City of Coquitlam

Contract Documents
84495-3

Austin Heights Sanitary Upgrades – Phase 3

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Contract No. 84495-3

Austin Heights Sanitary Upgrades – Phase 3

Project Construction Documents

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The complete **Project Construction Documents** consist of the following parts:

1. Standard Documents – supplied **Page**

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2. Standard Documents – not supplied

i) (available in the "MMCD – General Conditions, Specifications and Standard Detail Drawings")

- Instructions to Tenderers
- General Conditions
  - Schedule 17.5.3 – Letter Agreement with Referee
  - Flow Chart – Changes and Extra Work
  - Flow Chart – Dispute Resolution
- Specifications
- Standard Detail Drawings

ii) City of Coquitlam Supplementary Specifications for Contract Documents

Invitation to Tender

INVITATION TO TENDER

DATE OF ISSUE: **December 19, 2024**

We acknowledge with gratitude and respect that the name Coquitlam was derived from the hən̓q̓əmiń əm̓ word kʷikʷəƛ̓əm (kwee-kwuh-tlum) meaning "Red Fish Up the River". The City is honoured to be located on the kʷikʷəƛ̓əm (Kwikwetlem) traditional and ancestral lands, including those parts that were historically shared with the sḵwəćiy̓aʔɬ təməxʷ (Katzie), and other Coast Salish Peoples.

Tender No. 84495-3

Austin Heights Sanitary Upgrades – Phase 3

The City of Coquitlam invites tenders for **Contract 84495-3 – Austin Heights Sanitary Upgrades – Phase 3**, generally consisting of the following, but not limited to:

- Installation of approx. 40m 525mm dia. PVC sanitary main c/w 914mm Steel Encasement and Uniflange Restraints via. jacking or drilling
- Installation of approx. 115m 600 PC350 DI Pipe c/w Protecto 401 Ceramic Epoxy Line c/w joint restraints
- Installation of Helical pipe supports and pile caps to support new sanitary main
- Installation of approx. 16m of 300mm dia. PVC sanitary main
- Installation of approx. 32m of 375mm dia. PVC sanitary main
- Installation of approx. 140m of 450mm dia. PVC sanitary main
- Installation of approx. 150m of 525mm PVC sanitary main
- 8 new sanitary services and 1 service transfer
- Other miscellaneous and incidental work as contained in the Contract Documents.

Tender Documents and Drawings are available for downloading from the City of Coquitlam website: www.coquitlam.ca/BidOpportunities

Printing of Tender documents and drawings is the sole responsibility of the Tenderers.

Tenders submitted must be accompanied by a copy of the original specified 10% Bid Bond and will be received:

On or Before 2:00 pm local time
Thursday, January 23, 2025
("Closing Date and Time")

Addenda

Tenderers are required to check the City's website for any updated information, issued before the Closing Date at: www.coquitlam.ca/BidOpportunities. **Where in its sole discretion it considers it to be necessary or desirable, the City may issue Addenda to amend any portion of the Contract Documents.**

Any changes to the Tender documentation will be issued by means of written Addenda and posted on the City's website and will form part of the Tender. No amendment of any kind to the Tender is effective unless it is posted in a formal written Addendum on the City website. Upon submitting a Tender, Tenderers will be deemed to have received notice of all Addenda that are posted on the City's website and deemed to have considered the information for inclusion in the Tender submitted.

The City does not retain a bidder's list or bidder's registry. Tenderers are encouraged to register as plan takers and may view the Tender Documents and Drawings by contacting the Vancouver Regional Construction Association (VRCA), website: www.my.vrca.ca, ph: 604-294-3766, or email at vrca@vrca.ca, quoting the Coquitlam Tender Reference Number.

Should there be any discrepancy in the documentation provided, the City's original file copy shall prevail.

Tenders shall remain open for acceptance for 60 days following the submission Closing Date.

The City reserves the right to accept or reject any or all Tenders and the lowest or any Tender may not necessarily be accepted. The City also reserves the right to cancel any request for Tender at any time without recourse by the Tenderer.

The City, prior to award of any Tender, may negotiate with the Tenderer presenting the lowest price compliant Tender, for changes in the Work, materials, specifications or conditions without having any duty or obligation to advise any other Tenderers or to allow them to modify their Tenders, and the City will have no liability to any Tenderer as a result of such negotiations or modifications.

The City will not be responsible for any costs incurred by the Tenderer in preparing the Tender.

Procurement of goods and services is conducted in accordance with Chapter 5 of the Canadian Free Trade Agreement (CFTA) and the New West Partnership Trade Agreement (NWPTA).

M. Pain
Manager Procurement

Instructions to Tenderers

Tender 84495-3

Austin Heights Sanitary Upgrades – Phase 3

INSTRUCTIONS TO TENDERERS

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INSTRUCTIONS TO TENDERERS

(FOR USE WHEN UNIT PRICES FORM THE BASIS OF PAYMENT - TO BE USED ONLY WITH THE GENERAL CONDITIONS AND OTHER STANDARD DOCUMENTS OF THE UNIT PRICE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS.)

The City of Coquitlam

Contract: **Austin Heights Sanitary Upgrades – Phase 3**

Reference No. **84495-3**

1.0 Introduction

1.1 These Instructions apply to and govern the preparation of tenders for this *Contract*. The *Contract* is generally for the following work:

- Installation of approx. 40m 525mm dia. PVC sanitary main c/w 914mm Steel Encasement and Uniflange Restraints via. jacking or drilling
- Installation of approx. 115m 600 PC350 DI Pipe c/w Protecto 401 Ceramic Epoxy Line c/w joint restraints
- Installation of Helical pipe supports and pile caps to support new sanitary main
- Installation of approx. 16m of 300mm dia. PVC sanitary main
- Installation of approx. 32m of 375mm dia. PVC sanitary main
- Installation of approx. 140m of 450mm dia. PVC sanitary main
- Installation of approx.. 150m of 525mm PVC sanitary main
- 8 new sanitary services and 1 service transfer
- Other miscellaneous and incidental work as contained in the Contract Documents.

1.2 All inquiries regarding this Tender are to be submitted in writing referencing the **Tender Name and Number** sent to:

E-mail **bid@coquitlam.ca**

The deadline for inquiries is:

2:00 PM local time, **Monday, January 20, 2025.**

INQUIRIES RECEIVED AFTER THIS DATE AND TIME MAY NOT RECEIVE A RESPONSE.

Please note that the Purchasing department at City Hall will be closed at 12:00 pm on Tuesday, December 24, 2024 and reopen at 8:00 am on Thursday, January 2, 2025. Queries will not be reviewed until January 2, 2025. City service operations will remain in full service.

2.0 Tender Documents

2.1 The Tender Documents which a Tenderer should review to prepare a Tender consist of all of the *Contract Documents* listed in Schedule 1 entitled "Schedule of Contract Documents". Schedule 1 is attached to the Agreement which is included as part of the Tender Package. The *Contract Documents* include the drawings listed in Schedule 2 to the Agreement, entitled "**List of *Contract Drawings***".

2.2 A portion of the Contract Documents are included by reference. Copies of these documents have not been included with the tender package. These documents are the General Conditions, Specifications and Standard Detail Drawings. They are those contained in the publication entitled "Master Municipal Construction Documents - General Conditions, Specifications and Standard Detail Drawings". Refer to Schedule 1 to the Agreement or, if not specified in Schedule 1, then the applicable edition shall be the most recent edition as of the date of the *Tender Closing Date.* All sections of this publication are by reference included in the *Contract Documents*.

2.3 Any additional information made available to Tenderers prior to the Tender Closing Time by the Owner or representative of the Owner, such as geotechnical reports or as-built plans, which is not expressly included in Schedule 1 or Schedule 2 to the Agreement, is not included in the Contract Documents. Such additional information is made available only for the assistance of Tenderers who must make their own judgments about its reliability, accuracy, completeness and relevance to the *Contract*, and neither the Owner nor any representative of the Owner gives any guarantee or representation that the additional information is reliable, accurate, complete or relevant.

3.0 Submission of Tenders

3.1 Tenders must be submitted on the Tender Form provided, accompanied by a copy of the original 10% Bid Bond quoting the Tender Name and Number, and be uploaded to the City's file transfer website.

Tenders must be received on or before:

Tender Closing Time: **2:00 p.m. local time**
Tender Closing Date: **January 23, 2025**

For the purpose of the Tender submission, digital copies of original documents and signatures sent electronically are accepted. Original documents are required upon request by the City.

Instructions for Tender Submission

3.2 **Tender submissions are to be consolidated into one (1) PDF file and uploaded electronically through QFile, the City's file transfer service accessed at website:**
http://qfile.coquitlam.ca/bid

1. **In the "Subject Field" enter: Tender Number and Name**
2. **Add consolidated Tender file in PDF format and Appendix 1 in XLS format, and Send** (ensure your web browser remains open until you receive 2 emails from Qfile to confirm upload is complete and was sent to email: bid@coquitlam.ca)

Tenderers are responsible to allow for ample time to complete the submission process. For assistance, phone 604-927-3037.

3.3 Tenders submitted shall be deemed to be received when displayed as a new email in the in-box of the above email address. The City will not be responsible for any delay or for any Tenders not received for any reason, including technological delays or issues by either party's network or email program, and the City will not be liable for any damages associated with Tenders not received.

3.4 The City reserves the right to accept late Tenders to allow for technological delays. The City also reserves the right to accept Tenders by email: bid@coquitlam.ca.

BIDS RECEIVED IN-PERSON, BY COURIER, OR BY FAX WILL NOT BE ACCEPTED.

3.5 Tenders will not be opened in public. The unevaluated results will be forwarded to participants by email.

3.6 Tender submissions are subject to the Freedom of Information and Protection of Privacy Act and contents may be disclosed if required to do so, pursuant to the Act.

4.0 Additional Instructions to Tenderers

4.1 Additional Instructions to Tenderers

a.) Non-Mandatory Site Meeting

A site meeting has been arranged as per the following:

Location: 1390 Austin Avenue, Coquitlam
(Accessible through lane north of Charland Avenue- for location map please refer to the title page of the Tender Drawings)

Date/Time: Thursday, January 9, 2025 at 10am.

b.) Property access must be maintained for all residents of 1334, 1365 and 1387 Charland Avenue.

Obtaining Documents 4.2 The following documents which are referred to and form part of the Contract Document package may be obtained as follows:

- Copies of the Master Municipal Construction Documents Volume II (2009), General Conditions, Specifications and Standard Detail Drawings are available separately from:

  Support Services Unlimited
  Suite 102
  211 Columbia Street
  Vancouver, B.C. V6A 2R5
  Tel: 604-681-0295
  Fax: 604-305-0424

- Copies of the City of Coquitlam Supplementary Specifications and Detailed Drawings to the MMCD 2009 Edition are available for viewing and downloading off the City of Coquitlam website: Supplementary Specifications and Detailed Drawings to MMCD

Test Excavations 4.3 Prior to the excavation of test holes on road allowances or privately owned property the Tenderer shall obtain permission from the Municipality or Owner of the property and comply with their requirements for restoration of disturbed surfaces and utilities. Failure to comply with Municipal by-laws restricting this practice may result in prosecution of the offending party.

Business License 4.4 The successful Tenderer shall provide evidence of a City of Coquitlam Business License or Tri-Cities Inter-Municipal Business License prior to commencement of work or supply of materials. For more information, contact Business License Division Ph: 604-927-3085 or apply online at website: City of Coquitlam Business License

No Claim 4.5 Except as expressly and specifically permitted in these Instructions to Tenderers, no Tenderer shall have any claim for any compensation of any kind whatsoever, as a result of participating in this Tender, including accepting a non-compliant bid and by submitting a Tender, each Tenderer shall be deemed to have agreed that it has no claim.

No Cost 4.6 The City will not under any circumstances be responsible for any costs incurred by the Tenderer in preparing the Tender.

Right to Accept or Reject any Tender 4.7 The City reserves the right to accept or reject any or all Tenders and the lowest or any Tender may not necessarily be accepted. In its sole discretion, the City may reject or retain for its consideration, tenders which are nonconforming because they do not contain the content or form required by the instructions to tenderers or for failure to comply with the process for submission set out in these instructions to tenderers.

The City specifically reserves the right to reject all Tenders if none is considered to be satisfactory and, in that event, at its option, to call for additional Tenders.

Negotiation 4.8 The City, prior to award of any Tender, may negotiate with the Tenderer presenting the lowest price compliant Tender, for changes in the Work, materials, specifications or conditions without having any duty or obligation to advise any other Tenderers or to allow them to modify their Tenders, and the City will have no liability to any Tenderer as a result of such negotiations or modifications.

Cancellation of Tender 4.9 The City reserves the right to cancel any request for Tender at any time without recourse by the Tenderer. The City has the right to not award this work for any reason including choosing to complete the work with the City's own forces.

Conflict of Interest 4.10 Tenderers shall disclose any actual or potential conflicts of interest and existing business relationships it may have with the City, their elected or appointed officials or employees.

Collusion 4.11 Tenderers will not discuss or communicate with one another in regards to the preparation of their Tenders. Each Tenderer will ensure that its participation in the Tender process and that of its team members is conducted without collusion or fraud. Failure to comply with this requirement may lead to disqualification without further notice or warning.

Instruction to Tenderers – Part II 4.12 Delete Instructions to Tenderers – Part II Contained in the Edition of the Publication "Master Municipal Construction Documents 2009" and replace with the following:

5.0 Tender Requirements

5.1 A tender should be on the Form of Tender as provided and be signed by the authorized signatory(s) as follows:

5.1.1 if the tenderer is a partnership or joint venture then the name of the partnership or joint venturer should be included, and each partner or joint venturer should sign personally; if a partner of joint venture is a corporation then such corporation should sign as indicated in paragraph 5.1.3 below; and

5.1.2 if the tenderer is a corporation then the full name of the corporation should be included, together with the names and signatures of authorized signatories.

5.1.3 For the purpose of the Tender submission, digital copies of original documents and electronic signatures are accepted. Original documents are required upon request by the City.

5.2 A tender must be accompanied by tender security ("*Bid Security")* in the form of:

5.2.1 a copy (digital or Electronic copy is acceptable) of the original bid bond in an amount equal to 10% of the Tender Price, issued by a surety licensed to carry on the business of suretyship in British Columbia in a form reasonably satisfactory to the *Owner*;

5.3 Tenderer should be competent and capable of performing the various items of work. Tenderer shall complete the following statement sheets appended to the Form of Tender:

5.3.1 Appendix 1 – the Schedule of Quantities and Prices;

5.3.2 Appendix 2 – a "*Preliminary Construction Schedule*", generally in the form attached as Appendix 2 to the Form of Tender, and showing *Substantial Performance* by the date or within the duration, shown in paragraph 2.2 of the Form of Tender.

5.3.3 Appendix 3 – name and brief description of the previous experience of the *Superintendent* the tenderer will use for the *Work*;

5.3.4 Appendix 4 – a list of previous comparable work, including a brief description of that work, approximate contract value, and references (with phone numbers);

5.3.5 Appendix 5 – a complete list of all subcontractors, if any, that the tenderer will use for the *Work* including full names.; and

5.3.6 Appendix 7 – is provided for information only, to indicate the Contract Insurance is to be submitted by the successful Tenderer upon Notice of Award.

5.4 The successful tenderer will, within 15 *Days* of receipt of the written *Notice of Award*, be required to deliver to the *Owner* the items listed in FT 5.1.1, including a Performance Bond and a Labour and Material Payment Bond as described in FT 5.1.1(a), failing which the provisions of FT 6.1 will apply.

6.0 Qualifications, Modifications, Alternative Tenders

6.1 Tenders which contain qualifications, or omissions, so as to make comparison which other tenders difficult, may be rejected by the *Owner*.

6.2 A tenderer may, at the tenderer's election, submit an alternative tender ("*Alternative Tender*") which varies the materials, products, designs or equipment by the *Owner as Approved Equals* as the case

may be, but an *Alternative Tender* must be in addition to, and not in substitution for a tender which conforms to the requirements of the *Contract Documents*.

6.3 The only *Alternative Tender* that the *Owner* may acc*ept* is an *Alternative Tender* submitted by that tenderer whose conforming tender, submitted as required by paragraph 6.2 of these Instructions to Tenderers, would have been accepted by the *Owners* in the preference to other conforming tenders, if no *Alternative Tenders* had been invited.

7.0 Approved Equals

7.1 Prior to the *Tender Closing Time and Date,* a tenderer may request the *Owner* to approve materials, products, or equipment ("*Approved Equal*") to be included in a tender in substitution for items indicated in the Contract Documents.

7.2 Applications for an *Approved Equal* must be in writing, and supported by appropriate supporting information, data, specifications, and documentation.

7.3 If the *Owner* decides in its discretion to accept an *Approved Equal*, then the *Owner* will issue an addendum to all tenderers.

7.4 The *Owner* is not obligated to review or accept an application for an *Approved Equal*.

8.0 Inspection of the *Place of the Work*

8.1 All tenderers, either personally or through a representative, are responsible to examine the *Place of the Work* before submitting a tender. A tenderer has full responsibility to be familiar with and make allowance in the tender for all conditions at the *Place of the Work* that might affect the tender, including any information regarding subsurface soil conditions made available by the *Owner*, the location of the *Work*, local conditions, topographical soil conditions, weather and access. Unless otherwise specified in the *Contract Documents*, a tenderer is not required to do subsurface investigations. By submitting a tender, a tenderer represents that the tenderer has examined the *Place of the Work*, or specifically elected not to. No additional payments or time extensions shall be claimable or due because of difficulties relating to conditions at the *Place of the Work* which were reasonably foreseeable by a contractor qualified to undertake the *Work*.

8.2 Tenderers are referred to GC 11.2.1 regarding **Concealed or Unknown Conditions.**

9.0 Interpretation of *Contract Documents*

9.1 If a tenderer is in doubt as to the correct meaning of any provision of the *Contract Documents*, the tenderer may request clarification as instructed in paragraph 1.2 of the Instructions to Tenderers.

9.2 If a tenderer discovers any contradictions or inconsistencies in the *Contract Documents* or its provisions, or any discrepancies between a provision of the *Contract Documents* and conditions at the *Place of*

the Work as observed in an examination under paragraph 8 of the person named in paragraph 1.2 of the Instructions to Tenderers.

9.3 If the *Owner* considers it necessary, the *Owner* may issue written addenda to provide clarification (s) of the *Contract Documents.*

9.4 No oral interpretation or representations from the *Owner* or any representative of the *Owner* will affect, alter, or amend any provision of the *Contract Documents*.

10.0 Prices

10.1 The Tendered Price will represent the entire cost excluding *GST* to the *Owner* of the complete *Work* based on the estimated quantities in the *Schedule of Quantities and Prices* of the Form of Tender. Notwithstanding the generalities of the above, tenderers shall include in the tendered prices (including unit prices, lump sum prices, or other forms of pricing) sufficient amounts to cover:

10.1.1 the costs of all labour, equipment and material included in or required for the *Work*, including all items which, whole not specifically listed in the *Schedule of Quantities and Prices*, are included in the *Work* specifically or by necessary inference from the *Contract Documents;*

10.1.2 all assessments payable with respect to labour as required by any statutory scheme such as unemployment insurance, holiday pay, insurance, CPP and all employee benefits and the Workers Compensation Act;

10.1.3 all overhead costs, including head office and on-site overhead costs, and all amounts for the *Contractor's* profit.

10.2 The tendered prices and all subcontracts must allow for compliance with all applicable laws regarding trade or other qualifications of employees performing the *Work*, and payment of appropriate wages for labour included in or required for the *Work*.

11.0 Taxes

11.1 The tendered prices shall cover all taxes and assessments of any kind payable with respect to the *Work*, but shall not include *GST*. *GST* shall be listed as a separate line item as required by GC 19.3.

12.0 Amendment of Tenders

12.1 A tenderer may amend or revoke a tender by giving written notice, delivered by Email, to the office referred to in paragraph 3.4 of the Instructions to Tenderers at any time up until the *Tender Closing Date and Time*. An amendment or revocation that is received after the *Tender Closing Date and Time* shall not be considered and shall not affect a tender as submitted.

12.2 An amendment or revocation must be signed by an authorized signatory of the tenderer in the same manner as provided by paragraph 5.1 of these Instructions to Tenderers.

12.3 Any amendment that expressly or by inference discloses the tenderer's *Tender Price* or other material element of the tender such that, in the opinion of the *Owner*, the confidentiality of the tender is breached, will invalidate the entire tender.

12.4 An acceptable form of a tender amendment which tenderers may, but are not required to, use is as follows:

"Contract: _____
(TITLE OF CONTRACT)

Reference No. _____
(OWNER'S CONTRACT REFERENCE NO.)

TO: _____
(NAME OF OWNER)

We the undersigned wish to amend our tender which we submitted for the above *Contract* by deleting the following tendered prices or items from our tender:

_____
_____
_____
(TEDNERED PRICES AND/OR TENDER ITEMS IN THE TENDER THAT ARE TO BE AMENDED)

and substituting the following revised tendered prices or items:

_____
_____
_____
(REVISED TENDERED PRICES OR TENDER ITEMS)

The extensions in our tender should be adjusted accordingly, and our ***Tender Price*** as set out in Appendix 1 of our submitted **Form of Tender**, and on the ***Schedule of Quantities and Prices***, increased / decreased by $_____, excluding GST. We have not included our revised ***Tender Price*** in order to preserve the confidentiality of our tender.

Signed and delivered the ___ day of _____, 20___."

13.0 Duration of Tenders

13.1 After the *Tender Closing Time*, a tender shall remain valid and irrevocable as set out in paragraph 5.1 of the Form of Tender.

14.0 Qualifications of Tenderers

14.1 By submitting a tender, a tenderer is representing that it has the competence, qualifications and relevant experience required to do the *Work.*

15.0 Award

15.1 In exercising its discretion, the *Owner* will have regard to the information provided in the Appendices to the Form of Tender as

described under IT 5.3 including the proven experience of the tenderer, and any listed subcontractors, to do the *Work*.

Tenders received will be evaluated to provide the City with greatest value based on quality, service, price and experience. Evaluation Criteria will include but is not limited to:

1. Ability to meet specifications and required completion date
2. Contractor's past experience, references, reputation and compliance to specifications
3. Demonstrated successful experience on similar projects and specific equipment installation
4. Price: purchase price, maintenance costs, availability of parts and service, warranty and compatibility with existing equipment and/or conditions
5. Any other criteria, the City deems, at its sole discretion, necessary to evaluate Tenders;
6. Lowest price will not necessarily be accepted.

The City may, in its absolute discretion, not award to a Tenderer if the Tenderer, or any officer or director of a corporate Tenderer, is or has been engaged, either directly or indirectly through another corporation or legal entity, in a legal action against the City and its elected and appointed officers and employees or any of them in relation to:

a) any other contract or services; or

b) any matter arising from the City's exercise of its powers, duties or functions under the *Local Government Act,* the *Community Charter* or any other enactments; within five years of this Tender Offer.

For purposes of this section, the words "legal action" includes, without limitation, mediation, arbitration, hearing before an administrative tribunal or lawsuit filed in any court.

Without limiting the City's sole discretion, in determining whether or not to award to a Tenderer pursuant to this clause, the City will consider such factors as whether the legal action is likely to affect the Tenderer's ability to work with the City and its employees, agents, consultants and representatives or any of them and whether the City's past experience with the Tenderer in the matter that resulted in the legal action indicates that the City is likely to incur increased staff and legal costs or either of them in the administration of this contract if it is awarded to the Tenderer.

In the event that the lowest total Tender Price by two or more Tenderers is the same amount, the City will select a Tenderer with an overall satisfactory performance record in having completed

work on previous relevant projects that are provided as references, and on City projects. Information obtained from references will not be disclosed or discussed with any Tenderer. If all references are equal, selection will be determined by a coin toss in a manner to be directed by the City.

Where only one Tender is received the City may reject such and re-tender on a selected basis.

15.2 The *Owner* will notify the successful tenderer in writing.

15.3 If there are any discrepancies in the *Schedule of Quantities and Prices* between the unit prices and the extended totals then the unit prices shall be deemed correct, and corresponding corrections shall be made to the extended totals. If a unit price or extended total has been omitted, the following shall apply:

a) If a unit price is given but the corresponding extended total has been omitted, then the extended total shall be calculated from unit price and the estimated quantity, and inserted as the extended total;

b) If an extended total is given but the corresponding unit price has been omitted, then the unit price shall be calculated from the extended total and estimated quantity, and inserted as the unit price;

c) If both the unit price and the corresponding extended total for a tender item have been omitted, then the following test shall be applied to determine whether the tender shall be rejected as incomplete:

(i) the highest of the unit prices tendered by other tenderers for that tender item shall be used as the test unit price, and the corresponding test extended total shall be calculated from the test unit price and the estimated quantity;

(ii) if the test extended total for the tender item exceeds 1% of the revised total *Tender Price*, including the test extended total, or if the revised total *Tender Price*, including the test extended total, alters the ranking of the tenderers according to the lowest *Tender Price*, then the omitted unit price for that tender item is deemed to materially affect the *Tender Price* relative to other tenders and the tender shall be rejected;

(iii) if the tender is not rejected under subparagraph (ii) of this IT 15.3 (c), then the unit price and the extended total for that tender item shall both be deemed to be, and the costs for that tender item

shall be zero deemed to be included in other tender items prices;

d) In no event shall page totals in the *Schedule of Quantities and Prices* or the total *Tender Price* be used to calculate missing extended totals or unit prices.

16.0 Subcontractors

16.1 The *Owner* reserves the right to object to any of the subcontractors listed in a tender. If the *Owner* objects to any of the subcontractor(s) then the *Owner* will permit a tenderer to, within 5 days, propose a substitute subcontractor(s) acceptable to the *Owner* provided that there is not resulting adjustment in the *Tender Price* or the completion date set out in paragraph 2.2 of the Form of Tender. A tenderer will not be required to make such substitution and, if the *Owner* objects to a listed *Subcontractor(s)*, the tenderer may, rather than propose a substitute subcontractor(s), consider its tender rejected by the *Owner* and by written notice withdraw it tender. The *Owner* shall, in the event, return the tenderer's bid security

17.0 Optional Work

17.1 If the *Schedule of Quantities and Prices* includes any tender prices for *Optional or Provisional Work*, as defined in GC 7.4.1, the tenderers must complete all the unit prices for such *Optional or Provisional Work*. Such tender prices shall not include any general overhead costs, or other costs, or profit, not directly related to the *Optional or Provisional Work*.

17.2 Notwithstanding that the *Owner* may elect not to proceed with the *Optional or Provisional Work*, the tender prices for any *Optional or Provisional Work*, including the extended totals for *Optional or Provisional Work* unit prices, shall be included in the *Tender Price* for the purpose of any price comparisons between tenders.

Form of Tender

Form of Tender

Tender No. 84495-3

Austin Heights Sanitary Upgrades – Phase 3

Summary

Name of ***Contractor***: _____

Tender Price *(*exclude GST): $ _____
(FROM APPENDIX 1 OF FORM OF TENDER)

Tender submitted must be accompanied by a copy of the original 10% Bid Bond and will be received

On or before 2:00 pm (local time)
Thursday, January 23, 2025

Instructions for Tender Submission

Tender submissions are to be consolidated into one (1) .pdf file and **uploaded electronically through QFile, the City's file transfer service accessed at website:** qfile.coquitlam.ca/bid

1. **In the "Subject Field" enter:** Tender Number and Name
2. **Add consolidated Tender file in PDF format, and Appendix 1 in XLS format, and Send** (ensure your web browser remains open until you receive 2 emails from Qfile to confirm upload is complete and was sent to the correct email address: bid@coquitlam.ca)

Tenderers are responsible to allow ample time to complete the Tender submission process. If assistance is required, phone 604-927-3037.

THE CITY OF COQUITLAM
3000 Guildford Way
Coquitlam, B.C. V3B 7N2

December 2024

(FOR USE WHEN UNIT PRICES FORM THE BASIS OF PAYMENT - TO BE USED ONLY WITH THE GENERAL CONDITIONS AND OTHER STANDARD DOCUMENTS OF THE UNIT PRICE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS.)

Contract Name: **Austin Heights Sewer Upgrades – Phase 3**
Reference No.: **84495-3**

TO OWNER:

1 WE, THE UNDERSIGNED:

1.1 have received and carefully reviewed all of the *Contract Documents*, including the Instructions to Tenderers, the City of Coquitlam Supplementary General Conditions, the City of Coquitlam Supplementary Contract Specifications, the specified edition of the "Master Municipal Construction Documents – General Conditions, Specifications and Standard Detail Drawings" and the following Addenda:

_____
_____
_____;
(ADDENDA, IF ANY)

1.2 shall fully disclose any actual or potential conflicts of interest and existing business relationships we may have with the City, their elected or appointed officials or employees:

_____

1.3 have full knowledge of the *Place of the Work*, and the *Work* required; and

1.4 have complied with the Instructions to Tenderers; and

2 ACCORDINGLY WE HEREBY OFFER:

2.1 to perform and complete all of the *Work* and to provide all the labour, equipment and material all as set out in the *Contract Documents*, in strict compliance with the *Contract Documents*; and

2.2 to achieve *Substantial Performance* of the *Work* on or before **July 31, 2025,** and

2.3 to do the *Work* for the price, which is the sum of the products of the actual quantities incorporated into the *Work* and the appropriate unit prices set out in Appendix 1, the "*Schedule of Quantities and Prices*", plus any lump sums or specific prices and adjustment amounts as provided by the *Contract Documents*. For the purposes of tender comparison, our offer is to complete the *Work* for the "*Tender Price*" as set out on Appendix 1 of this Form of Tender. Our *Tender Price* is based on the estimated quantities listed in the *Schedule of Quantities and Prices*, and excludes *GST.*

3 WE CONFIRM:

3.1 that we understand and agree that the quantities as listed in the *Schedule of Quantities and Prices* are estimated, and that the actual quantities will vary.

3.2 that we understand and agree that the owner is in no way obliged to accept this Tender.

4 WE CONFIRM:

4.1 that the following Appendices are attached to and form a part of this tender:

4.1.1 the Appendices as required by paragraph 5.3 of the Instructions to Tenderers - Part II; and

4.1.2 the *Bid Security* as required by paragraph 5.2 of the Instructions to Tenderers - Part II.

4.1.3 the Certificate of Compliance on the form provided in Appendix 7 of this Form of Tender.

5 WE AGREE:

5.1 that this tender will be irrevocable and open for acceptance by the *Owner* for a period of **60** calendar days from the day following the *Tender Closing Date and Time*, even if the tender of another Tenderer is accepted by the *Owner*. If within this period the *Owner* delivers a written notice ("*Notice of Award*") by which the *Owner* accepts our tender we will:

5.1.1 within **15** *Days* of receipt of the written *Notice of Award* deliver to the *Owner*:

a) a Performance Bond and a Labour and Material Payment Bond, each in the amount of 50% of the *Contract Price*, issued by a surety licensed to carry on the business of suretyship in the province of British Columbia, and in a form acceptable to the *Owner*;

b) a "clearance letter" indicating that the Tenderer is in WCB compliance; and

c) a copy of the insurance policies as specified in SGC Section 24 indicating that all such insurance coverage is in place and;

d) a letter confirming the *Contractor* as “Prime Contractor” for the Contract as specified in SGC Section 21.2.1.

5.1.2 within **2** *Days* of receipt of written "*Notice to Proceed*", or such longer time as may be otherwise specified in the *Notice to Proceed*, commence the *Work*; and

5.1.3 sign the Contract Documents as required by GC 2.1.

6 WE AGREE:

6.1 that, if we receive written *Notice of Award* of this *Contract* and, contrary to paragraph 5 of this Form of Tender, we:

6.1.1 fail or refuse to deliver the documents as specified by paragraph 5.1.1 of this Form of Tender; or

6.1.2 fail or refuse to commence the *Work* as required by the *Notice to Proceed*,

then such failure or refusal will be deemed to be a refusal by us to enter into the *Contract* and the *Owner* may, on written notice to us, award the *Contract* to another party. We further agree that, as full compensation on account of damages suffered by the *Owner* because of such failure or refusal, the *Bid Security* shall be forfeited to the *Owner*, in an amount equal to the lesser of:

6.1.3 the face value of the *Bid Security*; and

6.1.4 the amount by which our *Tender Price* is less than the amount for which the *Owner* contracts with another party to perform the *Work*.

7 OUR ADDRESS is as follows:

_____

_____

_____

Phone: _____ - _____ - _____

Email: _____

Attention: _____

This Tender is executed this_____day of_____, 20_____.

Contractor:

_____
(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

_____
(AUTHORIZED SIGNATORY)

_____
(AUTHORIZED SIGNATORY)

8 WE CONFIRM:

8.1 our Goods and Services Tax (GST) registration status is as follows:

8.1.1 for information purposes, our GST Registration Number is:

_____
(GST REGISTRATION NUMBER)

or;

8.1.2 by signature hereunder, we certify we are **not required** to provide a registration number:

_____
(AUTHORIZED SIGNATORY)

_____
(AUTHORIZED SIGNATORY)

APPENDIX 1
FORM OF TENDER

Contract 84495-3
Austin Heights Sewer Upgrades - Phase 3

SCHEDULE OF QUANTITIES AND PRICES
(see paragraph 5.3.1 of the Instruction to Tenderers)
(All Tender and Contract Prices shall NOT include GST. GST will apply upon payment)
(Should there be any discrepancy in the information provided, the City's original file copy shall prevail)

ITEM NO.	MMCD Ref. / (Supp. Specs)	DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED AMOUNT
1.00	**01 55 00S**	**TRAFFIC CONTROL, VEHICLE ACCESS AND PARKING**				
1.01	(1.5.1)	Traffic Control and Management	Incidental to Contract			
2.00	**01 57 01S**	**ENVIRONMENTAL PROTECTION**				
2.01	(1.6.1)	ESC supply & installation, maintenance and removal	Incidental to Contract			
3.00	**01 58 01S**	**PROJECT IDENTIFICATION**				
3.01	(1.3.1)	Construction Zone Information Signs	ea.	2		
3.02	(1.3.2)	CMS Boards (2 Signs)	month	4		
4.00	**31 11 01S**	**CLEARING AND GRUBBING**				
4.01	(1.4.1)	Clearing and Grubbing	L.S.	1		
5.00	**31 11 41S**	**SHRUB AND TREE PRESERVATION**				
5.01	(1.3.2)	Hydro Excavation **(Provisional)**	Allowance			$10,000.00
6.00	**31 23 01S**	**EXCAVATING, TRENCHING AND BACKFILLING**				
6.01	(1.10.3)	Overexcavation **(Provisional)**	cu.m	10		
6.02	(1.10.9)	Remove and Replace Wood Tie Retaining Walls **(Provisional)**	Allowance			$10,000.00
7.00	**31 23 23**	**CONTROLLED DENSITY FILL**				
7.01	1.4.1	Controlled Density Fill of Abandoned Sanitary Main as per Contract Drawings	cu.m	4		
8.00	**31 23 17**	**ROCK REMOVAL**				
8.01	1.6	Rock Removals **(Provisional)**	cu.m	28		
9.00	**32 14 01S**	**UNIT PAVING**				
9.01	(1.6.4)	Remove and Reinstate Existing Unit Pavers **(Provisional)**	sq.m	80		
9.02	(1.6.5)	Remove and Reinstate Metal Carport Canopy at 1334 Charland Avenue **(Provisional)**	L.S.	1		
10.00	**32 31 13S**	**CHAIN LINK FENCES AND GATES**				
10.01	(1.5.2)	1.5m high Chain Link Fence **(Provisional)**	lin.m	30		
10.02	(1.5.5)	Supply and Install Wooden Cedar Fence **(Provisional)**	lin.m	10		
11.00	**32 93 01S**	**PLANTING OF TREES, SHRUBS AND GROUND COVERS**				
11.01	(1.9.1)	6 ft Cedar Hedge **(Provisional)**	each	10		
12.00	**33 30 01S**	**SANITARY SEWERS**				
12.01	(1.6.2)	Supply and Installation of 300mm PVC DR35	lin.m	16		
12.02	(1.6.2)	Supply and Installation of 375mm PVC DR35	lin.m	32		
12.03	(1.6.2)	Supply and Installation of 450mm PVC DR35	lin.m	140		
12.04	(1.6.2)	Supply and Installation of 525mm PVC DR35	lin.m	41		
12.05	(1.6.2)	Supply and Installation of 525mm PVC DR35 in 914mm Steel Encasement Pipe c/w Uniflange Restraints with Casing Spacers by Jacking or Boring	lin.m	41		
12.06	(1.6.2)	Supply and Installation of 600mm PC350 DI Pipe c/w Protecto 401 Ceramic Epoxy Liner and Joint Restraints	lin.m	113		
12.07	(1.6.3)	150mm PVC SDR28 Service Connection as per COQ-S7A	each	8		
12.08	(1.6.3.1)	Transfer Existing Sanitary Service Connection at Main	each	1		
12.09	(1.6.7)	Tie-in 375mm sanitary main to Existing MH - west of S35	each	1		
12.10	(1.6.7)	Tie-in Existing 200mm sanitary main - north inlet at S35	each	1		
12.11	(1.6.7)	Tie-in Existing 300mm sanitary main - north inlet at S33	each	1		
12.12	(1.6.7)	Tie-in 300mm sanitary main to Existing MH - north of S30	each	1		
12.13	(1.6.7)	Tie-in Existing 200mm sanitary main - east inlet at S29A	each	1		
12.14	(1.6.7)	Tie-in Existing 200mm sanitary main - east inlet at S27	each	1		
12.15	(1.6.7)	Tie-in Existing 200mm sanitary main - north inlet at S25	each	1		
12.16	(1.6.7)	Tie-in 450mm sanitary main to Existing 450mm Stub	each	1		
12.17	(1.6.8)	Cap and Abandon Existing Sanitary Sewer	each	10		
12.18	(1.6.9)	Helical Pile Pipe Support as shown on Contract Drawings **(Provisional)**	lin.m	240		
12.19	(1.6.10)	Helical Pile Caps as Shown on Contract Drawings **(Provisional)**	each	27		
13.00	**33 40 01S**	**STORM SEWERS**				
13.01	(1.6.2)	Supply and Installation of 250mm PVC SDR35	lin.m	11		
14.00	**33 44 01S**	**MANHOLES AND CATCHBASINS**				
14.01	(1.5.1.1)	1050mm Manhole c/w Metal Frame and Cover	ea.	8		
14.02	(1.5.1.1)	1200mm Manhole c/w Metal Frame and Cover	ea.	5		
14.03	1.5.1.5	Outside Drop (as per MMCD S3)	ea.	2		
14.04	(1.5.4.1)	Abandon Existing Sanitary Manhole	ea.	6		
14.05	(1.5.4.2)	Plug Inlet at Existing Manhole at 1382 Charland Ave	ea.	1		
14.06	(1.5.7)	1050mm Overbuild Manhole per Contract Drawings	ea.	2		

Total Tendered Price (exclude GST): _____

(Transfer the amount to Form of Tender Summary Page 1)

Name of Contractor: _____

APPENDIX 2

FORM OF TENDER

Contract 84495-3
Austin Heights Sanitary Upgrades – Phase 3

PRELIMINARY CONSTRUCTION SCHEDULE
(See paragraph 5.3.2 of the Instructions to Tenderers)

INDICATE SCHEDULE WITH BAR CHART WITH CONSTRUCTION DURATIONS

Construction Activity	April				May				June				July			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Substantial Completion Date: **July 31, 2025**

Proposed Disposal Site: _____

APPENDIX 3

FORM OF TENDER

Contract 84495-3
Austin Heights Sanitary Upgrades – Phase 3

EXPERIENCE OF SUPERINTENDENT
(See paragraph 5.3.3 of the Instructions to Tenderers)

Proposed Project Superintendent _____

List of Project Experience

PROJECT:		**Dates:**	
Work Description:			
Responsibility:			
Owner/Reference:		**Phone No.:**	

PROJECT:		**Dates:**	
Work Description:			
Responsibility:			
Owner/Reference:		**Phone No.:**	

PROJECT:		**Dates:**	
Work Description:			
Responsibility:			
Owner/Reference:		**Phone No.:**	

APPENDIX 4

FORM OF TENDER

Contract 84495-3
Austin Heights Sanitary Upgrades – Phase 3

CONTRACTOR'S COMPARABLE WORK EXPERIENCE
(See paragraph 5.3.4 of the Instructions to Tenderers)

PROJECT:		**VALUE ($):**	
OWNER:		**Phone No.:**	
Work Description:			

PROJECT:		**VALUE ($):**	
OWNER:		**Phone No.:**	
Work Description:			

PROJECT:		**VALUE ($):**	
OWNER:		**Phone No.:**	
Work Description:			

PROJECT:		**VALUE ($):**	
OWNER:		**Phone No.:**	
Work Description:			

APPENDIX 5

FORM OF TENDER

Contract 84495-3
Austin Heights Sanitary Upgrades – Phase 3

SUBCONTRACTORS

(See paragraph 5.3.5 of the Instructions to Tenderers)

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No.:**	

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No.:**	

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No.:**	

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No.:**	

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No:**	

APPENDIX 6

FORM OF TENDER

Contract 84495-3
Austin Heights Sanitary Upgrades – Phase 3

Bid Bond

NO. _____ $ _____

KNOW ALL MEN BY THESE PRESENTS THAT

_____
As Principal, hereinafter called the Principal, and

_____
As Surety, hereinafter called the Surety, are held and firmly bound unto

_____
As Obligee, hereinafter called the Obligee, in the amount of

_____ Dollars ($_____) lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a written Tender to the Obligee, dated the _____day of _____, 2025, for Contract _____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the aforesaid Principal shall have the Tender accepted within sixty (60) days from the Closing Date of Tender and the said Principal will, within the time required, enter into a formal contract and give good and sufficient bonds to secure the performance of the terms and conditions of the Contract, then this obligation shall be null and void; otherwise the Principal and Surety will pay unto the Obligee the difference in money between the amount of the bid of the said Principal and the amount for which the Obligee legally contracts with another party to perform the work if the latter amount be in excess of the former.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of six (6) months from the date of this Bond.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its Attorney-In-Fact, this _____ day of _____, 2025.

