substances which were present at the *Place of the Work* prior to the *Contractor* commencing the *Work*.
- 9.2.5 If the *Contractor*
- .1 encounters toxic or hazardous substances at the *Place of the Work*, or
  - .2 has reasonable grounds to believe that toxic or hazardous substances are present at the *Place of the Work*, which were not brought to the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible and which were not disclosed by the *Owner* or which were disclosed but have not been dealt with as required under paragraph 9.2.4, the *Contractor* shall
  - .3 take all reasonable steps, including stopping the *Work*, to ensure that no person's exposure to any toxic or hazardous substances exceeds any applicable time weighted levels prescribed by applicable legislation at the *Place of the Work*, and
  - .4 immediately report the circumstances to the *Consultant* and the *Owner* in writing.
- 9.2.6 If the *Owner* and *Contractor* do not agree on the existence, significance of, or whether the toxic or hazardous substances were brought onto the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the *Owner* and the *Contractor*.

- 9.2.7 If the *Owner* and *Contractor* agree or if the expert referred to in paragraph 9.2.6 determines that the toxic or hazardous substances were not brought onto the place of the *Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Owner* shall promptly at the *Owner's* own expense:
- .1 take all steps as required under paragraph 9.2.4;
  - .2 reimburse the *Contractor* for the costs of all steps taken pursuant to paragraph 9.2.5;
  - .3 extend the *Contract* time for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in 9.2.6 and reimburse the *Contractor* for reasonable costs incurred as a result of the delay; and
  - .4 indemnify the *Contractor* as required by GC 12.1 - INDEMNIFICATION.
- 9.2.8 If the *Owner* and *Contractor* agree or if the expert referred to in paragraph 9.2.6 determines that the toxic or hazardous substances were brought onto the place of the *Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Contractor* shall promptly at the *Contractor's* own expense:
- .1 take all necessary steps, in accordance with applicable legislation in force at the *Place of the Work*, to safely remove and dispose the toxic or hazardous substances;
  - .2 make good any damage to the *Work*, the *Owner's* property or property adjacent to the place of the *Work* as provided in paragraph 9.1.3 of GC 9.1 – PROTECTION OF WORK AND PROPERTY;
  - .3 reimburse the *Owner* for reasonable costs incurred under paragraph 9.2.6; and
  - .4 indemnify the *Owner* as required by GC 12.1 - INDEMNIFICATION.
- 9.2.9 If either party does not accept the expert's findings under paragraph 9.2.6, the disagreement shall be settled in accordance with Part 8 of the General Conditions - Dispute Resolution. If such disagreement is not resolved promptly, the parties shall act immediately in accordance with the expert's determination and take the steps required by paragraph 9.2.7 or 9.2.8 it being understood that by so doing, neither party will jeopardize any claim that party may have to be reimbursed as provided by GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES.

### GC 9.3 ARTIFACTS AND FOSSILS

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

### GC 9.4 CONSTRUCTION SAFETY

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

### GC 9.5 MOULD

- 9.5.1 If the *Contractor* or *Owner* observes or reasonably suspects the presence of mould at the *Place of the Work*, the remediation of which is not expressly part of the *Work*,
- .1 the observing party shall promptly report the circumstances to the other party in writing, and
  - .2 the *Contractor* shall promptly take all reasonable steps, including stopping the *Work* if necessary, to ensure that no person suffers injury, sickness or death and that no property is damaged as a result of exposure to or the presence of the mould, and
  - .3 if the *Owner* and *Contractor* do not agree on the existence, significance or cause of the mould or as to what steps need be taken to deal with it, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the *Owner* and *Contractor*.
- 9.5.2 If the *Owner* and *Contractor* agree, or if the expert referred to in paragraph 9.5.1.3 determines that the presence of mould was caused by the *Contractor's* operations under the *Contract*, the *Contractor* shall promptly, at the *Contractor's* own expense:
- .1 take all reasonable and necessary steps to safely remediate or dispose of the mould, and
  - .2 make good any damage to the *Work*, the *Owner's* property or property adjacent to the *Place of the Work* as provided in paragraph 9.1.3 of GC 9.1 - PROTECTION OF WORK AND PROPERTY, and
  - .3 reimburse the *Owner* for reasonable costs incurred under paragraph 9.5.1.3, and
  - .4 indemnify the *Owner* as required by paragraph 12.1 of GC 21.1 - INDEMNIFICATION.

