

Public Works Building – Design, Construction Management and Construction

Request for Proposals

Issue Date: January 11, 2019

Proposals marked “*Public Works Building – Design, Construction Management and Construction*” will be received at the City of Fernie, City Hall, PO Box 190, 501-3rd Avenue, Fernie, BC up to 2:00PM local time, **February 7, 2019** for the provision of design, permitting, construction management and construction of a new Public Works Building.

Please submit all inquiries to Zabrina Pendon, Director of Operational Services, PO Box 190, 501 – 3rd Avenue, Fernie BC V0B 1M0 by telephone to 250.423.2230, by fax to 250.423.3034 or by email to Zabrina.pendon@fernie.ca

Closing Date: 2:00PM MDT, February 7, 2019

The City of Fernie reserves the right to cancel this Request for Proposal for any reason whatsoever without any liability to the City of Fernie.

NOTE: It is the Proponent’s responsibility to check the City’s website or BC Bid for any addenda.

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1. INVITATION

1.1. Statement of Request for Proposal

The Corporation of the City of Fernie (the City) is seeking proposals from qualified firms for the provision of design, construction management and construction of a new Public Works Building, in Fernie BC. The City believes that selection of a qualified contractor is critical to the success or failure of a project and interested firms are advised the intent of this Request for Proposal is to select the successful proponent based on criteria deemed most advantageous to the City. This document outlines the general scope of work and the basic requirements for the proposal document.

This RFP is a mere invitation to treat; it is a solicitation to vendors to come forward with competing offers regarding a Contract, and/or to compete for an opportunity to negotiate a Contract. This RFP itself does not constitute an offer in relation to the formation of any contract, including any bid contract, preliminary contract, collateral contract, or “contract A”. No agreement of any kind (express or implied), including any contract A or implied terms (including any implied duty of fairness), shall result upon submission of a proposal (whether or not such proposal is Non-Compliant). Nevertheless, proposals submitted to the City containing signature pages signed by Proponents in relation to the formation of a performance Contract are offers capable of acceptance by the City (whether or not the proposal is Non-Compliant), with or without negotiations, in order to form one or more performance Contracts, as described in paragraphs 4.11 and elsewhere in this RFP. The City reserves the sole and exclusive right to accept a non-compliant proposal, despite any failure to comply with a mandatory term of this RFP. The City will not have any legal duty or obligation to anyone in connection with this RFP except under a performance Contract, if any, created by the parties according to the process described in this RFP. The City is under no obligation to enter into any contract or other agreement with anyone in connection with this RFP and proposals received. All evaluation criteria and other evaluation related processes in this document are non-binding guidelines only, notwithstanding any obligatory language used herein. Thus, the evaluation process under this RFP is structured to be flexible and forgiving. This flexible and forgiving process is a fair and transparent one, because Proponents are made aware of the nature of the process in advance, and because all Proponents stand to benefit from its flexible and forgiving nature from the outset. Competition and value-for-money are enhanced, because attractive Proposals need not be disqualified. The sole remedy for any Proponent who finds the nature of this RFP unacceptable is to refrain from submitting a proposal.

1.2. Terminology

The following terms will apply to this Request for Proposal and to any subsequent Contract. Submission of a proposal in response to this Request for Proposal indicates acceptance of all the following terms:

“Best Value” means the value placed upon quality, service, past performance and price.

“Contract” means the written agreement resulting from the Request for Proposal executed by the City and the Successful Proponent.

“City” means the Corporation of the City of Fernie.

“City Representative” means the Representative or appointee engaged by the City to supervise the work.

“Must”, “mandatory” or “required” means a requirement that must be met in order for a PROPOSAL to receive consideration.

“Premises” should mean building(s) or part of a building with its appurtenances.

“Proposal” should mean the proponent’s submission in response to this RFP.

“Proponent” means a party submitting a proposal to this RFP.

“RFP” means this Request for Proposal.

“Request for Proposal” or “RFP” (RFP) includes the documents listed in the index and any modifications thereof or additions thereto incorporated by addenda before the close of this RFP.

“Should” or “desirable” means a requirement having a significant degree of importance to the objectives of this Request for Proposals.

“Special Conditions” means the special conditions, which are included in the RFP.

“Subcontractor” includes, inter alia, a person, firm or corporation having a contract with the Successful Proponent for the execution of a part or parts or furnishing to the Successful Proponent materials and/or equipment called for in the RFP.

“Successful Proponent” means the proponent submitting the most advantageous RFP as determined by the City.

“Work” means any labour, duty and/or efforts to accomplish the purpose of this project

1.3. Request for Proposal Documents

Copies of the Request for Proposal may be obtained from the City of Fernie:

City Hall Front Counter
501-3rd Avenue, Fernie BC V0B 1M0
Telephone: 250.423.6817

Website <http://www.fernie.ca/EN/main/business/bid-opportunities.html>
[Civic Info BC](#)
[BC Bid](#)

1.4. City Representative

The City's Representative will be:

Zabrina Pendon, Director of Operational Services
City of Fernie
501-3rd Avenue, PO Box 190, Fernie BC V0B 1M0
Telephone: 250.423.2230
Fax: 250.423.3034
Email: Zabrina.pendon@fernie.ca

All inquiries relating to the RFP shall be directed to the Representative.

1.5. Closing Date and Time

- RFP Closing Date: February 7, 2019
- RFP Closing Time: 2:00 PM MDT

Proposals received after the Closing Date and Time for receipt of Proposals will be considered as "Late Proposals". Late proposals may, in the sole discretion of the City, be evaluated by the City, or may be rejected on that basis by the City.

1.6. Optional Site Meeting

The City will host an optional on-site meeting to tour Proponents around the Public Works Yards. The City representative will be there to answer any questions. The optional on-site meeting will be held on **January 17th, 2018 at 10am**. Please let the City Representative know in advance if you plan to attend.

1.7. Background

The City of Fernie is a community of approximately 5,500 residents located on Highway No. 3 in the Elk Valley in southeastern British Columbia near the Alberta border. The Public Works Yard (Yards), located at 1492 Railway Avenue, provides a home base for our Operations team and includes equipment storage, material storage, office space, change/locker rooms, a break room, a mechanic shop, carpenter shop and vehicle and equipment fueling facilities. The Yards are comprised of ten significant buildings, including two of which that are slated for demolition due to imminent structural failure. The adjacent lot, 1350 Railway Avenue, is City-owned lands.

The existing site layout is shown in Figure 1 below.

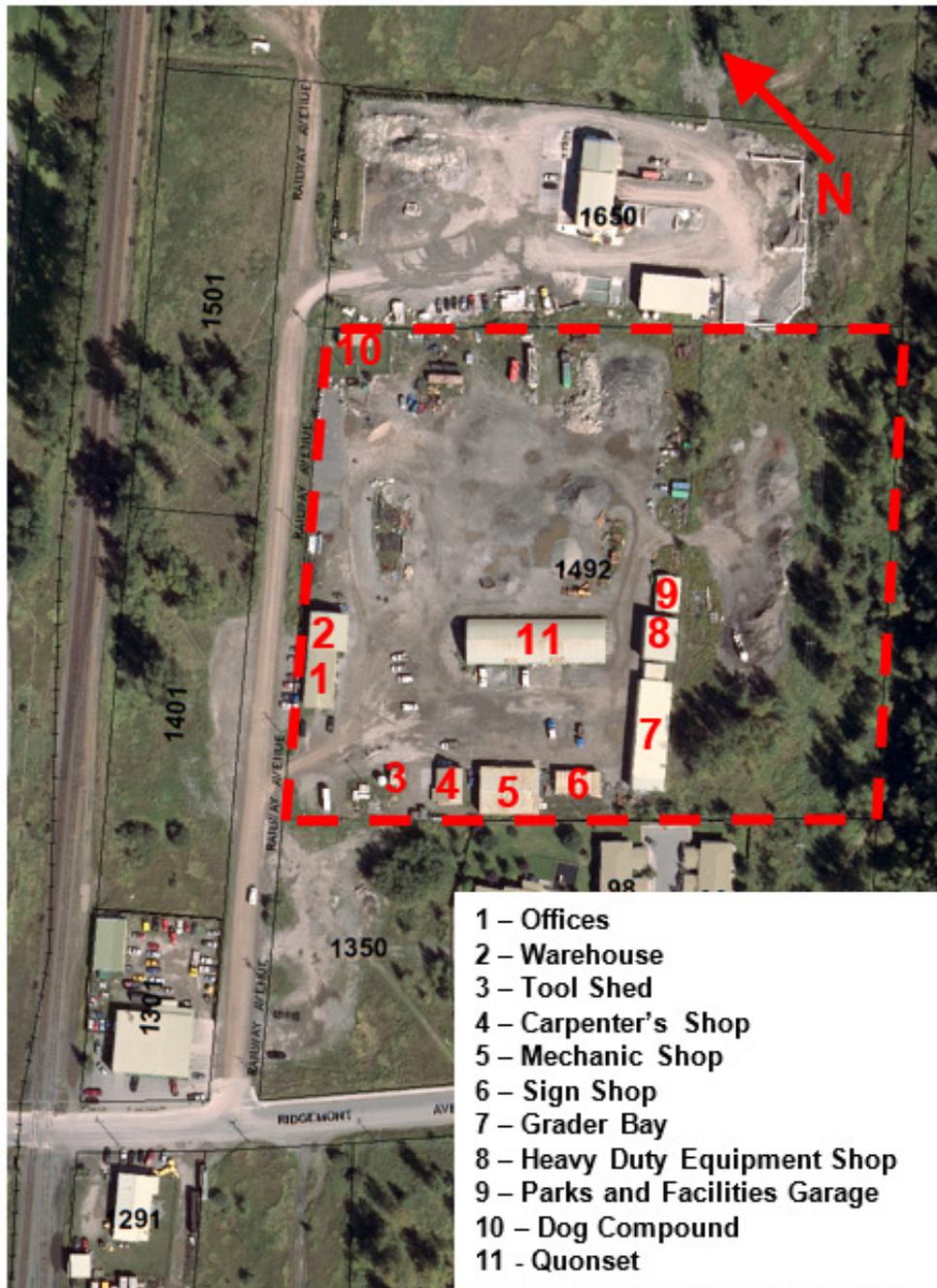


Figure 1: Existing Subject Site

Additionally, the Yards include the following existing accessory uses and storage:

- Fuel pump station
- Storage for:
 - Fuel
 - Peeled log pile
 - Salt / sand pile
 - Pipe and hydrant
 - Manhole, catchbasin, frames, lids, and covers
 - Crushed gravel
 - Cold Mix Asphalt

In 2017/2018, the City commissioned a feasibility study to evaluate the existing condition of the buildings in the Yards, complete a needs analysis and programming study to determine potential spatial programming of the site, and a site evaluation. This study provided a recommended layout for the re-configured Yards, including space planning for new buildings, repurposing of some existing buildings, and demolition of buildings beyond repair.

Additionally, the City commissioned a detailed topographic site survey and geotechnical investigation of the site.

The feasibility study and topographic site survey data will be provided to the successful proponent upon project award. The geotechnical investigation report and site survey base plan are attached in Appendix C.

Additional information that will be provided to the successful proponent includes:

- 2018 LiDAR survey for the subject site (with a resolution of 8 – 10 points/sq. m. +/- 0.11 m. vertical and 0.21 m horizontal) as well as 2018 digital orthophotos and cadastral data.
- Base mapping with City versus private ownership delineated and any applicable legal instruments such as statutory rights of way and easements.