SIGNED, SEALED AND DELIVERED
In the presence of:

)
)
)
)
_____)

_____
PRINCIPAL

_____
SURETY

APPENDIX 7

FORM OF TENDER

Contract 84495-3
Austin Heights Sanitary Upgrades – Phase 3

CERTIFICATE OF COMPLIANCE for CONTRACT INSURANCE

This is provided for information to certify that the Tenderer does hereby undertake and agree to supply to the City of Coquitlam, upon award, contract insurance listed below for the project requirements indicated:

Contract Number: **84495-3**

Contract Name: **Austin Heights Sanitary Upgrades – Phase 3**

Description of Work:

- Installation of approx. 40m 525mm dia. PVC sanitary main c/w 914mm Steel Encasement and Uniflange Restraints via. jacking or drilling
- Installation of approx. 115m 600 PC350 DI Pipe c/w Protecto 401 Ceramic Epoxy Line c/w joint restraints
- Installation of Helical pipe supports and pile caps to support new sanitary main
- Installation of approx. 16m of 300mm dia. PVC sanitary main
- Installation of approx. 32m of 375mm dia. PVC sanitary main
- Installation of approx. 140m of 450mm dia. PVC sanitary main
- Installation of approx.. 150m of 525mm PVC sanitary main
- 8 new sanitary services and 1 service transfer
- Other miscellaneous and incidental work as contained in the Contract Documents.

Commercial General Liability: **$5,000,000 limit**

Special Coverage Required:

YES	NO	Special Coverage Description
(X)	( )	Shoring and Underpinning Hazard
(X)	( )	Pile Driving and Vibrations
(X)	( )	Excavation Hazard
( )	(X)	Demolition
( )	(X)	Blasting

We also certify that the insurance coverage will meet the requirements of the Supplementary General Conditions Section 24 – Insurance, included as part of the Contract Documents, and that the proof of insurance will be provided on the City of Coquitlam Certificate of Insurance form, without amendments, except for the exclusions noted above.

_____ _____

Name of Tenderer (printed) *Authorized Signature*

_____

Date

Agreement

AGREEMENT

Between Owner and Contractor

(FOR USE WHEN UNIT PRICES FORM THE BASIS OF PAYMENT - TO BE USED ONLY WITH THE GENERAL CONDITIONS AND OTHER STANDARD DOCUMENTS OF THE UNIT PRICE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS.)

THIS AGREEMENT made in duplicate this ____ day of _____ 2025.

Contract: **Austin Heights Sanitary Upgrades – Phase 3**

***Reference No*. 84495-3**

BETWEEN:

The City of Coquitlam
3000 Guildford Way
Coquitlam, B.C. V3B 7N2

(the "*Owner*")

AND:

(the "*Contractor*")

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

1 THE WORK - START/COMPLETION DATES

1.1 The *Contractor* will perform all *Work* and provide all labour, equipment and material and do all things strictly as required by the *Contract Documents*.

1.2 The *Contractor* will commence the *Work* in accordance with the *Notice to Proceed*. The *Contractor* will proceed with the *Work* diligently, will perform the *Work* generally in accordance with the construction schedules as required by the *Contract Documents* and will achieve *Substantial Performance* of the *Work* on or before **July 31, 2025,** subject to the provisions of the *Contract Documents* for adjustments to the *Contract Time*.

1.3 Time shall be the essence of the Contract.

2 CONTRACT DOCUMENTS

2.1 The "*Contract Documents*" consist of the documents listed or referred to in Schedule 1, entitled "Schedule of Contract Documents", which is attached and forms a part of this Agreement, and includes any and all additional and amending documents issued in accordance with the provisions of the *Contract Documents*. All of the *Contract Documents* shall constitute the entire *Contract* between the *Owner* and the *Contractor*.

2.2 The *Contract* supersedes all prior negotiations, representations or agreements, whether written or oral, and the *Contract* may be amended only in strict accordance with the provisions of the *Contract Documents.*

3 CONTRACT PRICE

3.1 The price for the *Work* ("*Contract Price*") shall be the sum in Canadian dollars of the following:

a) the product of the actual quantities of the items of *Work* listed in the *Schedule of Quantities and Prices* which are incorporated into or made necessary by the *Work* and the unit prices listed in the *Schedule of Quantities and Prices*; plus

b) all lump sums, if any, as listed in the *Schedule of Quantities and Prices*, for items relating to or incorporated into the *Work*; plus

c) any adjustments, including any payments owing on account of *Changes* and agreed to *Extra Work*, approved in accordance with the provisions of the *Contract Documents*.

3.2 The *Contract Price* shall be the entire compensation owing to the *Contractor* for the *Work* and this compensation shall cover and include all profit and all costs of supervision, labour, material, equipment, overhead, financing, and all other costs and expenses whatsoever incurred in performing the *Work*.

4 PAYMENT

4.1 Subject to applicable legislation and the provisions of the *Contract Documents*, the *Owner* shall make payments to the *Contractor*.

4.2 If the *Owner* fails to make payments to the *Contractor* as they become due in accordance with the terms of the *Contract Documents* then interest calculated at 2% per annum over the prime commercial lending rate of the Royal Bank of Canada on such unpaid amounts shall also become due and payable until payment. Such interest shall be calculated and added to any unpaid amounts monthly.

5 RIGHTS AND REMEDIES

5.1 The duties and obligations imposed by the *Contract Documents* and the rights and remedies available hereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

5.2 Except as specifically set out in the *Contract Documents*, no action or failure to act by the *Owner*, *Contract Administrator* or *Contractor* shall constitute a waiver of any of the parties' rights or duties afforded under the *Contract*, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach under the *Contract*.

6 NOTICES

6.1 Communications among the *Owner*, the *Contract Administrator* and the *Contractor*, including all written notices required by the *Contract Documents*, may be delivered by email, or by hand, or by pre-paid registered mail to the addresses as set out below:

The *Owner:*

The City of Coquitlam
3000 Guildford Way
Coquitlam, B.C. V3B 7N2

Tel: 604-927-3500

The *Contractor:*

Tel:
Email:
Attention:

The *Contract Administrator*:

The City of Coquitlam
3000 Guildford Way
Coquitlam, B.C. V3B 7N2

Tel:
Email:
Attention:

6.2 A communication or notice that is addressed as above shall be considered to have been received:

a) immediately upon delivery, if delivered by hand; or
b) immediately upon transmission if sent or received by email; or
c) after 5 days from date of posting if sent by registered mail.

6.3 The *Owner* or the *Contractor* may, at any time, change its address for notice by giving written notice to the other at the address then applicable. Similarly if the *Contract Administrator* changes its address for notice then the *Owner* will give or cause to be given written notice to the *Contractor*.

7 GENERAL

7.1 This *Contract* shall be construed according to the laws of British Columbia.

7.2 The *Contractor* shall not, without the express written consent of the *Owner*, assign this *Contract*, or any portion of this *Contract*.

7.3 The headings included in the *Contract Documents* are for convenience only and do not form part of this *Contract* and will not be used to interpret, define or limit the scope or intent of this *Contract* or any of the provisions of the *Contract Documents*.

7.4 A word in the *Contract Documents* in the singular includes the plural and, in each case, vice versa.

7.5 This agreement shall ensure to the benefit of and be binding upon the parties and their successors, executors, administrators and assigns

IN WITNESS WHEREOF the parties hereto have executed this Agreement the day and year first written above.

Contractor:

_____
(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

_____
(AUTHORIZED SIGNATORY)

_____
(AUTHORIZED SIGNATORY AND POSITION - PRINT)

Owner:

The City of Coquitlam

_____
(MANAGER, CAPITAL PROJECTS AND INSPECTIONS)
Representative as Per G.C. 17

_____
(MANAGER, DESIGN AND CONSTRUCTION)

Austin Heights Sanitary Upgrades – Phase 3

Reference No: 84495-3

Schedule 1

Schedule of Contract Documents

(INCLUDE IN LIST ALL DOCUMENTS INCLUDING, IF ANY, SUPPLEMENTARY GENERAL CONDITIONS, SUPPLEMENTARY SPECIFICATIONS, SUPPLEMENTARY STANDARD DETAIL DRAWINGS)

The following is an exact and complete list of the *Contract Documents*, as referred to in Article 2.1 of the Agreement.

NOTE: The documents noted with "*" are contained in the "Master Municipal Construction Documents – General Conditions, Specifications and Standard Detail Drawings", edition dated 2009. All sections of this publication are included in the *Contract Documents*.

1. Agreement, including all Schedules;
2. The following Addenda:
    - As issued
3. Supplementary General Conditions, if any;
4. General Conditions*;
5. Supplementary Specifications, if any;
6. Detail Specifications, if any;
7. Specifications*;
8. Supplementary Detail Drawings, if any;
9. Standard Detail Drawings*;
10. Executed Form of Tender, including all Appendices;
11. Drawings listed in Schedule 2 to the Agreement –"List of Drawings", if any;
12. Instructions to Tenderers;
13. COQUITLAM "Supplementary Specifications Master Municipal Construction Documents" March 2022

Austin Heights Sanitary Upgrades – Phase 3

Reference No: 84495-3

Schedule 2

LIST OF DRAWINGS

(Complete Listing of All Drawings, Plans and Sketches That Are Part of the Contract Documents)

Bound in this Document:

Appendix A: Traffic Management Detail Specifications

Appendix B: Geotechnical Report (For Reference Only)

Appendix C: Standard Detail Drawings

Bound Separately: Contract Drawings

TITLE	SHEET NO.	REVISION NO.	DATE
COVER	00		
DRAWING INDEX PLAN & NOTES – SANITARY SEWER	01	2	2024-12-17
TYPICAL SECTIONS & DETAILS – SANITARY SEWER	02	2	2024-12-17
AUSTIN AVE – GATENSBURY ST TO #1390 AUSTIN AVE – SANITARY SEWER – PLAN AND PROFILE	03	2	2024-12-17
AUSTIN AVE – GATENSBURY ST TO #1390 AUSTIN AVE – SANITARY SEWER – DETAILS – PILE	04	1	2024-12-17
AUSTIN AVE – GATENSBURY ST TO #1387 AUSTIN AVE – SANITARY SEWER – PLAN AND PROFILE	05	2	2024-12-17
ROW – PLAN 28130, PLAN 37940, PLAN 37983, & SRWEP 38165 – AUSTIN AVE TO KARP CRT – SANITARY SEWER – PLAN AND PROFILE	06	2	2024-12-17
AUSTIN HEIGHTS SEWER UPGRADES AND PAVEMENT REHABILITATION	07	2	2024-12-17

Supplementary General Conditions

SUPPLEMENTARY GENERAL CONDITIONS

TABLE OF CONTENTS

1.0 DEFINITIONS

1.1 Abnormal Weather 1.1.1 **(Replace clause 1.1.1 as follows):**
Abnormal Weather" means temperature, precipitation, wind or other weather conditions in which the monthly average, differs from the statistical average for that condition in that period by more than one standard deviation, calculated based on data available from Environment Canada. Coquitlam's Burke Mountain Rain Gauge will be used to compare the rainfall summary versus the available data from Environment Canada.
City of Coquitlam Rainfall

2.0 DOCUMENTS

2.2 Interpretation 2.2.4 (1) **(Replace clause 2.2.4 (1) as follows):**
The Contract Documents shall govern and take precedence in the following order as listed in Schedule 1 of the Agreement, taking precedence over all Contract Documents.

4.0 CONTRACTOR

4.1 Control of the Work 4.1.1 ***(Add to clause 4.1.1 as follows):***
The *Contractor* is responsible for all survey layout for the construction of the Work to the design specifications and/or elevations as shown on the contract drawings or as amended on site by the Contract Administrator.

4.1.2 ***(Add to clause 4.1.2 as follows):***
The Contractor shall not deposit any material upon any street, sidewalk, boulevard or other property, without the Contract Administrator's or the Owner's permission, nor shall they allow the same to remain longer than necessary. All surplus spoil and rubbish and other waste material shall be removed from the site so that the area of work is cleaned up and restored to as clean a condition as it was before the Contract started, within four days of the Contract Administrator's written request to do so, failing which the Owner may carry out the work or have the work carried out by others and recover the costs from the Contractor or may deduct the cost from any monies due or that may become due to the Contractor.

4.1.3 ***(Add new clause 4.1.3 as follows):***
Work can be performed during the normal weekday working hours of 0700h to 1900h, unless specified otherwise in Supplementary Specifications - Appendix A: Traffic Management Detail Specifications. Written

permission from the Contract Administrator will be required for any works to be performed outside of the normal working days of Monday to Friday.

No Sunday work will be permitted, except in case of emergency and then only with the written permission of the Contract Administrator and to such extent as he deems necessary.

In case the Contractor decides to work on a day which is a Statutory Holiday, they shall provide the Contract Administrator in writing at least (4) days in advance of such holiday, stating those places where said work is to be conducted. In case the Contractor fails to give such notice in advance of any Statutory Holiday, no work within the terms of the contract shall be done on such holiday.

The cost of inspections on a Sunday or on a Statutory Holiday by City staff/s will be at Contractor's expense.

4.2 Safety

4.2.2 ***(Add new clause 4.2.2 as follows):***
In an emergency, gas pipeline rupture or leak, Contact FortisBC's 24 Hour Emergency Line (1-800-663-9911) and Coquitlam Fire (911) immediately and then City of Coquitlam's Utility Control Centre (604-927-6287).

4.3 Protection of Work, Property and the Public

4.3.1 ***(Replace clause 4.3.1 as follows):***
In performing the Work, the Contractor shall protect the Work and the Owner's property and other person's property from damage. The Contractor shall at the Contractor's own expense make good any such damage which arises as the result of the Contractor's operations. If the Contractor causes damage to private property, the Contactor must obtain a written release from the owner of the damaged property.

4.3.5.1 ***(Add clause 4.3.5.1 as follows):***
The Contractor shall notify the Contract Administrator immediately if damage occurs to any City or third party utility or structure.

4.3.7 ***(Add new clause 4.3.7 as follows):***
Any lands other than those upon which the work is to be performed, which may be required for temporary facilities, storage purposes or access to the work site, other than those provided by the *Owner*, shall be provided by the *Contractor* at their own cost, with no liability to the *Owner*.

4.6 Construction Schedule

4.6.1 ***(Replace clause 4.6.1 as follows):***
The Contractor shall within the time set out in the Form of Tender prepare and submit to the Contract Administrator for their approval a construction schedule (the Baseline Construction Schedule) indicating the planned start and completion dates of major activities of the Work. The Baseline Construction Schedule shall be in more detail than the Preliminary Construction Schedule and shall indicate completion of the Work in compliance with any specified Milestone Dates, including Substantial Performance.

4.6.6 ***(Replace clause 4.6.6 as follows):***
The time for the performance of the Work shall commence on the date specified in the Notice to Proceed, or if not so specified, on the date the Notice to Proceed is issued. The Notice to Proceed will not be issued until the documentation required under paragraph 5.1.1 of the Form of Tender has been submitted and the construction schedule has been approved.

4.6.8 ***(Add new clause 4.6.8 as follows):***
Any requests to lengthen the work schedule shall be made in writing by the Contractor within five working days of knowledge of the reason for the extension. The Contract Administrator will adjust the schedule at their discretion upon receipt of a written request.

4.7 Superintendent

4.7.4 ***(Add new clause 4.7.4 as follows):***
The key personnel named in the Contractor's Tender response, shall remain in these key positions throughout the project. In the event that key personnel leave the Contractor's firm, or for any unknown reason are unable to continue fulfilling their role, the Contractor must propose a suitable replacement, and obtain written consent from the Owner. Acceptance of the proposed replacement is at the sole discretion of the Contract Administrator and the Owner.

4.8 Workers

4.8.2 ***(Add new clause 4.8.2 as follows):***
The Contractor shall, upon the request of the Contract Administrator, remove any person employed by them for the purposes of the Contract who, in the opinion of the Contract Administrator, is incompetent or has conducted themselves improperly, and the Contractor shall not permit a person who has been removed to return to the Place of Work.

4.9 Materials 4.9.3 ***(Add new clause 4.9.3 as follows):***

The Contractor shall, at their cost,

a) Be responsible for storing all of the materials supplied for the Work either by themselves or the Owner, until it has been incorporated into the completed Work;
b) Store all materials in a manner which will prevent damage from the weather, dirt, foreign matter, vandalism and theft;
c) Arrange for and/or verify the time of delivery of all materials to be supplied by themselves or the Owner to ensure that delivery will coincide with their work schedules.
d) Examine with the Contract Administrator the quantities and details of all materials supplied by the Owner at the time and place of delivery or those materials already at the Place of Work, and prepare and sign a Statement of Materials Acceptance, specifically noting and rejecting any defective material;
e) Replace all materials supplied by themselves or the Owner which are found to be stolen, missing or damaged while under their care;
f) Replace all materials found to be defective in manufacture which have been supplied by themselves.

4.11 Subcontractors 4.11.3 ***(Replace clause 4.11.3 as follows):***

The Contractor shall, upon notice of the Contract Administrator, remove any Subcontractor employed by them for the purposes of the Contract who, in the opinion of the Contract Administrator, is incompetent or has conducted themselves improperly, and the Contractor shall not permit the Subcontractor who has been removed to return to the Place of Work. The removal of a Subcontractor under this clause shall not be considered a Change and the Contract Price and the Contract Time shall not be adjusted.

4.12 Test and Inspections 4.12.1 ***(Replace clause 4.12.1 as follows):***

The Contractor shall perform or cause to be performed all tests, inspections and approvals of the Work as described in the Contract Documents or a required by the Contract Administrator as part of Quality Control. The Contractor shall complete all the necessary testing at the frequencies described in the Contract Document unless otherwise approved by the Contract Administrator.

Acceptable test and inspection results will not relieve the Contractor of its obligations under the Contract to correct defects or deficiencies in the Work.

4.12.11 ***(Add clause 4.12.11 as follows):***

Failure to follow DFO/FLNRO BMPs and the approved permit for Instream Works or as instructed by Contract Administrator will result in shut-down of the work. The Contractor must take all steps to mitigate impacts to aquatic resources, environment and habitats before work can re-start on site. No claim will be accepted by the Owner for costs associated with this work shut-down.

4.14 Final Clean-up 4.14.1 ***(Replace clause 4.14.1 as follows):***

Prior to applying for Substantial Performance, the Contractor shall remove all surplus products, tools, construction machinery and equipment relating to the Work that is not required for the performance of the remaining Work. The Contractor shall also remove waste, debris and waste products other than caused by the Owner or Other Contractors, and leave the Place of Work clean and suitable for occupancy by the Owner unless otherwise specified in the Contract Documents or directed by the Contract Administrator.

4.16 Notice of Disruption 4.16.2 ***(Add new clause 4.16.2 as follows):***

Written notice must be provided to all properties which may be physically affected by the construction not less than one week and not more than two weeks prior to construction.

Notify occupants directly affected by the work 48 hours in advance of commencement of construction. Cost of notifying area occupants of ensuing construction and delivery of the notices is incidental to the Contract.

7.0 CHANGES

7.1 Changes 7.1.3 ***(Replace clause 7.1.3 as follows):***

Additional work that the Owner may wished performed that does not satisfy the requirements of subparagraphs (a) and (b) of GC 7.1.1 is extra work (Extra Work) and is not a Change. Pursuant to GC 8, Extra Work may be declined by the Contractor or may, upon agreement between the parties, be undertaken as Extra Work.

7.4 Optional Work 7.4.2 ***(Add new clause 7.4.2 as follows):***

If there are Optional items or Provisional items included in the *Schedule of Quantities and Prices*, those items shall be used only as directed and at the sole discretion of the Contract Administrator through the issue of a Change Order. These items will be paid at the contract unit price as part of regular progress payments. Only quantities used will be eligible for payment. No claim will be accepted for

unused Optional or Provisional quantities. Clause 9.4 Quantity Variations will not be applicable for these items.

9.0 VALUATION OF CHANGES AND EXTRA WORK

9.2 Valuation Method 9.2.4 ***(Replace clause 9.2.4 as follows):***

Once a quotation is accepted by the Contract Administrator, or other agreement reached between the Contract Administrator and the Contractor regarding adjustments to the Contract Price or Contract Time on account of a Change or Extra Work, the Contractor shall not be entitled to claim or receive additional payment, or adjustment to the Contract Time on account of a Change or Extra Work.

9.4 Quantity Variation 9.4.1 ***(Replace clause 9.4.1 as follows):***

If for any reason, including an addition or deletion under GC 7.1.1(1) or 7.1.1(2) respectively, the actual quantity of a unit price item varies by more than plus or minus the Variance Threshold Percentage from the estimated quantity for that unit price item listed in the Schedule of Quantities and Prices (the "Tender Quantity") or as otherwise agreed to pursuant to these Contract Documents, then either the Owner or the Contractor may by written notice request the other party to agree to a revised unit price, considering the change in quantities. A party shall make a request for a revised unit price as soon as reasonably possible after the party concerned becomes aware of the quantity variation.

9.4.2 ***(Delete clause 9.4.2 (2)***

10.0 FORCE ACCOUNTS

10.1 Force Account Costs 10.1.1(1) ***(Add to clause 10.1.1(1) as follows):***

Costs for the Contractor's Superintendent, Project Managers, Health and Safety Personnel, and Office/Administration Staff are not eligible for labour costs as those costs are considered incidental to the mark up owing for overhead and labour.

10.1.1(4) ***(Replace clause 10.1.1(4) as follows):***

Force Account Work performed by a subcontractor shall be paid for in the lesser of: (i) the amount provided by subparagraphs (1), (2) and (3) of this GC, plus a mark-up of 5%, or (ii) the actual amount the Contractor pays the subcontractor including a mark-up of 10% on such actual costs to cover all overhead and profit.

12.0 HAZARDOUS MATERIALS

12.2 Discovery of Hazardous Materials 12.2.2

(Replace clause 12.2.2 as follows):
If the Contract Administrator observes any materials at the Place of Work that the Contract Administrator knows or suspects may be Hazardous Materials, then the Contract Administrator shall immediately give written notice to the Contractor and the Contractor shall immediately stop the Work or portion of the Work as required by GC 12.2.1(1).

13.0 DELAYS

13.1 Delay by Owner or Contract Administrator 13.1.2

(Add new clause 13.1.2 as follows):
The Owner may at any time suspend the work or any portion thereof provided they give the Contractor five (5) days' written notice of delay. The Contractor shall resume work upon written notice from the Owner. The Contractor shall be entitled to:

a) An extension of the Contract time equivalent to the length of suspension of work.
b) Reimbursement by the Owner for directly related out-of-pocket additional costs, reasonably and necessarily incurred by the Contractor as a result of such suspension. No additional payment will be made to the Contractor for any loss of profits or overhead.

13.3 Unavoidable Delay 13.3.1

(Add to clause 13.3.1 as follows):
Beyond the reasonable control of the Contractor also includes pandemic or community outbreak

13.8 Direction to Stop or Delay 13.8.3

(Add new clause 13.8.3 as follows):
The Contract Administrator may order the Contractor to stop work if at any time the Contract Administrator is of the opinion that there exists a danger to life or property.

13.9 Liquidated Damages for Late Completion 13.9.1

(Replace clause 13.9.1 as follows):
If the Contractor fails to meet the Milestone Date for Substantial Performance as set out in the Form of Tender, paragraph 2.2 as may be adjusted pursuant to the provisions of the Contract Documents, then the Owner may deduct from any monies owing to the Contractor for the Work:

(1) An amount of $1,000.00 for each calendar day the actual *Substantial Performance* is achieved after the Substantial Performance Milestone Date; plus

(2) All direct out of pocket costs, such as costs for safety, security or equipment rental, reasonably incurred by the Owner as a direct result of such delay.

If the monies owing to the Contractor are less than the total amount owing by the Contractor to the Owner under (1) and (2) then any shortfall shall immediately, upon written notice from the Owner, and upon Substantial Performance, be due and owing by the Contractor to the Owner.

18.0 PAYMENT

18.1 Preparation of Payment Certificate

18.1.1 ***(Replace clause 18.1.1 as follows):***
The Contract Administrator shall prepare and issue a certificate for the period ending the last calendar day of the month.

18.4 Holdbacks

18.4.2 ***(Add to clause 18.4.2 as follows):***
At the sole discretion of the Contract Administrator, an amount equivalent to 10% of the contract award value or 200% of a reasonable estimate, whichever is higher, may be held without interest until all deficiencies have been remedied and accepted by the Contract Administrator.

18.6 Substantial Performance

18.6.5 ***(Replace clause 18.6.5 as follows):***
The Owner may release any builders lien holdback on the 56th day following the date of Substantial Performance, or other date as required by law, but the Owner may hold back the amounts for any deficiencies or filed builders liens as provided in GC 18.4.2, 18.4.3 and 18.4.4.

18.6.6 ***(Replace clause 18.6.6 as follows):***
The *Contract Administrator*, as defined herein, shall be the *Payment Certifier* responsible under Section 7 of the *Builders Lien Act* for certifying *Substantial Performance* of the *Work* of the *Contractor*, but not the *Work* of *Subcontractors*. The *Contractor* shall cooperate with and assist the *Contract Administrator* by providing information and assistance in a timely manner as the *Contract Administrator* considers necessary to carry out the duties of the *Payment Certifier* for the *Contract*.

The *Contractor* shall be the *Payment Certifier* responsible under Section 7 of the *Builders Lien Act* for certifying *Substantial Performance* of the *Work* of each *Subcontractor*. Prior to certifying completion for a *Subcontractor*, the *Contractor* shall consult the *Contract Administrator* and obtain the *Contract Administrator's* comments on the status of completion by the *Subcontractor*, including any

deficiencies or defects in the *Subcontractor's Work* noted by the *Contract Administrator*. The *Contractor* will indemnify and save the *Owner* harmless from any and all liability the *Owner* may have to anyone arising out of the certification by the *Contractor* of *Substantial Performance* for that *Subcontractor*.

Notwithstanding any other provision of the *Contract*, no payments will be due or owing to the *Contractor* so long as a Lien filed by anyone claiming under or through the *Contractor* remains registered against the Project of any lands, or interest therein, on which *Work* for the project was performed. Failure of the *Contractor* to remove all Liens promptly will entitle the *Owner* to damages.

21.0 WORKERS COMPENSATION REGULATIONS

21.2 Contractor is "Prime Contractor"

21.2.1 ***(Add to clause 21.2.1 as follows):***
Prior to the issuance of the "Notice to Proceed" the Contractor must provide a signed "Prime Contractor Designation" form as provided in Appendix IV of these Supplementary General Conditions.

24.0 INSURANCE ***(Replace section 24.0 as follows):***

24.1 General

24.1.1 **Importance of Prompt Attention to Insurance Requirements:**
The Contractor shall provide the Owner with satisfactory evidence that the insurance required to be provided under this GC is in full force and effect.

24.1.2 **Acceptable Insurance Carriers:**
The insurer issuing any policy, or other document which is evidence of insurance to the Contractor, shall be an insurer licensed by the Superintendent of Insurance in the Province of British Columbia and registered with the Department of Insurance for Canada in Ottawa, except the Insurance Corporation of British Columbia, which is not subject to this condition.

24.1.3 **Owner's Right to Change Terms:**
Notwithstanding anything contained in the Contract Documents, the Owner will have the right to request a change to the specified terms and conditions respecting insurance at the sole option of the Owner. The Contractor will be notified in writing of any changes required by the Owner and will provide a quotation for such work.

24.1.4 **Delivery of Insurance Documents:**
All insurance policies or other acceptable specified documents shall be delivered to, and accepted by, the Owner before the Contract Documents are signed. No work shall be commenced by the Contractor or by anyone acting on the instructions of the Contractor, until the required Insurance Documents have been accepted by the Owner and the Contract Documents have been duly signed by the Owner and the Contractor.

24.1.5 **Owner's Right to Insure:**
Should the Contractor for any reason not comply with the specified requirements with respect to the insurance, the Owner will, at the Owner's option, have the right to purchase all or any part of such insurance which, in the opinion of the Owner, may be required to provide the specified insurance, and, in the event of so doing, the Owner will have the right to pay the premiums for such insurance and to withhold the amount of premiums so paid from any amount due and payable to the Contractor under the Contract.

24.2 Required Insurance

24.2.1 **General**
Damage to work (excluding Building Contracts where Section 24.3, Paragraph 24.3.1, Further Responsibilities of Contractor, applies).

The Contractor shall be responsible for any and all loss, or damage, whatsoever which may occur on or to the works, completed or otherwise, until such time as the entire works have been completed and the Notice of Acceptance has been issued by the Owner, except that loss or damage caused solely by an act of the Owner. In the event of any loss or damage occurring, the Contractor shall, on notice from the Contract Administrator, immediately put the works into the condition it was immediately prior to such loss or damage, all at the

Contractor's expense, except where such loss or damage was caused solely by an act of the Owner.

The Contractor shall be responsible for any and all loss or damage whatsoever which may occur on or to the works, completed or otherwise, arising out of the negligence of the Contractor, any subcontractors, and the employees or agents of any of them.

24.2.2 **Public Liability Insurance:**
(Other than Automobile Third Party Liability Insurance):

Evidence of Insurance:
The Contractor shall deposit with the Owner, before the work commences, a Certificate of Insurance, signed by an authorized representative of the insurer, such certificate to be as shown in Appendix III.

Effective Dates and Terms:
The effective date of the Certificate of Insurance shall be the date of the execution of the Contract Agreement and the term of this policy shall be from such effective date until a date not less than twelve (12) months after the date of Substantial Performance completion of all work under the Contract.

Limits of Liability:
For bodily injury and for property damage shall be inclusive limits not less than $5,000,000.

24.2.3 **Public Liability Insurance (Automobile):**
The Contractor shall deposit with the Owner before the work commences a Certificate of Insurance with respect to owned automobiles on ICBC Form No. APV 47 entitled "Confirmation of Insurance Coverage" and with respect to Non-Owned Automobiles including hired automobiles and Contractual Liability on ICBC non-owned automobile policy Form APV 29 (if non-owned automobile coverage is not included under the comprehensive general liability coverage) each signed by an authorized representative of the Insurance Corporation of British Columbia.

24.3 Physical Loss or Damage With Respect to New Buildings under Construction and/or Major Additions to Existing Structures

24.3.1 **Responsibility for Placing Insurance:**
The types of insurance required under this section will be provided and maintained at the expense of the City of Coquitlam during the term of the Contract and will be as follows unless otherwise changed by specific endorsement to these Insurance Specifications.

24.3.2 **Insurance Coverage Required:**
Builders Risk Completed Value "All Risks" Course of Construction Insurance. This policy will be written in the names of the City of Coquitlam and the Contractor with loss payable as their respective interests may appear.

24.3.3 **Responsibility of Contractor – Limitations of cover and deductibles:**
The insurance provided by the City of Coquitlam as described herein will not provide the Contractor with full

protection against any and all kinds of loss or damage which may arise out of the Contract. It is, therefore, the responsibility of the Contractor to fully understand the scope of the cover provided with particular attention to the exclusions, limitations of cover and deductible provisions contained in the Insuring Agreements of the policies and it is further the responsibility of the Contractor to take out at the Contractor's expense, whatever other additional insurance the Contractor may consider necessary or desirable for his protection subject as hereinafter provided. The Contractor shall act in the same manner on insurance made available through the City of Coquitlam as he would if he had arranged such insurance himself.

24.3.4 **Responsibility of Contractor – Direct Damage Insurance:**

If the Contractor fails to do all or anything that is required of them concerning insurance, the City of Coquitlam may do what is required and any monies expended by the City of Coquitlam for that purpose shall be repayable and recoverable from the Contractor. Should any action, failure or negligence of the Contractor result in higher insurance costs being incurred by the City of Coquitlam, such additional costs shall be payable or recoverable from the Contractor.

24.3.5 **Responsibility of Contractor – Machinery and Equipment Belonging to Others:**

Unless otherwise directed by the City of Coquitlam in writing, the Contractor shall carry insurance covering loss or damage to construction machinery, tools and equipment owned by and/or on bare rental from a third party or parties and used by the Contractor in performing the work, which insurance shall be in a form satisfactory to the City of Coquitlam and having coverage in accordance with the actual cash value of such construction machinery, tools and equipment. Such policies shall also provide for subrogation to be waived against the City of Coquitlam. A certified copy of the policy shall be delivered to the City of Coquitlam not later than thirty days after the commencement of work under the Contract.

24.3.6 **Contractor's Waiver of Liability to Coquitlam:**

The Contractor hereby releases the City of Coquitlam from any and all liability for damages to the extent that such damages are covered by the course of construction insurance referred to in Section 24.3 of these specifications.

24.3.7 **Liability of Contractor:**

Neither the providing of insurance by the Contractor or the City of Coquitlam in accordance with the requirements hereof, nor the insolvency, bankruptcy, nor failure of any insurance company to pay any claim accruing shall be held to waive any of the provisions of this Contract with respect to the liability of the Contractor or otherwise.

24.3.8 **Responsibility of Contractor for protection of work, persons and property:**

The Contractor and all persons employed by the Contractor or under their control, and all employees and subcontractors, shall use due care that no person or property is injured, and that no rights are infringed in the prosecution of the work. Contractors shall take particular care to protect the work against loss or damage caused by riot, vandalism or malicious mischief and shall be at the expense of the Contractor provide all necessary safeguards in the form of watchmen and/or watch dog protection to prevent loss or damage of this type. The payment of deductibles is the responsibility of the Contractor and if not paid by the Contractor such amounts shall be deducted by the City of Coquitlam from payment due to the Contractor. These deductibles will normally be $250.00 each claim.

24.3.9 **Action to be taken in the event of loss or damage to the work covered by the Contract:**

When any loss or damage occurs to the work or to any materials and supplies on the site of the work, the Contractor shall remove any and all damaged or destroyed property and shall rebuild or replace the damaged or destroyed work, materials, or supplies and complete the work to the satisfaction of the Owner. For such removal, rebuilding, or replacing, the Contractor shall be entitled to receive from the Owner the amount of insurance monies received by the Owner pursuant to the said adjustment which amount shall be paid to the Contractor as the work of rebuilding or replacing proceeds, and in accordance with the Agreement. Damage or destruction of the whole or any part of the work shall not affect the rights and obligations of either party under the Agreement, except that in such event the Contractor shall be entitled to such reasonable extension of time to complete the work as the Architect and/or Contract Administrator may decide.

24.3.10 **Further responsibility of Contractor:**

Other than with respect to loss or damage arising out of insured risks and herein before specified, the Contractor shall be responsible for all loss or damage whatsoever

which may occur on or to the works completed or otherwise, until such time as the entire works have been completed and the Notice of Acceptance has been issued by the Owner, except that loss or damage caused solely by an act of the Owner.

In the event of any loss or damage occurring, the Contractor shall on notice from the Owner immediately put the works into the condition it was immediately prior to such loss or damage, all at the Contractor's expense except as previously stated.

24.3.11 **Owner Not Responsible for Loss or Damage or Loss of Use of Property of Contractors and their Employees:**
The Owner will not be responsible for securing or paying for insurance of any kind other than as specified in Section 24.3 of these specifications nor will the Owner have any responsibility whatsoever for loss or damage from whatever cause occurring to property owned, leased, or otherwise in the possession of the Contractor, subcontractors or their employees including, without restricting the generality of the foregoing, machinery, equipment, tools, supplies, and clothing at the construction site or elsewhere including loss of use of same.

24.4 Additional Insured

24.4.1 **The Contractor shall ensure the following are named as "additional insured" on the liability policy for this contract:**

- The City of Coquitlam

The City may identify private properties that are directly affected by construction. If so, the Contractor shall include the legal owners of these properties named as "additional insured" on the liability policy for this contract.

25.0 MAINTENANCE PERIOD

25.1 Correction of Defects

25.1.4 ***(Add new clause 25.1.4 as follows):***
The Owner is authorized to make repairs to defects or deficiencies if, ten days after giving written notice, the Contractor has failed to make or undertake with due diligence the required repairs. However, in the case of emergency where, in the opinion of the Owner, delay is not reasonable, repairs may be made without notice being sent to the Contractor. All expenses incurred by the Owner in connection with repairs made pursuant to GC 25 shall be paid by the Contractor or may be deducted from the

Maintenance Security, or other holdbacks. The Contractor shall promptly pay any shortfall.

27.0 CONTRACTOR PERFORMANCE EVALUATION

27.1 ***(Add new clause 27.1 as follows):***

After the completion of the Contract, the Contractor will be evaluated on their performance of the Work. The evaluation will provide percentage scores on the following categories:

1. *Contract Administration*
2. *Construction Management*
3. *Schedule Management*
4. *Communications*
5. *Resource Management and Contractor Performance*
6. *Quality Management*

An evaluation summary report may be issued to the Contractor with scores for each of these categories. Upon request, the Contractor may attend a meeting with the City to discuss the evaluation.

This internal evaluation may be reviewed for reference on subsequent tenders with the City. Evaluation scores can form part of the tender analysis and influence contract award decisions.

Evaluation Scores in categories that are below 50% may result in a suspension of tendering privileges with the City.

APPENDIX I

PERFORMANCE BOND

NO._____ $_____

KNOW ALL MEN BY THESE PRESENTS THAT

_____

As Principal, hereinafter called the Principal, and

_____

As Surety, hereinafter called the Surety, are held and firmly bound unto

_____

As Obligee, hereinafter called the Obligee, in the amount of

_____Dollars

($)

lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a written contract with the Obligee, dated the_____

day of_____20_____, for

_____

_____

in accordance with the drawings and specifications submitted, therefore, which contract, drawings and specifications and addenda thereto, to the extent provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly and faithfully perform said Contract (including any addenda thereto, provided such addenda do not collectively increase the amount to be paid to the Principal by more than twenty per cent (20%) of the amount of the Contract except with the written consent of the Surety) then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

Whenever the Principal shall be, and declared by Obligee to be, in default under the Contract, the Obligee having performed Obligee's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the Contract in accordance with its terms and conditions, or
2. Obtain a bid or bids for submission to Obligee for completing the Contract in accordance with its terms and conditions, and upon determination by Obligee and Surety of the lowest responsible bidder, arrange for a contract between such bidder and Obligee and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term 'balance of the contract price', as used in this paragraph, shall mean the total amount payable by Obligee to Principal under the Contract less the amount properly paid by Obligee to Principal.

Any suit under this Bond must be instituted before the expiration of two (2) years from date on which the Notice of Acceptance under the Contract is issued.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Obligee named herein or the heirs, executors, administrators, or successors of Obligee.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its Attorney-in-fact, this_____day of_____20_____.

