Coquitlam

City of Coquitlam

Contract Documents
81293

Oakdale Park Stormwater Treatment Facility

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Contract No. 81293

Oakdale Park Stormwater Treatment Facility

Project Construction Documents

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Invitation to Tender

INVITATION TO TENDER

DATE OF ISSUE: **March 25, 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. 81293

Oakdale Park Stormwater Treatment Facility

The City of Coquitlam invites tenders for **Contract 81293 – Oakdale Park Stormwater Treatment Facility**, generally consisting of the following, but not limited to:

- Supply and Installation of Stormceptor MAX and JFVLAN-III Jellyfish Vaults,
- Supply and Installation of approx. 112 metres of 450mm to 1200mm dia. Conc. Storm main including removal of existing pipes,
- Other miscellaneous and incidental works 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
Monday, April 15, 2024
("Closing Date and Time")

Addenda

Tenderers are required to check the City's website for any updated information 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
Purchasing Manager

Instructions to Tenderers

Tender 81293

Oakdale Park Stormwater Treatment Facility

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: **Oakdale Park Stormwater Treatment Facility**

Reference No. **81293**

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:

- Supply and Installation of Stormceptor MAX and JFVLAN-III Jellyfish Vaults,
- Supply and Installation of approx. 112 metres of 450mm to 1200mm dia. Conc. Storm main including removal of existing pipes,
- Other miscellaneous and incidental works 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, **Wednesday, April 10, 2024.**

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

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: **April 15, 2024**

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

Additional Instructions to Tenderers

The Place of Work is located in an environmentally sensitive area. The Contractor is responsible for reviewing and abiding to the specifications described in Supplementary Contract Specifications – Section 01 57 01S – Environmental Protection.

Obtaining Documents

4.1 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

4.2 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

4.3 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

4.4 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 4.5 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 4.6 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 4.7 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 4.8 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 4.9 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 4.10 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 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. 81293

Oakdale Park Stormwater Treatment Facility

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)
Monday, April 15, 2024

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

April 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: **Oakdale Park Stormwater Treatment Facility**
Reference No.: **81293**

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 **September 20, 2024**; 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 81293
Oakdale Park Stormwater Treatment Facility