2. PURPOSE & SCOPE OF WORK

2.1. Purpose

The purpose of this work is to re-develop the existing City Yards to provide a facility to accommodate the day-to-day functions and storage needs of the City's Operations team. The site and facility design should provision for future growth as the needs of our operations grow and change.

As set out in Article 2.2, the City may elect not to proceed as indicated, based on budgetary and other factors, prior to construction commencing. Depending on the cost estimates, the City may be required to obtain approval of the electors for borrowing to complete the project, although at the date hereof, the City believes it has adequate funding resources available to complete the Project without borrowing.

2.2. Scope of Work & Objectives

The successful proponent will, in a collaborative approach with City staff, complete the detailed design, construction management and construction of a new Public Works building and a reconfigured Public Works Yards site.

Additional information about the new building and site requirements is contained in Appendix B.

The Scope of Work includes the following:

1) Project Initiation Meeting:

A meeting with City Staff to review the proposed work plan and refine the plan as required. This meeting will also be to discuss the project schedule, clarify project expectations, reporting and communications protocol, and project invoicing requirements.

2) Project Management and Controls:

Ongoing project management to maintain the budget, schedule, and quality of the project. This includes coordination with City Staff and the Proponent's team. The Proponent will be responsible for applying for all required permits and ensure their schedule meets appropriate timing windows for approval and works. Particularly, familiarity with the City's Building Bylaw will be imperative and a pre-application meeting with the City's Building Department is strongly encouraged in the early stages of design.

3) 50% Detailed Design:

The successful Proponent would be responsible to complete any further required site investigation.

The 50% detailed design includes the layout of the proposed site (including site servicing and grading), the layout, configuration and draft design of the proposed building(s), a design report describing the elements of the design and the design assumptions, and an itemized Class 'C' cost estimate. (Note: cost estimates should be in accordance with the Canadian Construction Association's *Guide to Predictability in Construction: An Analysis of Issues Affecting the Accuracy of Cost Estimates*.) The Mayor and Council may determine, not to proceed further with the Project at this stage, and in view of such potential, Proponents should indicate in any proposal their proposed costs to this stage of the Project

Following design submission, the successful proponent will meet with the City for a design review meeting. The design drawings, cost estimate, and any renderings or other visual aid materials should be submitted to the City at least one week prior to the design review meeting.

Based on review comments by City Staff, the Proponent will revise the 50% detailed design materials and provide a presentation of the design and estimated costs to City Council.

4) 75% Detailed Design:

The 75% detailed design includes incorporating the comments provided by Council and Staff from the 50% Design review and Council presentation and further design refinement of the layout of the proposed site (including site servicing and grading), the layout, configuration, draft design, and proposed finishes of the proposed building(s), the design report, and an itemized Class 'B' cost estimate. The 75% detailed design package should also include the detailed construction specifications that will form the basis for construction methodology including quality control and assurance methodologies and metrics.

Following design submission, the successful proponent will meet with the City for a design review meeting. The design drawings, cost estimate, and any renderings or other visual aid

materials and construction specifications should be submitted to the City at least one week prior to the design review meeting.

Based on review comments by City Staff, the Proponent will revise the 75% detailed design materials and provide a presentation of the design and estimated costs to City Council.

The Mayor and Council may determine, not to proceed further with the Project at this stage, and in view of such potential, Proponents should indicate in any proposal their proposed costs to this stage of the Project.

5) 90% Detailed Design and Constructability Review:

The 90% detailed design includes incorporating the comments provided by Council and Staff from the 75% Design review and Council presentation and further design refinement of the layout of the proposed site (including site servicing and grading), the layout, configuration, draft design, and proposed finishes of the proposed building, the design report, an itemized Class 'A' cost estimate, and a revised construction specification document. It is anticipated that the final design elements and site configuration will be determined at this design stage.

The Mayor and Council may determine, not to proceed further with the Project at this stage, and in view of such potential, Proponents should indicate in any proposal their proposed costs to this stage of the Project

As part of the 90% detailed design, the proponent is to include a construction staging package that indicates their planned sequencing for construction and how the proponent will accommodate the operations of the Yards during construction. This package should also include a preliminary construction schedule in GANTT chart format.

Following design submission, the successful proponent will meet with the City for a design review meeting. The design drawings, cost estimate, and any renderings or other visual aid materials should be submitted to the City at least one week prior to the design review meeting.

6) 100% Detailed Design and Constructability Review

The 100% detailed design includes incorporating the comments provided by City Staff from the 90% Design review meeting and finalize the design of the layout of the proposed site (including site servicing and grading), the layout, configuration and design of the proposed building(s), the final design report, an itemized Class 'A' cost estimate, and a final construction specification document. All required permits should also be obtained by this stage of design.

The Mayor and Council may determine, not to proceed further with the Project at this stage, and in view of such potential, Proponents should indicate in any proposal their proposed costs to this stage of the Project.

The proponent is to further refine the construction staging package that indicates their planned sequencing for construction and how the proponent will accommodate the operations of the Yards during construction. This package should also include a preliminary construction schedule in GANTT chart format.

Following design submission, the successful proponent will meet with the City for a final design review meeting / pre-construction meeting. The design drawings, cost estimate, and any renderings or other visual aid materials should be submitted to the City at least one week prior to the design review meeting.

The final design drawings, along with the BC Building Code Schedule 'B' forms, should be signed and sealed by the Engineers-of-Record for each respective discipline as Issued for Construction.

7) Construction and Commissioning

During construction and commissioning, the proponent will be expected to host weekly construction site meetings to provide the project team and the City with an update on project progress, any changes to the staging plan in the upcoming week, and to track any site issues or potential changes that may be required. The design professional of record for each design discipline will be expected to attend site to adequately verify that the construction is in general conformance with his/her design.

The proponent will be required to host a building operator's training session as well as provide digital and hard copy operating manuals to the City. The proponent will also be required to provide digital (AutoCAD and pdf) and scaled full size hard copies of records drawings for the work. The record drawings, along with the BC Building Code Schedule 'C-B' forms, should be signed and sealed by the Engineers-of-Record for each respective discipline. The training session, operating manuals, record drawings, and Schedules are required to be submitted to the City prior to achieving Substantial Performance.

During commissioning, the Proponent will be required to work in concert with the City's electrical and data contractors to ensure that power and communications are functioning adequately for business to operate.

8) Post-Construction, Warranty and Maintenance Period

The proponent will also carry out the warranty and maintenance period as outlined in their proposed methodology.

The Scope of Work described above is not intended to be limiting or exhaustive. The proponent should develop a detailed project methodology and identify additional project tasks necessary for the successful completion of the project.

All data collected and produced for this assignment including survey and imagery becomes the property of the City of Fernie. Proponents should submit a detailed description of how they intend to deliver data collected and produced for the purposes of this assignment.

2.3. Supporting Documentation

The following information is available via the City of Fernie's website (www.fernie.ca):

- i. [Departments & Services](#)
- ii. [Corporate Strategic Plan](#)
- iii. [Official Community Plan](#)
- iv. [Zoning Bylaw No. 1750](#)
- v. [Subdivision & Development Servicing Bylaw No. 1727](#)
- vi. [Building Bylaw No. 1946](#)
- vii. [Building Permits and Inspections Information Page](#)

2.4. Commencement, Prosecution and Completion of Work

Depending on the available funds to complete this project, the City reserves the right to negotiate the scope of work with the successful proponent prior to awarding the work. Any negotiations regarding the scope of work after a Contract is executed will be through a Change Order, mutually agreed to by both parties.

If awarded the work, the successful proponent should be available immediately to begin the project work.

3. FORMAT OF PROPOSALS

The successful proponent shall be selected based on what is determined to be in the best interests of the City. The proponent's proposal must outline the expertise and full scope of services the proponent (and/or their subconsultants/subcontractors) are able to provide to the City and demonstrate their ability to provide innovative, timely, cost effective and flexible solutions to Fernie's unique requirements. The proponent should outline their approach to this assignment to meet the needs of the City as identified in this RFP.

Items to be addressed in the RFP include, but are not limited to:

3.1. Proposal Overview

The proposal shall include a cover page referencing the RFP title, a table of contents, and a cover letter.

The cover letter:

- Shall be signed by a person authorized to legally bind the Proponent to the statements made in the Response to this RFP;
- Provides a summary of the services to be provided;
- Provides a general overview of the company, its structure, size and capability to perform the work required;
- Includes the name, telephone, fax and email address of the contact person for the Proposal. The contact person should have the authority to answer questions regarding the Proposal; and
- Includes the name and phone number of a contact person to be notified regarding contractual issues.

Appendix A should also be included to form part of, the proponent's RFP submission.

To assist in receiving similar and relevant information, and to ensure your Proposal receives fair evaluation, the City asks that Proponents provide detailed information for the itemized list below and follow the same format.

Proponents are asked to provide a reply to each point throughout the RFP and the Proponent must identify any specific provisions with which it is unwilling or unable to comply.

A Proposal response submitted must be in enough detail to allow the City to determine the Proponent's position from the documents received. Every effort should be made to include complete details of services you or your company would provide.

3.2. Project Understanding, Concept and Methodology

This section should address the Proponent's local knowledge & understanding of the City's needs and provide details of the proponent's approach to the Work of the RFP including all tasks listed in Section 2.2. The proponent should outline their project vision, processes and systems used for planning, scheduling, cost estimating and overall design and construction services and how they intend to provide quality project and information management. This section should address how the Proponent Plans to provide the services in Fernie.

This section should include a detailed description of the Proponent's conceptual design, including the basis and assumptions for the design, along with drawings or sketches to help illustrate the conceptual layout and building and preliminary material lists and quantity take-offs. The Proponent should also indicate their assumed finishes within the material lists.

Provide a description of your firm's proposed warranty start and end dates and the details of the warranty coverage.

3.3. Firm Experience & References

This section must specifically highlight the firm's past performance, experience and recent relevant projects (within the last three years) that demonstrate the company's ability to provide the design-build services required as outlined in this RFP. This section should be no more than five (5) pages in length. This section should include the firm's name and address, year it was established, primary office that will be performing the work of the RFP and number of employees in the firm. For any subconsultants or subcontractors, the same information listed above must be provided as well as the length of the working relationship between the Proponent and their Subconsultant/Subcontractor. A minimum of four recent client references must be provided, including name and contact information and a brief description of the services provided.

3.4. Key Team Members Roles, Responsibilities & Related Experience

This section should address team structure, organization and availability of key team members. Clearly identify the roles and responsibilities of each team member and demonstrate requisite experience and skills to fulfill designated roles. The proposal shall clearly identify the proposed project manager, each discipline lead, and team members, construction manager, foremen, crew chiefs, quality testers, etc. to perform the work and indicate the level of involvement of each team member in the proposed work. Identify all subconsultants and subcontractors on the project team, their roles and requisite experience. The project manager's and the construction manager's technical and managerial ability and experience should be highlighted. Resumes (maximum 1 page) of all key team members should be included in an Appendix to the proposal.

3.5. Work Schedule and Fee

A schedule and fee description should be provided including:

- Work schedule and accompanying Gantt chart, itemizing key tasks, milestones, deliverables and timelines to complete the assignment.
- The fixed-price fee proposal breakdown per the work schedule key tasks and itemized per the conceptual design material list. Include all fees, costs and disbursements (including travel costs), sub-consultant and subcontractor fees, and any other expenses as required under the Scope of Work. Prices quoted are to be in Canadian dollars.

3.6. Innovation and Sustainability

Fernie's Official Community Plan indicates that our three community priorities are: Ensuring Economic Viability, Enriching Community Life, and Protecting the Environment. Indicate how the proposed project vision and design will align with these community priorities. Include a description of building and site design elements as they pertain to the ongoing operations and maintenance of this facility as well as in the Proponent's proposed construction methodologies and materials.