SIGNED, SEALED and DELIVERED
In the presence of

)
)
)
)
)

_____

_____
PRINCIPAL

_____
SURETY

APPENDIX II

LABOUR AND MATERIAL PAYMENT BOND

(Private Contracts – Trustee Form)

NO._____ $_____

Note: This Bond is issued simultaneously with another Bond in favour of the Obligee conditioned for the full and faithful performance of the Contract.

KNOW ALL MEN BY THESE PRESENTS THAT

_____

As Principal, hereinafter called the Principal, and

_____

As Surety, hereinafter called the Surety, are, subject to the conditions hereinafter contained, held and firmly bound unto

_____

As Trustee, hereinafter called the Obligee, for the use and benefit of the Claimants, their and each of their heirs, executors, administrators, successors and assigns in the amount of

_____Dollars

($) lawful money of Canada, for the payment of which sum well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

SIGNED AND SEALED this_____day of _____, 20____.

WHEREAS, the Principal has entered into a written contract with the Obligee dated the_____ day of_____, 20____, for

_____

_____

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall make payment to all Claimants for all labour and material used or reasonably required for use in the performance of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A Claimant for the purpose of this Bond, is defined as one having a direct contract with the Principal for labour, material, or both, used or reasonably required for use in the performance of the Contract, labour and material being construed to include the part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment directly applicable to the Contract provided that a person, firm or corporation who rents equipment to the Principal to be used in the performance of the Contract under a contract which provides that all or any part of the rent is to be applied towards the purchase price thereof shall only be a Claimant to the extent of the prevailing industrial rental value of such equipment for the period during which the equipment was used in the performance of the Contract. The prevailing industrial rental value of equipment shall be determined, insofar as it is practical to do so, in accordance with and in the manner provided for in the latest revised edition of the publication of the Canadian Construction Association entitled "Rental Rates on Contractors' Equipment" published prior to the period during which the equipment was used in the performance of the Contract.
2. The Principal and the Surety hereby jointly and severally agree with the Obligee as Trustee that every Claimant who has not been paid as provided for under the terms of his contract with the Principal before the expiration of a period of ninety (90) days after the date on which the last of such Claimant's work or labour was done or performed or materials were furnished by such Claimant, may as a beneficiary of the trust herein provided for, sue on this Bond, prosecute the suite to final judgment for such sum or sums as may be justly due to such Claimant under the terms of his said contract with the Principal and have execution thereon. Provided that the Obligee is not obliged to do or take any act, action or proceeding against the Surety on behalf of the Claimants or any of them to enforce the provisions of this Bond. If any act, action or proceeding is taken either in the name of the Obligee or by joining the Obligee as a party to such proceedings then such act, action or proceeding shall be taken on the understanding and basis that the Claimants or any of them who take such act, action or proceeding shall indemnify and save harmless the Obligee against all costs, charges and expense or liabilities incurred thereon and any loss or damage resulting to the Obligee by reasons thereof. Provided still further that subject to the foregoing terms and conditions, the Claimants or any of them may use the name of the Obligee to sue on and enforce the provisions of this Bond.
3. No suit or action shall be commenced hereunder by any Claimant:
    a) unless such Claimant shall have given written notice within the time limits hereinafter set forth to each of the Principal, Surety and Obligee, stating with substantial accuracy the amount claimed. Such notice shall be served by mailing the same by registered mail to the Principal, Surety and Obligee at any place where an office is regularly maintained for the transaction of business by such persons or served in any manner in which legal process may be served in the Province or other part of Canada in which the subject matter of the contract is located. Such notice shall be given (i) in respect of any claim for the amount or any portion thereof required to be held back from the Claimant by the Principal under either the terms of the Claimant's contract with the Principal or under the Mechanic's Liens Legislation applicable to the Claimant's contract with the Principal whichever is the greater within one hundred and twenty (120) days after such Claimant should have been paid in full under the Claimant's contract with the Principal; (ii) in respect of any claim other than for the holdback or portion thereof referred to above within one hundred and twenty (120) days after the date upon which such claimant did

or performed the last of the work or labour or furnished the last of the materials for which such claim is made under the Claimant's contract with the Principal.

b) after the expiration of one (1) year following the date on which Principal ceased work on the Contract including work performed under guarantees provided in the Contract.

c) Other than in a court of competent jurisdiction in the Province or District of Canada in which the subject matter of the Contract or any part thereof is situated and none elsewhere, and the parties hereto agree to submit to the jurisdiction of such court.

4. The amount of this Bond shall be reduced by and to the extent of any payments made in good further and in accordance with the provisions which may be filed of record against the subject matter of the Contract, whether or not claim for the amount of such lien be presented under and against this Bond.
5. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its Attorney-in-fact the day and year first above written.

SIGNED, SEALED and DELIVERED
In the presence of

)
)
)
)
)

_____
PRINCIPAL

_____
SURETY

_____

APPENDIX III

CERTIFICATE OF INSURANCE

This Certificate issued to the City of Coquitlam is to certify that policies of insurance, as described below, have been issued to the Insured named below and are in force at this time. It is understood and agreed that thirty (30) days' prior written notice by registered mail of any material alterations, transfer, assignment or cancellation of any of the policies listed below, either in part or in whole, will be given to the holder of this Certificate.

A. This Certificate is issued to:

City of Coquitlam
3000 Guildford Way
Coquitlam, BC V3B 7N2

Named Insured and Mailing Address:

B. CONTRACT NUMBER AND/OR NAME

Description of the Work:

C. INSURANCE POLICY

Name of Insurer:
Policy Number:
Effective Date:

Liability Limit:
Expiry Date:

D. INSURANCE COVERAGE

COMMERCIAL GENERAL LIABILITY coverage is required to insure against liability from the activities arising out of operations or work in connection with the above-described project, including liability arising out of the use of City property.

D.1 The minimum limit shall be $5,000,000.00 inclusive per occurrence against bodily injury, personal injury and property damage.

D.2 The City of Coquitlam, its employees, officers, agents and volunteers are added as Additional Insureds, but only with respect to operations conducted by or on behalf of the Named Insured in connection with the above-described project, operations or work.

D.3 This insurance shall be primary as regards the City of Coquitlam, its employees, officers, agents and volunteers as Additional Insureds.

D.4 Any deductible or reimbursement clause contained in the policy shall not apply to the City of Coquitlam and shall be the sole responsibility of the Named Insured.

D.5 The insurance shall include the following coverages:

- D.5.1 Cross Liability Clause
- D.5.2 Non-Owned Automobile Liability
- D.5.3 Unlicensed Automobile Liability
- D.5.4 Blanket Contractual Liability
- D.5.5 Broad Form Property Damage Liability
- D.5.6 Owner's & Contractor's Protective Liability
- D.5.7 Products & Completed Operations Liability

D.6 Indicate provision of special coverage for this project as required by the City:

YES	NO	Special Coverage Description
(**X**)	( )	Shoring and Underpinning Hazard
(**X**)	( )	Pile Driving and Vibrations
(**X**)	( )	Excavation Hazard
( )	(**X**)	Demolition
( )	(**X**)	Blasting

Authorized Signature and Stamp

Date

Name and Title

City' broker to return to City Representative

Department

APPENDIX IV

PRIME CONTRACTOR DESIGNATION

Owner: **CITY OF COQUITLAM**
Contractor: _____
Contract / Permit #: **84495-3**
Project / Workplace: **Austin Heights Sanitary Upgrade – Phase 3** (the "Project")

By signing this Prime Contractor Designation form, the Contractor hereby:

1. agrees to be, and accepts designation as, the "prime contractor" for the purposes of the Workers Compensation Act, R.S.B.C. 2019, c. 1 (the "Act") and the Occupational Health and Safety Regulation, B.C. Reg. 223/2022 (the "Regulation") in respect of the Project and Workplace noted above;
2. represents and warrants that the Contractor is qualified and capable to perform the duties of prime contractor and that the undersigned signatory has the authority to accept designation as prime contractor and to bind the Contractor;
3. accepts the duty and responsibility for ensuring the activities of employers, workers and other persons at the Workplace relating to occupational health and safety are coordinated and agrees to do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the Act and the Regulation in respect of the Workplace;
4. covenants and agrees to comply with the occupational health and safety provisions of the Act, the Regulation, any other applicable regulations under the Act, and any applicable orders;
5. acknowledges and agrees that the Owner has provided the Contractor the information known to the Owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the Workplace; and
6. agrees that the designation as prime contractor hereunder may not be assigned or revoked without the prior written consent of the Owner.

Prime Contractor Name: _____

Prime Contractor Address: _____

_____ _____
Prime Contractor Signature **Date**

_____
Print Name

Please return a signed copy of this designation to the City of Coquitlam, 3000 Guildford Way, Coquitlam, BC, V3B 7N2. If you have any questions, please contact the City of Coquitlam Health & Safety Manager at 604-927-3070.

Supplementary Contract Specifications

Supplementary Contract Specifications

to the
MASTER MUNICIPAL SPECIFICATIONS
Volume II – Platinum Book

Austin Heights Sewer Upgrade – Phase 3

CONTRACT 84495-3

TABLE OF CONTENTS

The following Supplementary Specifications are to be considered part of the Specifications. These Supplementary Specifications take precedence over the Master Municipal Specifications.

1.00 CONTRACT SPECIFIC INSTRUCTIONS

1.01 Schedule of Work

All work under this Contract is to be completed by the designated Substantial Performance Date as described in the Contract Documents. The *Contractor* must provide sufficient resources in a continuous effort and site presence to complete all the work within the allotted time. As set out in the MMCD the *Contractor* must provide updates to the construction schedule as reasonably requested by the *Contract Administrator*.

1.02 Coordination of Work

The *Contractor* shall be responsible to consult with all affected businesses, residents, transportation companies regarding delays, detours, and any other works affecting any transit service in the area, and will be responsible to coordinate the works with City crews and other *Contractor*s working in the area. If working area is to become a multiple-employer workplace as defined by WorkSafe BC, the *Contractor* shall remain the Prime *Contractor*.

1.03 Outside Agency Approval

In accordance with the Contract Documents, the *Contractor* is responsible to consult with and obtain any approval required to meet and comply with all the conditions required from outside agency such as, but not limited to, BC One Call, Metro Vancouver, BC Hydro, Telus, Kinder Morgan, and Fortis BC in the area of the place of Work.

1.04 Waste Collection Coordination

1. *Contractor* is responsible to accommodate all waste collection vehicles and cart pick up schedules throughout construction.
2. If waste collection will be impacted the *Contractor* is responsible to:
   a. Provide advanced notification to:
      i. The City's Solid Waste staff at 604-927-3500 or wastereduction@coquitlam.ca; and
      ii. The City's *Contract Administrator*.
   b. Provide access for collection trucks to closed streets due to road work; or
   c. Move waste carts for collection:
      i. The *Contractor* is required to ensure each cart is labeled with the property address and returned to the correct address after collection (each cart has a code and is specifically assigned to each property). *Contractor*s will be responsible for the costs to replace missing carts.
   d. Change collection time (e.g. PM to AM):
      i. The *Contractor* must provide residents with as much notice as possible – minimum of 5 working days.
      ii. The *Contractor* is responsible to deal with any missed collections. For example, taking garbage to the Coquitlam Recycling and Waste Center or covering the cost associated for any missed collection to be rescheduled.

Questions: wastereduction@coquitlam.ca

1.05 Cooperation with Emergency and Maintenance Activities

The *Contractor* will be responsible to cooperate with regular maintenance or emergency vehicles and staff for access to the site when required including:

- Fire, Police, and Ambulance
- Progressive Waste Solutions (garbage/recycling pick-up)
- City Utilities Maintenance (or representatives)

1.06 Site Safety

The *Contractor* is responsible to ensure the construction site is safe at all times for workers, pedestrians, and vehicle traffic. During non-working hours, the *Contractor* must ensure that the site has all potentially hazardous areas appropriately identified

and protected, and also must provide appropriate signage, lighting, and markings for the direction of vehicle and pedestrian traffic, all to ensure the safety of the public. Supply and use of this equipment is considered incidental to the contract. Manhole lids, valve boxes and other appurtenances within the roadway that may present a traffic hazard during construction must be clearly marked for traffic.

1.07 Lane Closure Restrictions

Refer to: Appendix A: Traffic Management Detail Specifications.

Costs to complete the works taking restrictions identified in Appendix A into consideration shall be included in the prices bid in the Schedule of Quantities and Prices.

1.08 Survey Layout

Construction layout will be staked out by the *Contractor* as outlined in Supplementary General Conditions.

1.09 Location of Existing Utilities

The *Contractor* is responsible to **pre-locate** and verify the size, depth and location of all utilities (watermains, storm mains, sanitary mains & etc.), including outside agency utilities (i.e. Telus, BC Hydro & etc.) and service connections (water, storm & sanitary services at the mains & property lines) by hand digging or by Hydro-Vac in the presence of the Inspector.

Pre-locates **must be completed as soon as possible after award of the Contract** so changes can be completed by the Engineer prior to site construction. Contact BC One for location of outside agency utilities. The Contactor will not receive any compensation or allowance for delays if work is halted due to utilities & services connections not located prior to commencing construction.

City of Coquitlam does not guarantee water, storm or sanitary services connections are perpendicular to the mains or property lines, the *Contractor* will not receive any compensation for the time to locate these connections or for exposing hidden services at the property lines.

1.10 Manholes & Valves

Access to manholes and valves must be maintained at all time for city utilities crews and external utility companies. In case of an emergency the cost for exposing any buried manhole or valve covers during construction will be paid by the *Contractor*.

1.11 Verification of Dimensions and Quantities

Before proceeding with work the *Contractor* shall visit the site and check and verify dimensions and quantities. Report variations between drawings and site conditions to the *Contract Administrator* before proceeding with work. Payment for this work will be treated as incidental to payment for work described in other Sections.

2.00 CONSTRUCTION ACTIVITY

2.01 Construction Materials in Sewer Manholes and Pipe

The *Contractor* is responsible to ensure that construction activities do not deposit construction materials (e.g. gravels) into the storm sewer or sanitary sewer manholes or pipe. The City has a video record of the pipe before construction. Prior to Substantial Performance, the City may again video inspect the lines to ensure no problems exist due to construction activities under this contract. If problems are encountered, the *Contractor* will be responsible for the cost of the video and all costs associated with the cleaning of the pipe.

2.02 Site Clean-up During Construction and End of Construction

The *Contractor* will be responsible for the complete clean-up of the work site during construction & at the end of construction and prior to the Substantial Performance review. Payment for this work is considered incidental to the Contract.

The work will include cleaning of all catch basins periodically or as directed by the *Contract Administrator* within the Work area, or nearby location as affected by the Work. All cleaning is to be performed by vacuum truck to the satisfaction of the *Contract Administrator* and will include off-site disposal of waste material.

3.00 MANDATORY MEETINGS AND *CONTRACTOR* REPRESENTATIVES AND SUB*CONTRACTOR*S

3.01 Pre-Construction Meeting Requirements

After the Award of the Contract, the *Contractor* (Project Manager & Superintendent) will be required to attend a Pre-Construction Meeting with the *Contract Administrator* and provide all necessary information required by the *Contract Administrator* prior to provision of a Notice to Proceed. Items required to be provided at the meeting include:

1. A Detailed Construction Schedule showing the start date, milestone date & completion date and the durations of major work components showing how all work will be completed within the Contract Duration.
2. Proof of insurance
3. Performance Bond and Labour and Materials Payment Bond
4. WCB Clearance Letter and copy of Notice of Project
5. City of Coquitlam Business License
6. A copy of portions of your Health and Safety Plan including the Title Page, Table of Contents, portion showing latest revision date.

3.02 Contract Schedule, Contract Duration, and Charges

A detailed, realistic construction schedule for this project will be required to be presented at the pre-construction meeting. The schedule must show major components, durations and milestone dates as described below.

All work under this project is to be completed within the designated Contract Duration as contained in the signed Contract Agreement, or as formally amended.

3.03 Contract Superintendent and Sub*Contractor*s

In compliance with the MMCD General Conditions, Section 4.7, Superintendent, the *Contractor* shall have a competent senior representative, (the "Superintendent") in FULL TIME attendance at the Place of Work while work is being performed for the duration of the contract.

This (FULL TIME) attendance is also required when work is being performed by Sub*Contractor*s.

Work done by Sub*Contractor*s is to be directed by the Superintendent and monitored on site ensuring conformance to the Contract Documents and other particular direction to the Superintendent by the *Contract Administrator*.

The Owner and *Contract Administrator* are not responsible for the direction of Sub*Contractor*s.

3.04 Mobilization and Demobilization

Payment for mobilization and demobilization of all equipment, labour and materials (both from the *Contractor* and all sub-*Contractor*s) shall be incidental.

END OF SECTION

1.0 GENERAL

1.3	**Submission**	Delete 1.3.2 and replace with the following	Submit one copy of an accurate project record document in final form prior to applying for Substantial Performance including any video report, test reports and Operation & Maintenance manual. Record documents to include changes in the Issued for Construction Drawings, new elevation, offsets & location of all utilities, manhole rim, catchbasin rim, vaults, valve boxes, inverts walkways/sidewalks, and any unknown/new utilities found on site. Legal holdbacks will not be released until complete record documents, including reports and manuals, have been submitted and accepted by the *Contract Administrator*.

END OF SECTION

1.0 QUALITY

The *Contractor* shall provide a final product conforming to the Contract Documents and the intent of the work.

The work is to be accurate to the dimensional and tolerance requirements of the contract.

Payment will be subject to adjustments based on quality assurance tests performed by the *Contract Administrator*.

1.1 Quality Control (QC) by *Contractor*

The MMCD (2009) definition of "Quality Control" is the process by which the *Contractor* checks specific materials, products, and workmanship to ensure strict conformance with the Contract Documents.

The *Contractor* is fully responsible for quality control of the materials, production, and construction processes.

Quality control tests shall be performed by the *Contractor*, at their own expense, to ensure that products meet the contract specifications.

Failure by the *Contractor* to conduct adequate quality control testing during production and construction will negate the *Contractor*'s ability to appeal the quality assurance tests used for acceptance/rejection of the work.

Under no circumstances will QC test results produced after completion of the Quality Assurance (QA) results be considered for appeal purposes

Any changes in the Work with respect to the location, grade, or line shall be approved in advance by the *Contract Administrator*. Failure to notify the *Contract Administrator* of changes in writing may result in rejection of Work.

1.2 Inspection of Work, Quality Assurance, and Material Testing, by the Owner

The MMCD (2009) definition of "Quality Assurance" means the process by which the *Owner* evaluates if the work is being constructed in accordance with the Contract Documents. This definition will be used for this contract

The *Contract Administrator* may provide construction review through spot inspections and spot materials testing for Quality Assurance.

Any materials testing results indicating a non-conformance to the Contract Documents will require construction corrective action by the *Contractor*.

All subsequent testing to corrective action to verify conformance to the Contract Documents will be the full responsibility of the *Contractor*.

Inspection review by the Owner will not relieve the *Contractor* from providing a product that meets or exceeds the requirements of the Contract Documents.

1.3 Inspection

Materials testing shall be as described in MMCD General Conditions, Section 4.12 with the following change:

Delete Section 4.12.2(a) and insert the following:

Where the MMCD specification clauses for Inspection and Testing indicate the *Contract Administrator* will arrange for all testing for work described in this section will be amended to read The *Contractor* will arrange for and pay for all testing for work described in this section. The testing shall take place at the following prescribed rates and as directed by the *Contract Administrator*. The *Contract Administrator* has

the authority to call for testing, up to the rates and frequencies specified, at the *Contractor*s cost.

All testing covered under this item shall be performed by a CCIL certified laboratory and technicians with copies of all test results to be sent directly to the *Contract Administrator*. Re-testing resulting from failed first tests shall be at the *Contractor*s expense.

1.4 Survey Layout

The *Contractor* shall be responsible for all survey layouts.

1.5 Testing

Contractor shall carry out inspection and testing (QC) to ensure compliance with Contract Documents. *Contractor* shall submit test results within one week of testing to the *Contract Administrator*.

The *Contractor* shall provide test results prior to the preparation of the payment certificate.

1.6 *Contractor*s Responsibilities

Furnish labour and facilities to:

1. Provide access to work to be inspected
2. Facilitate inspections and tests
3. Make good work disturbed by inspection and tests

1.7 Access to Work

Allow inspection testing agencies access to Work.

1.8 Tests

Test rates and frequencies (excluding failed tests), when not defined in the MMCD or Detail Specifications Sections shall be at the following frequencies:

1. Trench Backfilling and Compaction
1.1 Compaction: 1 test / 25 lm / 300mm lift
1.2 Sieve: 1 test / placed material / 50 m^3

2. Granular Base
2.1 Compaction: 1 test/500m^2 / 100mm depth of granular base, min. 1 test if < 500m^2
2.2 Sieve: 1 test / placed material / 250 TONNES

3. Granular Subbase
3.1 Compaction: 1 test/500m^2/150mm depth of granular subbase, min. 1 test if <500m^2
3.2 Sieve: 1 test / placed material / 250 TONNES

4. Embankment (Subgrade)
4.1 Compaction: 1 test/ 50m^2 / 0.15m depth of fill, min. 1 test if < 50m^2
4.2 Sieve: 1 test / placed material / 100 TONNES

5. Asphalt
5.1 Marshall test: 1 test per 250 TONNES placed, per mix specified, min. 1 / day ASTM D1559, D3203, C117, C136
5.2 Superpave: 1 test per 250 TONNES placed, per mix specified, min. 1 / day CAI-SP2, ASTM D3203, C117, C136
5.3 Cores: 1 per 500 m^2/lift
5.4 Continuous asphalt density testing during paving.

6. Subgrade Preparation
6.1 Compaction & Moisture: 1 test / 500 m^2, min. 1 test if < 500m^2

7.Concrete Tests

7.1 Air, Slump & 1 Set Cylinders: 1 test / 10 m^3, min. 1 set / day

1.9 Measurement for Payment

Payment for all work performed under this section will be incidental to payment for work described in other Sections.

END OF SECTION

1.0	**GENERAL**	Add 1.0.6	The *Contractor* is responsible for all temporary traffic control on the streets required for completion of the work. The *Contractor* will be responsible to provide a Traffic Management Plan (TMP) for approval (5) five working days prior to any lane closures taking place. TMP is to be prepared by a qualified professional to the satisfaction of the *Contract Administrator*. The TMP shall outline the approach to traffic management, show recognition and minimization of risks, indicate signing locations, identify Traffic Control Persons (TCP) stations, and show lane shifting and proposed closures. The *Contractor* is responsible to ensure and maintain all business/residential vehicles, cyclists and pedestrian accesses open at all times. The *Contractor* may provide temporary accesses if the affected owner agrees. All costs associated with temporary accesses will be at the *Contractor's* expense.
		Add 1.0.7	A Road and Sidewalk Closure Permit is required from Coquitlam for all work affecting pedestrian and traffic flow related to construction. A permit is required for each specific construction interference with pedestrian and traffic flow. The road and sidewalk closure permit form can be obtained for use from the City's website at https://www.coquitlam.ca/DocumentCenter/View/152/Road-and-Sidewalk-Closure-Permit-Application-Form-PDF. The *Contractor* must follow the approved TMP. Any changes to this TMP must be submitted to City's Traffic Operations for approval.
		Add 1.0.8	Refer to Appendix A – Traffic Management Detail Specifications
1.4	**Traffic Control**	Delete 1.4.1 and replace with the following	The *Contractor* shall conduct their operations so as to cause the minimum obstruction and inconvenience to traffic and to places of business and residences adjacent to the Place of Work. No greater quantity of work shall be undertaken at any one time than can be properly conducted with due regard to the rights and interests of the public as may be determined by the *Contract Administrator*. The *Contractor* is to provide at all times safe and convenient means of approach and entrance to adjoining lanes, driveways, buildings and property both for vehicles and pedestrians to the satisfaction of the *Contract Administrator*. For this purpose, he shall construct and maintain suitable and safe platforms, approaches, structures, bridges, diversions or other works. **Property access must be maintained for all residents of 1334, 1365 and 1387 Charland Avenue.** Where traffic must cross open trenches, the *Contractor* shall provide suitable bridges. Where trenches have been backfilled or where road improvements are incomplete the *Contractor* shall take any steps necessary to prevent potholes or other traffic hazards. Where the *Contract Administrator* so instructs

			or where Contract Specifications so require, the *Contractor* shall provide temporary asphalt patching of such hazards.
		Add 1.4.9.3.1	The *Contractor,* as required by the *Contract Administrator* and the City, is to supply Construction Zone information signs (stationary), refer to ~~MMCD 01 58 01~~ Appendix A – Traffic Management Detail Specifications for the required identification signage. The *Contractor* is responsible for the removal of the signs at the completion of the work.
		Delete 1.4.10.1.3 and replace with the following	When workmen or equipment are employed over travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
1.5	**Measurement for Payment**	Delete 1.5.1 and replace with the following	Payment for all work, unless included in the Schedule of Quantities and Prices, performed under this section will be incidental to payment for work described in other Sections.

END OF SECTION

1.0	**GENERAL**		
1.0.3	**Erosion and Sediment Control Supervisor**	Add 1.03	The Erosion and Sediment Control (ESC) Supervisor is the Qualified Professional who is experienced in implementing ESC Plans and who is responsible for the inspection and monitoring of ESC Facilities to ensure these are installed and maintained in accordance with the ESC Plan, and if necessary, are modified during construction to ensure compliance with the Stream and Drainage System Protection Bylaw No. 4403, 2013.
1.2	**Temporary Erosion and Sediment Controls**	Delete 1.2.1.1 and replace with the following	Properly drain all portions of the site. Protect the site and the watercourses to which it drains, directly or indirectly, against erosion and siltation in accordance with a Sediment Control Plan under the City of Coquitlam Stream and Drainage System Protection Bylaw No. 4403, 2013 during construction and until the maintenance period is completed. Ensure no silt, gravel, debris or other deleterious substance resulting from construction activity discharges into existing drainage systems or watercourses or onto highways or adjacent property. The *Contractor* is responsible for all damage that may be caused by water backing up or flowing over, through, from or along any part of the work or otherwise resulting from their operations. Keep existing culverts, drains, ditches and watercourses affected by the work clear of excavated material at all times. When it is necessary to remove or alter any existing drainage structure, provide suitable alternative measures for handling the drainage. Adequately support culverts and drainpipes across trenches to prevent displacement and interference with the proper flow of water due to trench settlement. Sweep streets, and clean catch basins, manhole sumps, detention tanks, and maintain siltation controls as often as the *Contract Administrator* and the City deems necessary.
		Delete 1.2.2.2 and replace with the following	Do not operate construction equipment in watercourses.
		Add 1.2.2.9	All work must be carried out during favorable and low water conditions.
		Add 1.2.2.10	Any fill used on this project shall be certified inert and from a source which is confirmed to be free of contaminants.
		Add 1.2.2.11	All work within a watercourse must be undertaken and completed in isolation of all flowing water to maintain downstream water quality and unrestricted flows.
1.4	**Environmental Protection**	Add 1.4.3.5	Immediately contain and clean up any leaks and spills of prohibited materials at the *Place of Work*.
		Add 1.4.3.6	Ensure that a well-stocked spill kit is on-site at all times and that the *Contractor*'s employees are familiar with appropriate spill response techniques.
		Add 1.4.3.7	Immediately notify the *Contract Administrator* and the City of any leaks or spills of prohibited materials that occur at the *Place of Work*.

		Add 1.4.3.8	Ensure that any fuel stored on-site is located at least 15 meters from the nearest stream, and is placed within a bermed and lined area, in order to prevent leaks or spills into the environment.
		Add 1.4.3.9	All equipment and machinery must be in good working condition (power washed), free of leaks or excess oil and grease. No equipment refueling or servicing shall be undertaken within a minimum of 15 meters of any water course or surface water drainage.
		Add 1.4.3.10	During all phases of the operation, the *Contractor* shall take precautions to abate nuisance caused by mud or dust by clean up, sweeping, sprinkling with water or dust control, or other means as necessary to accomplish results satisfactory to the *Contract Administrator*.
1.6	**Measurement and Payment**	Delete 1.6.1 and replace with the following	Payment for all work performed under this section will be incidental, unless shown otherwise in the Schedule of Quantities and Prices..
		Add 1.6.2	Payment for the poly cover or temporary tarps over stock pile materials or exposed road subgrades shall be treated as incidental work.
1.8	**Clean Up**	Add 1.8.2	The work will include cleaning of all catch basins within the work area, or nearby location as affected by the Work, and all manholes and/or sewers affected by work done under this contract. All cleaning is to be performed by vacuum truck to the satisfaction of the *Contract Administrator* and will include off-site disposal of waste material.
1.9	**Archaeological / Historical Resources**	Add 1.9	Immediately cease work and inform the *Contract Administrator* and the City, if any archaeological or historical resources are encountered during construction. Leave these resources in place and do not disturb them in any way.

END OF SECTION

1.3	**Measurement and Payment**	Delete 1.3.1 and replace with the following	Payment for the installation of 1.2m x 1.2m static construction Information signs and as described in Appendix A – Traffic Management Detail Specifications includes supply, placement & removal and will be incidental, unless shown otherwise in the Schedule of Quantities and Prices.
		Add 1.3.2	Payment for changeable message signs (CMS) including supply, placement, communication management & removal as required for traffic & pedestrian safety and as shown in in Appendix A – Traffic Management Detail Specifications will be incidental to payment for work described in other Sections, unless shown otherwise in the Schedule of Quantities and Prices. When shown in the Schedule of Quantities and Prices, payment for CMS used for only a fraction of a month will be paid prorata.

END OF SECTION

1.4	**Measurement and Payment**	Delete 1.4.3 and replace with the following	Payment for machine placed or hand formed C5 wide base concrete curb, includes granular subbase & base, includes supply and placing of the concrete curb and gutter, tie-ins, transitions, subgrade preparation, compaction, saw cutting, and will cover all straight and curve sections. Payment for excavation, removal and disposal of excavated material, supply and installation of concrete curb will be incidental to payment for work described in other Sections.
		Delete 1.4.5 and replace with the following	Payment for concrete sidewalks, letdowns, driveways, stamped concrete, paver stone, infills, concrete exposed aggregate and all concrete ramps includes supply and installation, saw cutting, granular base and subbase, field fit and adjustments, subgrade preparation. Payment for excavation, removal and disposal of excavated material, supply and installation will be incidental to payment for work described in other Sections.
2.1	**Materials**	Delete 2.1.5.1 and replace with the following	Hand-formed and hand-placed concrete: Slump: 80 mm Air entrainment: 5 to 8%. Maximum aggregate size: 20 mm. Minimum cement content: 335 kg/m3. Minimum 28 day compressive strength: 32 MPa.
		Add 2.1.7	Tactile warning surface tile shall be replaceable cast-in-place style. Truncated domes shall be in square grid pattern with a 5 mm nominal raised height, base diameter of 23 mm and top diameter of 11.5 mm. Dome spacing range shall be between 40 mm – 60 mm. Color of the panel shall be Federal Yellow (Y) per US Federal Standard 595B Table IV, Color No. 335. Minimum size of the panel shall be 600 mm by 1200 mm.
3.0	**EXECUTION**		
3.9	**Expansion Joints**	Delete 3.9.1 and replace with the following	Form transverse expansion joints at both ends of curb returns and at maximum spacing of 9.0 m for sidewalks, 30.0 m of curb and gutter, at each end of driveway crossing, at tangent point of circular work, and on either side of catch basins.

END OF SECTON

1.5	**Measurement and Payment**	Add 1.5.2	Payment for cast in place concrete retaining walls, slabs, stairs and other structures includes all formwork, reinforcements, subgrade preparation to receive concrete pour, constructon and expansion joints, all as shown on Contract Drawings. Payment includes all excavation and backfilling and will be considered incidental to work described in other sections unless otherwise specified in the Schedule of Quantities and Prices.

END OF SECTON

2.0 PRODUCTS

2.3 Pit Run Gravel

Add to 2.3.2

The use of recycled concrete shall be approved by the *Contract Administrator* and the City prior to use.

Add 2.3.3

Asphalt millings free from contaminated and other extraneous material, conforming to the specified gradations may be used as pit run gravel. The use of asphalt millings shall be approved by the *Contract Administrator* and the City prior to use.

2.7 Granular Pipe Bedding and Surround Material

Add to 2.7.1

All recycled or other extraneous materials shall be approved by *Contract Administrator* and the City prior to use.

2.10 Granular Base

Delete 2.10.2

Add 2.10.3

All 25 mm minus granular base is to conform to the following gradation specifications and as described in Clause 2.10.4:

Sieve Designation (mm)	Percent Passing (%)
25	100
19	80-100
12.5	75-90
9.5	50-85
4.75	35-70
2.36	25-50
1.18	15-35
0.30	5-20
0.075	0-5

Add 2.10.4

The intention of the Gradation Chart is to identify the desired mix of size of aggregate in the granular base. The Target Percentage Passing is the middle of the shown Range.

Tests that show sieve values of Percent Passing that are consistently low or consistently high in two (2) or more consecutive tests will be considered to be non-conforming.

2.11 Recycled Aggregate Material

Delete 2.11.1 and replace with the following

Aggregates containing recycled material may be utilized if approved by the *Contract Administrator* and the City. In addition to meeting all other conditions of the specifications, recycled material should not reduce the quality of the construction achievable with quarried materials. Recycled material shall consist only of aggregates, crushed portland cement concrete, or asphalt that is free of impurities.

END OF SECTION

1.4 Measurement and Payment

Delete 1.4.1 and replace with the following

Payment for all clearing and grubbing will be made at lump sum price and include removal and disposal of all branches, stumps, debris, hedges, blackberry bushes, timbers, logs and vegetation to complete the work and as shown on the Contract Drawings or as directed by the *Contract Administrator*. Works include cutting of branches affected by Work to create the necessary clearance to accommodate the construction and intended function of the Work, and as shown on Contract Drawings.

Payment includes trimming of small branches from trees or hedges as required, branch cutting/pruning to have a clean cut flush to branch collar and use of an approved tree paint to repair damage to surviving vegetation where branches have been removed.

Co-ordinate with property owners and use the services of a certified arborist when necessary. It is the *Contractor's* responsibility to obtain permission from the property owners.

Materials removed from within the right of way are the property of the private property owner. Payment includes disposal of materials obtained from within the right-of-way and from adjacent private properties that are not suitable for reuse or not wanted by private owners at an approved dump site.

END OF SECTION

1.3	**Measurement and Payment**	Add 1.3.2	Payment by allowance for Hydro Excavation around existing trees includes all labor, material, equipment, removal and disposal to complete the work as shown on the Contract Drawings or as directed by the *Contract Administrator*. Payment includes coordinating the work of all locations requiring hydro excavation to maximize the use of the hydro excavation machine and coordination with the Site Arborist. Payment shall be made for the actual cost on a Force Account basis as defined in GC 10.0.
2.0	**PRODUCTS**		
2.1	**Materials**	Add 2.1.10	Protective Fencing: Posts - Pressure treated wood 100 mm dia.; Post to be 1.8 m to 2.0m in height at 2.0 m O.C. Snow fence as per Coquitlam Approved Products List; Flagging Tape - 4" Orange glow - 'Tree Retention Area'.
3.0	**EXECUTION**		
3.1	**Existing Trees**	Add 3.1.7	The *Contractor* is responsible to minimize damage to all trees which are to remain.
		Add 3.1.8	The *Contractor* will be responsible for all claims and costs including the cost of examination by an Arborist, repair, removal and replacement of trees, as required by the Arborist, the *Contract Administrator* and the City for tree damage where proper notification was not received from the *Contractor*. Damage will be assessed based on the International Society of Arboriculture Guidelines. The term shall be for a period of one year following the date of Substantial Performance of the *Work*.
		Add 3.1.9	Place protective fencing/barricades as detailed on Coquitlam Standard Detail Drawings COQ-R26 where specified by the *Contract Administrator*. *Contractor* shall maintain fence in good condition during construction.
		Add 3.1.10	When work is to be performed inside fenced areas, *Contractor* shall take care to avoid damage to existing vegetation. Work to be done inside areas of existing vegetation to be retained includes: .1 Removal of isolated trees as directed by the *Contract Administrator* and the City. .2 Selective pruning and tree removal at edges to create tidy and well-shaped forest edge. .3 Placing planting soil and planting of trees.
		Add 3.1.11	Do not park, service or fuel vehicles within the vegetation retention areas.
3.4	**Pruning**	Add 3.4.2	Do not cut roots or branches of retained trees without approval of the *Contract Administrator* and the City.

END OF SECTION

1.0	**GENERAL**		
1.8	**Limitations of Open Trench**	1.8.1 Replace last sentence with the following	If circumstances do not permit complete backfilling of all trenches, and where permitted by the *Contract Administrator* and the City, adequately protect all open trenches or excavations with approved fencing or barricades and, where required, with flashing lights.
1.10	**Measurement and Payment**	Delete 1.10.3 and replace with:	Payment for over excavation including supply, placement and compaction of 19mm clear crushed backfill will be made on a volumetric basis at the unit rate tendered, and only for the volume authorized by the *Contract Administrator*. Payment to include removal and disposal of the unsuitable excavated native material.
		Add 1.10.9	Payment for allowance for the removal and replacement of wood tie retaining walls includes all labour, material, equipment, removal and disposal of existing materials, 19mm clear crush drain rock backfill and drain pipe required to complete the Work as directed by the Contract Adminstrator. Payment shall be made for the actual cost on a Force Account basis as defined by GC 10.0.
2.0	**PRODUCTS**		
2.2	**Use of Specified Materials**	Delete 2.2.1.2	Delete Pit Run Sand
		Delete 2.2.3.3	Delete Pit Run Sand
3.0	**EXECUTION**		
3.3	**Excavation**	Delete 3.3.1.2 and replace with the following	Connections to existing waterworks systems are to be made by the *Contractor* under the inspection / supervision of the *Contract Administrator* and the City.
3.6	**Surface Restoration**	Delete 3.6.2.4 and replace with the following	Restore lawns with approved topsoil and sod to match existing lawn.
		Delete 3.6.3.1 and replace with the following	Restore surface with a minimum 100 mm of 19 mm granular road base material.
		Delete 3.6.7.5 and replace with the following	Restore Pavement as detailed on Coquitlam Standard Detail Drawing COQ-G4A. Temporary patch shall be a minimum thickness of 50 mm thickness. Permanent restoration to existing asphalt thickness (minimum of 75 mm) with a 35 mm key where existing thickness permits. A 50 mm key is required on Arterial and Collector Roadways. Dry if necessary and paint clean, dry edge with asphalt emulsion (tack coat).

END OF SECTION

1.4	**Measurement and Payment**	Delete Clause 1.4 and replace with	.1 Payment for all work performed under this section will be incidental to payment for work described in other Sections, unless shown otherwise in the Schedule of Quantities and Prices. .2 Payment for Subsection 1 above includes supply, placement and compaction of granular subbase material, adjustment of moisture content, and boning to establish the road cross-section. .3 Payment includes removal of unsuitable subgrade including disposal off-site prior to direct placement of granular. Payment includes supply, placement and compaction of granular subbase material and adjustment of moisture content.
2.0	**PRODUCTS**		
2.1	**Specified Materials**	Delete	2.1.1.1: Select Granular Subbase 2.1.1.2: 75 mm Pit Run Gravel 2.1.1.4: Pit Run Sand 2.1.1.5: Approved Native Material 2.1.1.7: River Sand

END OF SECTION

1.4	**Measurement and Payment**	Delete Clause 1.4 and replace with	.1 Payment for all work performed under this section will be incidental to payment for work described in other Sections, unless shown otherwise in the Schedule of Quantities and Prices. .2 Payment for Subsection 1 above includes supply, placement and compaction of granular base material, adjustment of moisture content, and boning to establish the road cross-section. .3 Payment includes removal of unsuitable subgrade including disposal off-site prior to direct placement of granular.
2.0	**PRODUCTS**		
2.1	**Granular Base**	Add 2.1.1.3	25 mm minus crushed gravel conforming to the gradation specifications under Section 31 05 17S – 2.10.3.