- 9.5.3 If the *Owner* and *Contractor* agree, or if the expert referred to in paragraph 9.5.1.3 determines that the presence of mould was not caused by the *Contractor*'s operations under the *Contract*, the *Owner* shall promptly, at the *Owner*'s own expense:
- .1 take all reasonable and necessary steps to safely remediate or dispose of the mould, and
  - .2 reimburse the *Contractor* for the cost of taking the steps under paragraph 9.5.1.2 and making good any damage to the *Work* as provided in paragraph 9.1.4 of GC 9.1 - PROTECTION OF WORK AND PROPERTY, and
  - .3 extend the *Contract Time* for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in paragraph 9.5.1.3 and reimburse the *Contractor* for reasonable costs incurred as a result of the delay, and
  - .4 indemnify the *Contractor* as required by paragraph 12.1.
- 9.5.4 If either party does not accept the expert's finding under paragraph 9.5.1.3, the disagreement shall be settled in accordance with Part 8 of the General Conditions - DISPUTE RESOLUTION. If such disagreement is not resolved promptly, the parties shall act immediately in accordance with the expert's determination and take the steps required by paragraphs 9.5.2 or 9.5.3, it being understood that by so doing neither party will jeopardize any claim the party may have.

## **PART 10 GOVERNING REGULATIONS**

### **GC 10.1 TAXES AND DUTIES**

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

### **GC 10.2 LAWS, NOTICES, PERMITS, AND FEES**

- 10.2.1 The laws of the *Place of the Work* shall govern the *Work*.
- 10.2.2 The *Owner* shall obtain and pay for development approvals, building permit, permanent easements, rights of servitude, and all other necessary approvals and permits, except for the permits and fees referred to in paragraph 10.2.3 or for which the *Contract Documents* specify as the responsibility of the *Contractor*.
- 10.2.3 The *Contractor* shall be responsible for the procurement of permits, licences, inspections, and certificates, which are necessary for the performance of the *Work* and customarily obtained by contractors in the jurisdiction of the *Place of the Work* after the issuance of the building permit. The *Contract Price* includes the cost of these permits, licences, inspections, and certificates, and their procurement.
- 10.2.4 The *Contractor* shall give the required notices and comply with the laws, ordinances, rules, regulations, or codes which are or become in force during the performance of the *Work* and which relate to the *Work*, to the preservation of the public health, and to construction safety.
- 10.2.5 The *Contractor* shall not be responsible for verifying that the *Contract Documents* are in compliance with the applicable laws, ordinances, rules, regulations, or codes relating to the *Work*. If the *Contract Documents* are at variance therewith, or if, subsequent to the time of bid closing, changes are made to the applicable laws, ordinances, rules, regulations, or codes which require modification to the *Contract Documents*, the *Contractor* shall advise the *Consultant* in writing requesting direction immediately upon such variance or change becoming known. The *Consultant* will make the changes required to the *Contract Documents* as provided in GC 6.1 - OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 - CHANGE ORDER and GC 6.3 - CHANGE DIRECTIVE.
- 10.2.6 If the *Contractor* fails to advise the *Consultant* in writing; and fails to obtain direction as required in paragraph 10.2.5; and performs work knowing it to be contrary to any laws, ordinances, rules, regulations, or codes; the *Contractor* shall be responsible for and shall correct the violations thereof; and shall bear the costs, expenses and damages attributable to the failure to comply with the provisions of such laws, ordinances, rules, regulations, or codes.
- 10.2.7 If, subsequent to the time of bid closing, changes are made to applicable laws, ordinances, rules, regulations, or codes of authorities having jurisdiction which affect the cost of the *Work*, either party may submit a claim in accordance with the requirements of GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.