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		
4.00	**03 30 20S**	**CONCRETE WALKS, CURBS AND GUTTERS**				
4.01	(1.4.3)	Remove and Replace Concrete Curb and Gutter (MMCD C5) (Provisional)	l.m	25		
5.00	**03 40 01S**	**PRECAST CONCRETE**				
5.01	(1.4.2)	Remove and Replace Allan Block Wall at 831 North Rd (Provisional)	sq.m	6		
6.00	**31 23 17**	**ROCK REMOVAL**				
6.01	1.6	Rock Removals (Provisional)	cu.m	10		
7.00	**31 24 13S**	**ROADWAY EXCAVATION, EMBANKMENT, AND COMPACTION**				
7.01	(1.8.5)	Common Excavation (Removal and Off-site Disposal for on-site regrading works at 827 North Rd) (Provisional)	cu.m	10		
7.02	(1.8.5)	Remove Existing Concrete Driveways and Sidewalks (All Depths) (Sawcut, Removal and Off-site Disposal for on-site works at 827 North Rd)	sq.m	110		
7.03	(1.8.10)	Over-excavation (Provisional)	cu.m	10		
8.00	**32 01 16.7S**	**COLD MILLING**				
8.01	(1.5.4)	Surface mill - 35mm depth for Permanent Pavement Trench Restoration (as per COQ-G4)	sq.m	225		
9.00	**32 11 16.1S**	**GRANULAR SUBBASE**				
9.01	(1.4.3)	75mm Minus Granular Base (for on-site driveway works at 827 North Rd)	tonne	95		
10.00	**32 11 23S**	**GRANULAR BASE**				
10.01	(1.4.3)	19mm Minus Granular Base (for on-site driveway works at 827 North Rd)	tonne	55		
11.00	**32 12 13.1S**	**ASPHALT TACK COAT**				
11.01	(1.5.1)	Asphalt Tack Coat - Emulsified Asphalt	sq.m	225		
12.00	**32 12 16S**	**HOT-MIX ASPHALT CONCRETE PAVING**				
12.01	(1.5.1)	MMCD Upper Course #2 Asphalt - 35mm Thick Permanent Pavement Trench Restoration	sq.m	225		
12.02	(1.5.3)	MMCD Upper Course #2 Asphalt - 75mm Thick Driveway (for on-site driveway works at 827 North Rd)	tonne	30		
13.00	**32 31 13S**	**CHAIN LINK FENCES AND GATES**				
13.01	(1.5.1)	1.5m high Chain Link Fence	l.m	40		
13.02	(1.5.2)	1.5m high Chain Link Sliding Gate with Pin Assembly-Style Latch	l.m	7.6		
14.00	**32 91 21S**	**TOP SOIL AND FINISH GRADING**				
14.01	(1.4.1)	Imported Topsoil - 150mm Thick (Provisional)	cu.m	40		
15.00	**32 92 19S**	**HYDRAULIC SEEDING**				
15.01	1.8.1	Hydraulic Seeding (Provisional)	sq.m	240		
16.00	**33 11 01S**	**WATERWORKS**				
16.01	(1.8.4)	Isolate existing 200mm CI Water main and provide temporary water service to 831 North Rd	L.S.	1		
16.02	(1.8.4)	Cap and abandon existing 20mm water service at 827 North Rd	L.S.	1		
17.00	**33 30 01S**	**SANITARY SEWERS**				
17.01	(1.6.3)	Cap and abandon existing 100mm sanitary service at 827 North Rd	L.S.	1		
18.00	**33 40 01S**	**STORM SEWERS**				
18.01	(1.6.2)	Prop. 450mm C-14 CL3 Conc. Pipe	l.m.	14		
18.02	(1.6.2)	Prop. 600mm C-14 CL3 Conc. Pipe	l.m.	26.0		
18.03	(1.6.2)	Remove existing 600mm Conc. STM pipe and replace with Prop. 600mm C-14 CL3 Conc. Pipe	l.m.	2.5		
18.04	(1.6.2)	Remove existing 900mm Conc. STM pipe and replace with Prop. 1050mm C-76 CLIII Conc. Pipe	l.m.	61		
18.05	(1.6.2)	Remove existing 1050mm Conc. STM pipe and replace with Prop. 1200mm C-76 CLIII Conc. Pipe	l.m.	17.5		
18.06	(1.6.3)	Reconnect existing 150mm storm service from 831 North Rd to Prop. 1050mm Conc. STM pipe.	L.S.	1		
18.07	(1.6.3)	Cap and abandon existing 100mm storm service at 827 North Rd	L.S.	1		
18.08	(1.6.5)	Prop. 150mm PVC DR28 Catchbasin Lead	l.m.	9		
18.09	(1.6.9)	Tie-in into existing STM MH with Prop 900mm x 1050mm Conc. Reducer	each	1		
18.10	(1.6.9)	Tie-in into existing STM MH with Prop 600mm Conc. Pipe	each	1		
18.11	(1.6.9)	Tie-in into existing 1200mm STM Pipe with Prop 1800mm Manhole	each	1		
18.12	(1.6.12)	***Prop. Storm Water Treatment Facility*** : Includes Stormceptor MAX MH D08, Collection STM MH D09, Sediment Settling Chamber, JFVLAN-III Jellyfish Vaults, c/w stainless steel flush mount sleeve for a 3" diameter davit arm pole and receiver	L.S.	1		
19.00	**33 44 01s**	**MANHOLES AND CATCHBASINS**				
19.01	(1.5.1.1)	1050mm Manhole Lid, slab and Frame and Cover	ea.	3		
19.02	(1.5.1.1)	1800mm Manhole Lid, slab and Frame and Cover	ea.	1		
19.03	(1.5.1.2)	1050mm Manhole Riser Sections	vert.m.	4.3		
19.04	(1.5.1.2)	1800mm Manhole Riser Sections	vert.m.	1.6		
19.05	(1.5.1.3)	1050mm Manhole Tee on 1200mm Conc. Pipe (MH D02)	ea.	1		
19.06	(1.5.1.3)	1050mm Manhole Tee on 1050 Conc. Pipe c/w 600mm Conc. Pipe Stub (MH D03)	ea.	1		
19.07	(1.5.1.3)	1050mm Manhole Tee on 1050 Conc. Pipe c/w 450mm Conc. Pipe Stub and Conc. Diversion Weir (MH D04)	ea.	1		
19.08	(1.5.1.3)	600mm x 1200mm C76 Concrete Reducer	ea.	1		
19.09	(1.5.1.3)	900mm x 1050mm C76 Concrete Reducer	ea.	1		
19.10	(1.5.1.3)	1050mm x 1200mm C76 Concrete Reducer	ea.	1		
19.11	(1.5.1.3)	1200mm x 1200mm x 1200mm C76 Concrete Wye	ea.	1		
19.12	(1.5.1.3)	1200mm diameter C76 Concrete 45 degree Mitre Bend	ea.	1		
19.13	(1.5.2)	Remove existing catchbasin and replace with Prop. Side Inlet Catchbasin as per COQ-S11A	ea.	1		