END OF SECTION

1.0	**GENERAL**		
1.4	**Submission of Mix Design**	Delete 1.4.1 and replace with the following	Submit asphalt concrete mix design, including RAP content and trial mix test results to *Contract Administrator* for review at least two weeks prior to commencing work.
1.5	**Measurement and Payment**	Delete 1.5.1 and replace with the following	Payment for asphaltic concrete paving includes all construction joint preparation, tack coat, supply and placing of the asphaltic concrete, compaction and cleaning frames, covers and lids of castings affected, all testing as described in Supplementary General Conditions – Clause 4.12.2(a), all surface restoration as specified under Section 31 23 01 – Sub-section 3.6, all temporary and permanent pavement markings restoration as specified in Section 32 17 23 and all other work and materials necessary to complete installation as shown on Contract Drawings and specified under this Section. Payment for asphaltic concrete paving is incidental to work described in other sections unless otherwise specified in the Schedule of Quantities and Prices. **Temporary trench patch required only on Austin Avenue. Temporary line painting and reflective tape will be required as per COQ-G4A.**
		Delete 1.5.3 and replace with the following	Payment for asphaltic concrete sidewalks, pathways, driveways, and infill strips paving includes all construction joint preparation, saw cutting, supply and placing of the asphaltic concrete, compaction and cleaning frames, covers and lids of castings affected. Measurement for asphaltic concrete paving will be incidental to payment for work described in other Sections, unless shown otherwise in the Schedule of Quantities and Prices. Payment for this item includes all applicable materials and work described in 1.5.1. Work includes all necessary adjustments on site during construction to achieve proper tie-in to existing driveways as directed by *Contract Administrator*. Adjustments performed under this section shall be incidental to payment for work described in other Sections.
1.6	**Inspection and Testing**	Add 1.6.3	Test cores will be taken by the *Contract Administrator* in the areas of new paving and will include cores along construction joints to ensure compliance with the required design and compaction.
2.0	**PRODUCTS**		
2.1	**Materials**	Add 2.1.2.1	Usage of recycled asphalt shingles will not be permitted.
		Add 2.1.2.2	Usage of softening agents, rejuvenators, or recycling agents will not be permitted.

2.2	**Mix Design**	Delete 2.2.3.2 Marshall Stability and replace with the following	Marshall Stability at 60°C for both lower and upper courses to be 10 KN min.
3.0	**EXECUTION**		
3.7	**Joints**	Delete 3.7.5 and replace with the following	Construct butt joints at locations as shown on the *Contract Drawing* and as directed in the field by the *Contract Administrator* and the City.

END OF SECTION

1.0 GENERAL

1.1	**Related Work**	Add 1.1.7	Geosynthetics - Section 31 32 19
1.6	**Measurement and Payment**	Add 1.6.4	Payment includes all labour, material and equipment required to complete the installation as shown on the Contract Drawings and specified under this Section. Payment includes subgrade preparation, careful stockpiling of the existing pavers for reuse, and reinstatement of unit pavers affected by work or previously removed to accommodate the *Work*. Any additional pavers required to complete final restorations of the disturbed area will be considered incidental.
		Add 1.6.5	Payment includes all labour, material and equipment required to remove the existing open carport at **1334 Charland Avenue**, careful stockpiling of the existing structure on private property any new unit pavers required and reinstatement of the existing structure.

END OF SECTION

1.5	**Measurement and Payment**	Delete 1.5.1 and replace with the following	Payment for the supply and installation of a new chain link fence includes fence and gate removal and disposal and excavation of existing posts regardless of material type, off site disposal of existing materials and all materials and work as shown on MMCD C13 to install new chain link fence. Finish and color to match existing fence and as specified in the Contract Drawings and Schedule of Quantities and Prices. Measurement will be made along the surface of the ground for length of each item of fence installed.
		Delete 1.5.2 and replace with the following	Payment for the removal and reinstatement of the existing chain link fence includes fence and post removal within the work zone, careful stock piling of the existing posts and off site disposal of existing chainlink, cleaning and reinstatement of the existing posts prior to installation, new footings as required, supply and installation of new chainlink, and all materials and work as shown on MMCD C13. Finish and color to match existing fence and as specified in the Contract Drawings and Schedule of Quantities and Prices. Measurement will be made along the surface of the ground for length of each item of fence installed.
		Add 1.5.5	Payment for the supply and installation of wooden fences and gates will be made by separate items for each height and type. Payment includes removal of the existing wooden fence, supply and install of any required concrete footings for posts, wood post caps, and all work and materials required to complete installation.

END OF SECTION

1.0 GENERAL

1.0 General Requirements

Delete 1.0.1 and replace with the following

.1 Section 32 91 21 refers to those portions of the *Works* that are unique to the supply, placement and finish grading of *Growing Medium*. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the *Works* described herein.

For the purpose of this specification, the term *"Growing Medium"* shall mean a soil produced offsite by homogeneous blending of mineral particulates, micro-organisms and organic matter which provides suitable medium for supporting intended plant growth and the term *"Topsoil"* shall mean on-site native or surface soil material which may be used as *Growing Medium* provided it meets standards set for imported material *Growing Medium* and can be modified to meet the requirements set out for specified *Growing Medium*.

Add 1.0.3

.3 For the purpose of this specification, the term *'Soil-Testing Laboratory'* shall mean an independent laboratory, recognized by the landscape nursery industry, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

1.4 Measurement and Payment

Delete 1.4.1 and replace with the following

Payment for all work performed under this Section will be incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices. Payment includes supply and installation of growing medium, boulevard tree trench and imported top soil that is free from any noxious weeds, fungal growth, mushroom, and any contaminants. Payment will be made separately and includes supply of material, on-site handling, preparing the landscape area subgrade, placing, grading, raking, compacting top soil and application of fertilizers. Payment for top soil will be for actual volume placed onsite at specified thickness.

1.5 Inspection and Testing

Delete 1.5 and replace with the following

.1 The *Contractor* is responsible for testing imported *Growing Medium* and all related cost incurred. Testing shall be carried out by an approved *Soil Testing Laboratory*.

.2 The sample analysis shall be of tests done on the proposed *Growing Medium* from samples taken at the supply source within a minimum of 14 days in advance of *Growing Medium* placement. Allow 7 days for soil testing by the laboratory for each sample. The sample shall be picked up by the *Soil Testing Laboratory* from the supply source. The *Growing Medium* sample shall be a composite of at least three (3) samplings for the proposed source and shall be at least one (1) litre in volume.

.3 Forward a copy of all test results directly to the *Contract Administrator* and the City for review. The analysis shall outline the testing laboratory's required amendments such as sand, organic matter, fertilizers and lime to achieve adequate growing conditions.

.4 The *Contractor* shall not deliver any *Growing Medium* to the site until the test results have been reviewed and approved by the *Contract Administrator* and the City.

.5 All submitted soil analysis must be dated and include supplier name and phone number, project location and submitted to *Contract Administrator* and the City for approval prior to commencing work. Soil analysis shall include measurements of:

.1 Percent sand, fines, silt and clay
.2 Organic matter to 100%
.3 pH, acidifying additive required to achieve noted herein
.4 Water soluble salts
.5 Total carbon to nitrogen ration
.6 Total nitrogen and available levels of phosphorus, potassium, calcium & magnesium

.6 At the discretion of the *Contract Administrator* and the City submit up to two (2) additional samples, at intervals outlined by the *Contract Administrator* and the City, of *Growing Medium* taken from material delivered to the site. Samples shall be taken form a minimum of three (3) random locations and mixed to create a single uniform sample of testing. Results of these tests shall be forwarded to the *Contract Administrator* and the City for review.

.7 The *Contractor* is responsible for soil analysis and requirements for amendments to supply *Growing Medium* as specified. Failure to satisfy these contractual requirements could result in the *Contractor* being required to remove unacceptable *Growing Medium* at their expense.

.8 Notify the *Contract Administrator* at least forty-eight (48) hours prior to Growing Medium placement for inspection.

.9 Refer to General Conditions, Clause 4.12 Tests and Inspections.

1.6 Product Handling Add 1.6

.1 All materials to be handled and adequately protected to prevent damage. Do not handle *Growing Medium* in an excessively wet, extremely dry, frozen condition or in any manner in which structure may be adversely affected. *Growing Medium* whose structure has been damaged by handling under these conditions shall be rejected and shall be replaced by the *Contractor* at their expense.

.2 Stockpile materials in bulk form in paved areas or in pre-approved areas of the site. Provide additional protection of storage under roof or tarpaulins.

.3 Take all precautions to prevent contamination of *Growing Medium* and amendments from windblown soil particles, weed seeds and from insects. Contamination of the *Growing Medium* and amendments may result in their rejection for use.

.4 Store fertilizer and chemical amendments in the manufacturer's original containers.

.5 All *Growing Medium* shall be delivered to site premixed from a recognized *Growing Medium* source ensuring consistency throughout the mix.

2.0 PRODUCTS Delete 2.0 and replace with the following

2.1 Materials

.1 *Growing Medium* Preparation

.1 Shall be prepared from Compost Material with Sand and other Soil Amendments as required to meet the specifications herein.

.2 Ensure commercial processing and mixing of *Growing Medium* components are done thoroughly by a mechanized screening process. Do not mix the components by hand. Ensure the resulting product is a homogeneous mixture having the required properties throughout free of stones 25 mm or larger in any dimension, woody plant parts, toxic materials, foreign object and other extraneous materials harmful to plant growth. Provide composted soil free from crabgrass, couch grass, equisetum, convolvulus, or other noxious weeds or seed or parts thereof.

.2 Inorganic Soil Amendments

.1 Sand: Imported pit sand or river pump sand, free of impurities, chemicals, horsetails, and other noxious weeds. The saturation extract electrical conductivity of salinity shall not be greater than 3.0 millimhos/cm at 25 degrees C.

Sieve Size (mm)	Percent passing (%)
4.75	95-100
0.50	0-40
0.050	0-5

.2 Fertilizers: Uniform in composition, free flowing and dry, granular, pill form, or pelleted commercial product with 50% of total nitrogen (if applicable) derived from natural organic material in a slowly available form delivered in unopened water proof containers with the manufacturer's guaranteed N-P-K analysis, type and trade name attached to each container. The planting soil test results will specify a formulation and application rate to achieve the levels of nitrogen, phosphorous and potassium required. Fertilizer to meet the requirements of the Canada Fertilizer Act.

.1 Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:

.1 Class: Class T, with a minimum 99 percent passing through No. 8 (2.36 mm) sieve and a minimum 75 percent passing through No. 60 (0.25 mm) sieve.

.2 Provide lime in form of dolomitic limestone.

.3 Perlite: Horticultural perlite, soil amendment grade.

.3 Organic Soil Amendments

.1 Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 25 mm sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

.1 Organic Matter Content: 50 to 60 percent of dry weight containing no cedar, redwood, wood or bark.
.2 Colour: dark brown to black in colour.

.2 Peat:
.1 Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.

.3 Wood Residual
.1 Content of wood residuals such as Fir or Hemlock sawdust present in the *Growing Medium* shall not cause the total carbon to total Nitrogen ration to exceed 40:1.
.2 Cedar or redwood sawdust shall not be present in *Growing Medium*.

.4 Manure
.1 Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth and free from salt or other harmful chemicals, such as any used to artificially hasten decomposition.
.2 All particles in manure to pass a 6.35 mmm sieve.
.3 Salt content shall give a reading of less than 0.5 millimhos/cm at 25 degrees C.

2.2 Nutrient Requirements

.1 Nutrient requirements shall meet the BCSLA/BCNTA Landscape Standard *Growing Medium* requirements for nitrogen, phosphorus, potassium, calcium, magnesium, boron, sodium cation exchange capacity, carbon to nitrogen ratio.
.1 Boron: not to exceed 1.0ppm
.2 Sodium: Sodium absorption ratio(SAR) not to exceed 8.0
.3 Total Nitrogen: to be 0.2-0.4% by weight
.4 Available Phosphorous: to be 50-100 ppm
.5 Available Potassium: to be 50-70 ppm
.6 Cation Exchange Capacity: to be 30 to 50 meq.
.7 Carbon to nitrogen ratio: Maximum 40:1.

2.3 Salinity

.1 The electrical conductivity of the liquid taken from the soil pH evaluation shall not exceed 3.0 millimhos/cm at 25 degrees C before additions of fertilizers and/or liming agents.

2.4 Drainage Rate

.1 Percolation shall be such that mixing, handling and placement to be done in such a manner that the minimum saturated hydraulic conductivity show on Table – *'Growing Medium Properties for Different Applications'* (found herein these specifications) is achieved and no standing water is visible 60 minutes after at least 10 minutes of moderate to heavy rain or irrigation.

2.5 Growing Medium Source

.1 Import planting medium or manufactured planting medium from off-site sources. Do not obtain from agricultural land, bogs or marshes.

.2 Supplier of Growing Medium shall be as per the Coquitlam Approved Products List.

2.6 Bark Mulch

.1 Mulch backfilled surfaces of planting beds and other areas indicated on drawings.

.1 Organic Mulch: Apply 50 mm average thickness of organic mulch, and finish level with adjacent *Finish Grades*. Do not place mulch against plant stems.

.2 Supplier of Bark Mulch shall be as per the Coquitlam Approved Products List.

.3 Dark brown in colour and free of all soil, stones, roots or other extraneous matter, and free of weeds, seeds and spores.

2.7 Growing Medium Properties for Different Applications

Properties	**Low Traffic Lawn Areas, Trees and Large Shrubs**	**High Traffic Lawn Areas**	**Planting Areas, Planters Shrubs & Groundcover**
Texture: Particle size classes by Canadian System of Soil Classification	Percent of Dry Weight Mineral Fraction (%)		
Gravel (greater than 2 mm less than 75 mm)	0-10	0	0
Sand (greater than 0.05 mm and less than 2 mm)	50-70	80-90	50-70
Silt (larger than 0.002 mm and less than 0.5 mm)	10-30	5-20	10-30
Clay (less than 0.002 mm)	7-20	2-5	7-20
Organic Content Percent of Dry Weight	5-10	3-5	25-30
Drainage Minimum saturated hydraulic conductivity (cm/hr) in place	2.0	7.0	2.0

Acidity (pH)	6.0-6.5	6.0-6.5	5.0-6.0

2.8 Miscellaneous Products

.1 Root Barrier: 400x610 mm linear root barrier, copolymer polypropylene, 50% recycled plastic, black in colour. Supplier of Root Barrier shall be as per the Coquitlam Approved Products List.

.2 Construction Adhesive shall be as per the Coquitlam Approved Products List.

.3 Drain Mat: Light duty, uv stable, impermeable cuspated core bonded to a layer of non-woven filter fabric with the following minimum properties:

.1 Compressive Strength -718 kN/m2 as per ASTM D-1621
.2 Flow Rate – 188 l/min/Metre as per ASTM D-4716
.3 Approximate profile thickness of 10 mm.
.4 Supplier of Drain Mat shall be as per the Coquitlam Approved Products List.

.4 Filter Fabric: Install root barriers in accordance with manufacturer's reviewed installation instructions where indicated on reviewed drawings with vertical root directing ribs facing inwards towards trees or plants; connect panels together as required.

1. Supplier of Filter Fabric shall be as per the Coquitlam Approved Products List.

.5 Drain Rock: Shall consist of clean round stone or crushed rock. Acceptable material includes 19 mm drain rock or torpedo gravel conforming to the following gradations.

Percent Passing		
Sieve Designation	Coarse	Fine (Torpedo gravel)
25 mm	100	
19 mm	0-100	
9.5 mm	0-5	100
4.75 mm	0	50-100
2.36 mm		10-35
1.18 mm		5-15
0.60 mm		0-8
0.30 mm		0-5
0.15 mm		0-2

2.9 Structural Soil

.1 Soil stabilizer shall be friable, containing a minimum of 4% and maximum of 6% organic matter by dry weight, free from stones and debris over 30 mm. Acidity (ph.) shall be in the range 5.5-7.5. Carbon to nitrogen ratio shall not exceed 40:1, and salinity shall not exceed 3.0 milliohms at 25 deg C. Gravel greater than 2 mm shall not exceed 10% of total weight.

.2 Supplier of Structural Soil shall be as per the Coquitlam Approved Products List.

.3 *Growing Medium* to be a gap-graded mixture.

.4 Texture of Growing Media — Percentage of mixture

Gravel: greater than 2 mm-less than 75 mm	0%
Sand: greater than 0.0 5mm-less than 2 mm	max 60%
Silt: greater than 0.002-less than 0.0 5mm	max 35%
Clay: less than 0.002mm	max 15%
Clay and silt combined	max 40%
Acidity (pH)	6.0-7.0
Drainage: minimum saturated hydraulic Conductivity (cm/hr) in place	3.0
Salinity: saturated extract conductivity shall not exceed at 25 deg C.	3.0 milliohms/cm
Organic content: percent of dry weight	8-12%

.5 Stone ballast: Clean inert stone of high angularity is preferred over washed gravel. Stone dimension aspect ratio should be 1:1:1 with a maximum 2:1:1 length: width: depth. Single size stone, 60 mm-75 mm clear sieve designation: Blasted Quarry Rock. Aggregate to be used for structural soil shall be free of any foreign elements or material.

.6 Structural Geotextile
Shall be installed as a structural filter layer directly above the compacted structural soil mixture. Do not install fabric until adequate compaction of the structural soil mixture has been confirmed. Filter fabric shall be selected and deigned to withstand wear and tear during construction without deterioration of its strength and filtering properties.

.1 Supplier of Geotextile shall be as per the Coquitlam Approved Products List.

.7 Ground dolomite limestone containing no less than 85% of its total weight as calcium carbonate and magnesium carbonate shall be used to control ph level. The degree of grind for the limestone shall allow 100% of the total weight to pass a #10 (2 mm) sieve, 90% to pass a #18 (1 mm) sieve and 20% to pass a #40 (0.105 mm) sieve. Spread-easy fertilizer shall be used as a slow release fertilizer source of calcium and magnesium.

.8 Mixing of structural soil:
Blend as per following ratios:

.1 5 metric tones (MT) of aggregate
.2 1 cubic meter of growing media
.3 2 kg soil stabilizer

.9 Moisten mixture with fine spray of clean potable water while mixing to activate soil stabilizer product. Do not over mix. Place mixture in 300 mm lifts through entire area of structural soil mixture. Compact each lift to 95% MPD prior to placement of next lift. Install filter fabric such to ensure a minimum of 60 cm overlap of all fabric seams and beyond edge of structural soil.

3.0 EXECUTION

3.2	**Preparation of Subgrade**	Delete 3.2.4 and replace with the following	Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials, soil contaminated with calcium chloride, toxic materials and petroleum products, and debris which protrudes more than 25 mm above the surface. Dispose of all removed material off site to approved offsite disposal area at no additional cost to the *Owner*.
		Delete 3.2.5 and replace with the following	Course cultivate entire area which is to receive *Growing Medium* to depth of 250mm. Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.
		Add 3.2.6	Grade transitions shall be smooth and even and shall blend into surrounding areas as determined by the *Contract Administrator* and the City.
		Add 3.2.7	Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
3.3	**Processing Growing Medium**	Add 3.3.4	*Growing Medium* shall be imported and stockpiled on site in a location approved by the *Contract Administrator* and the City. .1 Carry out stock piling operation such that the *Growing Medium* structure is not compromised through compaction, vibration or other actions. .2 Stock piled *Growing Medium* shall be protected from rain, drying and contaminants. .3 *Growing Medium* shall be free of subsoil, pests, roots, wood, construction debris, undesirable grasses including crabgrass or couch grass, noxious or weeds and weed seeds or parts thereof foreign objects and toxic materials. Presence of these contaminates shall be grounds for rejection of *Growing Medium* and replacement at no cost to the *Owner*.
3.4	**Placing Growing Medium**	Delete 3.4.2 and replace with the following	Place *Growing Medium* to the required finished grades with adequate moisture, in uniform lifts of 100 mm to 150 mm compacted to 80 MPD during dry weather, over dry, unfrozen *Sub Grade* where planting is indicated free of any standing water.
		Delete 3.4.5 and replace with the following	Minimum depths after settlement and 80% compaction: .1 Trees pits: 900 mm .2 Shrub beds: 450 mm .3 Ground cover areas: 300 mm .4 Lawn areas: 300 mm .5 Blvd. areas: 150 mm
		Add 3.4.6	Increase sand content to 90% in the planting soil below lawns where heavy wear by pedestrians or maintenance equipment is anticipated. Increase sand content in a 1.5m wide strip at the bottom of swales, banks or other wet areas and as directed by the Landscape Architect. On steep south or west facing banks, reduce sand content in lawns and planting beds to 50 - 60% for better moisture retention.
3.5	**Applying Fertilizers**	Delete 3.5 and replace with the following	.1 Addition of amendment components shall be at the rates indicated in the *Growing Medium* analysis recommendations via the following methods:

.1 Lime: Applied with mechanical spreaders over entire planting areas and contained planters.
  .1 Do not apply by hand.
  .2 Mix thoroughly into the top 100 mm of *Growing Medium*.
  .3 Do not allow lime to come into direct contact with nitrogen - phosphate - potash fertilizers.
.2 Fertilizer: Applied with mechanical spreaders over entire planting areas and contained planters. Do not apply by hand. Do not mix into *Growing Medium*.

3.6	**Finish Grading**	Delete 3.6.1 and replace with the following	Manually fine grade *Growing Medium* installation to contours and elevations shown on drawings or as directed by *Contract Administrator* and the City. Eliminate rough spots and low areas to ensure positive drainage.
		Add 3.6.3	*Finish Grade* of *Growing Medium* shall be 25 mm from finished elevation of adjacent curb or planter wall unless otherwise noted on drawings.
3.9	**Clean-up**	Delete 3.9 and add the following	.1 Ensure all paved areas, tops of planters, adjacent surfaces have been thoroughly cleaned. Ensure all discoloration of adjacent surfaces as a result of *Growing Medium* installation have been removed. .2 Dispose of materials not required and repair any damage to adjacent surfaces (as determined by the *Contract Administrator* and the City) off site at no additional cost to the *Owner*.
3.10	**Weed Control**	Add 3.10	.1 Ensure all weeds and weed roots that have germinated during the course of work of this section have been eliminated from Growing Medium. .2 Provide the City Representative and Consultant with a written outline of weed removal methodology seven (7) days prior to starting weed removal operations.
3.11	**Structural Soil**	Add 3.11	.1 Refer to 2.9 in this specification and as shown on the Contract Drawings.

END OF SECTION

1.0	**GENERAL**	Delete 1.0.1 and replace with the following	Section 32 93 01 refers to those portions of the Work that are unique to the sourcing, supplying, placing and maintaining the plant material indicated on the *Contract Drawing* and the Plant List(s). This section must be referenced to and interpreted simultaneously with all other sections pertinent to the Work described herein.
1.2	**References**	Delete 1.2.2 and replace with the following	Canadian Nursery & Landscape Association (CNLA) Standard for Nursery Stock (current edition).
		Add 1.2.4	The British Columbia Landscape & Nursery Association (BCLNA).
		Add 1.2.5	ANSI A-300 Tree Pruning Guidelines
1.3	**Source Quality Control**	Delete 1.3 and replace with the following	.1 Seven (7) days prior to the *Contract Administrator* and the City review of plant material at source the *Contractor* shall confirm in writing availability of plant material noted on plant list. .2 Plant material will be supplied from nurseries who are certified by the Clean Plants program, Canadian Nursery Certification Institute (CNCI), current certification standard http://cleanplants.ca/. The certification shall include but is not limited to the requirements of the current active module(s), e.g. P. Ramorum module. The certification must extend to all fields and allied nursery operations where plant material is sourced. Only nurseries, fields and allied nursery operations that are certified will be permitted to supply plant material for this project. .1 Prior to the review of plant material by the *Contract Administrator* and the City the *Contractor* shall submit written documentation with CNCI certification stamp stating that the nursery has undergone all components of a certification program and has been audited to verify that all components are properly implemented. .2 The documentation submitted shall include but is not limited to the nurseries CNCI Clean Plants certification number. .3 Plant Material Review at the source nursery. .1 *Contractor* shall request for review of the plant material at source nursery to be a minimum of seven (7) days prior to scheduled review. .2 Shipping of plant material to the *Place of Work* shall not proceed until *Contract Administrator* has reviewed the plant material at the source nursery. .3 *Contract Administrator* and the City shall make one (1) visit to source nursery for review of plant material for entire project. .4 All plant material, including substitutions shall be gathered at one location for review. .5 *Contractor* shall accompany *Contract Administrator* during plant material review at the source nursery. .4 Plant Material Review at the *Place of Work*

.1 All plant material shall be reviewed at the *Place of Work* by the *Contract Administrator* and the City prior to planting.
.2 Plant material that is rejected by the *Contract Administrator* shall be immediately removed from the *Place of Work* and replaced at the *Contractor`s* expense.

.5 Imported Plant Material
.1 Plant material imported from out of province and out of country shall be accompanied with necessary federal and provincial permits and import licenses.
.2 The *Contractor* shall conform to all federal and provincial laws and regulations with regard to horticultural inspection of domestic and imported plant material.

.6 Condition of Plant Material
.1 Plant rootballs and containers shall be completely free of noxious weeds and volunteer plants including Horsetail and Morning Glory.
.2 Plant materials grown or supplied in Fabric Containers are not acceptable.

.7 All materials and execution to conform to the latest edition of the BCNTA Guide Specifications for Nursery Stock and the BCNTA Guide Specifications for Landscape Construction.

1.4 Submittals and Scheduling

Delete 1.4 and replace with the following

.1 Submit inspection certificates as required by law for each shipment of plant material.
.2 *Contractor* shall provide in writing to the *Contract Administrator* and the City a minimum of seven (7) days prior to review of plant material at the source nursery a plant list confirming the quantity, botanical name, common name and size of plants specified.
.3 Substitutions
.1 *Contractor* shall provide in writing to the *Contract Administrator* and the City a minimum of seven (7) days prior to review of plant material at the source nursery a list of proposed substitutions for review.
.2 Plant substitutions shall be of similar genus and species and of equal or greater size as those originally specified. The list shall contain the following information:
.1 Botanical name, common name of the specified plant
.2 Botanical name, common name of the proposed substitute plant
.3 Pot size and plant size in the nursery
.4 Planting Schedule
.1 *Contractor* shall provide in writing to the *Contract Administrator* and the City upon award of the *Contract* a detailed Planting Schedule outlining dates and duration of planting operations.
.2 Revisions to the Planting Schedule as a result of delays of any kind shall be submitted to the *Contract Administrator* and the City in a timely manner prior to the start of planting operations.

.3 Schedule all planting to ensure optimum environmental protection, grading, growing medium placement, planting, seeding, or sodding operations as outlined in these Specifications. Organize scheduling to ensure a minimum duration of on-site storage of plant material, minimum movement and compaction of growing medium, and prompt mulching and watering operations. Coordinate Work schedule with schedule of other trades on-site.

.4 Coordinate and schedule plating such that no damage occurs to plant material before and after placement. In particular, meet requirements of living plant material.

.5 Product Data

.1 *Contractor* to submit a one (1) litre sample of Composted Mulch to the *Contract Administrator* and the City for review prior to delivery.

.2 *Contractor* to submit a one (1) litre sample of the Prepared Growing Medium to the *Contract Administrator* and the City for review prior to delivery.

.3 *Contractor* to submit three (3) copies of the anti-desiccant manufacturer product data and specification for *Contract Administrator* and the City review.

.4 *Contractor* to submit three (3) copies of the fertilizer manufacturer product data and specification for *Contract Administrator* and the City review.

.5 *Contractor* to submit three (3) copies of the Guying assembly including clamps, collar, guying wire, anchors and wire tighteners manufacturer product data and specifications for *Contract Administrator* and the City review.

1.5 Handling and Storage

Delete 1.5 and replace with the following

.1 Coordinate shipping of plant material and excavation of planting pits to ensure minimum time lapse between nursery digging and on site planting.

.2 Ensure branches of trees and shrubs are bound securely into a confined mass during handling and transport.

.3 Do not bind planting stock with rope or wire that would damage bark, break or damage branches or damage the natural shape of the plant.

.4 Protect plant material against abrasion, and exposure to extreme temperature change during transit.

.5 Cover plant foliage and branches with tarpaulin to prevent loss of moisture during transit.

.6 Fully support root ball of large trees during all lifting operations.

.7 Do not lift trees or shrub by the trunk or branches. Plant material to be moved by lifting the root ball or container.

.8 Remove broken and damaged roots with clean cuts using sharp pruning shears.

.9 Temporary Storage/ Heel-In of Plant Material onsite

.1 Temporarily store trees, shrubs and miscellaneous plant material that cannot be planted immediately by heeling-in. Acceptable heel-in material include approved growing medium or sawdust.
.2 Ensure temporary storage/heel-in area is shaded and protected from the wind.
.3 Provide sufficient water at regular intervals to ensure health of plant material in the temporary storage/heel-in area.
.4 Plant material that has not been properly maintained in the storage/heel-in area and illustrates signs of degradation or stress will be rejected by the *Contract Administrator* and the City. Rejected plant material shall be replaced by the *Contractor*.

1.9	**Measurement and Payment**	Delete 1.9.1 and replace with the following	.1	Payment for trees, hedges, shrubs, grass, and ground cover will be made for each specified species as shown on the Contract Drawings and as specified in the Schedule of Quantities and Prices. The unit price includes all preparatory work, supply and planting of the trees, hedges, shrubs, grass, soil and as shown on Contract Drawings, and other incidentals specified under this Section including watering and maintenance to meet Conditions of Total Performance.
1.11	**Substitutions**	Add 1.11	.1	If it is impossible to obtain the particular plant material listed on the Landscape Drawing, the *Contractor* may be permitted to suggest substitutions with types and variations possessing the same characteristics. The *Contractor* must request any substitutions of trees in writing at least one (1) month and shrubs and groundcover at least one (1) month prior to planting. Substitutions must be approved by the *Contract Administrator* and the City.
1.12	**Plant Material Supply and Search Area**	Add 1.12	.1	Before substitutions of plant material are proposed, documented proof that materials are not available through search on the west coast of Canada and United States must be provided. Area of supply shall include, but not be limited to, all of Western North America.
1.13	**Plant Material Identification**	Add 1.13	.1	Plant materials that has been located by the *Contract Administrator* and the City and tagged for the project is to have the identification tags removed only after inspection and instruction by the *Contract Administrator* and the City after delivery to the *Place of Work*.
1.14	**Plant Material Replacement**	Add 1.14	1.	The *Contractor* shall remove from the *Place of Work* and immediately replace any plant material that has been determined by the *Contract Administrator* and the City to have died or failed to grow in a satisfactory manner during the guarantee or maintenance period.
			.2	The *Contractor* shall extend the guarantee on this replacement plant material for one (1) year from the date of replacement.
			.3	The *Contractor* shall continue such replacement and guarantee of plant material until the *Contract Administrator*

and the City has determined that the *Conditions for Total Performance* have been met.

.4 All required replacements shall be plants of the same size and species as specified on the plant list and shall be supplied and planted in accordance with the drawings, specifications and change orders thereto.

.5 The cost of replacements resulting from theft, accidental damage, vandalism, carelessness, neglect on the part of others, shall be borne by the *Contractor* until the date of *Substantial Performance*.

2.0 PRODUCTS

2.1 Plant Material Delete 2.1 and replace with the following

.1 Plant Material Size
- .1 Overall plant spread to be measured when branches are in their natural position.
- .2 Height and spread dimensions refer to main body of plant and not from branch tip to branch tip.

.2 Grade of plant material to be No. 1 grade or better.

.3 Plant material obtained from areas with milder climatic conditions from those of the *Place of Work* is acceptable provided:
- .1 Plant material is moved to the *Place of Work* prior to the breaking of buds at their original climatic zone.
- .2 Plant material is heeled-in at a protected area until the climatic conditions are suitable for planting.

.4 Plant materials shall have structurally sound, strong fibrous root system free of disease, insects, defects or injuries. All plants, typical of their species or variety, have a normal habit of growth and shall be first quality, sound, healthy, vigorous, well branched, and densely foliated, free of disease, insect pests, eggs or larvae.

.5 Root Pruning at Source Nursery
- .1 Plant material shall have been root pruned on a regular basis at the source nursery.
- .2 Plant material shall be root pruned at least one growing season prior to delivery.
- .3 Large trees shall be half root pruned during each of two successive growing seasons. The second root pruning shall have carried out a minimum of one growing season prior to delivery.

.6 Shade, Ornamental and Evergreen Trees:
- .1 Trees shall have straight trunks and a well-formed branch system which is characteristic of the species
- .2 Trees shall exhibit clear signs of vigorous growth.
- .3 Trees shall have good twig extension growth, branch spacing and trunk taper.
- .4 Tree foliage shall be evenly distributed on upper 2/3 of the tree.
- .5 Trees shall not have upright branches other than leaders.

.6 Trees shall have spreading branches with a single trunk and a single leader and, unless otherwise noted on plans or plant list.
.7 Tree trunks and branches shall not have any mechanical damage.
.8 Trees shall be in good health with no presence of insects or disease.
.9 Trees shall not have been 'headed back'.
.10 Tree root balls shall be solid, kept moist at all times and/or protected from drying.
.11 Trees shall not exhibit symptoms of root circling or girdling.

.7 Container Grown Plant Material:
.1 Root ball to container relationship shall be of sufficient ratio to ensure room for healthy, vigorous root development.
.2 Plant material shall have been container grown for a minimum of one (1) growing season but not longer than two (2) growing seasons.
.3 The plant root systems that do not have the ability to "hold" growing medium when removed from the container will be rejected.
.4 Root bound plant material will be rejected.

.8 Balled and Burlapped Plant Material:
.1 Coniferous and broadleafed evergreens over 2.4-meter-tall shall be dug with firm soil root ball.
.2 Deciduous trees in excess of 3.0-meter height shall be dug with firm soil root ball.
.3 Root ball diameter shall be a minimum of 230 mm (for each 25 mm caliper size.
.4 Secure root-balls with burlap, heavy twine and rope.
.5 Large tree root balls shall be double layer burlap wrapped. Burlap to be secured with drum laces made up of 10 mm (minimum) diameter rope.

.9 Tree Spade Dug Plant Material
.1 Plant material shall be dug with mechanized hydraulic spade or clamshell type digging equipment.
.2 Root ball diameter shall be a minimum of 230 mm for each 25 mm caliper size.
.3 Wire basket shall be lined with burlap. Root ball shall be laced and tied to wire basket with heavy rope.
.4 Ensure trunk of tree is not damaged by wire basket, ties or rope.

2.2	**Water**	Delete 2.2.1 and replace with the following	Potable and free of minerals and impurities which are detrimental to plant growth.
2.3	**Fertilizer**	Add 2.3.2	Fertilizer shall be prolonged-release fertilizer tablets containing a minimum of 20% nitrogen, 10% phosphoric acid, and 5% potash (20-10-5) as per Approved Products List. Store in weatherproof storage space.

2.4	**Mulch**	Delete 2.4.1 and replace with the following	Composed mulch shall be 9 mm black/brown in colour with no cedar or redwood bark or wood material as per Approved Products List.
2.11	**Anti-Desiccant**	Delete 2.11.1 and replace with the following	Anti-Desiccant shall be wax-like emulsion, as per Approved Products List, that will provide a transpiration reducing film over the plant surface.
2.12	**Flagging Tape**	Delete 2.12.1 and replace with the following	Flagging tape shall be 30mm wide 'Red' PVC flagging tape as per Approved Products List.
3.0	**EXECUTION**		
3.1	**Pre-Planting Operations**	Delete 3.1 and replace with the following	.1 Place stakes on site to identify location trees, shrubs and plant beds in accordance to the Landscape Plans. .2 *Contract Administrator* and the City to review all tree locations and plant bed layout prior to start of plant bed preparation and planting operation. .3 Anti-desiccants shall be applied only as directed by the *Contract Administrator* and the City. Application of anti-desiccant shall be in accordance with manufacturer's instructions. .4 Coordinate planting operations with other trades and project schedule. .5 All planting operations shall be done in a timely manner in accordance to the Planting Schedule. .6 Planting Schedule shall be updated as required by the *Contractor* to coincide with status of site and coordination with other trades. Provide the *Contract Administrator* and the City with updates to the schedule as required throughout the planting process.
3.2	**Subgrade Preparation**	Delete 3.2 and replace with the following	.1 The *Contractor* is responsible for confirming the location and extent of existing utilities prior to the start of all planting operations. All attempts should be made to ensure that utility services are maintained to all on and off site parties throughout the entire planting operation. 2. Tree Pits .1 Tree Pit Depth 900 mm minimum. .2 Width of tree pit shall be a minimum of 450 mm to 600 mm greater than diameter of the root ball. .3 Prior to the placement of growing medium scarify the sides and bottom of tree pits created with a tree spade to eliminate glazed surface. .3 Ensure tree pits dug in heavy or compacted soils exhibit the ability to drain freely by filling each tree pit with a minimum of 20 litres of water. Water should freely drain through subsoil within ten (10) minutes. .1 Notify *Contract Administrator* and the City if tree pits in any soil condition do not drain freely or if tree pit fills with ground water.

.2 There shall be no standing water in the bottom of tree pit at time of planting.

.4 Protect bottom of tree pit(s) against freezing.

.5 Ensure tree pits and plant beds are kept well drained and free of contaminants and construction debris.

.6 Planting Areas shall be excavated to the following depths:

.1 Shrub beds, perennials, ornamental grasses shall be 450 mm.
.2 Ground covers and annual flowers shall be 300 mm.
.3 Trees shall be 900 mm.

3.3 Planting

Delete 3.3 and replace with the following

.1 Planting operations shall be carried out under conditions that are conducive to healthy, vigorous growth of plant material.

.2 Plant material shall be planted vertical, straight and plumb at locations staked in field and or noted on landscape plans.

.3 Ensure orientation of plant material will give best appearance in relation to views from adjacent buildings, roads, walks or use areas.

.4 Ensure planting depth of root ball is equal to the depth of root ball originally established in the nursery. The top of root ball shall be level with adjacent growing medium.

.5 Ball and Burlap Plant Material: After plant has been lowered into plant bed or tree pit cut away all root ball ties from around trunk. Loosen burlap from around trunk and cut away minimum top 1/3 without disturbing root ball.

.6 Container Grown Plant Material: Remove entire container (including biodegradable containers) without disturbing root ball. Score root ball vertically at six (6) locations evenly spaced around entire root ball to minimize girdling of roots.

.7 Tree Spade Dug Root Balls: Cut wire basket around entire perimeter of root ball. Bend down top 2/3 of wire basket without disturbing root ball. Cut away all root ball ties from around trunk. Loosen burlap from around trunk and cut away minimum top 1/3 without disturbing root ball.

.8 Backfill planting areas in 150 mm lifts to 2/3 of the depth tamping each lift of growing medium around root system to eliminate air voids. Do not use frozen or saturated growing medium for backfill operation.

.9 Prior to placing remaining growing medium, thoroughly water planting areas, fill tree pits with water. Complete backfill operation only after water has completely penetrated into growing medium.

.10 Build 100 mm high by 150 mm wide (4” high by 6” wide) saucer around outer edge of tree pit to assist with maintenance watering.

.11 Tree Stabilization

.1 Guy or stake trees as directed by *Contract Administrator* and the City.
.2 Ensure guy pins and stakes are not placed through the root ball.
.3 Trees that have had root balls penetrated by guy pins and stakes will be rejected.
.4 Tie one (1) to two (2) flagging tape flags to all guy wires at a height that is clearly visible.

.12 Place tree trunk protection around base of tree trunk as per manufacturer instructions.
.1 Trees 100mm caliper or less shall have one protector. Do not interlock ends of tree protector.
.2 Trees greater than 100mm caliper shall have a minimum of two interlocked protectors. Do not interlock outside ends.

.13 Fertilize as per recommendations based on soil testing and place planting tablets at the following rates in prepared planting holes. Spread the tablets in each hole before planting.

	Plant/Container Size	Table Size	Tablets per Plant
.1	Trees	21g	1 per every 1.25mm of trunk caliper
.2	#15/ 45 cm tub	21g	3
.3	#7/ 35 cm tub	21g	3
.4	#5/ 30 cm pot	21g	2
.5	#3/ 27 cm pot	21g	2
.6	#2/ 21 cm pot	21g	1
.7	#1/ 15 cm pot	21g	1

3.8 Clean-up — Delete 3.8 and replace with the following

.1 Growing medium spilled onto pavement and growing medium stains on pavement or adjacent hard surfaces shall be cleaned up immediately.