### GC 10.3 PATENT FEES

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

### GC 10.4 WORKERS' COMPENSATION

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

## PART 11 INSURANCE AND CONTRACT SECURITY

### GC 11.1 INSURANCE

- 11.1.1 Without restricting the generality of GC 12.1 - INDEMNIFICATION, the *Contractor* shall provide, maintain and pay for the following insurance coverages, the minimum requirements of which are specified in CCDC 41 – CCDC Insurance Requirements in effect at the time of bid closing except as hereinafter provided:
- .1 General liability insurance in the name of the *Contractor* and include, or in the case of a single, blanket policy, be endorsed to name, the *Owner* and the *Consultant* as insureds but only with respect to liability, other than legal liability arising out of their sole negligence, arising out of the operations of the *Contractor* with regard to the *Work*. General liability insurance shall be maintained from the date of commencement of the *Work* until one year from the date of *Substantial Performance of the Work*. Liability coverage shall be provided for completed operations hazards from the date of *Substantial Performance of the Work*, as set out in the certificate of *Substantial Performance of the Work*, on an ongoing basis for a period of 6 years following *Substantial Performance of the Work*.
  - .2 Automobile Liability Insurance from the date of commencement of the *Work* until one year after the date of *Substantial Performance of the Work*.
  - .3 Aircraft or Watercraft Liability Insurance when owned or non-owned aircraft or watercraft are used directly or indirectly in the performance of the *Work*.
  - .4 "Broad form" property insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as Insureds all *Subcontractors*. The "Broad form" property insurance shall be provided from the date of commencement of the *Work* until the earliest of:
    - (1) 10 calendar days after the date of *Substantial Performance of the Work*;
    - (2) on the commencement of use or occupancy of any part or section of *Work* unless such use or occupancy is for construction purposes, habitational, office, banking, convenience store under 465 square metres in area, or parking purposes, or for the installation, testing and commissioning of equipment forming part of the *Work*;
    - (3) when left unattended for more than 30 consecutive calendar days or when construction activity has ceased for more than 30 consecutive calendar days.
  - .5 Boiler and machinery insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as Insureds all *Subcontractors*. The coverage shall be maintained continuously from commencement of use or operation of the boiler and machinery objects insured by the policy and until 10 calendar days after the date of *Substantial Performance of the Work*.
  - .6 The "Broad form" property and boiler and machinery policies shall provide that, in the case of a loss or damage, payment shall be made to the *Owner* and the *Contractor* as their respective interests may appear. In the event of loss or damage:
    - (1) the *Contractor* shall act on behalf of the *Owner* for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the *Contractor* shall proceed to restore the *Work*. Loss or damage shall not affect the rights and obligations of either party under the *Contract* except that the *Contractor* shall be entitled to such reasonable extension of *Contract Time* relative to the extent of the loss or damage as the *Consultant* may recommend in consultation with the *Contractor*;

- (2) the *Contractor* shall be entitled to receive from the *Owner*, in addition to the amount due under the *Contract*, the amount which the *Owner's* interest in restoration of the *Work* has been appraised, such amount to be paid as the restoration of the *Work* proceeds in accordance with the progress payment provisions. In addition the *Contractor* shall be entitled to receive from the payments made by the insurer the amount of the *Contractor's* interest in the restoration of the *Work*; and
- (3) to the *Work* arising from the work of the *Owner*, the *Owner's* own forces, or another contractor, in accordance with the *Owner's* obligations under the provisions relating to construction by *Owner* or other contractors, shall pay the *Contractor* the cost of restoring the *Work* as the restoration of the *Work* proceeds and as in accordance with the progress payment provisions.

.7 *Contractors' Equipment Insurance* from the date of commencement of the *Work* until one year after the date of *Substantial Performance of the Work*.