4. REQUEST FOR PROPOSAL PROCESS

4.1. Review and Interpretation of Proposals

Each Proponent will be solely responsible for examining all the RFP documents, including any Addenda issued during the RFP period and for independently informing itself with respect to any and all information contained therein, and any and all conditions that may in any way affect the Proposal, before the Proposal is submitted.

Each Proponent will review all RFP documents and will promptly report and request clarification of any discrepancy, deficiency, ambiguity, error, inconsistency or omission contained therein. Any such request must be submitted to the City's Representative in writing, electronically or otherwise, no later than 2:00 PM, five (5) days before the closing date.

Where such requests result in a change or a clarification to the requirements of the RFP, the City will prepare and issue an Addendum to this RFP.

4.2. Not a Tender Call

This RFP is not a Tender call and the submission of any response to this RFP does not create a tender process. This RFP is not an invitation for an offer to contract, and it is not an offer to contract made by the City.

4.3. Addenda

The City reserves the right to modify the terms of the RFP at any time at its sole discretion. Written addenda issued by the City will be the only means of varying, clarifying or otherwise changing any of the information contained in this RFP. The City reserves the right to issue Addenda up to the RFP Closing Date and Time. The date set for submitting Proposals may be changed if, in the City's opinion, more time is necessary to enable Proponents to revise their Proposals. Addenda will state any changes to the RFP Closing Date and Time. It is the Proponent's responsibility to ensure that they have all modifications. Proposals must acknowledge receipt of all addenda.

4.4. Preparation of Proposals

All proponents shall be solely liable for all costs incurred in the preparation of proposals in response to this RFP. This Request for Proposals does not commit the City to award a contract, to pay any costs incurred in the preparation of a proposal or to contract for the goods and/or services offered.

The Proposal submitted by each Proponent will be signed by an Authorized Representative of the Proponent. If a natural person makes the proposal, the Proponent must sign it with his/her name typed or clearly printed below the signature. If the Proponent is carrying on business under a firm name and NOT incorporated, the members of the firm must sign below the firm name and their

names must be typed or clearly printed below the signature.

4.5. Proposal Submissions

The Proponent may submit a Proposal either by email or in a hard copy, as follows:

(a) Email

If the Proponent chooses to submit by email, the Proponent must submit the Proposal electronically in a single PDF file to the City by email at: cityhall@fernie.ca on or before the Closing Date and Time. Proponents, if submitting a Proposal electronically by email, must request a responding email from the City (not a read or delivery receipt) confirming that the Proposal has been received, and until such time as such email is sent by the City to a Proponent, the Proposal shall be deemed NOT to have been received by the City.

Note that the maximum file size the City can receive is 10Mb. If sending large email attachments, Proponents should phone to confirm receipt. A Proponent bears all risk that the City's equipment functions properly so that the City receives the Proposal on time.

(b) Hard Copy

If the Proponent chooses NOT to submit by email, the Proponent shall submit 3 bound copies of the proposal which must be delivered to:

City of Fernie, Attention: Zabrina Pendon, Director of Operational Services
501-3rd Avenue
PO Box 190
Fernie BC V0B 1M0

on or before the Closing Date and Time. *Proponents are advised that courier service to our location may take several days.*

4.6. Modification of Bids

Modifications to Proposals already submitted will only be allowed if submitted in writing prior to the Closing Date and Time unless requested by the City for purposes of clarification.

4.7. Withdrawal

Proposals may be withdrawn by written notice provided such notice of withdrawal is received prior to the Closing Date and Time.

4.8. Incomplete Proposals

No proposal shall be altered, amended, or withdrawn after the Closing Date and Time of the RFP. Negligence on the part of the Proponent in preparing the Proposal confers no right for withdrawal of the Proposal after it has been opened.

While the City has made considerable efforts to ensure an accurate representation of information in

the RFP, the information contained in the RFP is supplied solely as a guideline for the Proponent and is not necessarily comprehensive or exhaustive. Nothing in a City RFP is intended to relieve the Proponent from forming their own opinions and conclusions in respect of the matters addressed in the RFP.

The City expressly reserves the right to reject or accept any Proposal whether or not completed properly and whether or not it contains all required information. Without prejudice to this right, the City may request clarification where, in the opinion of the City, the Proponent’s intent is unclear.

4.9. Opening of Proposals

Proposals will NOT be opened in public. Proposals may be opened by the City at any time after the submission deadline. All proposals satisfying the requirements of this Request for Proposal will be evaluated to establish which of the Proponents best fulfills the needs of the City and this assignment.

In the event that only one proposal is received, the City reserves the right to return the proposal unopened or unread in the case of submission via email.

4.10. Evaluation Criteria

The Proponents proposals will be evaluated using the following guidelines. The proponent receiving the highest score will not necessarily be invited to enter into a contract.

CATEGORY	WEIGHT OF EVALUATION
Project Understanding and Methodology	25%
Firm Experience & References	20%
Key Team Members Roles, Responsibilities & Related Experience	15%
Project Fees and Schedule	25%
Innovation and Sustainability	15%

4.11. Acceptance of Proposals & Contract

Each Proposal must be valid and irrevocable for a period of sixty (60) days from the Closing Date and Time for receipt of Proposals.

Proponents must demonstrate in their Proposal that they have a clear understanding of the RFP requirements. Proponents need to articulate their proposals, intentions and expectations indicating how they will fulfill the requirements of the RFP and what services they will provide. Proposals must include the names, positions, and qualifications of staff members and any other resource staff pertinent to this proposal.

The acceptance of the proposal by the City shall be made only by notice in writing to the Successful Proponent. The City shall not be obligated in any manner to any Proponent whatsoever until an

Agreement, with such modifications as may be negotiated, has been duly executed relating to an approved Proposal.

4.12. Rejection of Proposals

The City of Fernie reserves the right to accept or reject any and all proposals and to waive irregularities and informalities at its discretion, including acceptance of non-compliant proposals. By submitting a proposal, the Proponents waive any right to contest, in any proceedings or action, the right of the City of Fernie to accept or reject any proposal in its sole and unfettered discretion.

The City also has the right to negotiate with all qualified Proponents or to cancel this Request for Proposals or accept the proposal that is deemed most advantageous to the City if it is in the best interests of the City to do so. The City reserves the right to award this Proposal in whole or part and retains sole discretion not to award at all. The decision of the City shall be final.

4.13. RFP Timeline

Event / Activity	Date
RFP Issued	January 11, 2019
Optional Site Tour	January 17, 2019, 10:00 AM
Last Day to Submit Questions	February 1, 2019, 11:59 PM
Submission Closing	February 7, 2019, 2:00 PM
Interviews	February 13-15, 2019
Recommendation of Award Presented to Council	February 25, 2019

5. GENERAL INSTRUCTIONS

5.1. Instructions to Proponents

The following terms will apply to this RFP and to any subsequent Contract. Submission of a proposal in response to this RFP indicates acceptance of all the following terms:

- a. The law applicable to this RFP shall be the law in effect in the Province of British Columbia. Except for an appeal from a British Columbia Court to the Supreme Court of Canada, no action in respect to this RFP shall be brought or maintained in any court other than in a court of the appropriate jurisdiction of the Province of British Columbia.
- b. In carrying out its obligations hereunder, the Proponent shall familiarize itself and comply with all applicable laws, bylaws, regulations, ordinances, codes, specifications and requirements of all regulatory authorities, and shall obtain all necessary licenses, permits and registrations as may be required by law. Where there are two or more laws,

- ordinances, rules, regulations or codes applicable to the Services, the more restrictive shall apply.
- c. Applicability of law: All references in the RFP to statutes and regulations thereto and City bylaws shall be deemed to be the most recent amendments thereto or Replacements thereof.
 - d. Copyright: All designs, drawings, concept drawings, specifications, digital, hard copies, web pages, internet pages, maps and plans commissioned by the City of Fernie, shall remain the property of the City of Fernie.
 - e. In the case of any inconsistency or conflict between the provisions of the RFP, the provisions of such documents and addenda thereto will take precedence in governing in the following order: (1) Addenda; (2) RFP; (3) Special Conditions; (4) all other documents.
 - f. Headings are for convenience only: Headings and titles in the RFP are for convenience only and are not explanatory of the clauses with which they appear.
 - g. City policy as well as applicable Federal and Provincial laws govern method of payment.

5.2. Proponent's Responsibility

It is the responsibility of the Proponent to ensure that the terms of reference contained herein are fully understood and to obtain any further information required for this proposal call at their own initiative. The City reserves the Right to share, with all Proponents, all questions and answers related to this proposal call.

5.3. No Obligation to Proceed

Though the City fully intends at this time to proceed through the RFP to select the services, the City is under no obligation to proceed to the Contract, or any other stage. The receipt by the City of any information (including submissions, ideas, plans, drawings, models or other materials communicated or exhibited by any intended Proponent, or on its behalf) shall not impose any obligations on the City. There is no guarantee by the City, its officers, employers or Managers, that the process initiated by the issuance of this RFP will continue, or that this RFP process or any RFP process will result in a contract with the City for the purchase of goods or services.

5.4. No Collusion

Except as otherwise specified or as arising by reason of the provision of the Contract Documents, no person whether natural, or body corporate, other than the Proponent has or will have any interest or share in this proposal or in the proposed contract which may be completed in respect thereof. There is no collusion or arrangement between the Proponent and any other actual or prospective Proponents in connection with proposals submitted for this Request for Proposal and the Proponent has no knowledge of the contents of other proposals and has made no comparison of figures or agreement or arrangement, express or implied, with any other party in connection with the making of the proposal.

5.5. City Responsibility

The City will provide the Successful Proponent with City documents such as existing bylaws or plans that may be required to complete the scope of work and achieve the goals and objectives laid out herein.

5.6. Conflict of Interest

At no time during the Proposal stage, evaluation stage, after award, or during the preparation of the Scope of Work shall a City employee or Council Member or appointed Authority, Committees or Commissions be in any way connected with the Proponent. Proponents are to include, with their initial Proposal, and at any subsequent time where requested to do so by the City, full details of any employee, person, firm or corporation that could be considered at conflict with the City.

5.7. Confidentiality

The City will endeavor to keep all proposals confidential, subject to the provisions of the Freedom of Information and Protection of Privacy Act (“FIPPA”). The material contained in the Successful Proposal will be incorporated in a contract and may be subject to disclosure pursuant to FIPPA. Proponents who wish to ensure that certain parts of their proposal are protected from disclosure under this Act should specifically identify any information or records provided with their Proposals that constitute trade secrets, that are supplied in confidence and the release of which could significantly harm their competitive position.

5.8. Limitation of Damages

The Proponent, by submitting a Proposal agrees that it will not claim damages, for whatever reason, relating to or arising from the RFP, by reason of submitting a Proposal, in respect of the competitive process, or in respect of any breach of any implied duty of fairness, including but not limited to any costs incurred by the Proponent in preparing its Proposal. The Proponent, by submitting a Proposal, waives any and all such claims.

5.9. Ownership of Documents

All documents and materials submitted in response to this RFP shall become the property of the City.

5.10. Gifts and Donations

Proponents will not offer entertainment, gifts, gratuities, discounts or special services, regardless of value to any employee of the City. The Successful Proponent shall report to the Chief Administrative Officer any attempt by City employees to obtain such favours.

5.11. Negotiation Delay

If a written Contract cannot be negotiated within thirty (30) days of notification of the Successful Proponent, the City may, at its sole discretion at any time thereafter, terminate negotiations with that proponent and either negotiate a Contract with the next qualified proponent or choose to terminate the RFP process and not enter into a Contract with any of the Proponents.