.2 Remove from the site all pots, cans, surplus materials, and other debris resulting from planting operations.

.3 Ensure complete removal of planting tags, labels, strings, or other materials prior to substantial completion.

.4 Neatly dress and finish all planting areas and flush all walks and paved areas clean to the satisfaction of the Consultant and *Owner*.

3.9 Maintenance — Delete 3.9 and replace with the following

.1 Maintenance of plants shall begin immediately after planting operation and shall continue in an uninterrupted fashion until all deficiencies noted in the *Substantial Performance* review have been rectified and the *Contract Administrator* and the City has provided to the *Contractor* written confirmation of the date of *Total Performance*.

.2 If for any reason the *Contractor* elects, on their own without the written consent of the *Contract Administrator* and the City to suspend maintenance operations, the *Contractor* shall provide the *Contract Administrator* and the City written notice of such action. Any damages or requirement for the

replacement of plant material that as a result of the suspension of maintenance operations shall be the borne by the *Contractor* at no cost to the *Owner*.

.3 Maintenance of plant material includes but is not limited to watering at intervals sufficient to maintain healthy, vigorous growth, weeding of plant beds and tree pits, cultivating of growing medium, pruning, treatment of insects, molds, fungi or disease to the Level 2 "Groomed' as per the BCNLA Landscape Standard, Current Edition or as directed by consultant.

.4 Plant material shall be deep watered at least once per day when temperatures exceed 25 degrees Celsius.

.5 Water sufficiently to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion.

.6 Supply equipment such as pumps, portable sprinklers systems, tank trucks, hose and sprinklers required for watering operations. Water trucks, if used for watering operations, must service the site from adjacent roads until irrigation system is operational.

.7 *Contractor* to ensure adequate moisture in plant root zone prior to winter freeze-up.

.8 Reset all plants that have settled to plant depths approved by the *Contract Administrator* and the City prior to the placement of composted mulch.

.9 Ensure tree guards, stakes, flagging tape on tree guy wire and tree ties are kept secure, taught and in proper repair.

3.10 Conditions for Total Performance

Delete 3.10 and and replace with the following

.1 Conditions for *Total Performance*:

- .1 *Substantial Performance* shall have been granted by the *Contract Administrator* and the City and, Final Inspection at the end of the guarantee/warranty period.
- .2 All plant material is healthy; exhibiting signs of vigorous growth and meets the requirements of this specification.
- .3 Plant material installed less than ninety (90) days prior to frost will be accepted in following spring, thirty (30) days after start of growing season provided that final acceptance conditions are fulfilled.
- .4 Unless otherwise indicated in the *Contract Drawing* the original shape and form of the plant as reviewed by the *Contract Administrator* and the City has been maintained, leaders are in tact, there are no wounds or abrasions on trunks or branches.
- .5 Mulch has been maintained to specified depths.
- .6 All planting areas continue to be free draining with no signs of standing water.
- .7 All plant beds are completely free of weeds and noxious grasses.

.2 The *Contractor* shall continue to maintain the work of this section until the *Contract Administrator* and the City provides written confirmation that *Total Performance* conditions have been met.

END OF SECTION

1.0	**GENERAL**		
1.2	**References**	Delete 1.2.2.1 and replace with the following	National Association of Sewer Service Companies' (NASSCO's) Pipeline Assessment and Certification Program, version 6.x including addendums, or latest version.
1.3	**Submission of Certification**	Delete 1.3.1 and replace with the following	Submit copy of the CCTV operator's current NAASCO certification certificate to the *Contract Administrator* at least one week prior to the start of the CCTV inspection operations.
1.6	**Measurement of Payment**	Delete 1.6 and replace with the following	Payment for all work performed under this Section will be incidental to work described in other sections unless shown otherwise in the Schedule of Quantities and Prices.
2.0	**PRODUCTS**		
2.1	**Equipment**	Delete 2.1.4 and replace with the following	The individual digital video playback files to be of MPEG file format.
		Add 2.1.5	The digital data file delivered to the City to be in PACP standard database file format version 6.x or latest.
3.0	**EXECUTION**		
3.1	**CCTV Inspection**	Add 1.5.3	CCTV surveys on new gravity sewers are to be scheduled and performed prior to upstream tie-ins so that the invert of the new pipe may be observed.
		Delete 3.1.1 and replace with the following	CCTV operator to be certified by NASSCO (PACP/MACP/LACP).
		Delete 3.1.2 and replace with the following	NASSCO certified software must be used to produce inspection report and the data will be submitted in the PACP standardized database format. The review of this statement will be part of the evaluation of the tender. Submission to satisfy all of the specifications and report submissions per NASSCO's PACP (MACP/LACP) will be used as a benchmark for subsequent inspection report submission.
		Delete 3.1.11 and replace with the following	Note condition of pipe joints at manhole walls at the beginning and end of each pipeline; At the beginning of each pipeline or where surface wear of the pipe changes, pan to the invert and any direction as needed to report and record surface wear condition of the pipe using PACP (MACP/LACP) codes; Fill under remarks the observations if no surface wear observed due to good condition of pipe or unable to determine stating reason.
		Delete 3.1.14 and replace with the following	Stop camera at each defect, change of condition of pipe and service connection to record defect in accordance with PACP (MACP/LACP) codes.
		Delete 3.1.15 and replace with the following	Add PACP (MAC/LACP) code overlay to digital video at defects or connections in addition to continuously displayed data.
		Add 3.1.19	The inspection measurement and reporting units must be in metric system.

3.3	**Site Coding Sheets**	Delete 3.3.1 and replace with the following	Each pipeline length to be recorded according to the PACP. Any variation from the manual to be noted in the survey report.
		Delete 3.3.2 and replace with the following	Use standard coding form and standards of PACP:
		Delete 3.3.2.1	
		Delete 3.3.2.2	
		Delete 3.3.2.3 and replace with the following	Note observations as to condition of service connections beyond mainline in remarks column using standards codes as per PACP.
3.7	**Photographs and /or Digital Images**	Delete 3.7.1 and replace with the following	Photograph all major defects as defined by condition codes in PACP: B, CC, CL, CM, TFD, TBD, TSD, TRD, D, FC, FL, FM, H, IR, IG, JO, OB, JS, RM, RB, RT, and X.
		Delete 3.7.2.5 and replace with the following	PACP/MACP/LACP Condition Defect Code.
3.8	**Inspection Reporting Hard Copies & Digital Format**	Delete 3.8.2 and replace with the following	Present machine printed (hardcopy) and computer generated data base reports according to the PACP format.
		Delete 3.8.2.2 and replace with the following	Hardcopy reports to be presented in PACP standard format.
3.10	**Root cutting & Removal**	Delete 3.10.1 and replace with the following	Remove roots for condition codes RT, RM, and RB.
3.11	**Flow Reduction**	Delete 3.11.1 and replace with the following	Reduce flow in pipeline to approximately ¼ pipe diameter to allow CCTV inspectionby combination of following:
		Delete 3.11.3.1 and replace with the following	Plug designed to either plug all flow or impeded flow to the approximate ¼ pipe diameter
3.12	**Coding Accuracy**	Delete 3.12.1.2 and replace with the following	Detail accuracy 90%.
		Delete 3.12.4 and replace with the following	An operator failing to meet the accuracy requirements on two occasions will not be permitted to code on the remainder of the project until they have successfully re-attended an Operator's Certification course, re-write and pass the NASSCO Pipeline Assessment Certification Program.

END OF SECTION

1.0 GENERAL

1.6	**Measurement and Payment**	Delete 1.6.1 and replace	Payment for sanitary sewer will be made at the unit price bid for sanitary sewer (regardless of depth) consistent with pipe materials, diameters and backfill requirements shown on the Contract Drawings and described under individual payment items in the Schedule of Quantities.
		Delete 1.6.2 and replace with	Payment for sanitary sewers includes asphalt & concrete saw cutting, removal and disposal of surface material including pavement, concrete, topsoil & sod, trench excavation, shoring, offsite disposal of native excavated material and surplus/displaced excavated material, removal and disposal of existing manholes and pipes regardless of material, dewatering, supply and installation of all pipe, encasements, RACI spacers, fittings and related materials, tie-ins other than noted in Clause 1.6.7, bedding and all import backfill material including Controlled Density Fill under third-party utility crossings, supply, placement and compaction of granular base & sub-base, cleaning and flushing, testing (if applicable), all surface restoration including all asphalt pavement, concrete, topsoil & sod or seed, under Section 31 23 01 – Sub-section 3.6, temporary utility pole and streetlight supports, and all other work and materials necessary to complete installation as shown on Contract Drawings and specified under this Section. Payment includes by-pass pumping and includes all pumps, labour and materials required to facilitate the work without any service disruption to property owners. Payment includes protecting the existing pavement outside of the utility trench. Repair and replacement of damaged asphalt outside of the utility trench will be at the *Contractor*'s cost as determined by the *Contract Administrator* unless otherwise specified. Native excavated material approved for re-use as trench backfill shall be at the sole discretion of the *Contract Administrator*. All cobbles greater than 150 mm diameter removed and disposed off-site and shall be granular in nature and free from organic materials. Native excavated material shall not be used as trench backfill where moisture content does not permit compaction to specified density. Where native excavated material is unacceptable for use as trench backfill, imported trench backfill shall be supplied, placed, and compacted to specified density. Measurement for sanitary main will be made horizontally along the ground from manhole centreline to manhole centreline after the work has been completed.

Delete 1.6.3 and replace with	Payment for new service connections includes 100mm or 150mm SDR28 PVC pipe unless otherwise specified, shear band couplers, bends, increaser, pvc wye, stubs, caps, sanded stubs, stakes, manhole preparation for connection, Le-Ron inspection chamber c/w locking collar and red lid or Brooks 37 pull boxes c/w concrete bricks and all related fittings and components specified and/or shown on Standard Detail Drawings. Payment includes all applicable service pipes, materials and work described in 1.6.2. Brooks Boxes with a steel lid marked "Sanitary" are to be provided for inspection chambers located in driveways as necessary. Restore all trench cuts across roadways/driveways with a temporary hard surface approved by the *Contract Administrator* following pipe excavation if paving is not scheduled to take place within 24 hours. Refer to Section 32 12 16S for pavement restoration requirements for each road. Payment will be made per the unit price bid for each sanitary service connection.
Add 1.6.3.1	Payment for sanitary service tie in's shall be for each completed service, covering all work and materials as required to complete the transfer to the new main. Payment includes all applicable fittings, materials and work described in 1.6.2
Delete and replace with 1.6.7	Payment for tie-ins to existing sanitary sewer systems includes all work and components but excludes necessary manhole. Payment includes manhole preparation, benching or rebenching as required, coring, sealing, plugging and all applicable works, labour, couplers, material and equipment as described in Clause 1.6.2 to complete the tie-in.
Add 1.6.8	Payment for capping and abandoning the existing sanitary main includes flushing, cutting, and capping both ends of the existing main with concrete or PVC caps, removal and proper offsite disposal of cut sections, surface restoration and all labour, equipment and material to complete the work as shown on Contract Drawings and all applicable works as described in 1.6.2.
Add 1.6.9	Payment for the installation of helical pile pipe supports includes all applicable works, labour, material and equipment required to install the pipe supports as shown on the Contract Drawings. Payment includes coordination with all structural and geotechnical inspectors during pile installation.
Add 1.6.10	Payment for the installation of pile caps includes all applicable works, labour, material and equipment required to install the pile caps as shown on the Contract Drawings. Payment includes coordination with all structural and geotechnical inspectors during pile installation.

2.0 PRODUCTS

2.5	**Granular Pipe Bedding and Surround Material**	Add 2.5.3	Pipe bedding shall be 19 mm clear crushed rock or as approved by the *Contract Administrator*. Surround material above the springline within the pipe zone may be Type 2.
3.0	**EXECUTION**		
3.8	**Connections to Existing Mainline Pipes**	Delete 3.8.1 and replace with	Connections with two sizes smaller or less to existing mainlines shall be made by removal of the section of the main and replacement with a manufactured PVC wye complete with stubs and double hub PVC couplings for PVC mains and approved shear band couplings for other mainline materials. The *Contractor* shall video inspect all connections to existing mains following completion of installation.

END OF SECTION

1.6	**Measurement and Payment**	Delete 1.6.1 and replace with the following	Payment for storm sewer will be made at the unit price bid for storm sewer (regardless of depth) consistent with pipe materials, diameters and backfill requirements shown on the Contract Drawings and described under individual payment items in the Schedule of Quantities.
		Delete 1.6.2 and replace with the following	Payment for storm sewers includes asphalt & concrete saw cutting, removal and disposal of surface material including pavement, concrete, topsoil and grass, trench excavation, shoring, offsite disposal of native excavated material and surplus/displaced excavated material, removal and disposal of existing pipes regardless of material, dewatering, supply and installation of all pipe, fittings and related materials, tie-ins other than noted in Clause 1.6.7, bedding and all import backfill material including Controlled Density Fill under third-party utility crossings, supply, placement and compaction of granular base & sub-base, cleaning and flushing, testing (if applicable), all surface restoration under Section 31 23 01 – Sub-section 3.6, concrete slabs, grass restoration using seed, temporary utility pole and streetlight supports, and all other work and materials necessary to complete installation as shown on Contract Drawings and specified under this Section. Payment includes by-pass pumping and includes all pumps, labour and materials required to facilitate the work. Payment includes protecting the existing pavement outside of the utility trench. Repair and replacement of damaged asphalt outside of the utility trench will be at the *Contractor*'s cost as determined by the *Contract Administrator* unless otherwise specified. Native excavated material approved for re-use as trench backfill shall be at the sole discretion of the *Contract Administrator*. All cobbles greater than 150 mm diameter removed and disposed off-site and shall be granular in nature and free from organic materials. Native excavated material shall not be used as trench backfill where moisture content does not permit compaction to specified density. Where native excavated material is unacceptable for use as trench backfill, imported trench backfill shall be supplied, placed, and compacted to specified density. Measurement for storm sewer will be made horizontally from manhole centerline to manhole centerline over surface work has been completed.
		Delete 1.6.5 and replace with the following	Payment for catchbasin or lawn basin leads include all applicable materials and work described in 1.6.2 Measurement for catchbasin leads or lawn basin leads will be made horizontally from mainline pipe to centreline of catchbasin or lawn basin for each pipe size installed with no regards to depth range.

2.0	**PRODUCTS**		
2.2	**PVC Pipe, Mainline Smooth Wall**	Delete 2.2.1 pipe size ranges and replace with the following	200 mm dia. – 375 mm dia. to ASTM D3034 450 mm dia. – 1,200 mm dia. to ASTM F679
2.3	**PVC Pipe, Mainline Profile**	Delete 2.3	
2.6	**Service Connections**	Delete 2.6.1 and replace with the following	Storm service connections to be PVC DR 28 150 mm diameter minimum or as specified on *Contract Drawings*.
		Delete 2.6.8.1	
		Delete 2.6.8.2 and replace with the following	Connections to PVC pipe to be made with a performed wye fitting where mainline pipe is 300 mm diameter or smaller. For connections to PVC mainline pipe larger than 300 mm diameter an insertable tee for PVC pipe is permitted.
		Add 2.6.8.3	Insertable tee fitting shall have a rubber collar which inserts into the mainline pipe to form a tight seal and shall have stainless steel band to secure the tee insert. The tee insert shall be a standard bell end with depth control lugs. The joint shall provide a minimum seal of 90 kPa on concrete and polyethylene pipe, and 190 kPa on PVC pipe.
2.9	**Granular Pipe Bedding and Surround Material**	Delete 2.9.3	Pipe bedding shall be 19 mm clear crushed rock or as approved by the *Contract Administrator* and the City.
3.0	**EXECUTION**		
3.8	**Connections to Existing Mainline Pipe**	Delete 3.8.3 and replace with the following	For new connections to existing, smooth wall or profile, mainline sewers 300 mm and smaller, shall be made by removal of the section of the main and replacement with a preformed PVC wye fitting complete with stubs and double hub PVC couplings for PVC mains and approved shear band couplings for other mainline materials. For new connections to existing mainline greater than 300 mm, use of insertable tee will be permitted.
3.10	**Service Connection Installation**	Delete 3.10.3 replace with the following	Inspection chambers shall be provided on all storm service connections as per Standard Detail Drawing S7. If inspection chamber is located in driveway, lane, or paved surface, Series 37 Brooks concrete box with lid shall be installed as per Standard Detail Drawing S9.
3.12	**Inspection and Testing**		The *Contractor* shall video inspect completed storm sewers under 900 mm in diameter and all service connections following completion of the installation. The video inspection report shall be in a form specified by the *Contract Administrator* and the City. Copies of the video DVD and written report shall be forwarded to the *Contract Administrator* and the City. Refer

to Section 33 01 30.1 and 33 01 30.1S CCTV Inspection of Pipelines.

3.16 Permanent Capping of Service Connections

Add 3.16.1

Permanent capping of existing storm sewer connections to be completed as per Coquitlam Standard Detail Drawing COQ-S18.

Add 3.16.2

A trenchless method of permanently capping a service may be required on an arterial road or on a road which has been paved within 5 years, as directed by the Manager.

The trenchless technology used to cap the service must be approved by the Manager.

END OF SECTION

1.0 GENERAL

1.1	**Related Work**	Add 1.1.6	Hot Mix Asphalt Concrete Pavement	Section 32 12 16
		Add 1.1.7	Portland Cement Concrete Paving	Section 32 13 13
1.5	**Measurement and Payment**	Delete 1.5.1.1 and replace with the following	Payment for all manholes will be on a unit rate basis per manhole, for the varying diameters/sizes, and includes excavation, supply & placement of imported backfill, dewatering, granular subbase and base supply, preparation and compaction, manhole base, benching, lid, slab, vertical risers, frame & lid, cover, setting frame & lid to the finished grade except riser for circular manholes in accordance with the Contract Drawings, all surface restoration under Section 31 23 01 – Sub-section 3.6, temporary utility pole and streetlight supports, and all other work and materials necessary to complete installation as shown on Contract Drawings and specified under this Section.	
		Delete 1.5.2 and replace with the following	Cleanout, catchbasin and lawn basin Installation will be defined as supplying and installing a new catch basin or lawn basin for each type specified and setting to the finished grade. Payment includes excavation, disposal of surplus excavated material, supply of all units, cast-in-place concrete, pipes, fittings all surface restoration under Section 31 23 01 – Sub-section 3.6 including permanent pavement restoration, and related materials together with all labour, materials and equipment required. Payment includes all applicable materials and work described in MMCD S6..	
		Delete 1.5.4 and replace with the following	.1 Payment for the abandoning of existing manholes includes excavation, removal of frames, covers, castings and manhole sections a minimum of 1.2m below grade, disposal off site of all components and unsuitable material, plugging the existing main with concrete filled sand bags at the manhole, import backfill, compaction, all surface restoration under Section 31 23 01 – Sub-section 3.6, and all necessary work as shown on Contract Drawing and as specified in the Schedule of Quantities and Prices. .2 Payment for plugging the existing inlet includes excavation, labour, equipment and materials to complete the work as shown on the Contract Drawings and all applicable work as described in 1.5.1.1.	
		Add 1.5.7	Payment for overbuild manhole includes removal of existing manhole, all labour, equipment and material to complete the work as shown on Contract Drawings and all applicable works as described in 1.5.1.1.	

2.0 PRODUCTS

2.1	**Materials**	Add 2.1.7.3	Any frame and cover assembly creating a point load on the concrete riser rings will not be permitted.	

		Delete 2.1.12 and replace with the following	Catchbasin lids manufactured to ASTM C478M.
		Delete 2.1.16.2	
		Delete 2.1.17	
3.0	**EXECUTION**		
3.1	**Excavation and Backfill**	Add 3.1.2	For manholes, when base gravels are complete, excavate for grade rings and manhole frame assembly. Do not disturb the compacted road base beyond the excavation requirement.
3.3	**Manhole Installation**	Delete 3.3.12.2 and replace with the following	Allowable products are precast concrete risers and cast-in-place form system. Individual riser heights shall be 50mm, 75mm, or 100mm.
		Delete 3.3.12.5 and replace with the following	Proper layer of grout between the spacers, covering the entire surface of the rings, should be utilized.
		Delete 3.3.15 and replace with the following	Install drop structures as shown on the Contract Drawings to Coquitlam Standard Detail Drawing COQ-S4 and Standard Detail Drawing S3. Maximum allowable inside ramp shall be 250 mm invert to invert.
		Delete 3.3.17 and replace with the following	Ensure frames conform to design contour of pavement or existing surface. Manhole lids left raised in preparation for overlay paving shall have a rubberized protector ring or asphalt ramp. The use of riser rings for adjusting manhole frames will not be permitted.
3.5	**Catchbasin Installation**	Delete 3.5.1 and replace with the following	Install catch basins as shown on Coquitlam Standard Detail Drawings COQ-S11A, COQ-S11B and Standard Detail Drawing S11, to general standards and installation procedures described under 3.3 of this Section.

END OF SECTION

Appendix A -
Traffic Management Detail Specifications

1.0 GENERAL

.1 This Traffic Management detail specification refers to the Contractor's specific plans to identify project traffic risks affecting the *Work*, provide Traffic Control Plans, and to implement the traffic control for the safe passage of vehicles and pedestrian through the work zone.

1.1 Related Works

.1 Traffic Control, Vehicle Access and Parking MMCD Section 01 55 00S.

1.2 References

.1 WorkSafe BC, Occupational Health and Safety (OHS) Regulation, Section 18 – Traffic Control.

.2 B.C. Ministry of Transportation and Infrastructure (MOTI) Traffic Management Manual for Work on Roadways.

1.3 Project Requirements

.1 A Road and Sidewalk Closure Permit is required by Coquitlam for all work affecting traffic flow related to construction. A permit is required for each specific construction interference with traffic flow. The Road and Sidewalk Closure Permit Request form is attached as **Appendix 1** to this document. A digital copy of the Road and Sidewalk Closure Permit form can be obtained for use during the contract from the City's website at Road & Sidewalk Closure Permit Application

A Road and Sidewalk Closure Permit form application must be submitted to City's Traffic Operation Division 10 working days prior to start of work.

1.4 Measurement and Payment

.1 For this Contract, all work associated with Traffic Management Plan (TMP) and Traffic Control will be as shown in the Schedule of Quantities and Prices.

2.0 PRODUCTS

2.1 Traffic Management Plan (TMP)

.1 The Contractor is required to assign a Traffic Manager for the Contract with the responsibility of preparing the Traffic Management Plan and the Traffic Control Plans, as well as the responsibility for continuing implementation of traffic control for the Work.

.2 The Traffic Management Plan (TMP) will consist of the following components:

- .1 Category identification through risks and project category assessment as per MOTI Traffic Management Manual for Work on Roadways;
- .2 Traffic Control Plans for individual stages of the construction;
- .3 Incident Management Plan for the response to an unplanned event and recording of incident information;
- .4 Category 3 TMP must be signed and sealed by a qualified Professional Engineer.

.3 Submission of the TMP is to be made to the *Contract Administrator* within five (5) days of the *Notice of Award* of the *Contract*, and must be approved by the *Contract Administrator* prior to start of the *Work*.

.4 Review of the TMP will be performed by the Contract Administrator. Comments for revisions to the TMP will be returned to the *Traffic Manager* for implementations.

.5 The Contractor shall comply with all the requirements of applicable laws, rules, regulations, codes and orders of the municipal and other appropriate authorities concerned with work on streets or highways and shall post proper notices and/or signals, and provide necessary barriers, guards, lights, flagmen or watchmen as may be necessary for proper maintenance of traffic and protection of persons and property from injury or damage. All costs involved in respect to the above requirements will be deemed to be included in the Contract Price.

.6 The Contractor, during the progress of the work, shall make adequate provision to accommodate the normal traffic along streets and highways immediately adjacent to or crossing the work so as to cause the minimum of inconvenience to the general public.

.7 The Contractor is required to maintain local traffic and driveway access during all stages of construction. This includes maintaining a 1.5m width walkway or pathway through the construction site for pedestrians.

.8 Where existing streets or roads are not available as detours, all traffic shall be permitted to pass through the work with as little inconvenience and delay as possible unless otherwise provided or authorized by the Contract Administrator. If half the street only is under improvement, the other half shall be conditioned and maintained as detour.

2.2 Incident Management and Reporting

.1 The Contractor shall facilitate incident response vehicles and staff and move traffic safely and expeditiously through or around an incident on site and provide assistance to emergency response personnel as required. An incident includes, but is not limited to, motor vehicle accidents, emergency road repairs, disabled vehicles, and debris on the road. The immediate response to an emergency shall by necessity make use of available devices and equipment.

.2 If an incident occurs on site, the Contractor will be required to submit a report to the Contract Administrator documenting details of the incident including event, location, date, time, action taken, duration and restoration of site.

2.3 Traffic Control Plans

.1 The Contractor shall designate a qualified Traffic Control Supervisor for the works, per the requirements of WCB regulations Section 18.

The designated Traffic Control Supervisor may be the same individual that is designated as the Traffic Manager, or may be a separate individual qualified for the responsibilities of this function.

.2 The Contractor shall prepare weekly the anticipated traffic control activities, locations, and durations for the upcoming week.

.3 Permissible delays shall only be considered outside Peak Hours. Permissible delays are categorized as follows:

a) Minor Delays - Less than two (2) minutes in duration; for occasional interruption due to construction activities. These delays shall be coordinated with available breaks in the traffic flow.

b) Major Delays - Maximum five (5) minutes in duration; for occasional interruption of traffic for construction activities if traffic volumes permit.

.4 The Contractor is responsible for ensuring that the flow of traffic is unimpeded by construction-related activities.

3.0 EXECUTION

3.1 Traffic Control Plan

.1 A copy of the approved current Traffic Plan and Road and Sidewalk Closure Permit must be held on site by both the Site Superintendent as well as the person/company responsible for the traffic control implementation.

.2 Failure to produce a valid approved Traffic Plan on site, or having work not follow the Traffic Control Plan will result in immediate shut-down of the work. The Contractor will be required to safely restore facility conditions to allow traffic flow at their expense. The Contractor must take all steps to acquire an approved Traffic control Plan before work can re-start on site. No claim will be accepted by the Owner for costs associated with this work shut-down.

3.2 Traffic Control Personnel & Equipment

.1 The Contractor shall supply all necessary traffic control devices required to perform traffic control services for the project. Signs and traffic control devices not applying to existing conditions shall be removed. Where operations are carried out in stages, only those traffic control devices that apply to the current stage are to be left in place.

.2 There must be sufficient Traffic Control Persons (TCPs) on site to appropriately and safely direct traffic in all sections of the Work.

3.3 Signage

.1 Supply, installation, maintenance and removal of all works-related signs shall be the responsibility of the Contractor. The location and type of each sign shall be indicated on the approved Traffic Control Plan, for each stage of the works.

.2 Traffic control signs and devices must be positioned and used as specified in the Traffic Control Plan and signs and devices must be located so as to allow traffic to move by or through the work area in a controlled manner and, if necessary, to come to a controlled stop with due regard for the prevailing weather and road conditions.

.3 Signs shall be checked daily for legibility, damage, suitability and location. Signs and delineators shall be cleaned as frequently as necessary to ensure full legibility and reflectance.

3.4 Detours

.1 Any proposed detours must be approved by the Contract Administrator and conducted in accordance with the approved Traffic Plan and the Traffic Control Manual for Work on Roadways.

3.5 Abrupt Changes in Surface Elevations

.1 The Contractor shall minimize any abrupt changes in roadway elevation left exposed to traffic during both working and non-working hours.

.2 A wedge of asphalt must be used as a transition to vertical differences in travelled areas and have a slope of 4:1 or less.

3.6	Cyclist and Pedestrian Access	.1	The Contractor shall make provision for pedestrians, wheel chairs and bicycles to have safe access across the work zone at all times. If this cannot be readily accommodated then acceptable detours and appropriate signs shall be provided.
3.7	Temporary Pavement Markings	.1	The Contractor shall be responsible for the application and removal of all temporary pavement markings and reflective devices. All temporary markings must be removed after installation of permanent markings.

4.0 TRAFFIC RESTRICTIONS

4.1	Road and Sidewalk Closure Permits	.1	One lane of traffic must be maintained at all times during any allowed lane closure times.
		.2	A Road and Sidewalk Closure Permit is required for each instance of closure and will be valid for a maximum period of one (1) week and, if still necessary, re-submittal of a Road and Sidewalk Closure Request is required. The permit fee is waived on this project.
		.3	A copy of the approved Road and Sidewalk Closure Permit must be held on site by both the Site Superintendent and the person/company responsible for the traffic control implementation.
		.4	Total Road Closure Is Not Permitted
		.5	Detours will only be permitted as approved by the Contract Administrator and must have a complete Traffic Control Plan indicating detour route, signing, and duration. Detours will not be allowed without sufficient lead time for commercial and retail operation to react appropriately to detour information provided to them.
4.2	Lane Closure Restrictions	.1	For each of the road sections affected: • Road and Sidewalk Closures will be reviewed for appropriateness during the allowable hours of work. • Minimum single lane traffic is required at all times unless otherwise specified • Access to properties to be maintained • Sufficient Traffic Control Persons are required for each Road and Sidewalk Closure (or any work activities), <u>including side street intersections,</u> to safely guide traffic through the work site
4.3	Hours of Work	.1	The hours of work shall be from 0700h to 1900h inclusive Monday to Friday and 0900h to 1800h inclusive Saturdays. The Contractor must schedule his work within these hours or obtain written authorization from the Contract Administrator to vary said hours.

5.0 CONSTRUCTION OPERATIONS

5.1 Truck Routes

.1 The Contractor is restricted to the City's designated Truck Routes. The current Truck Route Map is available on the City's website at https://www.coquitlam.ca/171/Trucks-Goods.

5.2 Road Specific Considerations

.1 Ensure that Traffic Management Plan accommodates businesses and residences during construction activities.

. 2 Lane closures for eastbound and westbound lanes will be restricted to the following hours to accommodate rush hour traffic flows:

LOCATION	**ALLOWABLE TIME** (includes set-up and take down)	**COMMENTS**
Austin Avenue, westbound lanes	9:00 AM to 3:00PM	1 lane must remain open at these times.
Austin Avenue, eastbound lanes	7:00 AM to 3:00PM	1 lane must remain open at these times. All eastbound lanes must be open by 3 PM.
Austin Avenue at Gatensbury Street – Intersection	9:00 AM to 3:00 PM	

5.3 Work stoppage due to traffic

.1 The City will not control or direct traffic control activities of the Contractor, but may require an immediate stop to any work where, in the sole opinion of the Contract Administrator, the provided traffic management plan is ineffective.

5.4 Construction Activity and Signage

.1 The Contractor will be responsible to place other construction information signs as required to inform the public of construction activities, and ensure safe travel through the work site.

5.5 Temporary Traffic Control Signal

.1 Contractor must provide a Continuously Operating Temporary Traffic Control Signal during non-working hours. Contractor must have the timing signal programmed to properly accommodate the vehicular traffic volume to be provided by the Contract Administrator.

5.6 Changeable Message Sign (CMS) Board

.1 The following locations will require Changeable Message Signs (CMS) for the duration of the project:

1. Eastbound on Austin Avenue east of Marmont Street
2. Westbound on Austin Avenue east of Schoolhouse Street

Exact locations to be discussed at the pre-construction meeting. These signs are required to be in service at least five normal work days prior to construction start to provide advance warning to motorists. CMS must be able to handle minimum of three lines per page/screen.

5.7 Construction Zone Information Signs

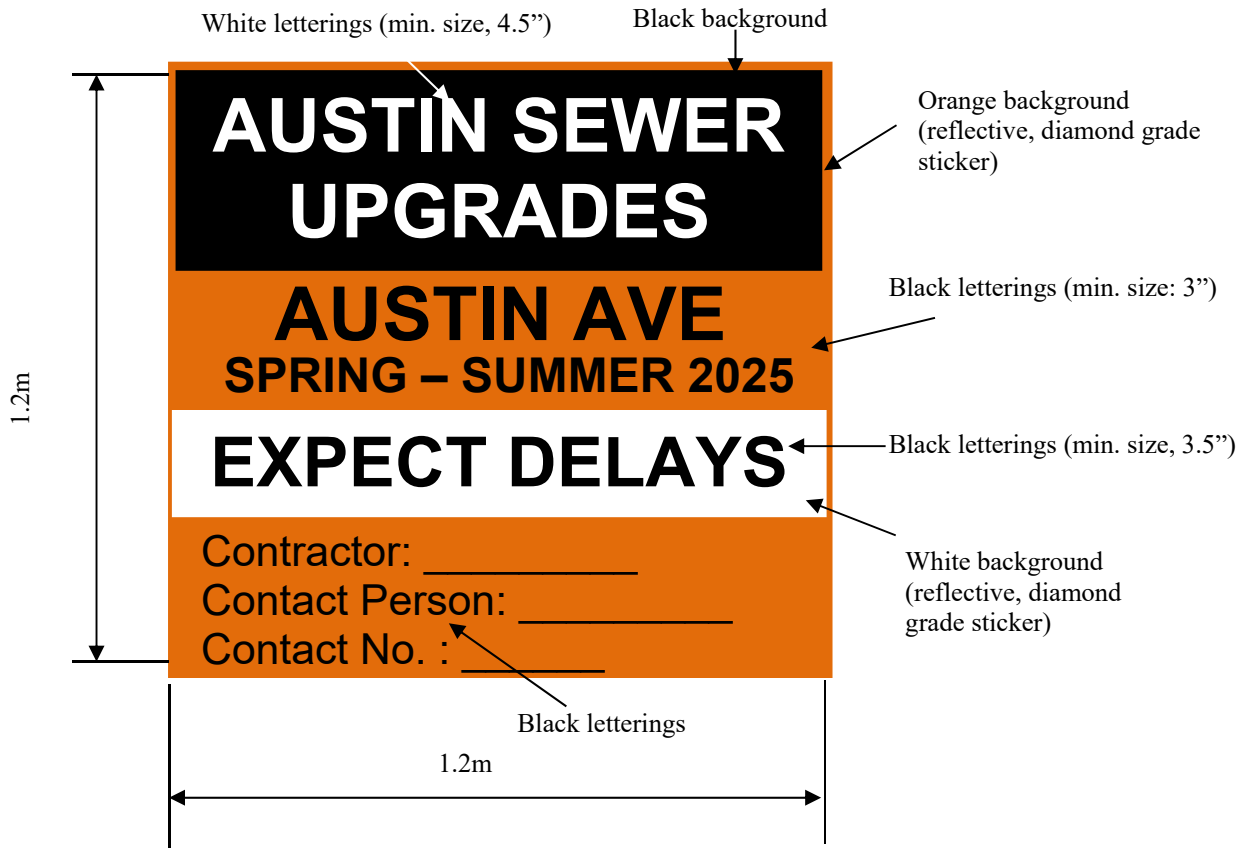
.1 The Contractor is required to provide, one week prior to start of work, stationary signs to inform traffic of existing and anticipated conditions.

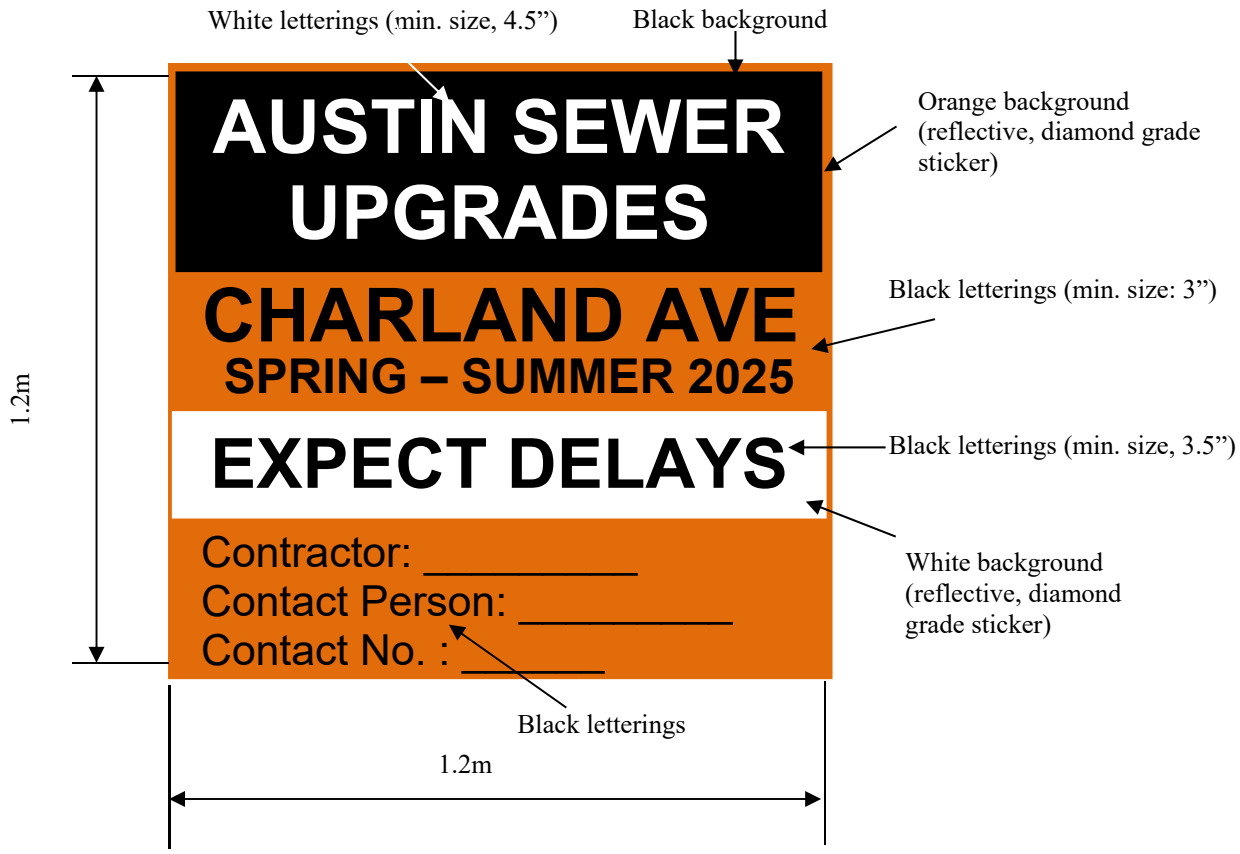
Ensure that signs and locations are addressed in the Traffic Management Plan. Signs are to be located at least 3m away from any travelled roadway edge and 0.6m away from sidewalk or travelled shoulder edge with minimum head clearance of 2m. All signs are to be removed at the end of the construction period on each location.

Exact locations to be determined on site by Contract Administrator.

- Westbound, NW Corner of Charland Avenue and Schoolhouse Street
- Southbound on Gatensbury Street near Austin Avenue

Construction Zone Information Signs to follow specifications below. Draft must be submitted to Contract Administrator prior to sending to production:




White letterings (min. size, 4.5")
Black background
AUSTIN SEWER UPGRADES
Orange background (reflective, diamond grade sticker)
CHARLAND AVE
SPRING – SUMMER 2025
Black letterings (min. size: 3")
EXPECT DELAYS
Black letterings (min. size, 3.5")
Contractor: _____
Contact Person: _____
Contact No. : _____
White background (reflective, diamond grade sticker)
1.2m
Black letterings
1.2m

APPENDIX 1

Coquitlam

City of Coquitlam
Road and Sidewalk Closure Permit Request

Traffic and Street Use Management Section
3000 Guildford Way, Coquitlam BC V3B 7N2
Phone: 604-927-6250 Email: StreetPermits@coquitlam.ca

~~**Initial Permit: $150** ☐ **Renewal Permit: $75** ☐~~

Application Date: _____ **City Project or Film Permit Number** (if applicable): **84495-3**

- An Initial Permit is required for all new applications and when the location, type of work, or the type of traffic controls change from what was approved for the Initial Permit. The application needs to be received a minimum of 10 business days prior to the intended closure date.
- A Renewal Permit extends the rights and privileges of the approved Initial Permit and is required when the timeline needs to be extended. The application must be received a minimum of 5 business days prior to the intended extension date.