- 11.1.2 Prior to commencement of the *Work* and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the *Contractor* shall promptly provide the *Owner* with confirmation of coverage and, if required, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any amending endorsements applicable to the *Work*.
- 11.1.3 The parties shall pay their share of the deductible amounts in direct proportion to their responsibility in regards to any loss for which the above policies are required to pay, except where such amounts may be excluded by the terms of the *Contract*.
- 11.1.4 If the *Contractor* fails to provide or maintain insurance as required by the *Contract Documents*, then the *Owner* shall have the right to provide and maintain such insurance and give evidence to the *Contractor* and the *Consultant*. The *Contractor* shall pay the cost thereof to the *Owner* on demand or the *Owner* may deduct the cost from the amount which is due or may become due to the *Contractor*.
- 11.1.5 All required insurance policies shall be with insurers licensed to underwrite insurance in the jurisdiction of the *Place of the Work*.
- 11.1.6 If a revised version of CCDC 41 – INSURANCE REQUIREMENTS is published, which specifies reduced insurance requirements, the parties shall address such reduction, prior to the *Contractor's* insurance policy becoming due for renewal, and record any agreement in a *Change Order*.
- 11.1.7 If a revised version of CCDC 41 – INSURANCE REQUIREMENTS is published, which specifies increased insurance requirements, the *Owner* may request the increased coverage from the *Contractor* by way of a *Change Order*.
- 11.1.8 A *Change Directive* shall not be used to direct a change in the insurance requirements in response to the revision of CCDC 41 – INSURANCE REQUIREMENTS.

## GC 11.2 CONTRACT SECURITY

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

## PART 12 INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY

### GC 12.1 INDEMNIFICATION

- 12.1.1 Without restricting the *Owner's* obligation to indemnify as described in paragraphs 12.1.4 and 12.1.5, the *Owner* and the *Contractor* shall each indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings whether in respect to losses suffered by them or in respect to claims by third parties that arise out of, or are attributable in any respect to their involvement as parties to this *Contract*, provided such claims are:
  - .1 caused by:
    - (1) the negligent acts or omissions of the party from whom indemnification is sought or anyone for whose acts or omissions that party is liable, or
    - (2) a failure of the party to the *Contract* from whom indemnification is sought to fulfill its terms or conditions; and



- .2 made by *Notice in Writing* within a period of 6 years from the date of *Substantial Performance of the Work* as set out in the certificate of *Substantial Performance of the Work* issued pursuant to paragraph 5.4.2.2 of GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK or within such shorter period as may be prescribed by any limitation statute of the province or territory of the *Place of the Work*.

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

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

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

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

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

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

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

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

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

## GC 12.2 WAIVER OF CLAIMS

12.2.1 Subject to any lien legislation applicable to the *Place of the Work*, as of the fifth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*, the *Contractor* waives and releases the *Owner* from all claims which the *Contractor* has or reasonably ought to have knowledge of that could be advanced by the *Contractor* against the *Owner* arising from the *Contractor's* involvement in the *Work*, including, without limitation, those arising from negligence or breach of contract in respect to which the cause of action is based upon acts or omissions which occurred prior to or on the date of *Substantial Performance of the Work*, except as follows:

- .1 claims arising prior to or on the date of *Substantial Performance of the Work* for which *Notice in Writing* of claim has been received by the *Owner* from the *Contractor* no later than the sixth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*;
- .2 indemnification for claims advanced against the *Contractor* by third parties for which a right of indemnification may be asserted by the *Contractor* against the *Owner* pursuant to the provisions of this *Contract*;
- .3 claims for which a right of indemnity could be asserted by the *Contractor* pursuant to the provisions of paragraphs 12.1.4 or 12.1.5 of GC 12.1 – INDEMNIFICATION; and
- .4 claims resulting from acts or omissions which occur after the date of *Substantial Performance of the Work*.

12.2.2 The *Contractor* waives and releases the *Owner* from all claims referenced in paragraph 12.2.1.4 except for those referred in paragraphs 12.2.1.2 and 12.2.1.3 of GC 12.1 – INDEMNIFICATION and claims for which *Notice in Writing* of claim has been received by the *Owner* from the *Contractor* within 395 calendar days following the date of *Substantial Performance of the Work*.