5.12. Execution of Contract

If the offer contained in this proposal is accepted, upon being advised that the Contract Documents are available, the Proponent will obtain the Contract Documents and Drawings, if any, and will execute and identify the documents and drawings in a form and manner acceptable to the City, and will deliver the same within Thirty (30) days from the time when the same are available, delivered or mailed to the Proponent.

6. ADDITIONAL TERMS

6.1. Sub-Contracting

Using a Subcontractor (who must be clearly identified in the proposal) is acceptable. This includes a joint submission by two Proponents having no formal corporate links. However, in this case, one of these proponents must be prepared to take overall responsibility for successful interconnection of the two product or service lines and this must be defined in the proposal.

Subcontracting to any firm or individual, whose current or past corporate or other interests may, in the City's opinion, give rise to a conflict of interest in connection with this project will not be permitted. This includes, but is not limited to, any firm or individual involved in the preparation of this proposal.

6.2. Project Team Replacements

The City reserves the right of approval prior to any and all team member or subconsultant replacements assigned to this Contract throughout the duration of this Contract. The City should be given advanced notification in any planned replacements and an opportunity to review and

6.3. Liability for Errors

While the City has used considerable efforts to ensure an accurate representation of information in this RFP, the information contained in this RFP is supplied solely as a guideline for Proponents. The information is not guaranteed or warranted to be accurate by the City, nor is it necessarily comprehensive or exhaustive. Nothing in this RFP is intended to relieve Proponents from forming their own opinions and conclusions with respect to the matters addressed in this RFP.

6.4. Agreement with Terms

By submitting a proposal, the Proponent agrees to all the terms and conditions of this RFP. Proponents who have obtained the RFP electronically must not alter any portion of the document, with the exception of adding the information requested. To do otherwise will invalidate the proposal.

6.5. Use of Request for Proposal

This document or any portion thereof, may not be used for any purpose other than the submission of proposals.

APPENDIX A

PROPOSAL SUMMARY AND SIGNATORIES

I/We have read and understood, having carefully examined the Request for Proposal including any and all Addenda, for the above stated project.

Proponent Business Name: _____

Address: _____

Authorized Signature(s):

<u>Signature</u>	<u>Name</u>	<u>Title</u>

Date: _____

Telephone Number/Facsimile: _____

Email Address: _____

APPENDIX B

Project Requirements



Appendix B - Project Requirements

The building and site requirements are outlined below. The site and buildings must comply with Zoning Bylaw No. 1750, Subdivision & Development Servicing Bylaw No. 1727, and Building Bylaw No. 1946.

Project Site

- Grading, drainage, and site servicing modified to new layout and building(s) footprint
- Fire hydrants (one in public area, one in secured area)
- Site lighting
- Exterior landscaping (if any) Xeriscape design
- Unsecured / Public area
 - Minimum 10 paved public parking spaces
 - Minimum 25 paved employee parking spaces with plug-ins
 - Access to Public Works Building office area / reception
 - Water fill station for water trucks with payment kiosk
 - Special event equipment rental pick-up, preferably near equipment storage facility within secured area
- Fenced and secured area for employee access only
 - Vehicle gate to accommodate all City Fleet and deliveries
 - Man gate
 - Gates controlled by key card, fob, or similar
 - Commodity Shed (salt, crushed gravel, rock, etc), room for 4 separate materials, roof over all bays and walled on three sides
 - To include all buildings/functions listed below

Public Works Building

The perimeter around the new Public Works Building will be paved. Provide curbing and bollards around the perimeter of the building to protect it from errant vehicles. The building should be designed not to shed snow or ice over any doorways or walkways.

- **Area 1 – Heated Storage / Service Bays**
 - approximately 7400 to 7600 square feet
 - Concrete floor
 - 25' ceiling height clearance (to raise dump boxes, fire trucks etc. for service)
 - Heated area – capable of maintaining 21 degrees Celsius temperature
 - Building width to accommodate 2 grader lengths (approx. 44' each), around 100 ft wide
 - Six (6) overhead bay doors, drive thru style, 16 ft wide x 16 ft high

- Floor sloped for drainage and system to collect water, trough style and removable for cleaning (with oil separator)
- Hose bibs and electrical plug-ins along walls/columns to service whole storage / service area
- Two (2) Plugs for 220 v (welder etc.)
- Two to Four man doors to exterior
- **Area 2 – Wash Bay**
 - Approx. size (25 ft x 100 ft) - ~2500 sq ft
 - Concrete floor
 - 20' ceiling height clearance
 - Width to accommodate to grader lengths (approx. 44' each), around 100 ft wide
 - Two (2) overhead bay doors, drive thru style, 16ft x 16 ft
 - Floor sloped for drainage and system to collect water, trough style and removable for cleaning (with oil separator)
 - Hotsy style wash wands with overhead swing arm
 - Two man doors to exterior
 - Heated area – capable of maintaining 21 degrees Celsius temperature
 - Exterior mounted hose and reel for washing, including oil separator
- **Area 3 – Cold Storage**
 - Approximately 11,000 to 12,000 square feet
 - Concrete floor
 - 20' ceiling height clearance
 - Cold storage – capable of maintain above 0 degrees Celcius temperature (for thawing)
 - building width to accommodate 2 grader lengths (approx. 44' each), around 100 ft wide
 - Eight (8) overhead bay doors, drive thru style, 20 ft wide x 16 ft high (accommodate two unit entry, side by side)
 - Floor sloped for drainage and system to collect water, trough style and removable for cleaning (with oil separator)
 - Hose bibs and electrical plug-ins along walls/columns to service whole storage area
 - Two to four man doors to exterior
- **Area 4 – Warehouse**
 - Approximately 2,200-2,300 sq ft
 - Capable of maintaining 21 degrees Celsius temperature
 - Concrete floor
 - Two (2) overhead bay doors, sized to accommodate a small propane forklift, one to exterior, one to heated storage service bays
 - Ceiling height to accommodate pallet racking 3 high (1 on floor, 2 on racking)
 - Wall space to accommodate pallet racking, including supply and installation of pallet racks (approx. 30 pallets)
 - 1-2 man doors to exterior, 1 to heated storage
- **Area 5 – Office Area**
 - Walls to be drywalled and painted (not white), commercial vinyl flooring, appropriate trim for doors and windows
 - Four (4) private offices – (a) one at minimum 15'X15', (b) three at minimum 12 ft x 14 ft, exterior windows that open in each, one wired workstation for each (electrical and data outlets) each
 - Two offices should have visibility/windows to heated storage/service bays

- Interior area for open concept workstations (eight desk areas), with power and data outlets for each
- Administrative area – 20 ft x 20 ft (approx.), room for 2 clerks, visibility to ‘control gate’, power and data plugs for two workstations and printer
- Meeting room – 20 ft x 18 ft (approx.), with power and data
- Office area to have heating and air conditioning
- File storage room – 10 ft x 10 ft (approx.)
- Mechanical room
- Janitorial closet
- Men’s and women’s washrooms
- Water/Wastewater office – approx. 400 square feet, power and data for 2 workstations
- Lunch Room – approx. 800 square feet, finished with: counter, 2 sinks, dishwasher, wired for 2 microwaves and plugs for 2 fridges
- Locker rooms – men’s and women’s, approx. 200 square feet each, 1 shower each, 1 toilet each, 1 sink each
- Lunch room, locker room, and washrooms to be located near each other
- Office area should have secured entry, separated by security glass (or similar) and a service window to accept payment and greet visitors. The public entry space should have a waiting area to accommodate a minimum of five seats.

Finishes

- Interior finishes should be industrial quality, low maintenance durable and timeless.
- Drop ceiling tile where practical to access electrical, plumbing etc.
- Plumbing fixtures durable and proven with no automatic sensor activated faucets or toilets
- (Urinal can be automatic sensor activated flush)
- Sealed polish concrete floors for main level where possible
- 2nd floor (if in design) flooring patterns and colours shall be timeless and heat weldable commercial grade sheet vinyl flooring using protective Edging and Reducer Strips using longest practical lengths at each location.
- Janitor closets on each floor should include a small standard layout with shelving for products a durable mop service sink and faucet.
- Windows energy efficient vinyl with office and common areas able to be opened
- Interior doors durable and sound reducing with lockable office doors
- Lighting, low energy proven fixtures from reputable manufacture. Bathroom lighting wired with sensor activated timer switch.

Other Buildings and Requirements

The following existing buildings may remain and may be repurposed and/or renovated for other uses:

- Offices
- Warehouse
- Heavy Duty Equipment Shop
- Dog Compound

The proposed facility must provide all existing uses and functions of the Yards noted in Section 1.7 of the Request for Proposal.

Fuel Pumping Station

As a separately-priced and OPTIONAL ITEM, include the relocation and re-configuration of the existing fueling station and as well, provide for an increase in fuel storage volume to 2,000 gallons of unleaded gas and 5,000 gallons of diesel. The fueling station must be visible from the administration area in the offices of the Public Works Building.

APPENDIX C

Existing Site Survey Base Plan

Geotechnical Investigation



Geotechnical Assessment

City of Fernie City Yard Proposed Buildings

Prepared For: ISL Engineering and Land Services Ltd.
 542B 2 Ave
 Fernie, BC
 V0B 1M0

Prepared By: VAST Resource Solutions Inc.
 PO Box 538
 Cranbrook, BC
 V1C 4J1

January, 2019

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January 8, 2018

VAST File: 18.0176.00

ISL Engineering and Land Services Ltd.
542B 2 Ave
Fernie, BC
VOB 1M0

Attn: Mr. James Newman, P.Eng., Project Engineer, ISL Engineering and Land Services Ltd.

Re: Geotechnical Assessment Report – City of Fernie Public Works Yard, Fernie, BC

Dear Sir:

This report presents the findings of a Geotechnical Assessment for the construction of proposed building foundation(s) at the City of Fernie Public Works yard in Fernie, British Columbia. This report describes the soil and/or rock types and characteristics at the site observed during the field assessment and provides general guidelines for foundation construction.

1.0 STUDY AREA

The study area is located along the western slopes of the Fernie Range of the Rocky Mountains, within the Elk River Valley. The proposed structure(s) is to be located on the City of Fernie Public Works property in the northern portion of the City of Fernie, British Columbia (Figure 1).

The proposed structure is adjacent to other similar structures that have been present within the study area for decades. The study area is located approximately 1,300 metres (m) east of the Elk River. The study area is relatively flat with mountains immediately to the east.