Development Site Address (if applicable): _____

Work location (street name, block number, to/from, at, etc.) _____

Contact Information

Applicant Company Name: _____

Applicant (person completing application form)

Name: _____ **Title:** _____

Phone: _____ **Email:** _____

Applicant's Signature: _____

Company Name (Prime Contractor): _____

Site Superintendent

Name: _____ **Title:** _____

Phone: _____ **Mobile:** _____ **Email:** _____

Permit Information

Start Date: _____ **End Date:** _____

Day(s) and Time(s): ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday From: 00:00 To: 00:00
☐ Saturday From: 00:00 To: 00:00 ☐ Sunday From: 00:00 To: 00:00

Specific Lanes: ☐ Curb ☐ Inside/Centre Lane ☐ Left Turn Lane ☐ Right Turn Lane ☐ Parking Lane
☐ All Lanes ☐ Sidewalk/MUP ☐ Bicycle Lane

Direction: ☐ Northbound ☐ Southbound ☐ Westbound ☐ Eastbound

Purpose of Work: ☐ Concrete Pour ☐ Utility Installation ☐ Curb Installation ☐ Other _____

This permit is related to: ☐ City Design and Construction ☐ City Parks ☐ External Environmental
☐ Development ☐ External/Utilities

City Contact (if applicable): _____

Office Use Only

Permit Conditions/Comments:

_____

_____ _____

Approved by *Date*

Application Checklist

The following information must be provided. Incomplete applications will not be reviewed.

1. ☐ Traffic Management Plan (TMP); **OR**
   ☐ Traffic Management Manual for Work on Roadways Figure Number: _____
2. ☐ **Project Category Determination** (per 2020 Traffic Manual for Work or Roadways).
   ☐ Initial Project Category Assessment
   ☐ Project Risk Analysis
   ☐ Category 1 ☐ Category 2 ☐ Category 3
3. ☐ **Prime Contractor Designation Letter**
4. ☐ **City of Coquitlam Certificate of Insurance**
5. ☐ **Notification Letter and Map** (required for all full road closures). A Notification Letter must be provided to all affected residents and businesses.
   ☐ Yes ☐ No ☐ Not Applicable
6. ☐ **Traffic Control Persons** (flag persons) **required?** All operations within the road right-of-way must comply with WorkSafe BC regulations and BC Ministry of Transportation standards for work on roadways.
   ☐ Yes ☐ No If yes, how many? _____
7. ☐ **Bus routes/stops impacted?** Applicant is to contact Coast Mountain Bus Company (with a minimum of 3 days' notice) Temporary Transit Changes Request Form. General information can be found by visiting Temporary Transit Changes.
8. ☐ **City of Coquitlam Solid Waste has been contacted?** Coquitlam Environmental Services contacted regarding impact to garbage/recycling routes and pick up Phone: 604-927-4300 Email: wastereduction@coquitlam.ca
   ☐ Yes ☐ No
   Are operations impacted? ☐ Yes ☐ No
   If Yes:
   - a plan to ensure continuous collection has been provided: ☐ Yes ☐ No
   - Day(s) of the week impacted: _____
   - Time(s) of the day impacted: ☐ a.m. ☐ p.m.
9. ☐ **Pedestrian / Bike Lanes impacted?** Please describe sidewalks and/or bicycle facilities that will be impacted by the proposed work.

   _____

   _____
10. ☐ **Is the work on, or will it impact a road along our Major Road Network?**
    ☐ Yes ☐ No

Additional information

- Only vehicles actively engaged in the performance of cleaning, clearing, maintenance, repair, construction or other work are permitted within work zones. Vehicles being used by Superintendents, Traffic Control Persons, and other construction personnel that are not actively engaged in work described above are not permitted within the work zone and are not permitted parking /stopping prohibitions.
- Closures of sidewalks, cycling facilities, lanes, and full road closures are only permitted during the time periods indicated on the approved permit. Traffic controls are not permitted outside of these approved permit hours.

Appendix B -

Geotechnical Report

(For Reference Only)

GEOTECHNICAL EXPLORATION AND REPORT
RFP 21-0989 Austin Height Sewer and Pavement Restoration – Phase 3 & 4 near Austin Avenue and Schoolhouse Street, Coquitlam, B.C.

Document Type: Version 1 – Issued for Final

Date: February 6, 2023

Project No.: **K-221126-00**

Submitted to:

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APPENDICES

1.0 INTRODUCTION

Kontur Geotechnical Consultants Inc. (Kontur) has completed this geotechnical exploration and report for the above-referenced project. The purposes of this assessment were to characterize the site from a geotechnical point-of-view and to provide geotechnical engineering comments and recommendations with respect to the proposed sanitary sewer and road improvement project.

This report, which summarizes the findings of the study, has been prepared in accordance with standard and widely accepted geotechnical engineering principles and practices for similar projects in this region. This report does not address any environmental/archaeological issues or considerations related to the proposed project.

Review and use of this report should be completed in accordance with the attached *Interpretation and Use of Study and Report* document. It is included as an integral part of this report and should be read in conjunction with all parts of this report.

2.0 UNDERSTANDING OF PROJECT

It is Kontur's understanding that the City of Coquitlam (City) plan to upgrade the existing sanitary sewer system and pavement structure within the Austin Heights neighbourhood in Coquitlam, B.C. In general, the proposed upgrades will involve replacing the existing sanitary sewer by means of open-cut along various roadways and residential Right-of-Way (ROW). In addition, the City/Binnie plan to employ trenchless technology where the sanitary sewer alignment traverses along the north-south alignment from Austin Avenue towards the laneway (i.e. Sta. 4+106 to 4+166) south of Austin Avenue. Where the portion of the sanitary sewer crosses over Como Creek along Austin Avenue, this portion of the existing sanitary sewer is understood to be supported on a deep foundation system (i.e. helical piles). This geotechnical assessment will also include comment and input to replacing the existing deep foundation system at this localized area.

At this time, Binnie/City has indicated a preferred base-alignment of the proposed sanitary sewer but is also considering a possible alternate alignment near the south portion of the project site. The project has been divided into the following segments.

Table 1: Summary of Proposed Upgrades

Subject Road	Road Classification	Extents of Subject Alignment	Approximate Length (m)
Proposed Base Alignment			
Austin Avenue	Arterial	Gatensbury Street (Sta. 1+100) to 1400 Austin Avenue (Sta. 1+323)	223
Residential ROW	N/A	1400 Austin Avenue (Sta. 4+106) to Laneway (Sta. 4+166)	60
Laneway	Lane	Laneway (Sta. 4+166) to Charland Ave. – Cul-De-Sac (Sta. 4+234)	68
Residential ROW /Gravel Laneway	N/A	Cul-De-Sac (Sta.4+234) to Karp Crt Cul-De-Sac (Sta. 4+333)	99
Karp Court/Dansey Ave.	Local	Karp Crt Cul-De-Sac (Sta. 5+135) to Madore Ave. (Sta. 5+260	125
Madore Ave.	Local	Dansey Ave. (Sta. 6+166) to 1412 Madore Ave. (Sta. 6+291)	125
Residential ROW	N/A	1412 Madore Ave. (Sta. 7+107) to Sta. (7+233)	126

		Subtotal:	**826**
Subject Road	**Road Classification**	**Extents of Subject Alignment**	**Approximate Length (m)**
Alternate Alignment			
Madore Ave.	Local	1412 Madore Ave. (Sta. 6+290) to Schoolhouse St. (Sta. 6+399).	109
Schoolhouse St.	Local	Madore Ave. (Sta.8+116) to Rochester Ave. (Sta. 8+245)	129
Rochester Avenue	Local	Schoolhouse St. (Sta. 9+243) to End of Alignment (Sta.9+133)	110
		Subtotal:	**348**
		TOTAL PROJECT ALIGNMENT:	**1,174**

The above-noted stations (Sta.) are based on available design drawings provided by Binnie. The proposed sanitary sewer invert depths are noted to significantly vary across the proposed alignments from about 1.7 to 6.8m below the existing ground surface.

3.0 SOURCES OF INFORMATION

The following sources of information were reviewed as part of the desktop component of this study:

- Information obtained from Kontur's in-house geotechnical database of nearby projects;
- Kontur's experience in the area;
- Published surficial geology maps of the area;
- Geotechnical Report "*Geotechnical Assessment – Austin Avenue Sanitary Sewer Replacement*" dated March 13, 1997, prepared by AGRA Earth & Environmental;
- Available as-built drawings Austin Avenue (partial set) prepared by Aplin & Martin dated Oct. 2000
- Design drawing provided by Binnie;
- A site reconnaissance completed by Kontur senior technical staff; and,
- The geotechnical exploration program supervised by Kontur.

4.0 GEOTECHNICAL EXPLORATION AND MONITORING WELL INSTALLATION

Prior to commencing with the testhole exploration, a BC1Call was completed and a subcontracted underground utility locate was completed at each testhole location by *Quadra Utility Locating* of Port Coquitlam, B.C (using both Ground Penetrating Radar and Electromagnetic methods). The purpose of the scans was to assist with locating the testholes away from known and locatable existing buried services. Based on the findings of the utility locate, several buried services were noted to be present within the vicinity of testholes AH22-01 to -04 inclusive. As a result, in order to reduce the potential of advancing the testhole through buried services, the upper 2m of the above-noted testhole locations were cleared via hydro-vacuum excavation prior to advancing the auger.

In accordance with the City permit application, Kontur completed a geotechnical exploration between April 11 and 15, 2022. The geotechnical exploration was planned, coordinated, and supervised by Kontur field staff. Testhole locations were selected in the field by Kontur and Ground Penetrating Radar (GPR) and Electromagnetic (EM) scans were completed at each testhole location by *Quadra Utility Locates* of Port Coquitlam, B.C. The purpose of the scan was to assist with locating the testholes away from known and locatable existing buried services. The exploration program included completing nine (9) small

diameter (150 to 200mm) machine-augered testholes, designated as AH21-01 to AH21-09, at the approximate locations shown on Figures 1 to 6. The testholes were spaced at about 150 to 300m within the project alignments and advanced to a depth ranged between about 3m and 7.3m below the existing ground surface. The testholes were completed using a truck-mounted drill rig owned and operated by *Southland Drilling Co. Ltd*. of Delta, B.C.

Dynamic Cone Penetration Test (DCPT) probes were completed at each testhole locations to assist with evaluating the relative density or consistency of the subgrade beneath the site. Soil cuttings raised on the auger flights for each testhole were visually logged, and classified in the field by Kontur staff. Representative soil samples were also obtained and taken back to Kontur's laboratory. The soil samples were taken back to Kontur's laboratory for further detailed examination and laboratory testing. Moisture content determination testing was completed on soil samples, the results of which are presented in the attached Record of Testhole log sheets in *Appendix B.* Upon completion, each test hole was backfilled and sealed in accordance with current Groundwater Protection Regulations.

Two (2) monitoring wells were also installed at testhole locations AH22-07 and AH22-09. These monitoring wells consisted of a 50mm diameter PVC pipe. The slotted section of the PVC was located at select depth as shown on the attached Record of Testhole logs, with a bentonite seal above and below the slotted section. Water level measurements were taken during the exploration and subsequent site visits thereafter and are summarized in the **Section 5.5**. Table 2 below summarizes the monitoring well installations.

Table 2 – Monitoring Well Summary

Testhole ID	Installation Date	[1]Approximate Northing	[1]Approximate Easting	Well Depth (bottom) (m)	[2]Ground Elevation (m)	[2]Top of Slotted Casing, Geodetic (m)
AH22-07	2022-04-13	510573	5454855	4.6	94.0	3.1
AH22-09	2022-04-13	510562	5455088	10.0	110.0	7.0

Note: [1]Coordinates are in UTM zone 10U
[2]Elevation are approximate.

The geotechnical exploration also included sixteen (16) 100mm diameter asphalt cores completed along the various road alignment, the results of which are summarized in the attached *Asphalt Core Report 01. Asphalt Core Report 01* consists of cores completed along Austin Avenue, Karp Court, Dansey Avenue, and Madore Avenue.

5.0 SITE DESCRIPTION

5.1 General

The alignments (site) for the proposed new sections of sanitary sewer are located within the Austin Heights neighbourhood in Coquitlam, B.C. In general, the site is bounded by Austin Avenue to the north, Schoolhouse Street to the east, Rochester Avenue to the South and Gatensbury Street/Como Creek to the west.

In general, the overall ground surface gently slopes downwards towards the south. However, the ground surface along the various proposed sewer alignments are noted to vary and are summarized in the Table 3 below:

Table 3: Summary of Existing Ground Surface Conditions along Each Alignment

Name	Sta.	Approx. Surface Elevation (m) Geodetic	Comments/Notes
Austin Avenue Gatensbury Street (1+100) to 1400 Austin Avenue (1+323)	1+100 1+265 1+323	113 107.5 114.0	• Four (4) lane Arterial Road (approx. 15m wide) • East-West alignment and ground surface dips to a low point near the central portion of the ravine alignment. • Twin Concrete culvert (running north-south) at base of ravine • *Asphalt Surface condition: very poor to poor* • High severity of longitudinal/transverse/alligator cracks observed along the entire road segment • Past signs of 'patch work' • Portion of existing sanitary sewer pile supported (see Section 5.2) • Existing Embankment Slopes near Sta. 1+250 facing north and south of Austin Avenue. Generally sloped at about 2H:1V to 2.5H:1V (Horizontal: Vertical) • The ravine runs north-south (upstream – downstream). • Embankment slope (upstream) was in the order of about 6 m in Height • Embankment slope (downstream) was in the order of about 11 m in Height
Residential ROW 1400 Austin Ave. (4+106) to S15 Manhole (MH) (4+165)	4+106 4+165	114 111	• Landscape area • Generally flat with gentle slope to the south • Residential ROW between 1390 and 1400 Austin Avenue • Proposed sanitary sewer setback +/- 2 to 3m from adjacent residential building
Gravel Laneway S15 MH (4+165) to S14 MH (4+188)	4+165 4+188	111.3 108.5	• Gravel Laneway (approx. 6m wide) • Generally flat with gentle slope to the west with 2m abrupt decrease in elevation near Sta.4+175 as alignment approach S14 MH. • Existing Concrete retaining wall (approx. 2m high) near Sta. 4+188
Residential Laneway S14 MH (4+188) to Cul-De-Sac S13 MH (4+234)	4+188 4+234	108.5 108.3	• Residential Laneway • Generally flat • *Asphalt Surface Condition along Laneway: fair* • Low severity of longitudinal/transverse/alligator cracks observed • *Asphalt Surface Condition Cul-de-sac: poor to very poor* • moderate severity of longitudinal/transverse/alligator cracks observed
Residential ROW S13 MH (4+234) to S12 MH (4+296)	4+234 4+296	108.3 103.8	• 3m wide Residential ROW • Gently slopes to the southwest • Landscape Area • Residential ROW between 1382 / 1324 Charland Ave. • Existing Shed near/within ROW (sta. 4+296) • Existing 0.9m diameter coniferous tree between Sta. 4+280 to 4+296
Gravel Laneway S12 MH (4+296) to S10 MH (4+233)	4+296 4+333	103.8 104.2	• Gravel Laneway • Generally flat and gently slopes upwards to the east.
Karp Court/Dansey Ave. to Madore S10 MH (5+135) to S08 MH (5+260)	5+135 5+260	104.2 100.8	• Residential Local Road • Generally slopes down to the south and southeast • Asphalt Surface condition: very poor to poor • High severity of longitudinal/transverse/alligator cracks observed
Madore Ave. S08 MH (6+116) to S03 MH (6+291)	6+116 6+291	100.8 93.7	• Residential Local Road • Generally slopes down to the south and southeast • Asphalt Surface condition: fair to good • Low severity of longitudinal/transverse cracks observed

Name	Sta.	Approx. Surface Elevation (m) Geodetic	Comments/Notes
Residential ROW	7+107 7+234	93.7 71.2	• 3m wide residential R.O.W • Landscape Area • Residential ROW between 1408 / 1412 Madore Ave. • Gently Slopes at about 8H:1V from Sta. 7+107 to about 7+200 and steepens to about 2.5H:1V to about 7+240 • Tiered Timber retaining walls near south end of alignment. • 4m high Allan block retaining wall located within close proximity of proposed sewer alignment.
[1] Madore Ave. S03 MH (6+290) to S26 MH (6+399)	6+290 6+399	93.7 94.7	• Residential Local Road • Generally flat and generally slopes upwards to the east • *Asphalt Surface condition: Fair to good* • Low severity of longitudinal/transverse cracks observed
[1] School House StreetS26 MH (8+117) to S22 MH (8+244)	8+117 8+244	96.4 84.9	• Residential Local Road • Gently Slopes downwards to the South • *Asphalt surface condition: fair to good* • Low severity of longitudinal/transverse cracks observed
[1] Rochester Avenue S23 (9+243) to End of Alignment (9+133)	9+133 9+243	75.8 84.9	• Residential Local Road • Gently slopes downwards to the west • *Asphalt surface condition: fair to good* • Low severity of longitudinal/transverse cracks observed

Note: [1] Proposed alternate alignment

5.2 Existing Sanitary Sewer Along Austin Avenue (Background Review)

Based on a review of available information, it was reported in the late 1990's that the original sanitary sewer along Austin Avenue was experiencing on-going settlement. The original sanitary sewer line located along Austin Avenue crossed over a ravine (Como Creek) which was about 40 to 50m wide. In 1975, Austin Avenue was widened from two (2) to four (4) lanes. It was noted in the AGRA's report that during the construction of a twin culvert (base of Como Creek Ravine) crossing under Austin Avenue, significant amounts of wood debris, such as stumps were reported in the backfilled excavation. Construction of the culvert was carried out by tunneling and excavation, followed by backfilling using a sand and cement grout mixture. Details of the backfilling works were not available to Kontur at the time that this report was prepared.

Possible mechanisms causing site settlement may have included, but not limited to the presence of loose fills within the infilled zone of the ravine, organics, increased traffic loads, etc…To mitigate against future ground settlement, the sanitary sewer was supported on a deep foundation system where it crossed over the ravine. As-built drawings (partial set) indicate that the deep foundation system consisted of helical piles that extended across the ravine over a horizontal distance of about 75m. These piles were noted to extend down to a depth about 8 to 10m below the existing road surface and were spaced at about 3m centres.

5.3 Surficial Geology

Interpretation of subsurface soil and groundwater conditions along the proposed sewer alignment was based on available geotechnical information, published surficial geology maps of the area, and the findings of the geotechnical exploration program completed by Kontur as described in this report.

According to Surficial Geology Map 1484A published by the Geological Survey of Canada, the proposed sewer alignment is underlain by the *Vashon Drift and Capilano Sediments. Vashon Drift and Capilano Sediments* are described as lodgement and minor flow till, lenses and interbeds of sub-stratified glacio-fluvial sand and gravel, and lenses or interbeds of glacio-lacustrine laminated stony silts. The ground conditions encountered during the testhole exploration are generally consistent with the published surficial geology.

5.4 Soil Condition

Based on the soil cuttings raised on the auger flights encountered in the testholes completed as part of this exploration program, the following generalized profile is presented with soil units in general order of increasing depths of occurrence:

Austin Avenue from Gatensbury Street Sta.1+100 to 1400 Austin Avenue (Sta. 1+323)
Relevant Testholes: AH22-01 to AH22-04, inclusive

- **UNIT A1 – ASPHALT.** In general, the average asphalt thickness along Austin Avenue was 128mm and ranged between 114 and 200mm.
- **UNIT A2 – RANDOM FILL (Sand and Gravel to Silty Sand/Sandy Silt, some gravel)**. The quality and thickness of the fill material was noted to vary. The fill thickness was noted to be the greatest where Austin Avenue crosses over the ravine slope and was in the order of about 7.6m thick (AH22-03). AH22-01 and AH22-02, which were completed to the west of AH22-03, the fill thickness was noted to range between about 3.7 and 4.6m. AH22-04, which was completed to the east of AH22-03, the fill layer was noted to significantly less and about 0.9m thick.
  In general, the asphalt was underlain by a thin layer of gravel base (50 to 75mm thick) underlain by random fills. Testholes completed within close proximity of the existing ravine (i.e. AH22-03), indicate that the fill typically consist of a loose to very loose Sand and Gravel to Silty Sand, with occasional wood debris. Test holes completed to the east and west of AH22-03, indicate that the fill material to consist of Sand & Gravel to Gravelly Sand with occasional cobbles, boulders and was generally in a compact to dense state. Testhole information as indicated in the Agra report appear to be consistent with the findings of the recently completed Kontur testholes.
- **Unit B – Silty Sand to SAND, trace to some gravel and silt to Gravelly Sand.** This unit was encountered below Unit A2 at all testhole locations and extended to depths ranging between 5.8 and 21.3m. DCPT blowcounts indicated that this unit was dense to very dense.
- **Unit C – SILT, some sand trace gravel.** This unit was encountered within soil Unit B at testholes AH22-01 and AH22-03 at about 11.6 and 12.2m depth, respectively. At AH22-01 and AH22-03, this soil unit was about 3.2m and 6.2m thick respectively. It is inferred that this unit was very stiff to hard with a moisture content ranging between about 23 and 29%
- **Unit E –SILTY SAND, some gravel to gravelly, occasional cobbles/boulders (Till-Like).** This unit was encountered below Unit B at Testhole AH22-02 only and extended to the terminus of the testhole (i.e. 9.1m depth). DCPT blow-counts indicated that this unit was dense to very dense with blow-counts in excess of 50 blows per 300mm. Moisture content ranged between about 13 and 16%.

Remaining Sewer Alignment South of Austin Avenue
Relevant Testholes: AH22-05 to AH22-09, inclusive

- **UNIT A1 – ASPHALT.** In general, the average asphalt thickness along Karp Court, Dansey Avenue, and Madore Avenue was about 73mm and ranged between 54 and 91mm.
- **UNIT A2 – RANDOM FILL (Sand and Gravel to Silty Sand, some gravel)**. The quality and thickness of the fill material was noted to vary. The fill thickness was noted to be significant within the alley laneway due south of 1400 Austin Avenue (AH22-09) and was in the order of about 5.5m thick. The remaining testholes completed along the proposed sanitary sewer alignment within the residential roadways and ROW areas indicate that the fill to be about 0.9 to 2.1m thick. At AH22-09, the fill material typically consisted of a loose to compact Sand and Gravel to Silty Sand. The thick fill layer is inferred to be remnants of past buried service trench fills in the area. At the remaining testholes, the fill material generally consists of Sand & Gravel to Silty Sand with occasional buried topsoil layers (AH22-07).
- **Unit B – Silty Sand to SAND, trace to some gravel and silt to Gravelly Sand.** This unit was encountered below Unit A2 at all testhole locations. DCPT blowcounts indicated that this unit was compact to very dense. At testholes AH08, and -09, this unit extended down to the terminus of the testhole, which was about 9.1 and 15.2m depths, respectively. At testholes AH22-05, -06, and 07, the unit thickness varied between about 0.6 and 2.8m.
- **Unit D – SILT, trace to some sand to Clayey SILT, trace to some gravel.** This unit was encountered below Unit A2 at testholes AH22-05, AH22-07 and AH22-08 at between about 0.9 and 2.1m depth and was typically about 0.6m thick. It is inferred that this unit was stiff with a moisture content ranging between about 21 and 23%
- **Unit E –SILTY SAND, some gravel to gravelly, occasional cobbles/boulders (Till-Like).** This unit was encountered below Unit B at Testhole AH22-02 and extended to the terminus of the testhole (i.e. 9.1m depth). DCPT blow-counts indicated that this unit was dense to very dense with blow-counts in excess of 50 blows per 300mm. Moisture content ranged between about 13 and 16%.

5.5 Groundwater Condition

Following installation of the monitoring wells, Kontur measured the groundwater level approximately one week after the exploration program. Table 5 below summarizes the groundwater levels measured to date.

Table 5 – Groundwater Level Measurement Summary

Testhole I.D.	2022-04-13		[2]2022-04-24		2022-05-13		2022-06-30	
	[1,3] Depth (m)	[1,3] Elev. (m)	[1]Depth (m)	[1]Elev. (m)	[1]Depth (m)	[1]Elev. (m)	[1]Depth (m)	[1]Elev. (m)
AH22-01	5.2	106.3	-	-	-	-	-	-
AH22-02	3.0	107.5	-	-	-	-	-	-
AH22-03	3.0	107.0	-	-	-	-	-	-
AH22-04	1.4	111.6	-	-	-	-	-	-
AH22-05	-	-	-	-	-	-	-	-
AH22-06	-	-	-	-	-	-	-	-
AH22-07	4.0	90.0	3.7	90.3	3.8	90.2	4.2	89.8
AH22-08	2.1	91.4	-	-	-	-	-	
AH22-09	4.3	105.7	1.3	108.7	1.4	108.6	1.4	108.6

Notes: [1]Depth/Elevation are approximate.
[2]Develop monitoring wells
[3]Groundwater measured during Drilling

Based on the findings of the monitoring well AH22-07 and AH22-09, a groundwater level was observed within the installed wells and was about 3.7m and 1.3m depths below the existing ground surface, respectively. During drilling, groundwater was encountered at select testholes and ranged between 1.3 and 5.2m depth below the existing ground surface. It is inferred that the encountered groundwater levels represent perched conditions. Groundwater levels are expected to vary (fluctuate) and are generally influenced by periods of prolonged or intense rainfall, rapid snowmelt and/or precipitation and/or nearby land usage. Perched or localized groundwater levels should be anticipated to occur at the interface between granular materials, fine-grained materials or topsoil layers.

5.6 Interpretation and Variability

It is important to note that the soil and groundwater conditions described above and encountered in the specific testholes are representative of the soil conditions in the immediate vicinity of each testholes. Extrapolation and interpretation of the soil profile and groundwater is formulated based on an assumed horizontal continuity of subsurface conditions across the site. Therefore, the soil units described above are generalized and based on the available test hole information only. Variation in stratigraphic conditions should always be expected.

6.0 GEOTECHNICAL ENGINEERING COMMENTS AND RECOMMENDATIONS

6.1 General

The design depths for the proposed sanitary sewer will typically be in the order of about 2 to 4m depths below the existing ground surface. However, occasional shallower or deeper zones are expected and could be in the order of about 1.7m and 6.8m depth, respectively. Majority of the proposed sanitary sewer alignment is anticipated to be constructed utilizing open-cut excavation. Deep foundation systems are currently planned within a localized segment along Austin Avenue where significant site settlement has been historically reported. Trenchless technology (pipe jacking) is planned along a residential ROW from Sta. 4+106 to Sta. 4+166.

From a geotechnical point of view, where there is sufficient space for conventional open excavations, the soil and groundwater conditions should generally be feasible for open excavations supported by trench boxes as required, unwatering/dewatering and backfill practices for replacing the proposed infrastructure. Where deep foundations are considered, provided adequate target depths can be achieved, the use of deep foundations consisting of helical pile may be appropriate. Where trenchless technology is considered between Sta. 4+106 to 4+166, the key geotechnical considerations would be related to temporary excavation and shoring support at entry/exit points.

Regardless of the proposed method(s) used to construct the proposed sanitary sewer, other key geotechnical considerations would include assessing potential off-site influence to adjacent private properties, buildings, buried infrastructures, and roadways.

Geotechnical engineering comments and recommendations regarding the above issues are outlined in the following sections of this report.

6.2 Special Considerations

6.2.1 Settlement Considerations (Austin Avenue)

As discussed in **Section 5.2**, significant ground settlement has been reported along Austin Avenue in the past; and as a result, portion of the existing sanitary sewer is pile-supported. Based on a review of the completed geotechnical testholes by Kontur and AGRA, Unit A2 appears to be the thickest where Austin Avenue crosses over Como Creek. The thick fill layer encountered is inferred to be remnants of past-excavations and earthworks. It is Kontur's opinion that the reported historic ground settlement along Austin Avenue is due to the result of one or more likely a combination of the following:

- Consolidation of loose to compact fill material used to backfill the existing ravine slope
- Long-term decomposition of organics within the fill material;
- Increased traffic loading along Austin Avenue, and/or
- Fluctuation in the groundwater conditions.

Furthermore, even though the original sanitary sewer was pile-supported to mitigate against ground settlement, ground subsidence of the surrounding road alignment is likely still occurring. Detailed monitoring data of the existing Austin Avenue was not available to Kontur at the time this report was prepared. Since the recent sanitary sewer replacement took place back in early 2000's, it is anticipated the future settlements (if any) would be equal to or less than what has been observed/reported to date. Implementation of a monitoring program may be warranted if the City wish to establish a baseline and assess the rate of on-going settlement (if any).

Mitigative strategies for supporting the proposed sanitary sewer and improving overall pavement structure along this road segment is presented in the following sections.

6.2.2 Deep Foundation (helical piles): Austin Avenue: Approx. Sta.1+210 to Sta. 1+285

As discussed in **Section 5.2**, portions of the existing sanitary sewer is pile-supported. In anticipation of unwanted post-construction settlements within the localized zone where the sanitary sewer crosses over infilled Como Creek Ravine, it is proposed to support this portion of the sewer with a deep foundation system, consisting of helical piles. It is assumed that uplift resistance would not be required and the helical piles would provide compressive resistance for support only. Based on findings of the geotechnical exploration and Kontur's analysis, *the Factored Ultimate Compressive Resistance for each individual helical pile can be taken as 265 kN (60 kips)* provided:

- Each helical pile penetrates sufficiently through the surface fills and is embedded at least 2m into the underlying dense/stiff soils (i.e. Unit B/C).
- Test helical piles would be considered prudent to ensure such embedment is possible.
- Helical Piles to consist of high capacity (min. 89mm dia. steel helical shaft) or approved equivalent.
- Helical piles must have an Ultimate Capacity greater than 530 kN (120) kips.
- Minimum three (3) helixes (6 / 8 / 10 in.) that penetrate into Unit B/C.
- Piles should be spaced (centre to centre) at least three (3) times the largest helix or at least 1.5m from adjacent piles, whichever is greater

- For corrosion protection purposes, 2mm should be added to the minimum required helical pile wall thickness of the shaft

Based on a cursory review of available information, the existing pile-supported sanitary sewer is anticipated to extend over a horizontal distance of about 75m (along Austin Avenue) and piles were noted to extend to depths in the order of about 8 to 11 m below the existing road surface. Similar embedment depths should be anticipated for the new helical piles.

The final structural design and layout of the helical piles should be reviewed by the Geotechnical Engineer prior to construction to confirm design requirements. The Contractor should provide shop drawings for review by the Geotechnical Engineer prior to construction. The structural Engineer should review helical pile design for potential buckling.

Kontur notes that buried services, including the existing pile-supported sanitary sewer) are anticipated to be present within the footprint of the proposed sanitary sewer alignment. As such, the helical piles must be located such that do they not conflict with any buried services/structures that may be present and should be located in the field by the Contractor prior to drilling. It is the Contractor's responsibility to confirm that existing infrastructures/buried services do not conflict with the proposed new helical piles.

It should be noted that helical piles may not be able to penetrate through the fills zone due to density and/or presence of cobbles/obstructions. If helical piles encounter practical refusal within the fill zone, employing alternate drilling methods may be required. Kontur can provide further recommendations regarding helical pile design as the project advances.

6.2.3 Trenchless Technology (Pipe Jacking)

It is understood that the City/Binnie wish to minimize impact to the existing residential buildings and roadways within this portion of the sanitary sewer alignment and employ trenchless technologies such as pipe jacking for sewer installation where open cut trench methods are not possible.

Key geotechnical considerations would involve providing adequate temporary excavation and shoring support at the entry and exit points. The design drawings indicate that the invert of the proposed sanitary sewer would be in the order of about 7 and 5.6m at Sta. 4+106 and Sta. 4+166, respectively. The entry/exit pits would likely extend about 1m below the proposed invert depths, resulting in a total depth of about 8.0 to 6.6m. Based on cursory discussions with local trenchless contractors, due to limited space/access, a pipe jacking system would be appropriate in residential areas with limited space as opposed to a Horizontal Direction Drilling (HDD) system which require extensive clear space for lay down areas. For a pipe jacking system, the entry and exit pits would have a minimum plan dimension of about 12 by 4m and 6 by 4m, respectively. The long dimension would be parallel to the proposed sewer alignment.

Based on the above information, employing trenchless technology may not be practically feasible or economical due to the following:

- Construction of the entry pits would likely conflict and obstruct traffic along Austin Avenue;
- Several buried services would be required to be relocated;
- Due to spatial constraints, conventional open-cut sloped excavations will not be feasible for pit depths in the order of about 7m. As such, specialized temporary excavation and shoring systems

would be necessary and may include, but not limited to Slide-Rail Shoring Cages, Tie-backs soil anchors with shotcrete, and/or cantilevered shoring systems. Further detailed review will be necessary to assess a suitable shoring system.

- Dewatering/unwatering measures may be onerous depending on the time of year construction takes place.

Should the City/Binnie wish to pursue the potential for pipe jacking, it is recommended that a specialized trenchless Contractor be retained in advance to provide input regarding constructability issues and potential influences to project budgets and/or schedules.

6.3 Utility Construction

6.4 Pipe Bedding

All *Engineered Fill* materials should meet the minimum specifications set out in the current version of the Master Municipal Construction Document (MMCD).

Pipe bedding and surround materials should meet MMCD Specifications for *Type 1 Pipe Bedding and Surround* materials. The pipe should also be placed on a bedding layer that is at least 150mm thick, or equal to 0.25 times the diameter of the pipe, whichever is greater. It is recommended that the pipe surround fill material extend to at least 300mm above the crown of the pipe. The base of the excavation should have a minimum width equal to the diameter of the pipe plus 600mm.

Where *Engineered Fill* is required above the zone of pipe bedding and surround materials, subgrade fills should consist of an approved granular soil such as a 75mm minus well graded pit run or crushed sand and gravel with no more than 5% fines passing the USS No. 200 (0.075mm) sieve size or approved equivalent. *Engineered Fill* should extend up to the underside of road pavement structure.

Road Subbase gravels should meet MMCD specifications for *75mm Crushed Granular Subbase* materials. Road Base gravels should meet MMCD Specifications for *19mm Crushed Granular Base* materials.

Excavated material and/or existing fill materials may be reused in non-structural areas for general site grading purposes if proper moisture conditioning measures are implemented. These materials are not considered suitable for use as *Engineered Fill* to support structures.

6.5 Pavement Restoration

6.5.1 Pavement Structure

According to the City municipal specifications, the minimum pavement structure requirement with the City of Coquitlam standards for all road types is summarized in Table 6 below.

Table 6 – City of Coquitlam Specification for- Pavement Structure

Road Structure Type	Material Description – Standard Road Pavement Structure as per City of Coquitlam Specifications
Hot-mix Asphalt Pavement	75mm placed in one lift (50mm MMCD Upper Course#1 /75mm Lower Course #1)
Road Base	100mm of 19mm Crushed Granular Base (MMCD Crushed Granular base)
Road Subbase	200mm of 75mm Crushed Granular Subbase (MMCD Crushed Granular Subbase)
Approved Subgrade Surface	As approved by Geotechnical Engineer

The existing pavement surface along Austin Avenue (Arterial), Karp Court (Local), and Dansey Avenue (Local), exhibited moderate to severe signs of distress and alligator cracking. The pavement surface along Madore Avenue appear to be in fair to good condition. At the above four (4) road segments, a prominent base layer was not encountered and did not conform to the above-noted pavement structure (see Table 6).

As such, Kontur recommends that the road surface along 'local' roads (i.e. Karp Court and Dansey Avenue) be restored in accordance with the City of Coquitlam's *Subdivision and Development Servicing Bylaw 3558, 2003*. For Madore Avenue, even though the existing pavement structure does not conform to City Specifications, provided the existing roadway has functioned within reasonable performance standards, structural upgrading may not be warranted. If a new uniform wearing surface is preferred, the roadway could be resurfaced with a new surface wearing course of nominal thickness either by mill and overlay or straight overlay.

For Austin Avenue, the above standard pavement structure considered not appropriate, as it is categorized as an *Arterial Road* and is underlain by a variable thickness and quality of fill material. As such, the minimum recommended pavement/road structure is presented in Table 7. Hot-mix asphaltic concrete, road base gravels, and road subbase gravels, should meet the minimum requirements of the current version of MMCD.

Table 7 – Minimum Recommended Pavement Structure

Road Structure Type	Material Description: Recommended Pavement Structure for – Arterial Road
Hot-mix Asphalt Pavement	150mm placed in two lifts (Upper Course#1 / Lower Course #1)
Road Base	200mm of 19mm Crushed Granular Base (MMCD Crushed Granular base)
Road Subbase	500mm of 75mm Crushed Granular Subbase (MMCD Crushed Granular Subbase)
Approved Subgrade Surface	Soil Unit A2, B/C

As discussed in **Section 6.2.1**, Austin Avenue has experienced significant settlement in the past. As such, in order to reduce potential differential settlements, as an alternative to the above-recommended traditional pavement/road structure the minimum recommended reinforced pavement/road structure summarized in Table 8 below may be considered. Geogrid reinforcement must consist of the specified product below, or an equivalent approved by the Geotechnical Engineer.

Table 8 – Minimum Recommended Pavement Structure

Road Structure Type	Material Description: Recommended Pavement Structure for – Arterial Road
Asphalt Pavement	100 mm placed in two lifts (Upper Course #1 and Lower Course #1)
Road Base	200 mm of 19 mm minus crushed base gravel
Geogrid Reinforcement Layer	Triaxial Geogrid such as Tensar TX5
Road Subbase	500mm of 75 mm minus crushed subbase gravel
Geogrid Reinforcement Layer	Triaxial Geogrid such as Tensar TX5
Approved Subgrade	Soil [1]**Unit A2**

[1]Note Anticipated Ground Settlements described in Section 6.2.1

Geogrid reinforcements should extend a horizontal distance equal to the thickness of the total (entire) granular road structure section beyond the edge of the gravel road shoulder. Adjacent geogrid panels should also be overlapped in accordance with the manufacturer's recommendations.

It should also be noted that the use of geogrid reinforcements are intended to 'stiffen' or 'strengthen' the granular road structure and allow for some support over localized soft or loose zones but will not mitigate ground settlement. However, the use of a geogrid reinforced pavement structure is expected to improve the overall performance of the pavement structure. Without removal of the existing fills, the City would still need to accept some uncertainty of future settlements and associated maintenance and repairs.

City operational and maintenance crews should also be aware of the use of geogrid panels as reinforcement in the roadway. Special measures may be necessary for repair of buried utility services within the roadway, such as care to avoid tearing and/or ripping geogrid panels, and/or for a nominal over-excavation beyond the width of the utility trench so that geogrid reinforcements can be replaced upon backfilling. Over-excavation beyond the width of the utility trench should be equal to the minimum overlap requirement described above (i.e. 450mm).

6.5.2 Hot-mix Asphaltic Concrete (Pavement)

For Local and Collector Roads, where the thickness of the existing asphalt surface permits a minimum 200mm and 400mm wide strip should be grinded and tack coated to allow a minimum 35mm thick overlay to tie-in existing pavement to the widened pavement structure, respectively. Hot-mix asphaltic concrete should be compacted in-place to at 97% of the materials' seventy-five (75) blow Marshall density value in accordance with ASTM D6927. All hot-mix asphaltic concrete (pavement) should meet the minimum requirements detailed in the current edition MMCD, Section 32 12 16. Aggregates and granular materials should meet the minimum requirements of MMCD - Section 31 05 17 and the current edition of B.C. Ministry of Transportation and Infrastructure (BCMOTI) Standard Specifications for Highway Construction Vol. 1 & 2.