- 12.2.3 Subject to any lien legislation applicable to the *Place of the Work*, as of the fifth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*, the *Owner* waives and releases the *Contractor* from all claims which the *Owner* has or reasonably ought to have knowledge of that could be advanced by the *Owner* against the *Contractor* arising from the *Owner's* involvement in the *Work*, including, without limitation, those arising from negligence or breach of contract in respect to which the cause of action is based upon acts or omissions which occurred prior to or on the date of *Substantial Performance of the Work*, except as follows:
- .1 claims arising prior to or on the date of *Substantial Performance of the Work* for which *Notice in Writing* of claim has been received by the *Contractor* from the *Owner* no later than the sixth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*;
  - .2 indemnification for claims advanced against the *Owner* by third parties for which a right of indemnification may be asserted by the *Owner* against the *Contractor* pursuant to the provisions of this *Contract*;
  - .3 claims for which a right of indemnity could be asserted by the *Owner* against the *Contractor* pursuant to the provisions of paragraph 12.1.4 of GC 12.1 - INDEMNIFICATION;
  - .4 damages arising from the *Contractor's* actions which result in substantial defects or deficiencies in the *Work*. "Substantial defects or deficiencies" mean those defects or deficiencies in the *Work* which affect the *Work* to such an extent or in such a manner that a significant part or the whole of the *Work* is unfit for the purpose intended by the *Contract Documents*;
  - .5 claims arising pursuant to GC 12.3 - WARRANTY; and
  - .6 claims arising from acts or omissions which occur after the date of *Substantial Performance of the Work*.
- 12.2.4 The *Owner* waives and releases the *Contractor* from all claims referred to in paragraph 12.2.3.4 except claims for which *Notice in Writing* of claim has been received by the *Contractor* from the *Owner* within a period of six years from the date of *Substantial Performance of the Work* should any limitation statute of the Province or Territory of the *Place of the Work* permit such agreement. If the applicable limitation statute does not permit such agreement, within such shorter period as may be prescribed by:
- .1 any limitation statute of the Province or Territory of the *Place of the Work*; or
  - .2 if the *Place of the Work* is the Province of Quebec, then Article 2118 of the Civil Code of Quebec.
- 12.2.5 The *Owner* waives and releases the *Contractor* from all claims referenced in paragraph 12.2.3.6 except for those referred in paragraph 12.2.3.2, 12.2.3.3 and those arising under GC 12.3 – WARRANTY and claims for which *Notice in Writing* has been received by the *Contractor* from the *Owner* within 395 calendar days following the date of *Substantial Performance of the Work*.
- 12.2.6 "Notice in Writing of claim" as provided for in GC 12.2 – WAIVER OF CLAIMS to preserve a claim or right of action which would otherwise, by the provisions of GC 12.2 – WAIVER OF CLAIMS, be deemed to be waived, must include the following:
- .1 a clear and unequivocal statement of the intention to claim;
  - .2 a statement as to the nature of the claim and the grounds upon which the claim is based; and
  - .3 a statement of the estimated quantum of the claim.
- 12.2.7 The party giving "Notice in Writing of claim" as provided for in GC 12.2 – WAIVER OF CLAIMS shall submit within a reasonable time a detailed account of the amount claimed.
- 12.2.8 Where the event or series of events giving rise to a claim made under paragraphs 12.2.1 or 12.2.3 has a continuing effect, the detailed account submitted under paragraph 12.2.7 shall be considered to be an interim account and the party making the claim shall submit further interim accounts, at reasonable intervals, giving the accumulated amount of the claim and any further grounds upon which it is based. The party making the claim shall submit a final account after the end of the effects resulting from the event or series of events.
- 12.2.9 If a *Notice in Writing* of claim pursuant to paragraph 12.2.1.1 is received on the seventh or sixth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*, the period within which *Notice in Writing* of claim shall be received pursuant to paragraph 12.2.3.1 shall be extended to two calendar days before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*. If a *Notice in Writing* of claim pursuant to paragraph 12.2.3.1 is received on the seventh or sixth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*, the period within which *Notice in Writing* of claim shall be received pursuant to paragraph 12.2.1.1 shall be extended to two calendar days before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*.