Total Tendered Price (exclude GST): _____

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

Name of Contractor: _____

APPENDIX 2

FORM OF TENDER

Contract 81293
Oakdale Park Stormwater Treatment Facility

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

INDICATE SCHEDULE WITH BAR CHART WITH CONSTRUCTION DURATIONS

Construction Activity	July					August				September		
	1	2	3	4	5	1	2	3	4	1	2	3

Substantial Completion Date: **September 20, 2024**

Proposed Disposal Site: _____

APPENDIX 3

FORM OF TENDER

Contract 81293
Oakdale Park Stormwater Treatment Facility

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 81293
Oakdale Park Stormwater Treatment Facility

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 81293
Oakdale Park Stormwater Treatment Facility

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 81293
Oakdale Park Stormwater Treatment Facility

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 _____, 2024, 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 _____, 2024.

SIGNED, SEALED AND DELIVERED
In the presence of:

)
)
)
)
_____)

_____
PRINCIPAL

_____
SURETY

APPENDIX 7

FORM OF TENDER

Contract 81293
Oakdale Park Stormwater Treatment Facility

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: **81293**

Contract Name: **Oakdale Park Stormwater Treatment Facility**

Description of Work:

- Supply and Installation of Stormceptor MAX and JFVLAN-III Jellyfish Vaults,
- Supply and Installation of approx. 112 metres of 450mm to 1200mm dia. Conc. Storm main including removal of existing pipes,
- Other miscellaneous and incidental works 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 _____ 2024.

Contract: **Oakdale Park Stormwater Treatment Facility**

***Reference No*. 81293**

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 **September 20, 2024,** 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 enure 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)

Oakdale Park Stormwater Treatment Facility

Reference No: 81293

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

Oakdale Park Stormwater Treatment Facility

Reference No: 81293

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: Imbrium Systems Proposal Drawings & Specifications

Appendix C: Additional Information

Bound Separately: Contract Drawings

TITLE	SHEET NO.	REVISION NO.	DATE
COVER PAGE	-	-	-
GENERAL NOTES & DETAILS – NORTH ROAD	01 of 04	1	2024-03-20
STORM SEWER – SITE PLAN, SECTIONS & DETAILS – NORTH ROAD	02 of 04	1	2024-03-20
STORM SEWER – PLAN & PROFILE – NORTH ROAD – STA. 2+100 TO 2+200 & STA. 4+100 TO 4+120	03 of 04	1	2024-03-20
STORM SEWER – PLAN & PROFILE – NORTH ROAD – STA. 2+110 TO 2+150	04 of 04	1	2024-03-20

Supplementary General Conditions

SUPPLEMENTARY GENERAL CONDITIONS

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Section 4: CONTRACTOR ..... SGC 3 to SGC 7
4.1 Control of the Work ..... SGC 3 to SGC 4
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4.3 Protection of Work, Property and the Public ..... SGC 4
4.6 Construction Schedule ..... SGC 5
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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

)
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)
)
)

_____
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

Subject: **Prime Contractor Designation**
Contract No.: **81293**
Contract Name: **Oakdale Park Stormwater Treatment Facility** (the "Project")

_____ (the "Contractor") represents, acknowledges and agrees that:

1. in accordance with section 24 of the *Workers Compensation Act*, R.S.B.C. 2019, c. 1 (the "*Workers Compensation Act*"), the Contractor shall be the "Prime Contractor" and is qualified to act as the "Prime Contractor" in respect of the Project;
2. the Contractor accepts the duties and responsibilities for coordination of health and safety in accordance with the *Workers Compensation Ac*t and further agrees that it will do everything necessary to establish and maintain a system or process that will insure compliance with the *Workers Compensation Act* and the Regulations thereto;
3. the Contractor shall fulfill all the obligations of an "Owner" under section 25 of the *Workers Compensation Act* in respect of the Project site; and
4. that the City of Coquitlam has fulfilled its obligations as an "Owner" under section 25 of the *Workers Compensation Act*, in respect of the Project site.

Prime Contractor Name & Address:

_____

_____

_____

_____ _____
Prime Contractor Signature Date

_____
Print Name

Please return a signed copy of this memo to the City of Coquitlam, 3000 Guildford Way, Coquitlam, B.C. V3B 7N2

If you have any questions, please contact the City's Health and Safety Advisor at 604-927-3068.