6.6 Constructability Considerations

6.6.1 Temporary Excavation

Based on the testholes completed for this project, it appears that the majority for the proposed infrastructure would encounter soil conditions at the base of trench excavation as follows:

Table 6: Anticipated Subgrade at Base of Excavation

Subject Road	Extents of Subject Alignment	Approx. Anticipated Excavation Depth (m)	Anticipated Soil Unit at Base of Excavation
Austin Avenue	Gatensbury Street (Sta. 1+100) to 1400 Austin Avenue (Sta. 1+323)	1.7 to 6.8	A2/B/C/E
Residential ROW	1400 Austin Avenue (Sta. 4+106) to Back Alley Lane (Sta. 4+166)	6.8 to 5.5	B
Back Alley Lane/Laneway	Back Alley Lane (Sta. 4+166) to Charland Ave. - Cul-De-Sac (Sta. 4+234)	3.7 to 5.5	C/E
Residential ROW /Gravel Laneway	Cul-De-Sac (Sta.4+234) to Karp Crt Cul-De-Sac (Sta. 4+333)	3.7 to 3.9	B/C
Karp Court/Dansey Ave.	Karp Crt Cul-De-Sac (Sta. 5+135) to Madore Ave. (Sta. 5+260	2.2 to 4.2	B/D/E
Madore Ave.	Dansey Ave. (Sta. 6+166) to 1412 Madore Ave. (Sta. 6+291)	2.2 to 4.2	B/E
Residential ROW	1412 Madore Ave. (Sta. 7+107) to Rochester Sta. (7+233)	2.2 to 4.6	B/E
Madore Ave.	1412 Madore Ave. (Sta. 6+290) to Schoolhouse St. (Sta. 6+399).	2.4 to 5.5	B/E
Schoolhouse St.	Madore Ave. (Sta.8+116) to Rochester Ave. (Sta. 8+245)	1.9 to 5.5	B
Rochester Avenue	Schoolhouse St. (Sta. 9+243) to End of Alignment (Sta.9+133)	2.0 to 5.0	B/E

The composition and consistency of the soils at the site are such that suitably equipped hydraulic excavator should be able to dig these materials. If soil Unit B/E are encountered, additional efforts may be required such as ripping prior to excavation. Furthermore, the Contractor should be prepared to deal with large boulders if encountered within the Till-Like soils (i.e. Unit E) and or within the fill layer (i.e. Unit A2). Although a prominent groundwater level was not encountered in the completed testholes, based on Kontur's experience, perched groundwater may be encountered at shallow depths and may vary depending on time of year and climatic conditions. Therefore, varying intensities and volumes of groundwater seepage into trench excavations should be anticipated during construction.

If sloped open-cut excavations are considered practical for excavations 3m or less, the sidewalls of unsupported trench excavation that are into units A2, B, C and D, should generally be cut no steeper than 1Horizontal to 1 Vertical (1H:1V) for trench stability and worker safety purposes. In all cases, flatter slopes may be necessary if significant zones of groundwater seepage or zones of looser soils that slough are encountered. A Geotechnical Engineer should periodically review the soils encountered during excavation and make recommendations as warranted.

If sloped excavations are not considered practical, then the excavations for the proposed sewer installation will require suitable temporary shoring support to provide safe work conditions in the trenches and minimize impact to the existing roadway and the adjoining residential properties. Appropriate trench shoring/bracing methods and/or trench boxes (cages) that satisfy WorksafeBC requirements should be employed for support of vertical excavations. Other methods (i.e. Sheet piles, slide-rail, soldier piles with timber lagging, anchor tiebacks with shotcrete, etc…) may be required for deeper excavations. In addition, temporary shoring cages should be installed 'tight' against the excavated surface to minimize potential sloughing and/or raveling ('relaxation') of the excavated slope. For preliminary planning purposes, the shoring system should be selected to withstand the lateral earth pressures. A static lateral earth pressure of 9.5 kPa/m with a triangular distribution should be used. A surcharge pressure of 0.5 times the pressure must be added where applicable. If vehicle traffic is permitted within horizontal distance equal or less than the excavation depth, traffic loading may be taken as a uniform pressure distribution of about 12 kPa, in addition to the above-noted lateral earth pressure. Large stock-piles/heavy equipment should be setback from the edge of the excavation a distance that is equal to the depth of the excavation.

An Excavation Plan and/or Shoring System should be reviewed by the Geotechnical Engineer in advance of excavation. The shoring system should be installed to the top of the trench immediately after excavation.

Prior to shoring installation, most compacted fills at the surface will likely stand up vertically for a short time in the trench during excavation under dry conditions. However, the underlying fills could be disturbed and loosened, resulting in possible slough and cave in while excavating to install the temporary shoring. As such, the trench may need to be widened or temporarily restrained with steel sheets at the time of excavation. A test section at the start of construction would provide a good indication of whether or not this will be required.

6.6.2 Groundwater Control

Excavated surfaces must be protected and kept dry (free of standing water) during construction. Depending on the time of year the construction takes place, it should be expected that some groundwater (perched and/static) seepage will be encountered within the anticipated excavation depths. Granular fill zones (or trenches) that intersect the proposed excavation may also act as conduits for significant groundwater seepage or inflows. Furthermore, static groundwater levels may occur at a depth of about 1.3 to 5.2m below the existing surface. The Contractor should be prepared to address and manage potential perched/groundwater seepage from granular zones quickly to avoid significant soil loss and/or excavation instability.

Assuming an excavation depth ranging in the order of about 6.6 to 8m below the existing ground surface, the proposed excavation may be well above or below the estimated groundwater level. Where the

excavation is anticipated to significantly below the groundwater level (for example, AH22-09), groundwater seepage into the excavation may be encountered and depending on the volume of seepage groundwater encountered, conventional sump and pump method may not be feasible to control the seepage volumes. Depending on the alignment, careful consideration should be exercised by the Contractor to assess the potential for groundwater seepage along the various alignment.

In the event the above noted seepage volume cannot be accommodated via 'sump and pump method',. unwatering/dewatering measures may be required to allow structure installation and backfill placement to occur in dry conditions. The actual dewatering/unwatering method would need to be selected in response to the actual groundwater conditions encountered during the earthworks. A dewatering system will likely result in the drawdown of the groundwater table and may trigger settlements to the existing ground surface and buried services present. An unwatering system would have less of an impact in terms of drawdown effect of the groundwater table as opposed to a dewatering system. It may be prudent for settlement sensitive structures/buildings be monitored/surveyed during construction in order to assess the degree of settlement experienced at these locations. In all cases, it is the responsibility of the contractor to protect and provide a dry environment (free of standing water) for the placement and compaction of all fill materials. Contractors should make their own assessments and are responsible for selecting the appropriate methods to control groundwater during construction at this site.

6.6.3 Potential Offsite Influences

Kontur notes that where utility installation works are planned along the relatively narrow residential lanes, roadways, and or ROW, depending on where new services are planned, the shoring design should take into consideration any localized features (i.e. suitable setbacks from existing other utilities, residential buildings, landscape features, etc.) and designed accordingly.

The design drawings indicate possible presence of existing buried utility services, houses, sheds, trees, etc… that cross, intersect, or are located near/within the proposed excavations.

Kontur recommends further review and additional measures be implemented at key areas along the proposed alignment on a case-by-case basis. Additional measure may include, but not limited to: undertaking a pre-construction survey of existing settlement sensitive buildings/structures, exposing settlement sensitive services by hand or with a hydro-vacuum (to reduce potential disturbance), assess potential influences to these services/buildings due to the proposed excavation earthworks, provision to include a monitoring program, and/or implement appropriate excavation and shoring measures to adequately support these services. For preliminary planning purposes, buildings/structures located within a horizontal distance equal to or less than the excavation depth should be reviewed in greater detail.

Existing utilities must be properly supported and protected during excavation, or they may need to be temporarily relocated. Kontur notes that trench backfill for utility connections may differ from the surrounding materials and may not be stable when cut vertically.

6.6.4 Site Preparation (Pavement)

Site preparation should include the stripping and removal of any loose, saturated, organic, and otherwise unsuitable material as needed to allow for the placement of the recommended pavement section (as presented in **Sections 6.5** and to expose the underlying undisturbed natural Unit A2 or native soil, as

approved by the Geotechnical Engineer. Depending on the condition of the subgrade surface, some re-compaction efforts may be required. The Geotechnical Engineer should witness a proof roll of the subgrade surface. The stripping works should be undertaken using a smooth-mouthed excavator bucket during periods of dry weather and equipment traffic should not be allowed on the stripped surface. Areas that require over excavation due to disturbed/poor quality soils encountered at subgrade level should be backfilled with compacted granular sub-base course, compacted to at least 95% of the Modified Proctor Maximum Dry Density (MPMDD) as per ASTM D1557. Kontur should be given the opportunity to review the exposed subgrade soils prior to placement of pavement section.

6.6.5 Engineered Fills and Compaction

Backfilling and compaction should be completed in such a manner to minimize loose zones of fill that may occur as shoring systems are raised from the excavation. For example, each lift of backfilled material should be placed in the excavation prior to raising the shoring system. The shoring system may then be raised in short stages to allow backfills to be placed and compacted up against the excavated slope. At no time should the excavation be unsupported.

All *Engineered Fill* materials must be placed and compacted in lifts no thicker than 300mm. The material should be near its optimum moisture content and be compacted to at least 95% of the material's MPMDD value. Field Density Test reports should be forwarded to the Geotechnical Engineer for review and approval of compacted fill zones. Upon request, Kontur can provide in-situ Field Density Testing per ASTM D-6938 and ASTM D-1557.

The existing fills are generally not considered suitable for reuse due to relatively high fines content.

7.0 DETAILED DESIGN AND GEOTECHNICAL FIELD REVIEWS

This geotechnical report is based on information available at the time this report was prepared. As infrastructure concepts and design are finalized, Kontur should be provided the opportunity to review and comment from a geotechnical point-of-view to assess and revise the recommendations made herein, as necessary. Kontur is available for general consultation during the design and permitting stages of the project.

To sign-off on the work, subsequent geotechnical services would involve undertaking geotechnical field review services during construction in order to verify that the intent of the recommendations are being followed and that the soil conditions encountered are consistent with the design assumptions. Kontur anticipates that geotechnical engineering and field review services will include, but are not limited to, the following items:

- Review of finalized design details and undertake excavation and shoring designs (as necessary);
- Review of finalised design details and Deep Foundation Systems;
- Review of temporary excavations per WorkSafeBC guidelines and regulations;
- Review of Deep Foundation System installation
- Bulk excavation, stripping, and final excavation;
- Subgrade and bearing surface review and approvals;
- Placement and compaction of trench backfill*;* and,
- Reinstatement of the road pavement.

8.0 CLOSURE

The comments and recommendations presented in this report are based on the referenced information and Kontur's understanding of the project as described herein. If site conditions or project parameters differ from those described in this report, Kontur should be notified promptly to review geotechnical aspects of the project and provide additional or modified comments and recommendations, as deemed appropriate. Contractors should make their own assessments of subsurface conditions at this site and select the construction means and methods that are most appropriate for encountered site conditions.

This report has been prepared for the exclusive use of the BINNIE, City of Coquitlam, and/or their designated agents or consultants. Any use of the information contained in this letter for other than its intended purpose or by any other party must first be verified in writing by Kontur. Kontur does not accept any responsibility or damages because of any other party relying on or using the information, interpretations, opinions, comments, and/or recommendations that are contained in this report.

Kontur trusts that the information described above meets your current requirements. If you should have any concerns or questions, please do not hesitate to contact the undersigned.

Sincerely,

Kontur Geotechnical Consultants Inc.
EGBC Permit to Practice #1000925

Per:

J.Y. (Yoshi) Tanaka PEng
Principal | Geotechnical Engineer

Reviewed by:

Brian L.J. Mylleville PhD PEng
Senior Geotechnical Engineer

APPENDIX A

Interpretation and Use of Study and Report Document

INTERPRETATION AND USE OF STUDY AND REPORT DOCUMENT

1.0 STANDARD OF CARE

This study and Report have been prepared in accordance with generally accepted engineering consulting practices in this area. No other warranty, expressed or implied, is made. Engineering studies and reports do not include environmental engineering or consulting.

2.0 COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report which is of a summary nature and is not intended to stand alone without reference to the instructions given to us by the Client, communications between us and the Client, and to any other reports, writings, proposals or documents prepared by us for the Client relative to the specific site described herein, all of which constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WE CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3.0 BASIS OF THE REPORT

The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose that were described to us by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document 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 are specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4.0 USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming 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 authorise only 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 of the Report, are the sole responsibility of such third parties. We accept no responsibility for damages suffered by any third party resulting from unauthorised use of the Report.

5.0 INTERPRETATION OF THE REPORT

Nature and Exactness of Descriptions: Classification and identification of soils, rocks, geological units, contaminant materials, building envelopment assessments, and engineering estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations, or building envelope descriptions, utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarising such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.

Reliance on Provided information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.

To avoid misunderstandings, KONTUR should be retained to work with the other design professionals to explain relevant engineering findings and to review their plans, drawings, and specifications relative to engineering issues pertaining to consulting services provided by KONTUR. Further, KONTUR should be retained to provide field reviews during the construction, consistent with building codes guidelines and generally accepted practices. Where applicable, the field services recommended for the project are the minimum necessary to ascertain that the Contractor’s work is being carried out in general conformity with KONTUR’s recommendations. Any reduction from the level of services normally recommended will result in KONTUR providing qualified opinions regarding adequacy of the work.

6.0 ALTERNATE REPORT FORMAT

When KONTUR submits both electronic file and hard copies of reports, drawings and other documents and deliverables (KONTUR’s instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by KONTUR shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by KONTUR shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of KONTUR’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except KONTUR. The Client warrants that KONTUR’s instruments of professional service will be used only and exactly as submitted by KONTUR.

The Client recognizes and agrees that electronic files submitted by KONTUR have been prepared and submitted using specific software and hardware systems. KONTUR makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

APPENDIX B
Figures

FIGURE 2

FIGURE 3

FIGURE 4

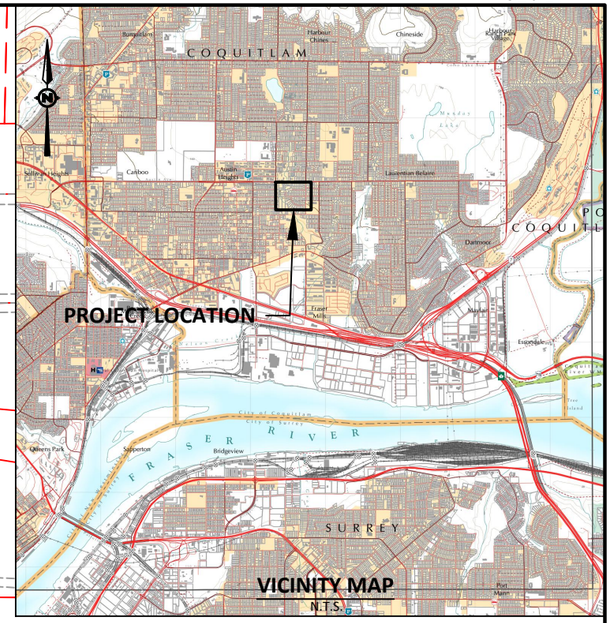
FIGURE 5

FIGURE 6

AH22-01
AH22-02
AH22-03
AH22-04
AH22-05
AH22-06
AH22-07
AH22-08
AH22-09

DCPT-1
DCPT-2
DCPT-3
DCPT-4
DCPT-5
DCPT-6
DCPT-7
AEE97-1
AEE97-2
AEE97-3

AUSTIN AVENUE
LANE
CHARLAND AVENUE
SCHOOLHOUSE STREET
KAPP COURT
DANSEY AVENUE
MADORE AVENUE
DALTON COURT
CREEK
COMO



VICINITY MAP
N.T.S.

LEGEND

- APPROXIMATE MACHINE-AUGER TESTHOLE LOCATION
- BOREHOLE LOCATION (AGRA, 1997)
- PROPERTY BOUNDARIES
- CULVERT

REFERENCE:

1. BASE PLAN CITY OF COQUITLAM DRAWING "AUSTIN AVENUE EAST OF GATENSBURY STREET, TOPOGRAPHIC SURVEY", 21Austin08305102T0.dwg" NOVEMBER 26, 2021
2. AGRA EARTH AND ENVIRONMENTAL LIMITED DRAWING "CITY OF COQUITLAM AUSTIN AVENUE SEWER REPLACEMENT BOREHOLE LOCATION PLAN" DATED 04/03/97 PROJECT NO. 07128 FIGURE 1

SCALE 1:2000

20 0 20 40 80m

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SEAL

VERSIONS

NO	DESCRIPTION	DATE
0	ISSUED FOR REPORT	2022-06-07

TITLE: FIGURE 1: SITE VICINITY AND GENERAL LAYOUT

PROJECT NO.: K-221126-00

CLIENT: BINNIE

DATE: 2022-06-07 | SCALE: 1:2000 | DWG NO.: FIGURE 1

PROJECT NAME / LOCATION: RFP 21-0989 AUSTIN HEIGHTS SEWER AND PAVEMENT REHABILITATION - PHASE 3 AND 4 AUSTIN AVENUE, COQUITLAM, B.C.

DRAFT: SG | DESIGN: ZM | CHECK: JYT

Monday, July 4, 2022 2:17:21 PM

511

GATENSBURY STREET

AUSTIN AVENUE

AUSTIN AVENUE

AH22-01

4.08m SANITARY SEWER
5.76m DRAIN
7.77m ELECTRIC
8.72m TELEPHONE
9.61m CABLE TV
10.43m PROPERTY LINE

9.88m PROPERTY LINE
9.41m ELECTRIC
6.19m WATER
5.05m WATER
3.75m WATER
2.33m GAS

AH22-02

1.93m SANITARY
3.58m DRAIN
5.53m ELECTRIC
6.27m TELEPHONE
6.62m SANITARY
7.44m CABLE TV
8.24m PROPERTY LINE

12.03m PROPERTY LINE
9.46m ELECTRIC
8.34m WATER
7.20m WATER
5.90m WATER
4.07m GAS

AH22-03

4.23m SANITARY
5.75m DRAIN
7.70m ELECTRIC
8.28m TELEPHONE
8.60m SANITARY
9.59m CABLE TV
10.40m PROPERTY LINE

9.90m PROPERTY LINE
7.31m ELECTRIC
6.18m WATER
5.04m WATER
3.74m WATER
1.73m GAS

AEE97-3
AEE97-2
AEE97-1
DCPT-1
DCPT-2
DCPT-3
DCPT-4
DCPT-5
DCPT-6
DCPT-7

1320
1322A
1322B
1324

LEGEND

- APPROXIMATE MACHINE-AUGER TESTHOLE LOCATION
- BOREHOLE LOCATION (AGRA, 1997)
- PROPERTY BOUNDARIES
- CULVERT
- WATER
- ABANDONED LINES
- FORCE SANITARY
- DRAINAGE / DRAIN CONNECTIONS
- GAS
- ELECTRIC
- CABLE TV

REFERENCE:

1. TICKET # 20214804506, PREPARED BY BC HYDRO, NOVEMBER 25, 2021
2. TICKET # 20214804506, PREPARED BY FORTIS BC, NOVEMBER 24, 2021
3. TICKET # 20214804506, PREPARED BY TELUS BC, NOVEMBER 23, 2021
4. BASE PLAN CITY OF COQUITLAM DRAWING "AUSTIN AVENUE EAST OF GATENSBURY STREET, TOPOGRAPHIC SURVEY", 21Austin08305102T0.dwg" NOVEMBER 26, 2021
5. AGRA EARTH AND ENVIRONMENTAL LIMITED DRAWING "CITY OF COQUITLAM AUSTIN AVENUE SEWER REPLACEMENT BOREHOLE LOCATION PLAN" DATED 04/03/97 PROJECT NO. 07128 FIGURE 1

SCALE 1:500

5 0 5 10 20m

Monday, July 4, 2022 2:17:21 PM

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Unit 65, 1833 Coast Meridian Road, Port Coquitlam, B.C. V3C 6G5
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TITLE: FIGURE 2: PROPOSED TEST HOLE LOCATIONS (AH22-01, AH22-02 & AH22-03)

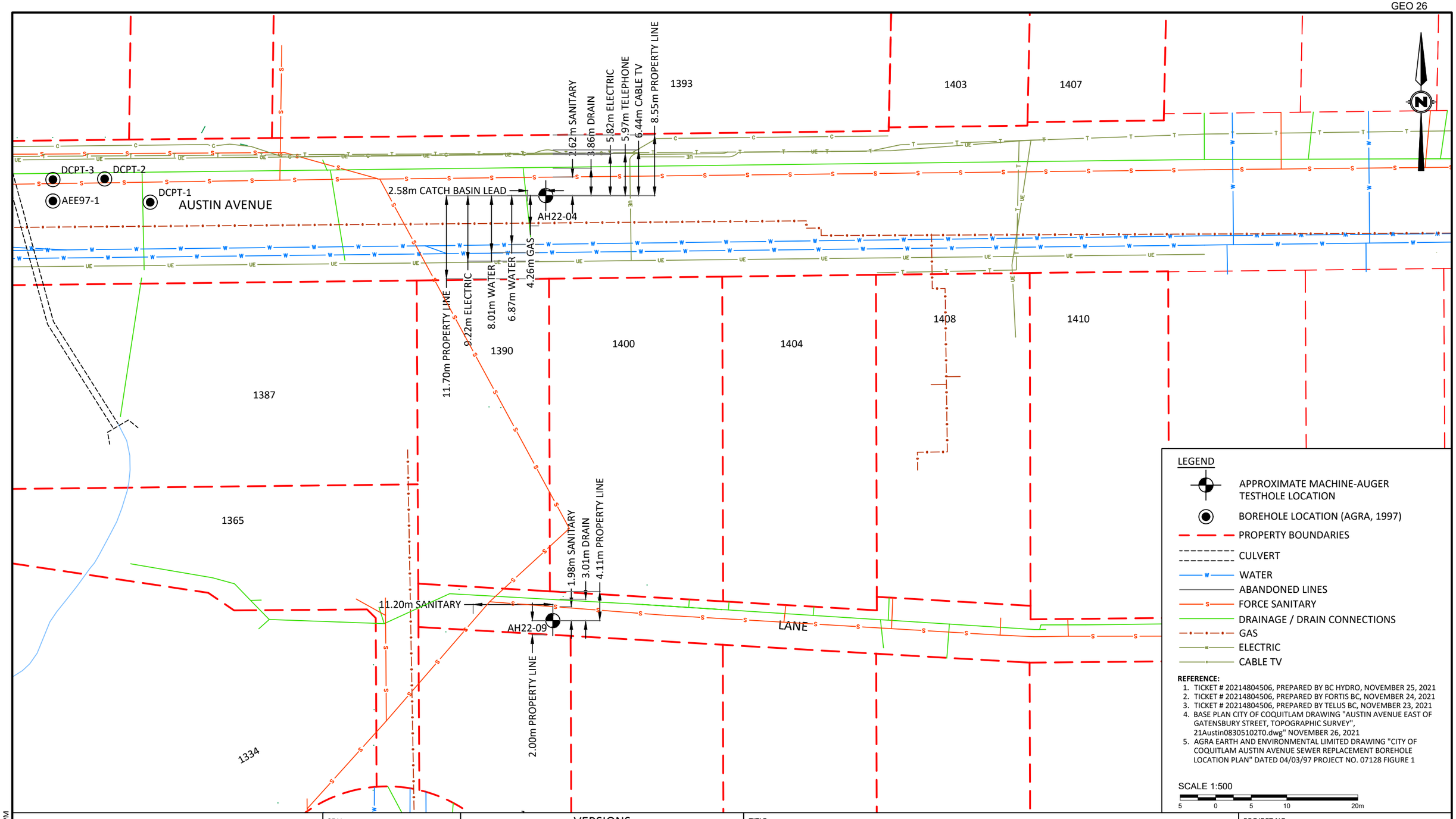
PROJECT NO.: K-221126-00

CLIENT: BINNIE

DATE: 2022-06-07 | SCALE: 1:500 | DWG NO.: FIGURE 2

PROJECT NAME / LOCATION: RFP 21-0989 AUSTIN HEIGHTS SEWER AND PAVEMENT REHABILITATION - PHASE 3 AND 4 AUSTIN AVENUE, COQUITLAM, B.C.

DRAFT: SG | DESIGN: ZM | CHECK: JYT



LEGEND

- APPROXIMATE MACHINE-AUGER TESTHOLE LOCATION
- BOREHOLE LOCATION (AGRA, 1997)
- PROPERTY BOUNDARIES
- CULVERT
- WATER
- ABANDONED LINES
- FORCE SANITARY
- DRAINAGE / DRAIN CONNECTIONS
- GAS
- ELECTRIC
- CABLE TV

REFERENCE:

1. TICKET # 20214804506, PREPARED BY BC HYDRO, NOVEMBER 25, 2021
2. TICKET # 20214804506, PREPARED BY FORTIS BC, NOVEMBER 24, 2021
3. TICKET # 20214804506, PREPARED BY TELUS BC, NOVEMBER 23, 2021
4. BASE PLAN CITY OF COQUITLAM DRAWING "AUSTIN AVENUE EAST OF GATENSBURY STREET, TOPOGRAPHIC SURVEY", 21Austin08305102T0.dwg" NOVEMBER 26, 2021
5. AGRA EARTH AND ENVIRONMENTAL LIMITED DRAWING "CITY OF COQUITLAM AUSTIN AVENUE SEWER REPLACEMENT BOREHOLE LOCATION PLAN" DATED 04/03/97 PROJECT NO. 07128 FIGURE 1

SCALE 1:500

5 0 5 10 20m

Monday, July 4, 2022 2:17:21 PM

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TITLE: FIGURE 3: PROPOSED TEST HOLE LOCATIONS (AH22-04 & AH22-09)

PROJECT NO.: K-221126-00

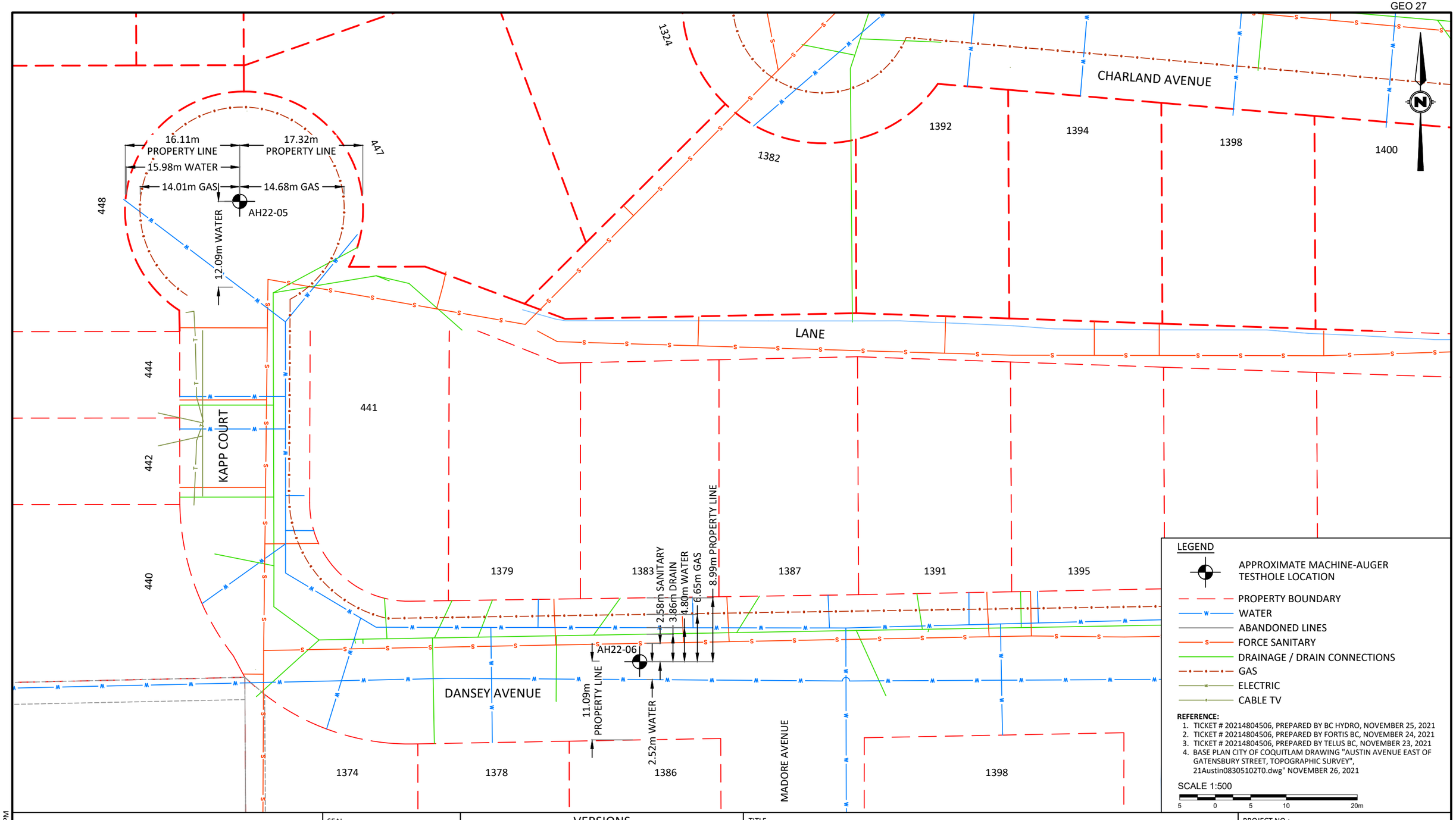
CLIENT: BINNIE

DATE: 2022-06-07 | SCALE: 1:500 | DWG NO.: FIGURE 3

PROJECT NAME / LOCATION: RFP 21-0989 AUSTIN HEIGHTS SEWER AND PAVEMENT REHABILITATION - PHASE 3 AND 4 AUSTIN AVENUE, COQUITLAM, B.C.

DRAFT: SG | DESIGN: ZM | CHECK: JYT

GEO 27



LEGEND

- APPROXIMATE MACHINE-AUGER TESTHOLE LOCATION
- PROPERTY BOUNDARY
- WATER
- ABANDONED LINES
- FORCE SANITARY
- DRAINAGE / DRAIN CONNECTIONS
- GAS
- ELECTRIC
- CABLE TV

REFERENCE:

1. TICKET # 20214804506, PREPARED BY BC HYDRO, NOVEMBER 25, 2021
2. TICKET # 20214804506, PREPARED BY FORTIS BC, NOVEMBER 24, 2021
3. TICKET # 20214804506, PREPARED BY TELUS BC, NOVEMBER 23, 2021
4. BASE PLAN CITY OF COQUITLAM DRAWING "AUSTIN AVENUE EAST OF GATENSBURY STREET, TOPOGRAPHIC SURVEY", 21Austin08305102T0.dwg" NOVEMBER 26, 2021

SCALE 1:500

5 0 5 10 20m

Monday, July 4, 2022 2:17:21 PM

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TITLE: FIGURE 4: PROPOSED TEST HOLE LOCATIONS (AH22-05 & AH22-06)

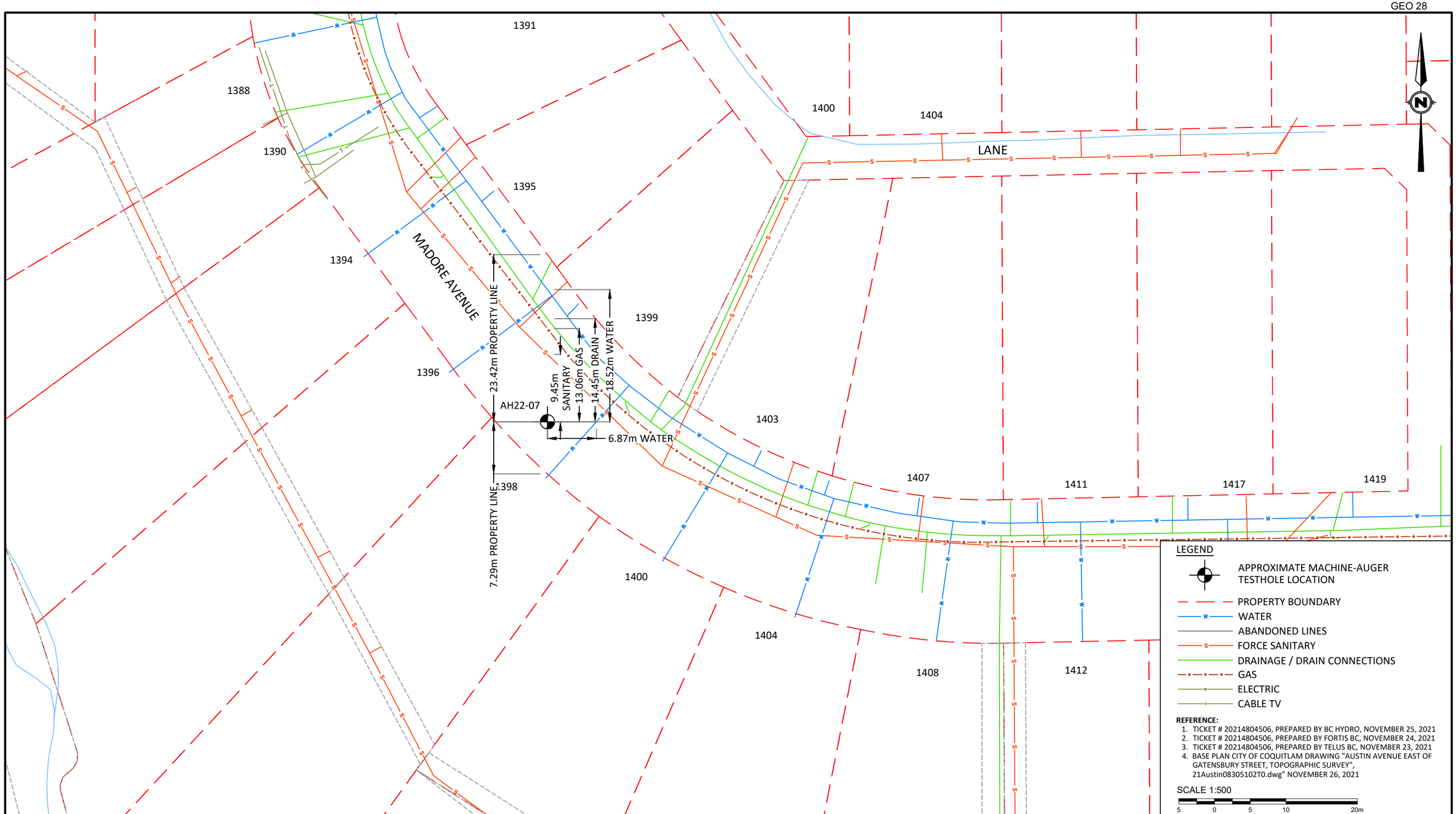
PROJECT NO.: K-221126-00

CLIENT: BINNIE

DATE: 2022-06-07 | SCALE: 1:500 | DWG NO.: FIGURE 4

PROJECT NAME / LOCATION: RFP 21-0989 AUSTIN HEIGHTS SEWER AND PAVEMENT REHABILITATION - PHASE 3 AND 4 AUSTIN AVENUE, COQUITLAM, B.C.

DRAFT: SG | DESIGN: ZM | CHECK: JYT



Monday, July 4, 2022 2:17:22 PM

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TITLE: FIGURE 5: PROPOSED TEST HOLE LOCATIONS (AH22-07)

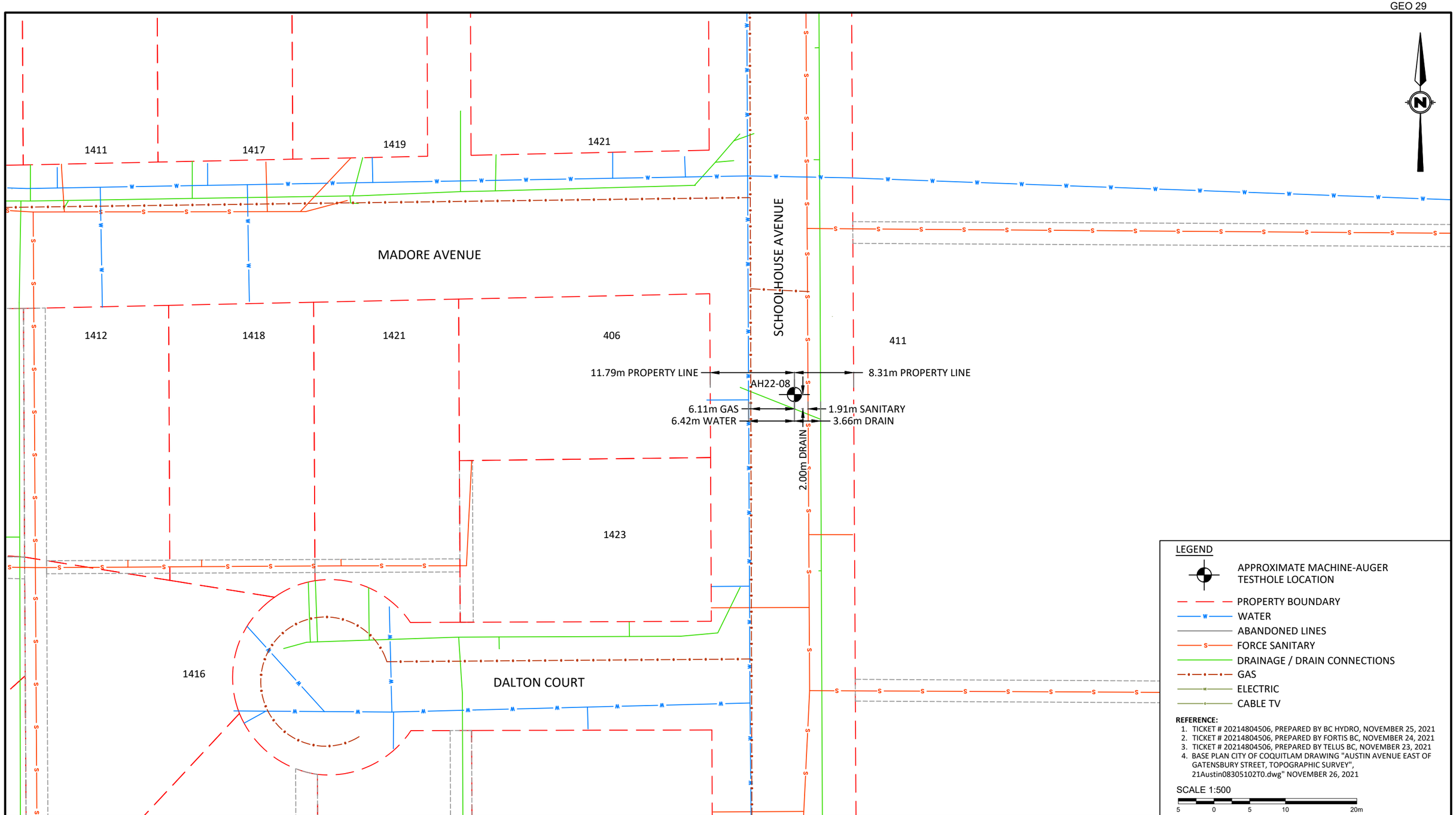
PROJECT NO.: K-221126-00

CLIENT: BINNIE

DATE: 2022-06-07 | SCALE: 1:500 | DWG NO.: FIGURE 5

PROJECT NAME / LOCATION: RFP 21-0989 AUSTIN HEIGHTS SEWER AND PAVEMENT REHABILITATION - PHASE 3 AND 4 AUSTIN AVENUE, COQUITLAM, B.C.