## GC 12.3 WARRANTY

- 12.3.1 Except for extended warranties as described in paragraph 12.3.6, the warranty period under the *Contract* is one year from the date of *Substantial Performance of the Work*.
- 12.3.2 The *Contractor* shall be responsible for the proper performance of the *Work* to the extent that the design and *Contract Documents* permit such performance.

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

## APPENDIX P – SUPPLEMENTAL GENERAL CONDITIONS

REGIONAL DISTRICT OF FRASER-FORT GEORGE

2024 LANDFILL GAS WELL FIELD EXPANSION  
CONSTRUCTION PROJECT

FOOTHILLS BOULEVARD REGIONAL LANDFILL  
PRINCE GEORGE, BRITISH COLUMBIA

SUPPLEMENTARY GENERAL CONDITIONS

**SGC 1            General**

- .1        These Supplementary General Conditions modify, delete or add to the General Conditions of the Contract. In the event of a conflict between the General Conditions and the Supplementary General Conditions, the Supplementary General Conditions take precedence. Clauses of the General Conditions that have not been specifically modified shall remain in effect.

**SGC 2            Definitions**

- .1        Owner - means the Regional District of Fraser-Fort George.
- .2        Engineer or Consultant - means Tetra Tech Canada Inc.

**SGC 3            Documents**

- .1        In addition to the signed copy of the contract, the Owner shall furnish to the Contractor, without charge, three (3) copies of the drawings and specifications.

**SGC 4            Time is of the Essence**

- .1        Time is of the essence in the performance of this Contract. In the event of schedule delay greater than one week, as determined by the Engineer, the Owner shall have the right to require the Contractor:
  - .1        To increase the manpower or have existing manpower work overtime for work done by his own forces or for work done by his Subcontractor to complete the work on schedule, at the Contractor's expense;
  - .2        To arrange for the work of his suppliers to be accelerated through an increase in manpower or through overtime work, or both, or pay additional premiums as necessary to have manufactured components arrive and be installed at the site on schedule, at the Contractor's expense;
  - .3        To remove the Subcontractor that is the cause of the delay and replace with another Subcontractor acceptable to the Owner and Engineer;
  - .4        To provide additional supervision as necessary.

- .2 The Contractor shall comply with such direction and shall bear any additional costs associated by compliance.
- .3 The provision of such direction to take corrective action shall not diminish the Owner's rights and remedies under other provisions of the Contract.

**SGC 5 Work Schedule**

- .1 At the time of Tender, the Contractor shall indicate that it can complete the work on or before the completion date indicated. Following the Contract Award, a detailed schedule as per GENERAL REQUIREMENTS Section 01 11 00.1.10.1 of the specifications shall be provided to the Owner and Engineer.

**SGC 6 Documents**

- .1 The specifications are arranged in Divisions and Sections for convenience and clarity only. The Contractor is responsible for all work required to complete the contract. Such divisions and sections do not obligate the Owner or Engineer to establish limits of any contract between the Contractor and any Subcontractor.
- .2 The intention and meaning of specifications and drawings are to be taken as a whole. The work shown on the drawings, if not fully described in specifications, or vice versa, which is reasonably implied and is evidently necessary for the complete finish of each branch of the work, is to be done by the Contractor as though both shown and specified.

**SGC 7 Statutory Declaration**

- .1 The Contractor shall, prior to receiving payment on each progress certificate except the first one, provide to the Owner a Statutory Declaration stating that all employees, sub contractors and suppliers used in connection with the work have been fully paid and satisfied and there is no claim outstanding or pending in respect of the work carried out and that no lien has been filed against the Owner's lands or against any materials or equipment for work done or materials supplied under the Contract.

**SGC 8 Payment**

- .1 The Owner shall make payment to the Contractor no later than thirty (30) days after the issuance of a certificate of payment by the Engineer.