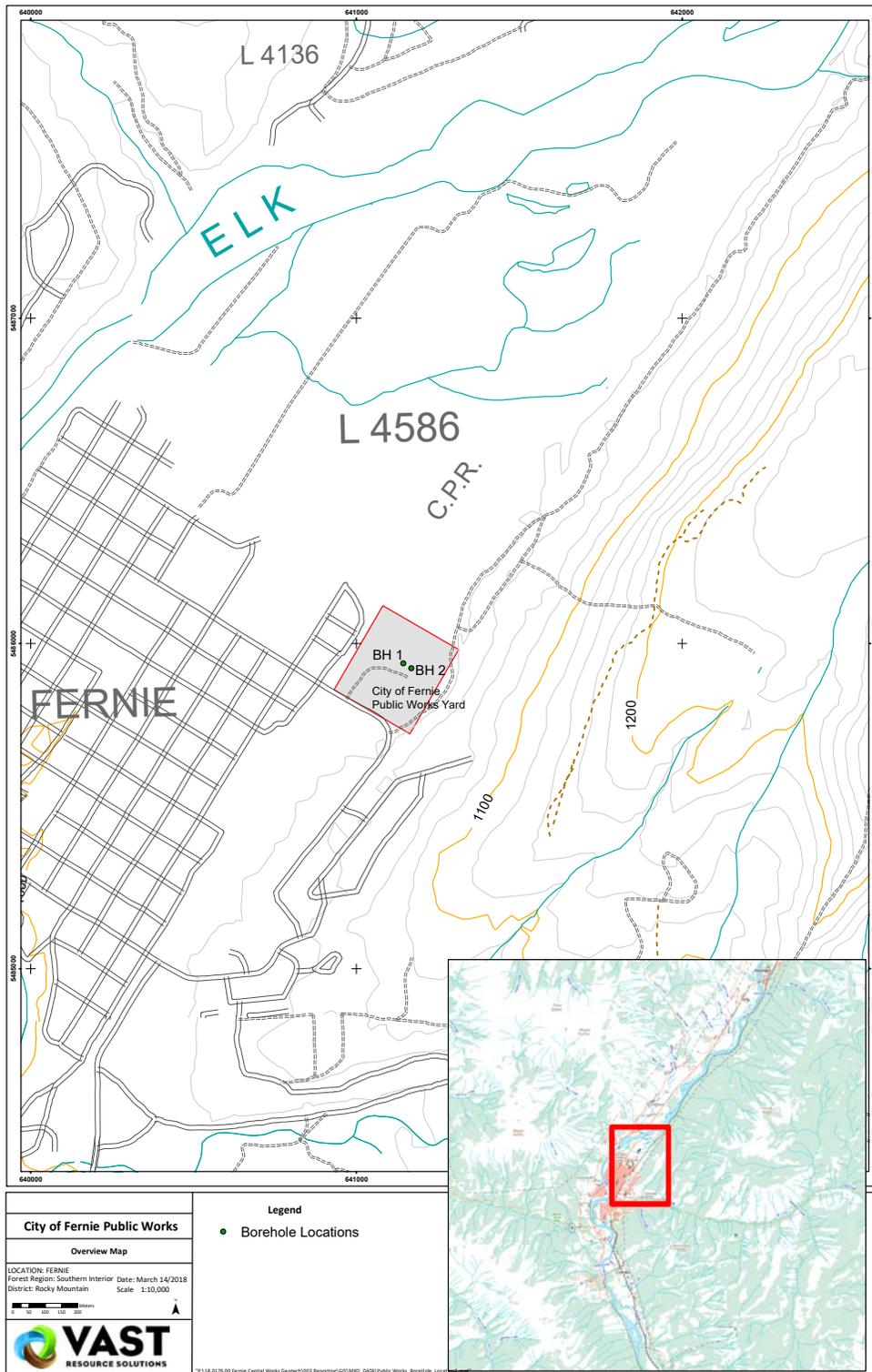


Figure 1. Location Map



Figure 2. Site Plan

2.0 METHODOLOGY

2.1 References

Reference was made to geologic maps, site survey information, and geotechnical design manuals including the Canadian Foundation Engineering Manual (CFEM).

2.2 Field Assessments

This assessment was conducted by field examination of areas of interest within and adjacent to the property. An initial site visit was completed on November 8, 2018 to select potential drilling locations by Mr. Jason McBain, P.Eng. and Mr. Addison Reist, E.I.T. of VAST Resource Solutions Inc. (VAST). The investigation at the Public Works yard was included as part of a larger drilling effort throughout the City of Fernie. The site assessment at the Public Works yard was completed on November 17, 2018 by Mr. Reist. The site investigation comprised of sub-surface evaluations by test drilling at 2 sites within the yard.

A hand-held GPS (Garmin GPSMAP 64s) was used to map the location of each drill hole site. Figure 2 illustrates the borehole numbers and their locations.

Drilling was conducted with an ODEX percussion air rotary hammer drill mounted on a Fraste tracked drill rig operated by Owens Drilling Ltd.

Standard Penetration Tests (SPT) were conducted at 0.75 m / 2.5 feet (ft) intervals.

The boreholes were backfilled at completion with cuttings and bentonite.

Borehole depths for each location were 3.65 m (12.0 ft). Borehole logs are located within Appendix A.

Soil samples were visually classified and hand textured. Select samples were submitted to Artech Consulting Ltd. for analysis of grain size distributions (hydrometer analysis for fine textured soils) and Atterberg Limits. Laboratory results are in Appendix B.

3.0 PHYSIOGRAPHY

3.1 Geomorphic Process

Natural geomorphic processes observed adjacent to the study area consist of fluvial. The Elk River is located more than 1,400 m to the west and is not expected to negatively impact the proposed foundation. Natural weathering of in-situ soil is occurring. No active natural geomorphic processes were observed within the subject property that will adversely affect the proposed infrastructure.

3.2 Topography

The City of Fernie Public Works property is in the northeast portion of Fernie, BC at an elevation of 1015 m (3,330 ft) above sea level. The City itself is located within the Elk River Valley, which is characterized by large, steep-sloped mountains with the Elk River meandering through the valley bottom, which is a north to south trending watercourse. The yard is situated on a relatively flat section of land on the edge of the valley with mountain slopes immediately to the east. The ground slopes range from 0 % to less than 10% descending to the west. The Elk River is located approximately 1.4 km to the west of the yard.

3.3 Bedrock Geology and Surficial Soils

Bedrock (massive rock) was not encountered within the depth of the excavation and is not expected to be encountered during foundation excavation.

3.3.1 Soil Stratigraphy

Surficial soils encountered during the assessment are described below and soil properties are summarized on Table 1.

Gravel Surface

The surface layer for both Boreholes #1 and #2 comprised of 0.6 m of gravel.

Sandy SILT

Directly below the gravel surface layer in Borehole #1, from approximately 0.6 m to 1.5 m depth below the ground surface, comprised of a very soft, brown, moist, sandy SILT, some clay, and trace gravel. This material is classified as **CL-ML** and is considered to be moderately to poorly drained material. A sample of this material (S18699) was submitted for laboratory analysis of grain size distribution (hydrometer) and Atterberg Limits. Laboratory results are in Appendix A.

This material is inferred as glacio-lacustrine in origin.

Sandy GRAVEL

The soil directly below the layer of sandy SILT in Borehole #1 is comprised of loose to compact, gray-brown, dry to wet, sandy GRAVEL, trace silt/clay. The sandy GRAVEL was also observed in Borehole #2 from 1.6 in depth to the bottom of the borehole. This material is classified as **GW** and is well-drained.

Samples of the sandy GRAVEL were visually identified and hand-textured on site and confirmed as native. This native material is inferred as fluvial in origin.

3.3.2 Summary of Native Soil Properties

Table 1 below summarizes the properties of the native soil described above.

Representative angles of internal friction and estimated dry unit weights were inferred from the subgrade material type and consistency.

Table 1: Summary of Native Soil Properties

Material	Angle of Internal Friction	Estimated Dry Unit Weight
Sandy GRAVEL (GW)	34°	20 kN/m ³
Sandy SILT (CL-ML)	28°	19 kN/m ³

3.4 Groundwater

Groundwater existed at 2.20 m and 2.25 m in depth in Boreholes #1 and #2 respectively at the time of drilling.

4.0 DISCUSSION

4.1 Bearing Resistance

The soft, sandy SILT, some clay, trace gravel (CL-ML) soil is the design bearing soil for this site.

4.1.1 Design Method

The bearing resistance was calculated using Ultimate Limit States (ULS) Design in accordance with the Canadian Foundation Engineering Manual (CFEM, 2006) and in accordance with generally accepted geotechnical engineering practice.

4.1.2 Design Basis

The property has conceptual foundation plans developed at the time of writing this report. Bearing Resistance has been calculated on the basis of the following:

- Design bearing soil consisting of sandy SILT, some clay, trace gravel with a unit weight of 19 kN/m³ and an internal angle of friction of 28 degrees;
- Backfill consisting of excavated Structural Fill (see Section 5.3) unit weight of 20 kN/m³ and an internal angle of friction of 34 degrees;
- Foundation consisting of 0.46 m (18 inch) strip footing;
- Depth of ground surface to bottom of footing equal to or greater than 1.2 m (4.0 ft);
- Groundwater was observed at a depth of 2.2 m during the field investigation. Given seasonal fluctuations may cause the ground water table to be above or within 0.5 m below the underside of footing, the vertical effective stress was calculated in accordance with Table 10.3 of the CFEM. Drained conditions are assumed based on the free draining nature of the native sub-grade soils; and,

- A geotechnical resistance factor Phi (Φ) of 0.5 was applied to the ultimate geotechnical capacity (R_n) to determine the factored bearing resistance at ULS.

4.1.3 Bearing Resistance

Using the methods and design parameters as described above, the ultimate bearing capacity is 390 kPa (8,151 psf), the factored bearing resistance at ULS is 195 kPa (4,075 psf), and the allowable bearing capacity, or serviceability limit state, (SLS) is 130 kPa (2,717 psf).

4.2 Settlement

Calculation of settlement has been conducted using the Elastic Displacement method by Poulos and Davis (1974) at the assumed depth of the foundation (Section 4.1.2) and the allowable bearing capacity as described in the Canadian Foundation Engineering Manual (2006).

Settlement for footings loaded at the allowable bearing capacity of 130 kPa is estimated to be approximately 3.0 to 6.0 mm and is not a limiting factor.

4.3 Lateral Earth Pressures

Lateral earth pressures are provided for the design of retaining walls and/or building substructures. The table gives the recommended coefficients for the active, passive and “at rest” earth pressure cases for recommended excavated backfill material. All of the parameters provided in the table are unfactored, assuming level backfill configurations.

Table 2: Lateral Earth Pressure Coefficients

Soil Friction Angle	Interface Friction Angle Between Soil and Concrete	Active Earth Pressure Coefficient (Ka)	At Rest Earth Pressure Coefficient (Ko)	Passive Earth Pressure Coefficient (Kp)	Poisson's ratio * (v)
Imported backfill (GW)	24°	0.28	0.44	3.53	0.31
Sandy SILT 28° (CL-ML)	14°	0.36	0.53	2.77	0.35

* Note: Poisson's ratio (v) is estimated as $K_o / (1+K_o)$.

5.0 RECOMMENDATIONS

5.1 Bearing Resistance

The following table outlines the recommended bearing resistance:

Table 3: Recommended Bearing Resistance

Ultimate Bearing Capacity	Factored Bearing Resistance (ULS)	Allowable Bearing Capacity (SLS)
390 kPa	195 kPa	130 kPa

If the design foundation configuration (ie. foundation depth and dimensions) and/or design bearing soil differs from that outlined above within Section 4.1.2. it is recommended that the designer contact the undersigned to reassess the bearing resistance and settlement.

5.2 Excavation

Foundation excavation is to be completed to exposed undisturbed inorganic native soils. It is recommended that excavations be conducted with an excavator equipped with a cleanup bucket if possible, to minimize disturbance below final grade. Bulk excavations close to the ground surface can use a toothed bucket.

The underside of the foundation is to be at least 4.0 ft (1.2 m) below the finished outside surface grade or until native sandy GRAVEL is encountered (see Figure 3).

Excavation surfaces are to be proof compacted prior to placement of forms. Soft materials, if encountered, are to be removed and replaced with structural material (Section 5.3) and compacted to 100% of the Standard Proctor Maximum Dry Density (SPMDD).

Fill materials and organics, if present below the final excavation depth, are to be removed and replaced with structural fill (Section 5.3) and compacted to 100% of the SPMDD.