DRAFT: SG | DESIGN: ZM | CHECK: JYT



Monday, July 4, 2022 2:17:22 PM

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TITLE: FIGURE 6: PROPOSED TEST HOLE LOCATIONS (AH22-08)

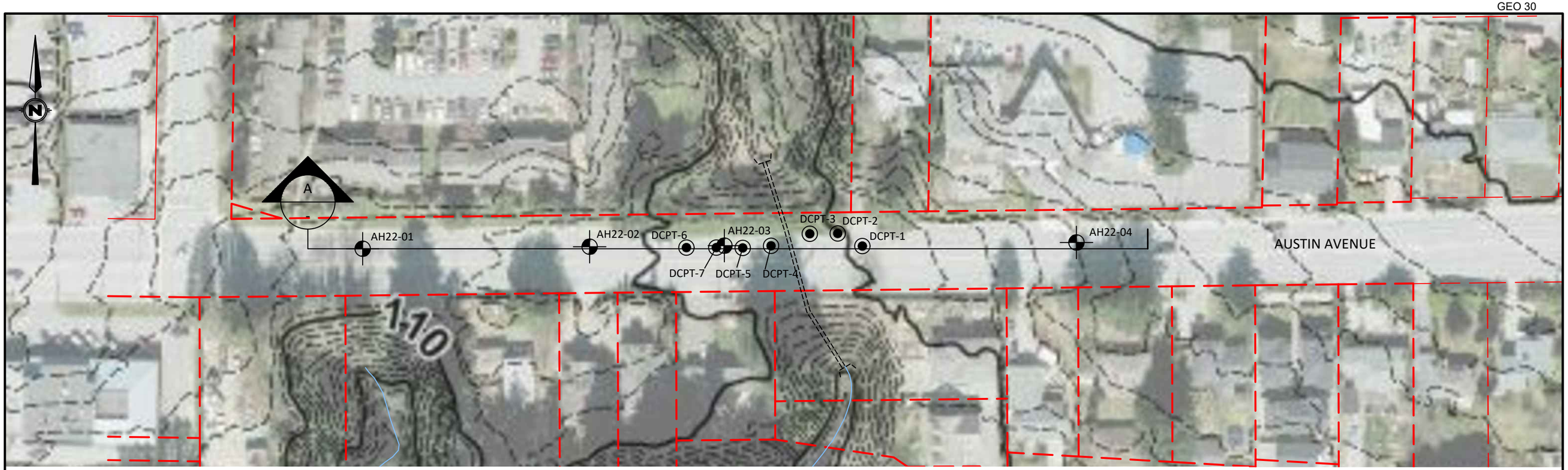
PROJECT NO.: K-221126-00

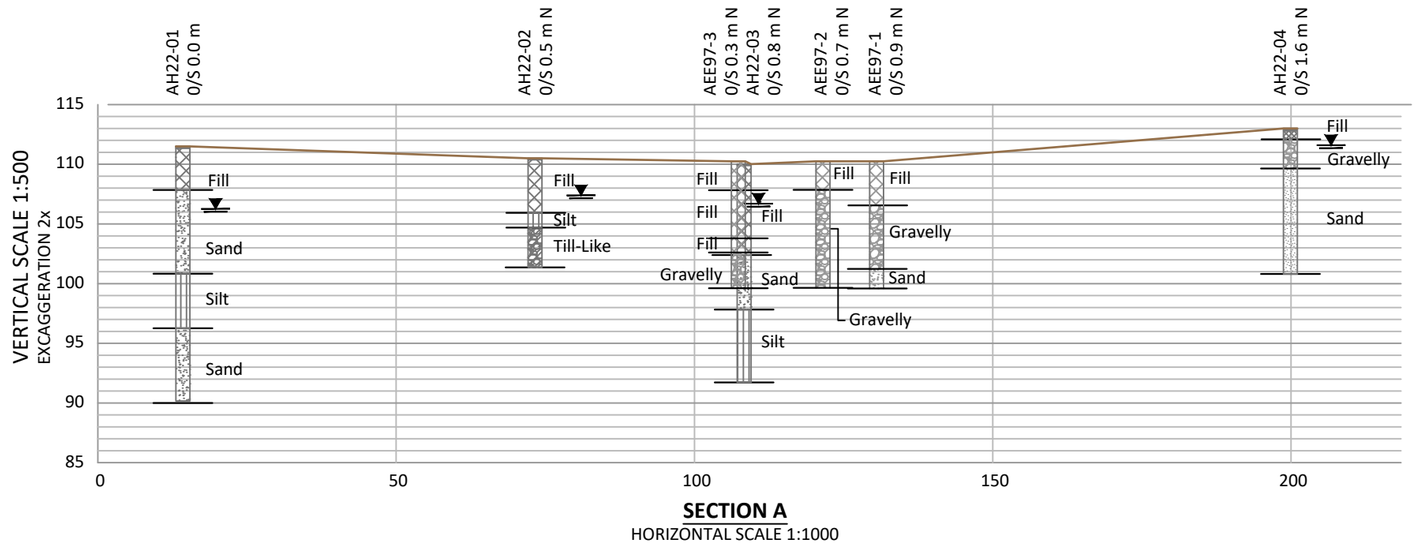
CLIENT: BINNIE

DATE: 2022-06-07 | SCALE: 1:500 | DWG NO.: FIGURE 6

PROJECT NAME / LOCATION: RFP 21-0989 AUSTIN HEIGHTS SEWER AND PAVEMENT REHABILITATION - PHASE 3 AND 4 AUSTIN AVENUE, COQUITLAM, B.C.

DRAFT: SG | DESIGN: ZM | CHECK: JYT





SECTION A
HORIZONTAL SCALE 1:1000

LEGEND

- APPROXIMATE MACHINE-AUGER TESTHOLE LOCATION
- DCPT LOCATION (AGRA, 1997)
- PROPERTY BOUNDARIES
- CULVERT
- GROUND SURFACE
- FILL
- SAND
- SILT
- TILL-LIKE
- GRAVELLY
- WATER LEVEL RECORDED AT TIME DRILLING

REFERENCES:

1. BASE PLAN CITY OF COQUITLAM DRAWING "AUSTIN AVENUE EAST OF GATENSBURY STREET, TOPOGRAPHIC SURVEY", 21Austin08305102T0.dwg" NOVEMBER 26, 2021
2. https://coquitlam.maps.arcgis.com/apps/webappviewer/index.html [accessed June 3, 2022)
3. AGRA EARTH AND ENVIRONMENTAL LIMITED DRAWING "CITY OF COQUITLAM AUSTIN AVENUE SEWER REPLACEMENT BOREHOLE LOCATION PLAN" DATED 04/03/97 PROJECT NO. 07128 FIGURE 1

SCALE 1:1000
10 0 10 20 40m

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TITLE: FIGURE 7: CROSS SECTION A

PROJECT NO.: K-221126-00

CLIENT: BINNIE

DATE: 2022-06-07 | SCALE: 1:1000 | DWG NO.: FIGURE 7

PROJECT NAME / LOCATION: RFP 21-0989 AUSTIN HEIGHTS SEWER AND PAVEMENT REHABILITATION - PHASE 3 AND 4 AUSTIN AVENUE, COQUITLAM, B.C.

DRAFT: SG | DESIGN: ZM | CHECK: JYT

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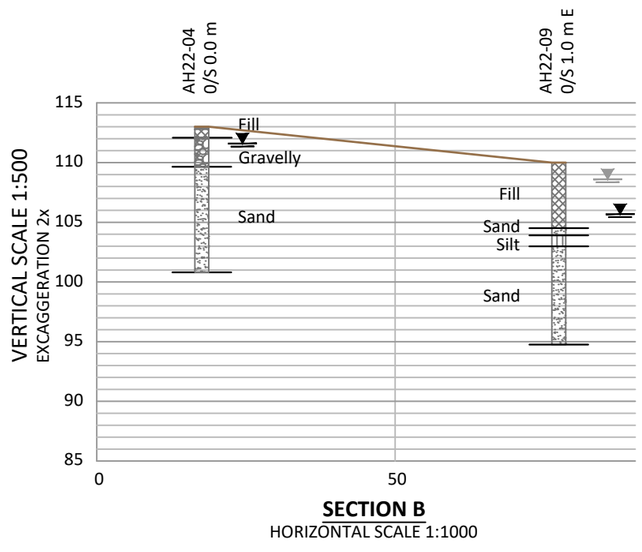

SECTION B
HORIZONTAL SCALE 1:1000

LEGEND

- APPROXIMATE MACHINE-AUGER TESTHOLE LOCATION
- DCPT LOCATION (AGRA, 1997)
- PROPERTY BOUNDARIES
- CULVERT
- GROUND SURFACE
- FILL
- SAND
- SILT
- TILL-LIKE
- GRAVELLY
- WATER LEVEL RECORDED AFTER DRILLING
- WATER LEVEL RECORDED AT TIME DRILLING

REFERENCES:

1. BASE PLAN CITY OF COQUITLAM DRAWING "AUSTIN AVENUE EAST OF GATENSBURY STREET, TOPOGRAPHIC SURVEY", 21Austin08305102T0.dwg" NOVEMBER 26, 2021
2. https://coquitlam.maps.arcgis.com/apps/webappviewer/index.html [accessed June 3, 2022)
3. AGRA EARTH AND ENVIRONMENTAL LIMITED DRAWING "CITY OF COQUITLAM AUSTIN AVENUE SEWER REPLACEMENT BOREHOLE LOCATION PLAN" DATED 04/03/97 PROJECT NO. 07128 FIGURE 1

SCALE 1:1000
10 0 10 20 40m

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TITLE: FIGURE 8: CROSS SECTION B

PROJECT NO.: K-221126-00

CLIENT: BINNIE

DATE: 2022-06-07 | SCALE: 1:1000 | DWG NO.: FIGURE 8

PROJECT NAME / LOCATION: RFP 21-0989 AUSTIN HEIGHTS SEWER AND PAVEMENT REHABILITATION - PHASE 3 AND 4 AUSTIN AVENUE, COQUITLAM, B.C.

DRAFT: SG | DESIGN: ZM | CHECK: JYT

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APPENDIX C
Testhole Logs

Kontur Geotechnical Consultants Inc.
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Port Coquitlam, B.C. V3C 6G5
Telephone: (778) 730 1747

RECORD OF TESTHOLE : AH22-01

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-12
AUGERHOLE LOCATION N: 510385 E: 5455137
DRILLING METHOD Solid Stem Auger
ELEVATION 111.5m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 5.2m
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	GROUNDWATER
0		ASPHALT, 165mm	111.3							
		(FILL) SAND & GRAVEL to GRAVELLY SAND, trace silt, brown, damp, (compact to dense), sand is medium to coarse grained, gravel is sub-angular to sub-rounded	0.2 111.0	S1	GB					
			0.5	S2	GB				18	
1		(FILL) SANDY SILT, trace to some clay, some gravel, grey, moist, (firm to stiff)	110.6							
		(FILL) SAND & GRAVEL, trace to some silt, occasional cobbles and boulders, grey, moist, (compact to dense), sand is fine to medium grained, gravel is sub-angular to sub-rounded	0.9	S3	GB					
2				S4	GB		90			
							100 blows in 100mm			
3				S5	AU					
				S6	AU					
			107.8							
4		SAND, trace gravel, trace silt, brownish grey, moist, (loose to compact), sand is fine to medium grained	3.7	S7	AU					
5		- becomes some silt to silty below 5.1m depth		S8	AU				23	▽
6				S9	AU				27	
		- modeled brown and grey below 6.4m depth		S10	AU				21	
7			104.5							
		SAND, trace silt, grey, wet, (dense to very dense), sand is medium to coarse grained	7.0	S11	AU					
8				S12	AU					
9		- becomes fine to medium grained below 9.1m depth								
10				S13	AU					

(Continued Next Page)

Kontur Geotechnical Consultants Inc.
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Port Coquitlam, B.C. V3C 6G5
Telephone: (778) 730 1747

RECORD OF TESTHOLE : AH22-01

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-12
AUGERHOLE LOCATION N: 510385 E: 5455137
DRILLING METHOD Solid Stem Auger
ELEVATION 111.5m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 5.2m
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m ▲ 20 40 60 80 / DYNAMIC CONE BLOWS/0.3m □ 20 40 60 80	POCKET PEN. (kPa) ⊙ 100 200 300 400	FINES CONTENT (%) □ 20 40 60 80 / PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL 20 40 60 80	GROUNDWATER
		SAND, trace silt, grey, wet, (dense to very dense), sand is medium to coarse grained *(continued)*	100.8							
11		SILTY SAND, trace gravel, grey, wet, (dense to very dense), sand is fine to medium grained	10.7	S14	AU				28	
			99.9							
12		SILT, trace to some sand, trace gravel, grey, damp to moist (stiff to very stiff)	11.6	S15	AU			144	25	
13				S16	AU			192	28	
14										
15				S17	AU			192	25	
			96.3							
		SAND, trace to some silt, trace gravel, grey, moist to wet, (dense to very dense), sand is fine to medium grained	15.2							
16				S18	AU					
17										
				S19	AU					
18		- becomes medium to coarse grained below 18.0m depth								
19				S20	AU					
20										

(Continued Next Page)

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Telephone: (778) 730 1747

RECORD OF TESTHOLE : AH22-01

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-12
AUGERHOLE LOCATION N: 510385 E: 5455137
DRILLING METHOD Solid Stem Auger
ELEVATION 111.5m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
▽ **GROUNDWATER DEPTH AT TIME OF DRILLING** 5.2m
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m ▲ 20 40 60 80 / DYNAMIC CONE BLOWS/0.3m □ 20 40 60 80	POCKET PEN. (kPa) ⊙ 100 200 300 400	FINES CONTENT (%) □ 20 40 60 80 / PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL 20 40 60 80	GROUNDWATER
21		SAND, trace to some silt, trace gravel, grey, moist to wet, (dense to very dense), sand is fine to medium grained *(continued)*	90.2	S21	AU					

Bottom of hole at 21.3m.

NOTES:
- Surface elevation value obtained from Coquitlam GIS
- Testhole hydro-vacuum excavated to 2.0m depth

Kontur Geotechnical Consultants Inc.
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Telephone: (778) 730 1747

RECORD OF TESTHOLE : AH22-02

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-12
AUGERHOLE LOCATION N: 510438 E: 5455141
DRILLING METHOD Solid Stem Auger
ELEVATION 110.5m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 3.0m
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	GROUNDWATER
0		ASPHALT, 130mm	110.4							
		(FILL) SAND & GRAVEL, trace to some silt, occasional cobbles, grey, moist, (compact to dense), sand is fine to medium grained, gravel is sub-angular to sub-rounded	0.1	S22	GB					
1			109.3							
		(FILL) SAND & GRAVEL to GRAVELLY SAND, some silt, occasional cobbles and boulders, grey and brown, moist, (compact to dense), sand is medium to coarse grained, gravel is sub-angular to sub-rounded	1.2				84			
2							100/400			
				S23	AU					
3		- becomes trace silt, wet below 3.0m depth								▽
4				S24	AU					
			105.9							
		SAND, some silt, trace gravel, greyish brown, wet, (dense to very dense), sand is fine to medium grained	4.6				36			
5				S25	AU		71		15	
							92			
			104.7				100/400			
6		SILTY SAND, some gravel to gravelly, light brown, moist to wet, (dense to very dense), sand is fine to medium grained, (TILL-LIKE)	5.8				95			
							100/400			
							100/400			
7				S26	AU		83		16	
							100/400			
							100/400			
8							60			
							100/400			
				S27	AU		100 blows in 75mm		13	
9			101.4							

Bottom of hole at 9.1m.

NOTES:
- Surface elevation value obtained from Coquitlam GIS
- Testhole hydro-vacuum excavated to 1.5m depth
- Testhole DCPT started at 4.5m depth to avoid cobble zone

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Telephone: (778) 730 1747

RECORD OF TESTHOLE : AH22-03

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-12
AUGERHOLE LOCATION N: 510466 E: 5455142
DRILLING METHOD Solid Stem Auger
ELEVATION 110.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 3.0m
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	GROUNDWATER
0		ASPHALT, 115mm	109.9							
		(FILL) SAND, some gravel, trace silt, brown, damp, (compact to dense), sand is medium to coarse grained, gravel is sub-angular to angular	0.1	S28	GB					
			109.4							
1		(FILL) SAND & GRAVEL, trace to some silt, occasional cobbles and boulders, brown, damp, (compact to dense), sand is medium to coarse grained, gravel is sub-angular to angular	0.6	S29	GB					
			108.8							
		(FILL) SAND & GRAVEL, trace to some silt, occasional cobbles and boulders, grey, moist, (compact to dense), sand is fine to medium grained, gravel is sub-angular to sub-rounded	1.2							
2				S30	AU					
			107.6							
		(FILL) SAND, trace gravel, trace silt, brown and grey, modelled, moist, (loose to compact), sand is fine to medium grained	2.4	S31	AU					▽
3										
4				S32	AU					
			105.4							
		(FILL) SAND, some silt to silty, trace gravel, occasional wood debris, brown, moist to wet, (loose to compact), sand is fine to medium grained	4.6				5			
5				S33	AU		5 6 5 5		31	
6							2 0			
		- 600mm thick layer of wood debris at 6.5m depth		S34	AU		8 8 15 48		49	
7										
			102.4							
		SAND, trace gravel, trace silt, grey, wet, (dense to very dense), sand is medium to coarse grained	7.6				100/100			
8				S35	AU		100 blows in 230mm			
9		- becomes grey, fine to medium grained below 9.1m depth								
10				S36	AU					

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Port Coquitlam, B.C. V3C 6G5
Telephone: (778) 730 1747

RECORD OF TESTHOLE : AH22-03

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-12
AUGERHOLE LOCATION N: 510466 E: 5455142
DRILLING METHOD Solid Stem Auger
ELEVATION 110.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 3.0m
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m (20 40 60 80) / DYNAMIC CONE BLOWS/0.3m (20 40 60 80)	POCKET PEN. (kPa) (100 200 300 400)	FINES CONTENT (%) (20 40 60 80) / PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL (20 40 60 80)	GROUNDWATER
11		SAND, trace gravel, trace silt, grey, wet, (dense to very dense), sand is medium to coarse grained *(continued)*		S37	AU					
12			97.8							
13		SILT, trace to some sand, trace gravel, grey, moist, (stiff to very stiff)	12.2	S38	AU			192	27	
14										
15				S39	AU			144	23	
16				S40	AU			192	29	
17										
18				S41	AU			192	29	
			91.7							

Bottom of hole at 18.3m.

NOTES:
- Surface elevation value obtained from Coquitlam GIS
- Testhole hydro-vacuum excavated to 1.5m depth
- Testhole DCPT started at 4.5m depth to avoid cobble zone

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RECORD OF TESTHOLE : AH22-04

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-12
AUGERHOLE LOCATION N: 510556 E: 5455141
DRILLING METHOD Solid Stem Auger
ELEVATION 113.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 1.4m
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	GROUNDWATER
0		ASPHALT, 200mm	112.8							
		(FILL) SAND & GRAVEL, trace silt, occasional cobbles and boulders, grey and brown, damp, (compact to dense), sand is medium to coarse grained, gravel is sub-rounded to sub-angular	0.2	S42	GB					
1			112.1							
		GRAVELLY SAND to SANDY GRAVEL, trace silt, brown, moist to wet, (compact to dense), sand is medium to coarse grained, gravel is sub-angular to sub-rounded	0.9	S43	GB					▽
2										
				S44	AU					
3			109.6							
		SAND, trace to some some gravel, trace silt, brown and grey, wet, (dense to very dense), sand is medium to coarse grained	3.4	S45	AU		43			
4							48			
							44			
5							81			
				S46	AU		100 blows in 150mm			
6										
				S47	AU					
7		- becomes fine to medium grained below 7.0m depth		S48	AU					
8		- wood debris observed at 8.2m depth		S49	AU				23	
9		- becomes medium to coarse grained below 9.1m depth								
10				S50	AU					

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RECORD OF TESTHOLE : AH22-04

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-12
AUGERHOLE LOCATION N: 510556 E: 5455141
DRILLING METHOD Solid Stem Auger
ELEVATION 113.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 1.4m
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m (20 40 60 80)	POCKET PEN. (kPa) (100 200 300 400)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT (PL MC LL) (20 40 60 80)	GROUNDWATER
11		SAND, trace to some some gravel, trace silt, brown and grey, wet, (dense to very dense), sand is medium to coarse grained *(continued)*		S51	AU					
12			100.8	S52	AU					

Bottom of hole at 12.2m.

NOTES:
- Surface elevation value obtained from Coquitlam GIS
- Testhole hydro-vacuum excavated to 1.5m depth
- Testhole DCPT started at 4.5m depth to avoid cobble zone

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RECORD OF TESTHOLE : AH22-05

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-13
AUGERHOLE LOCATION N: 510461 E: 5455011
DRILLING METHOD Solid Stem Auger
ELEVATION 105.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	GROUNDWATER
		ASPHALT, 90mm	104.9							
		(FILL) SAND & GRAVEL, trace silt, brown, damp, (compact), sand is fine to medium grained, gravel is sub-angular to sub-rounded	0.1 / 104.7	S53	GB		34, 15			
1		(FILL) SILTY SAND, trace to some gravel, occasional cobbles, orangish brown, modelled, damp, (loose to compact), sand is fine to medium grained	0.3	S54	GB		10, 6		15	
			103.5				23			
2		(POSSIBLE FILL) SILTY SAND, trace to some gravel, red brown, modelled, damp to moist, (compact to dense), sand is fine to medium grained	1.5 / 102.9	S55	AU		44, 53		23	
		CLAYEY SILT, trace to some sand, trace to some gravel, grey, moist, (stiff)	2.1	S56	AU		22, 18		21	
3		SAND, some silt, some gravel, greyish brown, damp to moist, (compact), sand is medium to coarse grained	102.3 / 2.7				13			
				S57	AU		13, 14, 18			
4			100.7				56			
		SILTY SAND, some gravel, greyish brown, damp to moist, (dense to very dense), sand is medium to coarse grained (TILL-LIKE)	4.3	S58	AU		100 blows in 200mm			
5				S59	AU				11	
6			98.9							
		SILTY SAND to SANDY SILT, some gravel, greyish brown, damp to moist, (dense to very dense/very stiff to hard), sand is medium to coarse grained (TILL-LIKE)	6.1							
7				S60	AU				13	
8										
				S61	AU				12	
9			95.9							

Bottom of hole at 9.1m.

NOTES: Surface elevation value obtained from Coquitlam GIS

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RECORD OF TESTHOLE : AH22-06

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-13
AUGERHOLE LOCATION N: 510513 E: 5454949
DRILLING METHOD Solid Stem Auger
ELEVATION 100.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	GROUNDWATER
0		ASPHALT, 75mm	99.9							
		(FILL) SAND, some gravel, trace silt, brown, damp, (compact to dense), sand is fine to medium grained	0.1	S62	GB		20, 37, 23			
1			99.1							
		SAND, some silt, some gravel, trace to some silt, light brown, damp, (dense to very dense), sand is fine to medium grained	0.9	S63	AU		88			
			98.5				100 blows in 130mm			
2		SILTY SAND, some gravel, greyish brown, damp to moist, (dense to very dense), sand is medium to coarse grained (TILL-LIKE)	1.5	S64	AU				PL MC LL: 10	
3										
4				S65	AU				PL MC LL: 9	
			95.4							

Bottom of hole at 4.6m.

NOTES: Surface elevation value obtained from Coquitlam GIS

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RECORD OF TESTHOLE : AH22-07

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-13
AUGERHOLE LOCATION N: 510573 E: 5454855
DRILLING METHOD Solid Stem Auger
ELEVATION 94.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 4.0m (Inferred)
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	WELL DIAGRAM	GROUNDWATER
		ASPHALT, 75mm	93.9							Casing Type:	
		(FILL) SAND & GRAVEL, trace silt, grey, damp, (compact), sand is medium to coarse grained, gravel is sub-angular to angular	0.1 93.4	S66	GB		24, 18			Flush Mount Monument	
1		(TOPSOIL) SANDY SILT, trace to some clay, some gravel, wood debris and rootlets, dark brown, moist, (soft to firm)	0.6 92.8	S67	GB		7, 5		47		
		CLAYEY SILT, trace to some sand, trace to some gravel, grey, damp, (stiff)	1.2 92.2	S68	AU		18, 25		22	Filter Sand & Cuttings	
2		SILTY SAND, some gravel, greyish brown, damp, (dense to very dense), sand is medium to coarse grained	1.8	S69	AU		56 100 blows in 150mm		24	Bentonite Seal Filter Sand	
3			91.0								
		SAND, some silt, some gravel, greyish brown, damp to moist, (dense to very dense), sand is medium to coarse grained	3.0	S70	AU					50mm PVC Slotted Screen	2022-06-13
4			89.4								
		SILTY SAND, some gravel, greyish brown, damp to moist, (dense to very dense), sand is fine to medium grained (TILL-LIKE)	4.6	S71	AU				10	Bentonite Seal	
5											
6			87.9								

Bottom of hole at 6.1m.

NOTES: Surface elevation value obtained from Coquitlam GIS

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RECORD OF TESTHOLE : AH22-08

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-13
AUGERHOLE LOCATION N: 510743 E: 5454811
DRILLING METHOD Solid Stem Auger
ELEVATION 93.5m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 2.1m (Inferred)
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	SPT 'N' VALUE BLOWS/0.3m (20 40 60 80) / DYNAMIC CONE BLOWS/0.3m (20 40 60 80)	POCKET PEN. (kPa) (100 200 300 400)	FINES CONTENT (%) (20 40 60 80) / PLASTIC & LIQUID LIMIT WATER CONTENT (PL MC LL; 20 40 60 80)	GROUNDWATER
		ASPHALT, 100mm	93.4							
		(FILL) SAND & GRAVEL, trace silt, grey, damp, (compact to dense), sand is medium to coarse grained, gravel is sub-angular to angular	0.1	S72	GB					
1			92.6							
		CLAYEY SILT, trace to some sand, trace to some gravel, trace to some clay, grey, damp to moist, (stiff)	0.9	S73	AU				23	
			92.0							
2		SAND, some silt, some gravel, greyish brown, moist to wet, (compact to dense), sand is medium to coarse grained	1.5	S74	AU					▽
3										
4				S75	AU					
		- becomes trace silt below 4.5m depth								
5				S76	AU					
6										
7				S77	AU					
8										
				S78	AU					
9			84.4							

Bottom of hole at 9.1m.

NOTES: Surface elevation value obtained from Coquitlam GIS

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RECORD OF TESTHOLE : AH22-09

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-13
AUGERHOLE LOCATION N: 510562 E: 5455088
DRILLING METHOD Solid Stem Auger
ELEVATION 110.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 4.3m (Inferred)
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	WELL DIAGRAM	GROUNDWATER
0		(FILL) SAND & GRAVEL, trace silt, grey, damp, (compact), sand is medium to coarse grained, gravel is sub-angular to angular	109.7 0.3	S79	AU		19, 12, 8		16	Casing Type: Flush Mount Monument	
1		(FILL) SILTY SAND, some gravel, trace clay, brown and grey, modelled, damp, (loose to compact), sand is fine to medium grained	108.5	S80	AU		5, 4, 12				2022-06-13
2		(FILL) SAND & GRAVEL, trace to some silt, light grey and brown, damp to moist, (loose to compact), sand is medium to coarse grained, gravel is sub-angular to sub-rounded - becomes red brown below 2.1m depth	1.5	S81	AU		14, 6, 6, 12				
3		(FILL) SILTY SAND, some gravel, red brown, moist to wet, (loose to compact), sand is medium to coarse grained	107.0 3.0	S82	AU		14, 7, 5		21	Filter Sand, Bentonite & Drill Cuttings	
4				S83	AU		6, 5, 15		23		
5			104.5				21, 16				
6		SAND, some silt, trace gravel, grey, wet, (compact), sand is fine to medium grained	5.5 103.9	S84	AU		26, 35				
7		SILT, trace to some sand, trace gravel, grey, moist, (stiff to very stiff)	6.1 103.0	S85	AU		50, 47, 29	144	25	Bentonite Seal Filter Sand	
8		SAND, some silt to silty, some gravel, grey, wet, (loose to compact), sand is fine to medium grained	7.0	S86	AU		10, 8, 16				
9				S87	AU		17, 15, 14, 46			50mm PVC Slotted Screen	
10		- becomes (dense to very dense), medium to coarse grained below 9.1m depth		S88	AU		80, 93, 80				

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RECORD OF TESTHOLE : AH22-09

CLIENT BINNIE
PROJECT NUMBER K-221126-00
PROJECT NAME RFP 21-0989 Austin Heights Sewer & Pavement Rehabilitation
PROJECT LOCATION Austin Heights, Coquitlam, B.C.
DRILLING DATE 2022-04-13
AUGERHOLE LOCATION N: 510562 E: 5455088
DRILLING METHOD Solid Stem Auger
ELEVATION 110.0m (approximate)
DRILLING CONTRACTOR Southland Drilling Co. Ltd.
GROUNDWATER DEPTH AT TIME OF DRILLING 4.3m (Inferred)
EQUIPMENT TYPE Truck Mounted Auger Drill
LOGGED BY ZM **CHECKED BY** JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	SPT 'N' VALUE BLOWS/0.3m / DYNAMIC CONE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%) / PLASTIC & LIQUID LIMIT WATER CONTENT	WELL DIAGRAM	GROUNDWATER
11		SAND, some silt to silty, some gravel, grey, wet, (loose to compact), sand is fine to medium grained *(continued)*					100 blows in 280mm			Casing Type: Bentonite Seal	
12				S89	AU						
13				S90	AU						
14				S91	AU						
15			94.8								

Bottom of hole at 15.2m.

NOTES: Surface elevation value obtained from Coquitlam GIS

AUSTIN HEIGHTS, COQUITLAM, B.C.

General Site Layout and Approximate Core Location Plan

CORE NO.: CH22-01 (10U, 510509 m E, 5455149 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2450	-	-	-	134
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-02 (10U, 510471 m E, 5455145 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2467	-	-	-	123
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-03 (10U, 510360 m E, 5455148 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2412	-	-	-	114
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-04 (10U, 510422 m E, 5455140 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2403	-	-	-	124
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-05 (10U, 510509 m E, 5455136 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2401	-	-	-	131
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-06 (10U, 510600 m E, 5455142 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2446	-	-	-	133
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-07 (10U, 510697 m E, 5455139 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2432	-	-	-	129
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-08 (10U, 510642 m E, 5455143 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2461	-	-	-	138
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-09 (10U, 510457 m E, 5455011 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2238	-	-	-	62
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-10 (10U, 510461 m E, 5454988 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2344	-	-	-	81
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-11 (10U, 510496 m E, 5454947 m N) **DATE CORED: 2022-04-19**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2353	-	-	-	91
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-12 (10U, 4510543 m E, 5454906 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2427	-	-	-	74
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-13 (10U 510561 m E, 5454870 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2408	-	-	-	76
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-14 (10U, 510619 m E, 5454836 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2423	-	-	-	72
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-15 (10U, 510667 m E, 5454834 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2417	-	-	-	80
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

CORE NO.: CH22-16 (10U, 510711 m E, 5454837 m N) **DATE CORED: 2022-04-11**

LIFT	Core Density (kg/m³)	Marshall Density (kg/m³)	Compaction (%)	Lift Thickness (mm)	Total Thickness (mm)
Top	2417	-	-	-	54
Middle	-	-	-	-	-
Bottom	-	-	-	-	-

Appendix C -
Standard Detail Drawings

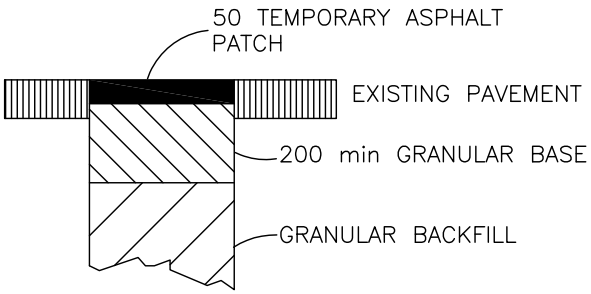
Coquitlam

STANDARD DETAIL DRAWINGS

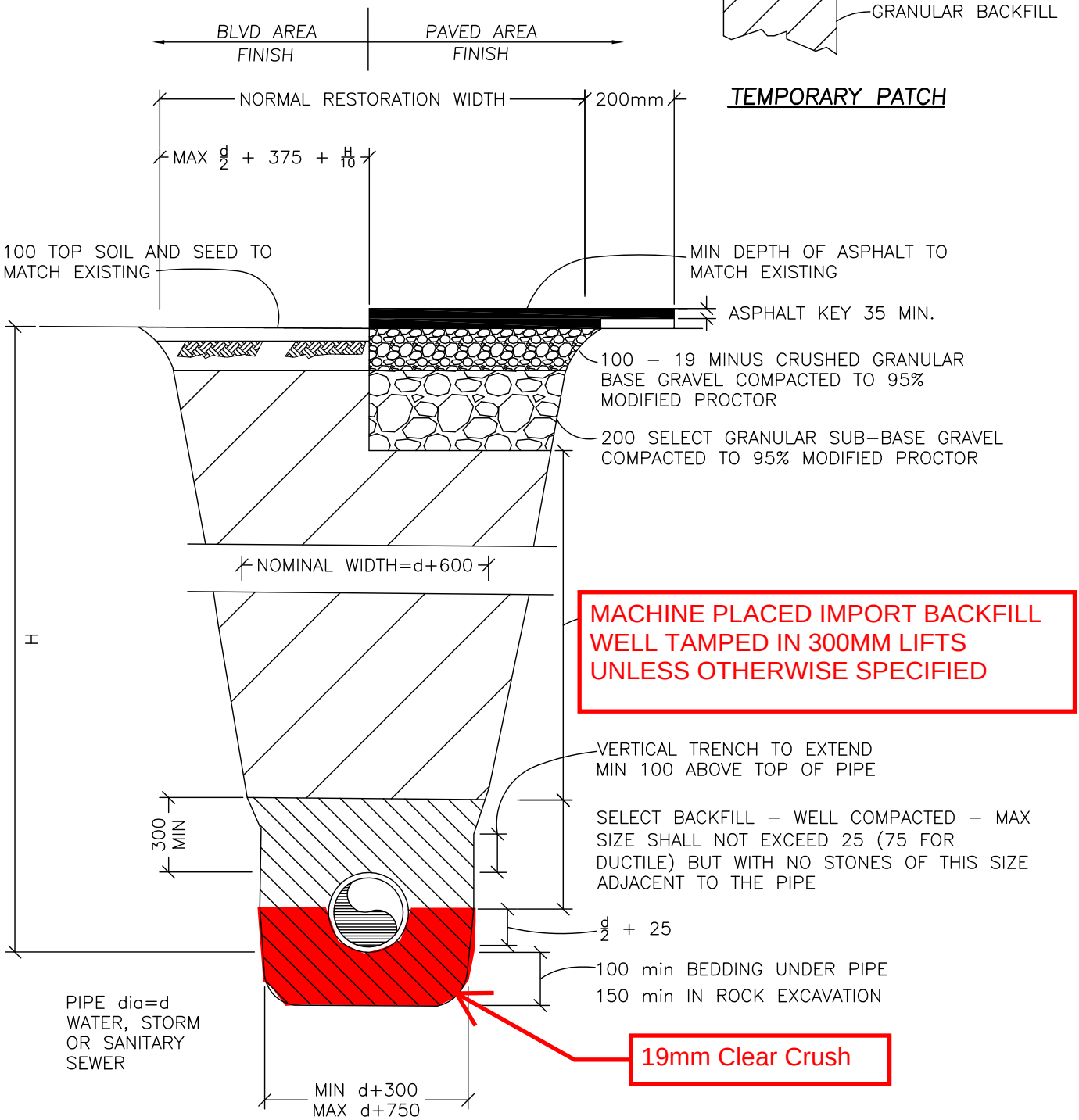
ALL DIMENSIONS IN MILLIMETRES

d = PIPE DIA IN mm

H = TRENCH DEPTH IN mm



TEMPORARY PATCH



PLOTTED: 16–Oct–14

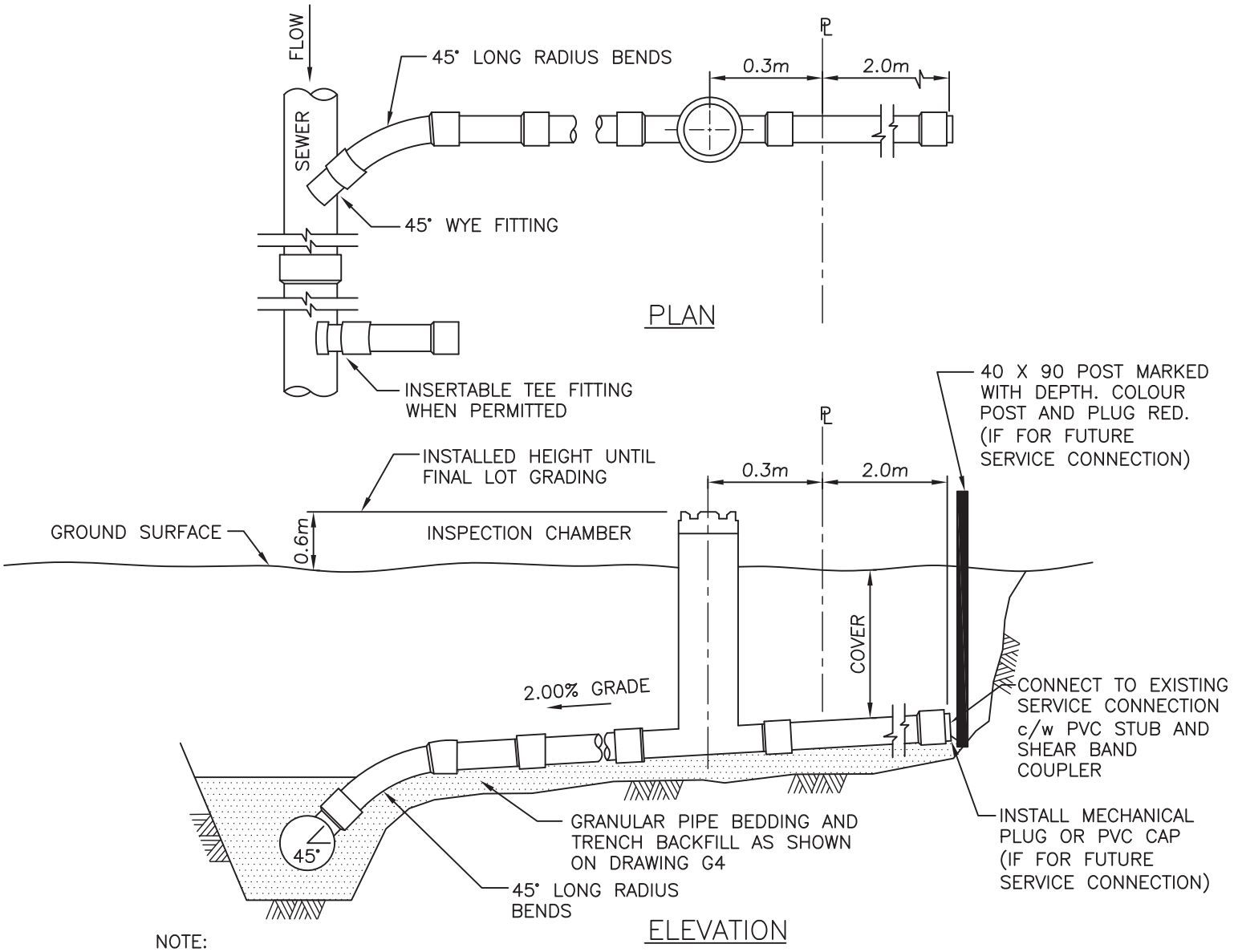
TRENCH DETAILS FOR STANDARD SECTION

DATE:	JUNE/2014
DRAWN:	REY
SCALE:	N.T.S.

DRAWING NUMBER: COQ-G4A

Coquitlam

STANDARD DETAIL DRAWINGS



NOTE:

1. CONNECTIONS TO BE 100mm PVC SDR28 OR AS SPECIFIED ON CONTRACT DRAWINGS OR AS DIRECTED BY CONTRACT ADMINISTRATOR.
2. CONNECTION TO BE INSTALLED AT 2% GRADE FROM WYE AT MAIN TO PROPERTY LINE UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS OR AS APPROVED BY CONTRACT ADMINISTRATOR. ONLY 45 DEGREE LONG RADIUS CAN BE USED FOR BENDS.
3. DISTANCE OF INSPECTION CHAMBER AND MARKER AS SHOWN OR AS SPECIFIED ON CONTRACT DRAWINGS OR AS DIRECTED BY CONTRACT ADMINISTRATOR.
4. SEE DRAWING S9 FOR DETAILS OF INSPECTION CHAMBER AND INSTALLATION REQUIREMENTS.
5. IC LID (RED COLOR) TO BE 25mm BELOW THE BASE OF SOD FINAL ELEVATION.
6. LOCATION OF INSPECTION CHAMBER AND MARKER AS SHOWN OR AS SPECIFIED ON CONTRACT DRAWINGS UNLESS OTHERWISE DIRECTED BY CONTRACT ADMINISTRATOR.
7. IN DRIVEWAYS, INSPECTION CHAMBER IS TO BE INSTALLED WITH BROOKS BOX. BROOKS BOX WITH METAL LID IS TO BE INSTALLED PARALLEL TO THE DIRECTION OF THE FLOW.

PLOTTED: 13–Jul–20

SANITARY SEWER SERVICE CONNECTION

DATE:	JULY/2020
DRAWN:	REY
SCALE:	N.T.S.

DRAWING NUMBER:

COQ-S7A