Additional excavations beyond the assessed bearing surface are to be completed under the supervision of the engineer.

Excavations are to be conducted and maintained in accordance with Worksafe BC Regulation Part 20. Due to the sandy soil located at the site, a maximum slope of 2H:1V (ie. 26.6 degrees) is suitable for safe working conditions against the excavation side walls.

5.3 Structural Fill

Recommended granular material for Structural fill (if required) is to comprise of at least 0.3 m (1.0 ft) of washed 1 to 3 inch size angular drain rock, 19 mm clear crush, 19 mm minus with less than 5% fines, or pre-approved equivalent underlain by non-woven geotextile (see section 5.4 for recommended

non-woven geotextile). Structural fill is to be placed in maximum 0.2 m / 8 inch (loose thickness) lifts and compacted to 100% of SPMDD prior to the construction of forms and reinforcing.

5.4 Foundation Drainage

Install a foundation drain around the entire footing perimeter. The foundation drain is to comprise of a non-woven geotextile wrap surrounding ¾" or 1" washed drain rock and a 4" perforated PVC drain pipe (Figure 3). Perforations on the pipe are to be placed facing down. The recommended geotextile is Nilex NW 67, Armtec 180, TC Mirafi 160N, or a pre-approved equivalent. The perforated drain pipe (CSA Approved) is to be set with a minimum 1% drainage gradient sloping to a storm drain, gravel filled soakaway, or daylight located more than 16 ft/5 m downslope of the foundation. Install cleanouts for future inspection and maintenance.

5.5 Backfill

Backfill is to comprise of imported granular material placed in maximum 0.25 m/10 inch (loose thickness) lifts and compacted to 98% of the SPMDD. Backfill must be placed and compacted for at least 1 m horizontally away from the foundation on the outside. The top 0.2 m (8 inch) can be backfilled with native sandy SILT to assist with preventing ground water from percolating downwards towards the footings. The depth of backfill from the underside of the concrete footings to the finished exterior surface grade must be at least 1.23 m /4.0 ft (Refer to Figure 3).

Recommended granular material for backfill soil includes 25 mm minus pit run gravel with less than 5% fines, 19 mm minus crushed gravel with less than 10% fines, or Select Granular Subbase material (SGSB) as approved by the Engineer.

Any backfill materials exceeding 0.4 m (15 inches) total thickness are to be subjected to field density testing.

Alternatively, backfill with native clean granular material free of organics if approved by the Engineer. Native backfill must be placed in maximum 0.25 m (loose thickness) lifts and compacted to 98% of the SPMDD. Moisture content is to be within 2% of optimum. If native backfill is used, the materials are to be field density tested every second lift until a compaction program is approved by the Engineer.

Final back fill grade is to be sloped at a minimum of 2% for at least 2 m or in accordance with the site grading plan.

5.6 Runoff Management and Surface Drainage During and after Construction

The use of ditching, sandbags, and/or soil berms is recommended to prevent surface water from entering the excavation during construction. Runoff management is to be maintained until backfill and grading is complete. This includes overnight and on weekends.

Exposed native soils should be tarped or covered to protect from rainfall. If surface soils are softened by rainfall or standing water, they are to be excavated and replaced with structural fill (Section 5.3).

Water from drainage gutters/roof leaders must be directed away from the foundation to a storm drain or gravel/cobble fill soakaway. The soakaway must be located at least 5 m downslope of the foundation.

5.7 Freezing Conditions

In the event that late season construction under freezing conditions or potentially freezing conditions is anticipated, the following recommendations are applicable. Note that these requirements may significantly increase costs and efforts for construction.

1. Foundation excavation, construction, and backfill is not recommended during freezing conditions.
2. Placement of frozen fill materials or placement of fill onto frozen ground surfaces is not acceptable.
3. If freezing conditions occur during foundation construction (overnight, on weekend and between lifts of fill, all frozen soils must be removed and replaced with non-frozen granular soil (Section 5.3) and compacted to 100% of the SPMDD.
4. The use of insulating tarpaulins can be used to minimize the freezing of bearing surface soils. Frozen soil and snow must be removed from the backfill prior to compacting.
5. Concrete must not be poured on frozen soil.
6. Concrete foundations must not be left over the winter without adequate frost protection.

5.8 Road and Parking Drainage

Care is warranted for management of surface runoff from paved areas. Roads and parking areas are to be graded, ditched, curbed, or otherwise sloped to ensure that surface runoff does not move toward the building foundations.

To minimize ingress of surface runoff from natural and paved areas of the property, it is recommended that finished ground surfaces, including landscaping, paved areas, and roadways be

graded to slope away from the building foundations at a minimum gradient of 2% for a distance of at least 2.0 m (6.6 ft) or in accordance with the site grading plan.

5.9 Paved or Concrete Areas

If concrete or asphalt is planned for the parking or access areas, the course graded subbase/base must be compacted to 98% of the Standard Proctor Maximum Dry Density (SPMDD).

5.10 Inspections and Reports

Field inspections by the Engineer are recommended as follows:

1. To examine the native bearing surface and proof compaction prior to the placement of structural fill, forms, and re-enforcing steel;
2. To examine the perimeter drains prior to backfill; and
3. To approve backfill material, optimum moisture content and compaction procedures including density testing and approval of results.

An inspection report/synopsis including the BC Building Code Schedule CB to be completed by the Engineer after the field inspections.

The Engineer requires a minimum of 48 hours' notice prior to the inspection dates.

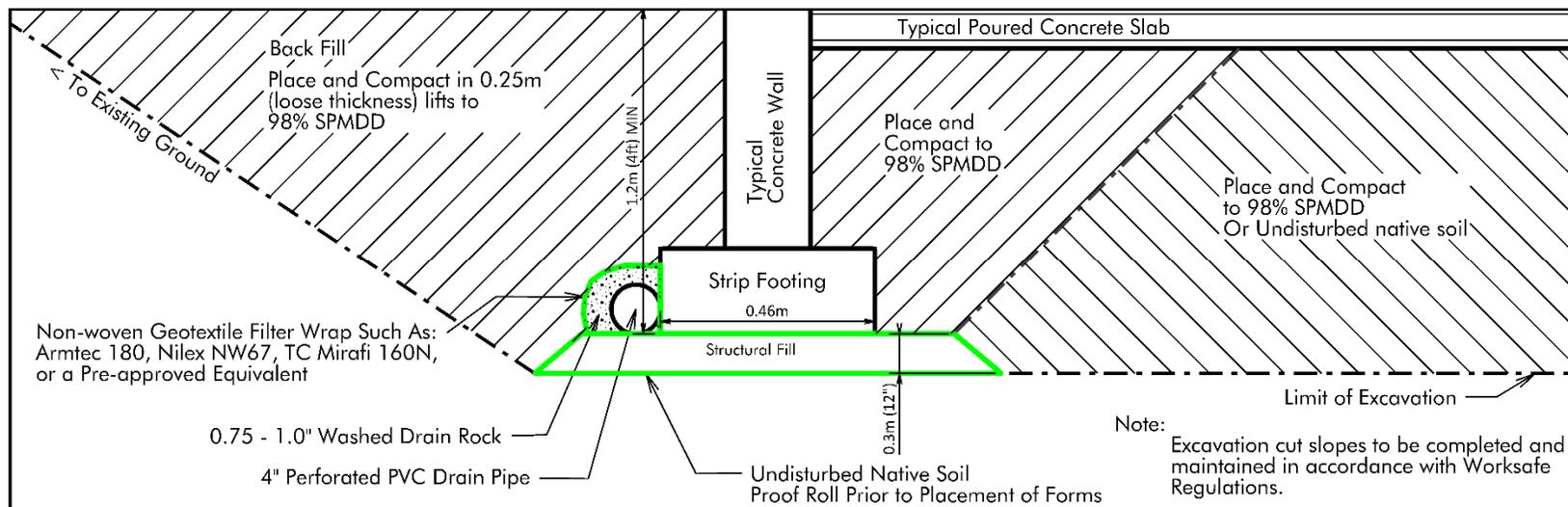


Figure 3. Excavation and Backfill

6.0 CLOSURE

This report has been prepared in accordance with generally accepted engineering practices in British Columbia. No other warranty, express or implied is made.

Services provided by VAST Resource Solutions for this report have been conducted in a manner consistent with the level of skill, care and competence ordinarily exercised by members of the profession currently practicing under similar conditions and like circumstances in the same jurisdiction in which the services were provided. Professional judgment has been applied in developing the recommendations in this report.

The conclusions and/or recommendations provided in this report do not relieve the client or their agents or representatives of the responsibility to comply with applicable Acts, regulations, bylaws and/or decisions of any authorities that have jurisdiction under an enactment.

Assessments of soils and rock characteristics are based on interpretation of the site excavation in which soil samples were collected and visually analyzed. Variability (even over short distances) is inherent in geological features, and actual ground conditions encountered may vary from those identified.

In order to properly understand the suggestions, recommendations and opinions expressed within this report, reference must be made to the whole report. We cannot be responsible for the use of portions of the report by any party without reference to the whole report.

This report is prepared for the specific site assessed, whether it is a development, a building, or a design objective that was described to us by the client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed within the report are only valid to the extent that there has been no material alteration to, or variation from any of the said descriptions provided to us, unless we have been specifically requested by the client to review and revise the report in light of such alteration or variation.

The information and opinions expressed in the report, or any document forming part of the report, are for the sole benefit of the client. No other party may use or rely upon the report or any portion thereof without our written consent. We will consent to any reasonable request by the client to approve the use of this report by other parties as "approved users". The contents of the report remain our copyright property and we authorize the client and approved users to make copies of the report only in such quantities as are reasonably necessary for the use of the report by those parties. The client and approved users may not give, lend, sell or otherwise make the report, or any portion

thereof, available to any party without our written permission. Any use which a third party makes of the report, or any portion thereof, is the sole responsibility of such third parties. We accept no responsibility for damages suffered by any third party resulting from the unauthorized use of the report.

In the event that conditions vary from those interpreted for this assessment, we reserve the right to re-inspect the foundation conditions and amend our recommendations accordingly. The author reserves the right to amend this report if additional information becomes available.

The report is based on, and limited by, circumstances, conditions and information available at the time the work was completed. The recommendations of this report are based in part on information provided by others. VAST Resource Solutions believes this information is accurate but cannot guarantee or warrant its accuracy or completeness.

The information presented in this report was acquired, compiled and interpreted exclusively for ISL Engineering and Land Services Ltd. for the purposes described in this report. VAST Resource Solutions Inc. does not accept any responsibility for the use of this report, in whole or in part, for any purpose other than intended or to any third party for use whatsoever.

This document has been digitally signed and sealed and certified by the author. Hard copies of the report can be produced upon request.

Yours truly,

Prepared By:

Reviewed By:

Jason McBain, P.Eng.,
Project Engineer

Evan Kleindienst, P.Eng., R.F.P.
Senior Engineer (Principal)

REFERENCES

Association of Professional Engineers and Geoscientists of BC. March, 1998. "Guidelines for Geotechnical Engineering Services for Building Projects.

"Canadian Foundation Engineering Manual" November, 2008. Canadian Geotechnical Society 2006. 4th Edition.

Google Earth© Image. May 2013. Version 5.0.11337.1968 (beta).

Unified Soil Classification System.

APPENDIX A: BORING LOG



Vast Resource Solutions

CLIENT ISL Engineering and Land Services Ltd.

PROJECT NAME Fernie Public Works Yard

PROJECT NUMBER 18.0176.00

PROJECT LOCATION Fernie, BC

DATE STARTED 17/11/18 COMPLETED 17/11/18

GROUND ELEVATION 1017 m HOLE SIZE 4"

DRILLING CONTRACTOR Owens Drilling

GROUND WATER LEVELS:

DRILLING METHOD Air Rotary

▽ AT TIME OF DRILLING 2.20 m / Elev 1014.80 m

LOGGED BY Addison Reist CHECKED BY Jason McBain

▼ AT END OF DRILLING 2.20 m / Elev 1014.80 m

NOTES Backfilled with bentonite

▼ AFTER DRILLING 2.20 m / Elev 1014.80 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
					GW		(GW) Gravel Surface 1016.40
	SS S18699	40	1-0-0-1 (0)	LL = 25 PL = 20 Fines = 66%	CL-ML		(CL-ML) Sandy SILT, some clay, trace gravel, brown, very soft, moist. 1015.50
2	SS	30	1-3-2-2 (5)		GW		(GW) Silty/clayey GRAVEL, some sand, dark brown, loose, moist. 1014.70
	SS	27	3-2-2-1 (4)		GW		(GW) Sandy GRAVEL, trace silt/clay, light to dark brown, loose, wet. 1013.30
	SS	28	2-2-5-9 (7)		GW		

Bottom of borehole at 3.70 meters.

GENERAL BH / TP / WELL FERNIE CITY YARD_BH.GPJ GINT STD CANADA LAB.GDT 7/1/19



Vast Resource Solutions

CLIENT ISL Engineering and Land Services Ltd.

PROJECT NAME Fernie Public Works Yard

PROJECT NUMBER 18.0176.00

PROJECT LOCATION Fernie, BC

DATE STARTED 17/11/18 COMPLETED 17/11/18

GROUND ELEVATION 1005 m HOLE SIZE 4"

DRILLING CONTRACTOR Owens Drilling

GROUND WATER LEVELS:

DRILLING METHOD Air Rotary

▽ AT TIME OF DRILLING 2.25 m / Elev 1002.75 m

LOGGED BY Addison Reist CHECKED BY Jason McBain

▼ AT END OF DRILLING 2.25 m / Elev 1002.75 m

NOTES Backfilled with bentonite

▼ AFTER DRILLING 2.25 m / Elev 1002.75 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
				GW		(GW) Gravel Surface
					0.60	1004.40
	SS	32	2-3-18-18 (21)	SW		(SW) Gravelly SAND, some silt/clay, brown to dark brown, compact, moist.
					1.60	1003.40
2	SS	53	7-15-15-15 (30)	GW		(GW) Sandy GRAVEL, trace silt/clay, light brown to brown, compact, moist to wet.
					▼	
	SS	17	3-4-3-11 (7)	GW		
					3.10	1001.90
	SS	30	4-6-8-8 (14)	GW		(GW) Sandy GRAVEL, trace silt/clay, light brown to brown, compact, wet.
					3.70	1001.30

Bottom of borehole at 3.70 meters.

APPENDIX B: SOIL LAB ANALYSIS



PARTICLE SIZE ANALYSIS (HYDROMETER)

Project No: 18.0176.00
Project: Fernie Capital Works Geotech
Client: VAST Resource Solutions

Lab ID: S18699

Client Project: -

Attn: Jason McBain
CC: -

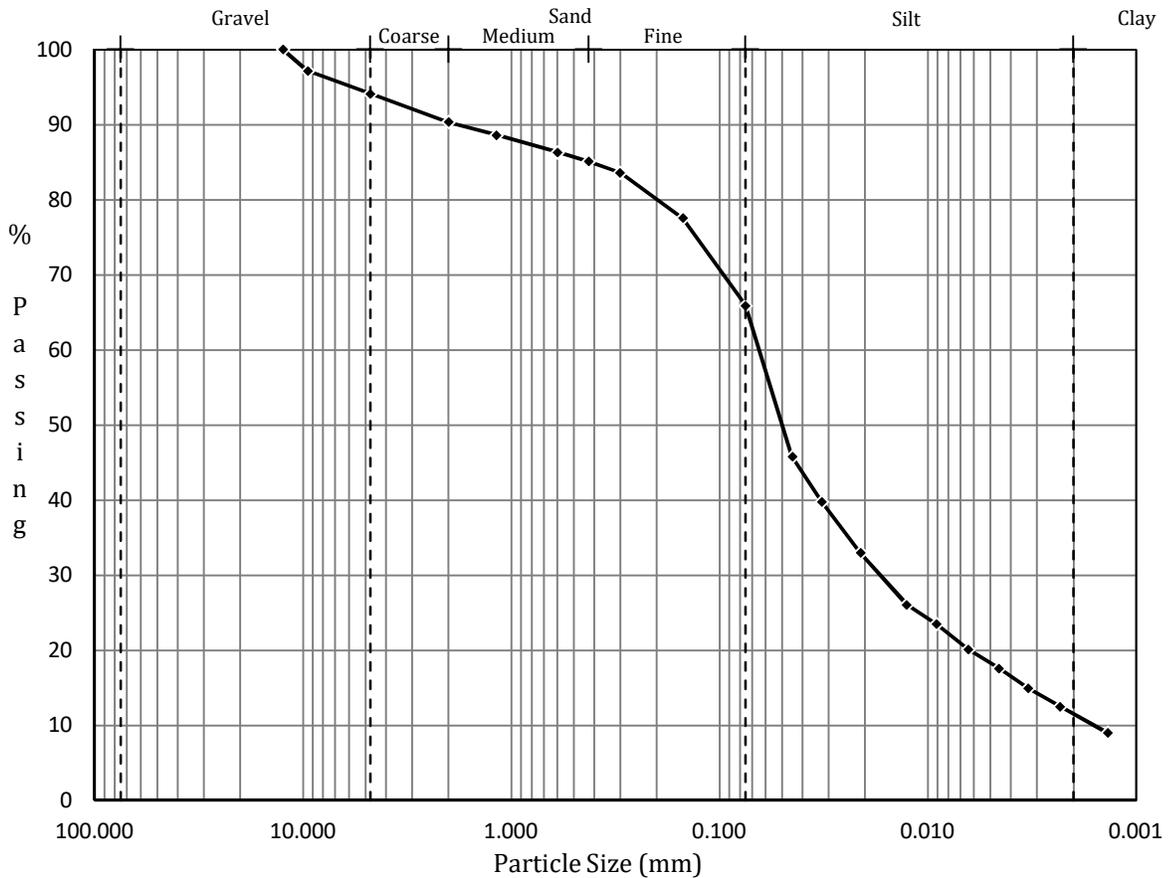
Date Received: December 3, 2018

Sample Description: Sandy SILT, some clay, trace gravel
Sample ID: BH18 2.5-4.5'
Sample Source: Geotechnical Investigation

Sample Date: -
Sample Time: -
Sampled By: Client

% PASSING VS PARTICLE SIZE

Sieve Analysis	
Sieve Size (mm)	% Passing
100	
75	
37.5	
19	
12.5	100.0
9.5	97.2
4.75	94.1
2.00	90.4
1.18	88.6
0.600	86.3
0.425	85.1
0.300	83.6
0.150	77.5
0.075	65.9



Hydrometer Analysis	
Diameter of particle (mm)	% of soil in suspension
0.0447	45.8
0.0323	39.8
0.0211	33.0
0.0126	26.0
0.0091	23.5
0.0064	20.1
0.0045	17.6
0.0033	15.0
0.0023	12.5
0.0014	9.0

Summary

Cobble : >75mm 0.0 %
 Gravel : < 75mm and > 4.75mm 5.9 %
 Sand : < 4.75mm and > 0.075mm 28.2 %
 Silt : < 0.075mm and > 0.002mm 54.4 %
 Clay : < 0.002mm 11.5 %

Moisture Content : 26.5 %

Tested in accordance with AASHTO T88 Particle Size Analysis of Soils (modified)

Report Date: December 14, 2018

Reviewed By: 
 Bryan Morrison, BSc.



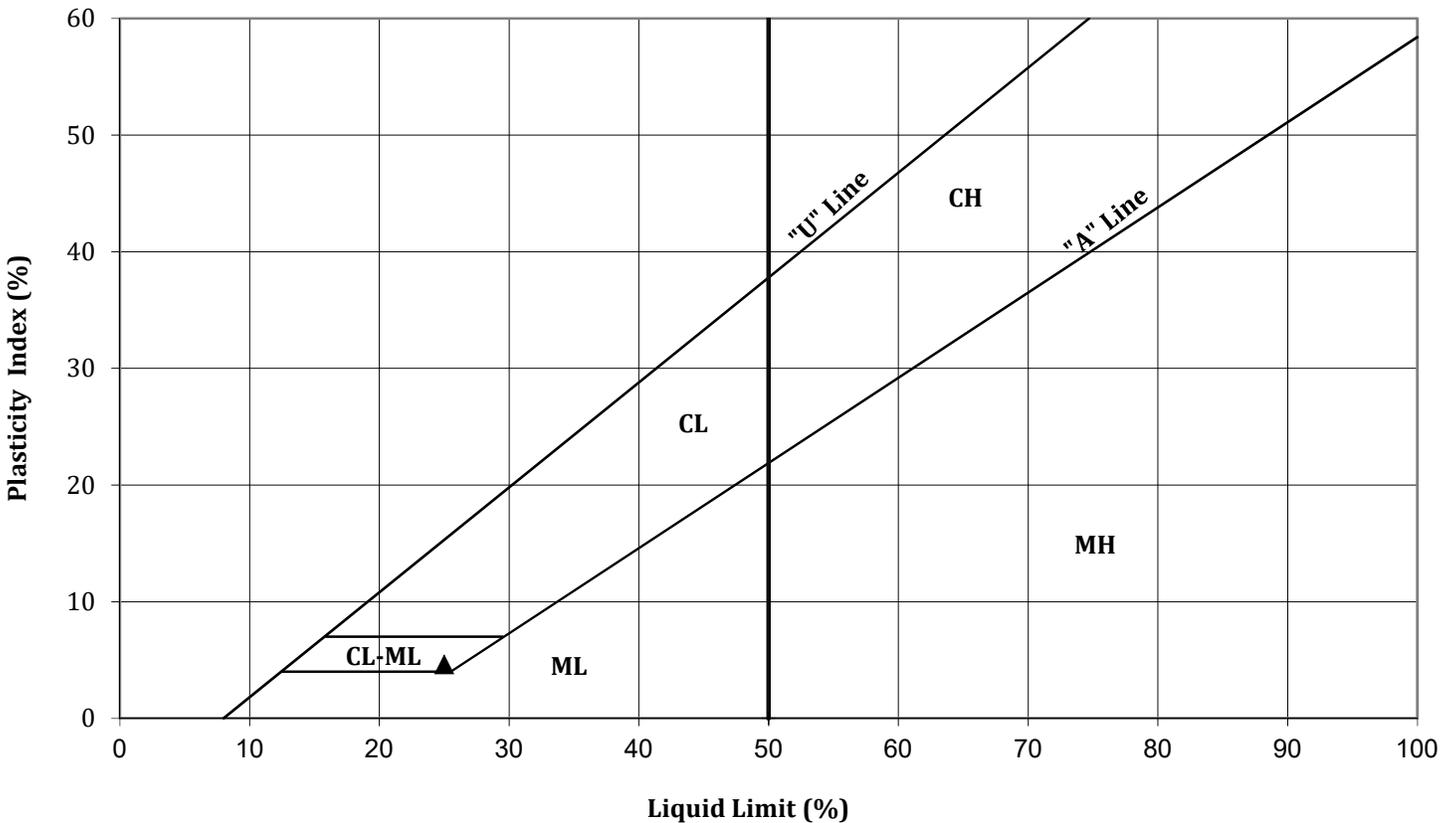
ATTERBERG LIMITS REPORT

Project No: 18.0176.00
Project: Fernie Capital Works Geotech
Client: VAST Resource Solutions
Attn: Jason McBain
CC: -
Sample Description: Sandy SILT, some clay, trace gravel
Sample ID: BH18 2.5-4.5'
Sample Source: Geotechnical Investigation

Lab ID: S18699
Client Project: -
Date Received: December 3, 2018
Sample Date: -
Sample Time: -
Sampled By: Client

Method: Dry Preparation (air-dried)

Soil Classification (USCS)	Moisture Content	Liquid Limit %	Plastic Limit %	Plasticity Index
CL-ML	26.5%	25	20	5



Comments:

Tested in accordance with ASTM D4318-10 Liquid Limit, Plastic Limit, and Plasticity Index of Soils

Report Date: December 14, 2018

Reviewed By: 
Bryan Morrison, BSc.

APPENDIX C: GRAIN SIZE DISTRIBUTION

Major Constituent	Minor Constituents			
	Percent by Mass	Modifiers		
BOULDER	>35%	"and"		
COBBLE				
GRAVEL			20% - 35%	(-ey) or (-y)
Coarse			10% - 20%	Some
Fine			1 - 10%	Trace
SAND				
Coarse				
Medium				
Fine				
SILT				
Non-plastic				
CLAY				

Consistency of Cohesive Soils		
Consistency	Field Identification	Undrained Shear Strength (kPa)
Very Soft	Easily penetrated several centimeters by the fist	<12
Soft	Easily penetrated several centimeters by the thumb	12 -25
Firm	Can be penetrated several centimeters by the thumb with moderate effort	25 – 50
Stiff	Readily indented by the thumb but penetrated only with great effort	50 – 100
Very Stiff	Readily indented by the thumb nail	100 – 200
Hard	Indented with difficulty by the thumbnail	>200

Compactness Condition of Sands	
Compactness Condition	SPT N-Index (blows per ft)
Very Loose	0 - 4
Loose	4 - 10
Compact	10 - 30
Dense	30 - 50
Very Dense	Over 50

APPENDIX D: BC BUILDING CODE SCHEDULE B

BRITISH COLUMBIA BUILDING CODE 2012

SCHEDULE B

Forming Part of Subsection 2.2.7, Division C of the
British Columbia Building Code

Building Permit Number
(for authority having jurisdiction's use)

ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

- Notes: (i) This letter must be submitted prior to the commencement of construction activities of the components identified below. A separate letter must be submitted by each *registered professional of record*.
(ii) This letter is endorsed by: Architectural Institute of BC, Association of Professional Engineers and Geoscientists of BC, Building Officials' Association of BC, and Union of BC Municipalities.
(iii) In this letter the words in italics have the same meaning as in the British Columbia Building Code.

To: The *authority having jurisdiction*

Name of Jurisdiction (Print)

Re: _____
Name of Project (Print)

Address of Project (Print)

The undersigned hereby gives assurance that the design of the
(Initial those of the items listed below that apply to this *registered professional of record*. All the disciplines will not necessarily be employed on every project.)

- _____ ARCHITECTURAL
- _____ STRUCTURAL
- _____ MECHANICAL
- _____ PLUMBING
- _____ FIRE SUPPRESSION SYSTEMS
- _____ ELECTRICAL
- _____ GEOTECHNICAL — temporary
- _____ GEOTECHNICAL — permanent

(Professional's Seal and Signature)

Date

components of the plans and supporting documents prepared by this *registered professional of record* in support of the application for the *building* permit as outlined below substantially comply with the British Columbia Building Code and other applicable enactments respecting safety except for construction safety aspects.

The undersigned hereby undertakes to be responsible for *field reviews* of the above referenced components during construction, as indicated on the "SUMMARY OF DESIGN AND FIELD REVIEW REQUIREMENTS" below.

CRP's Initials

BRITISH COLUMBIA BUILDING CODE 2012

Schedule B - *Continued*

Building Permit Number
(for authority having jurisdiction's use)

Project Address

Discipline

The undersigned also undertakes to notify the *authority having jurisdiction* in writing as soon as possible if the undersigned's contract for *field review* is terminated at any time during construction.

I certify that I am a *registered professional* as defined in the British Columbia Building Code.

Registered Professional of Record's Name (Print)

Address (Print)

Phone No.

(Professional's Seal and Signature)

Date

(If the *Registered Professional of Record* is a member of a firm, complete the following.)

I am a member of the firm _____
and I sign this letter on behalf of the firm. (Print name of firm)

Note: The above letter must be signed by a *registered professional of record*, who is a *registered professional*. The British Columbia Building Code defines a *registered professional* to mean

- (a) a person who is registered or licensed to practise as an architect under the Architects Act, or
- (b) a person who is registered or licensed to practise as a professional engineer under the Engineers and Geoscientists Act.

CRP's Initials

BRITISH COLUMBIA BUILDING CODE 2012

Schedule B - *Continued*

Building Permit Number
(for authority having jurisdiction's use)

Project Address

Discipline

SUMMARY OF DESIGN AND FIELD REVIEW REQUIREMENTS

(Initial applicable discipline below and cross out and initial only those items not applicable to the project.)

_____ ARCHITECTURAL

- ~~1.1 Fire-resisting assemblies~~
- ~~1.2 Fire separations and their continuity~~
- ~~1.3 Closures, including tightness and operation~~
- ~~1.4 Egress systems, including access to exit within suites and floor areas~~
- ~~1.5 Performance and physical safety features (guardrails, handrails, etc.)~~
- ~~1.6 Structural capacity of architectural components, including anchorage and seismic restraint~~
- ~~1.7 Sound control~~
- ~~1.8 Landscaping, screening and site grading~~
- ~~1.9 Provisions for firefighting access~~
- ~~1.10 Access requirements for persons with disabilities~~
- ~~1.11 Elevating devices~~
- ~~1.12 Functional testing of architecturally related fire-emergency systems and devices~~
- ~~1.13 Development Permit and conditions therein~~
- ~~1.14 Interior signage, including acceptable materials, dimensions and locations~~
- ~~1.15 Review of all applicable shop drawings~~
- ~~1.16 Interior and exterior finishes~~
- ~~1.17 Dampproofing and/or waterproofing of walls and slabs below grade~~
- ~~1.18 Roofing and flashings~~
- ~~1.19 Wall cladding systems~~
- ~~1.20 Condensation control and cavity ventilation~~
- ~~1.21 Exterior glazing~~
- ~~1.22 Integration of building envelope components~~
- ~~1.23 Environmental separation requirements (Part 5)~~
- ~~1.24 Building envelope, Part 10 – ASHRAE, NECB or Energy Step Code requirements~~
- ~~1.25 Building envelope, testing and/or confirmation of Part 10 requirements~~

(Professional's Seal and Signature)

Date

_____ STRUCTURAL

- ~~2.1 Structural capacity of structural components of the building, including anchorage and seismic restraint~~
- ~~2.2 Structural aspects of deep foundations~~
- ~~2.3 Review of all applicable shop drawings~~
- ~~2.4 Structural aspects of unbonded post-tensioned concrete design and construction~~

_____ MECHANICAL

- ~~3.1 HVAC systems and devices, including high building requirements where applicable~~
- ~~3.2 Fire dampers at required fire separations~~
- ~~3.3 Continuity of fire separations at HVAC penetrations~~
- ~~3.4 Functional testing of mechanically related fire-emergency systems and devices~~
- ~~3.5 Maintenance manuals for mechanical systems~~
- ~~3.6 Structural capacity of mechanical components, including anchorage and seismic restraint~~
- ~~3.7 Review of all applicable shop drawings~~
- ~~3.8 Mechanical systems, Part 10 – ASHRAE, NECB or Energy Step Code requirements~~
- ~~3.9 Mechanical systems, testing and/or confirmation of Part 10 requirements~~

CRP's Initials

BRITISH COLUMBIA BUILDING CODE 2012

Schedule B - *Continued*

Building Permit Number
(for authority having jurisdiction's use)

Project Address

Discipline

PLUMBING

- 4.1 ~~Roof drainage systems~~
- 4.2 ~~Site and foundation drainage systems~~
- 4.3 ~~Plumbing systems and devices~~
- 4.4 ~~Continuity of fire separations at plumbing penetrations~~
- 4.5 ~~Functional testing of plumbing related fire emergency systems and devices~~
- 4.6 ~~Maintenance manuals for plumbing systems~~
- 4.7 ~~Structural capacity of plumbing components, including anchorage and seismic restraint~~
- 4.8 ~~Review of all applicable shop drawings~~
- 4.9 ~~Plumbing systems, Part 10 — ASHRAE, NECB or Energy Step Code requirements~~
- 4.10 ~~Plumbing systems, testing and/or confirmation of Part 10 requirements~~

FIRE SUPPRESSION SYSTEMS

- 5.1 ~~Suppression system classification for type of occupancy~~
- 5.2 ~~Design coverage, including concealed or special areas~~
- 5.3 ~~Compatibility and location of electrical supervision, ancillary alarm and control devices~~
- 5.4 ~~Evaluation of the capacity of city (municipal) water supply versus system demands and domestic demand, including pumping devices where necessary~~
- 5.5 ~~Qualification of welder, quality of welds and material~~
- 5.6 ~~Review of all applicable shop drawings~~
- 5.7 ~~Acceptance testing for "Contractor's Material and Test Certificate" as per NFPA Standards~~
- 5.8 ~~Maintenance program and manual for suppression systems~~
- 5.9 ~~Structural capacity of sprinkler components, including anchorage and seismic restraint~~
- 5.10 ~~For partial systems — confirm sprinklers are installed in all areas where required~~
- 5.11 ~~Fire Department connections and hydrant locations~~
- 5.12 ~~Fire hose standpipes~~
- 5.13 ~~Freeze protection measures for fire suppression systems~~
- 5.14 ~~Functional testing of fire suppression systems and devices~~

ELECTRICAL

- 6.1 ~~Electrical systems and devices, including high building requirements where applicable~~
- 6.2 ~~Continuity of fire separations at electrical penetrations~~
- 6.3 ~~Functional testing of electrical related fire emergency systems and devices~~
- 6.4 ~~Electrical systems and devices maintenance manuals~~
- 6.5 ~~Structural capacity of electrical components, including anchorage and seismic restraint~~
- 6.6 ~~Clearances from buildings of all electrical utility equipment~~
- 6.7 ~~Fire protection of wiring for emergency systems~~
- 6.8 ~~Review of all applicable shop drawings~~
- 6.9 ~~Electrical systems, Part 10 — ASHRAE, NECB or Energy Step Code requirements~~
- 6.10 ~~Electrical systems, testing and/or confirmation of Part 10 requirements~~

GEOTECHNICAL — Temporary

- 7.1 ~~Excavation~~
- 7.2 ~~Shoring~~
- 7.3 ~~Underpinning~~
- 7.4 ~~Temporary construction dewatering~~

GEOTECHNICAL — Permanent

- 8.1 ~~Bearing capacity of the soil~~
- 8.2 ~~Geotechnical aspects of deep foundations~~
- 8.3 ~~Compaction of engineered fill~~
- 8.4 ~~Structural considerations of soil, including slope stability and seismic loading~~
- 8.5 ~~Backfill~~
- 8.6 ~~Permanent dewatering~~
- 8.7 ~~Permanent underpinning~~

(Professional's Seal and Signature)

Date

CRP's Initials