Supplementary Contract Specifications

Supplementary Contract Specifications

to the
MASTER MUNICIPAL SPECIFICATIONS
Volume II – Platinum Book

Oakdale Park Stormwater Treatment Facility
CONTRACT 81293

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

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1.00 CONTRACT SPECIFIC INSTRUCTIONS

1.01 Schedule of Work

All work under this Contract is to be completed within the designated Contract Duration. The Contractor must provide sufficient resources in a continuous effort and site presence to complete all the work within the allotted time.

1.03 Coordination of Work

The Contractor shall be responsible to consult with all affected businesses, schools, 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 contractors 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.

1.04 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). Contractors 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 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.

1.07 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 will all of the conditions required from outside agencies such as, but not limited to, BC One Call, Metro Vancouver, BC Hydro, Telus, Trans Mountain, and FortisBC if present in the Place of Work.

1.08 Lane Closure Restrictions

Refer to: Appendix A: Traffic Management Detail Specifications.

A Road and Sidewalk Closure Permit is required for each instance of closure and will be valid for a maximum period of two (2) weeks and, if still necessary, re-submittal of a Road and Sidewalk Closure Request is required.

1.09 Precautions

Protect areas under construction from damage caused by excessive erosion, flooding, heavy rains, etc. Repair or replace unprotected damaged areas as directed by the Contract Administrator at no cost to the Owner.

1.10 Location of Existing Utilities

The contractor is responsible to verify the depth and location of all utilities (watermains, storm mains, sanitary mains & etc.), including outside agency utilities (i.e. Fortis BC Gas Mains & 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 Metro Vancouver for location of their utilities and BC One for location of other outside agency utilities. The contractor 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.

Payment for this work will be treated as incidental to payment for work described in other Sections.

1.11 List of Approved Products

A list of products that have been approved for use within the City of Coquitlam can be found on the City's website (www.coquitlam.ca).

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 may have a video record of the pipe before construction. Prior to Substantial Completion, 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 and at the end of construction and prior to the Substantial Performance review. 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.

Payment for this work will be treated as incidental to payment for work described in other Sections.

3.00 MANDATORY MEETINGS AND CONTRACTOR REPRESENTATIVES AND SUBCONTRACTORS

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 & 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, and 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 and durations.

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 Subcontractors

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 Subcontractors.

Work done by Subcontractors 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 is not responsible for the direction of Subcontractors.

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. Record documents to include changes in the Issued for Construction Drawings, new elevation & location of all utilities, utility crossings, manhole rim, catchbasin rim, vaults, valve boxes and inverts affected by the work. Legal Holdbacks will not be released until record drawings 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.

The intent of this project is to install inspection chambers, repair service connections as required, renew storm and sanitary service connections, and complete all surface restorations. All Work must be free from any defects, leaks and deformities.

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* will 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. The Contractor shall have no claim for delays, interruptions, double-handling of materials, rejection of materials, or any other cause brought about by such tests, including awaiting the outcome of such tests.

Costs for 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 Contractors cost.

All testing covered under this item shall be performed by a CSA/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 Contractors expense.

1.4 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.

1.5 Contractors 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

1.6 Access to Work

Allow inspection testing agencies access to Work.

1.7 Tests

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

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
2.2 Sieve: 1 test / placed material / 100 m^3

3. Granular Subbase
3.1 Compaction: 1 test/ 500m^2 / 0.15m depth of granular subbase
3.2 Sieve: 1 test / placed material / 100 m^3

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

5. Asphalt
5.1 Marshall test: 1 test per 250 TONNES placed, min. 1 test / day
ASTM D1559, D3203, C117, C136
5.2 Superpave: 1 test per 250 TONNES placed, min. 1 test / 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

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

8. Reclaimed Materials
8.1 Compaction: 1 test/500m^2 / 0.15m depth of reclaimed materials

1.8 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

1.6	**Payment**	Delete 1.6.1 and replace with the following	Payment for all work described in this section will be incidental to payment for work described in other Sections unless otherwise shown in Schedule of Quantities and Prices.

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 professional certified by the American Traffic Safety Services Association. The TMP shall outline the approach to traffic management, show recognition and minimization of risks indicates signing locations, identify Traffic Control Persons (TCP) stations, show lane shifting and proposed closures.
		Add 1.0.7	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. The Contractor must follow the approved TMP. Any changes to this TMP must be submitted to City's Traffic Operations for approval. A Road and Sidewalk Closure Permit is required for each instance of closure and will be valid for a maximum period of two (2) weeks and, if still necessary, re-submittal of a Road and Sidewalk Closure Request is required.
		Add 1.0.8	Refer to Appendix A – Traffic Management Detail Specifications
1.4	**Traffic Control**	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 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 performed under this section including submission of Traffic Management Plan (TMP), Traffic Control Persons (TCP) & all temporary traffic signs, devices as required for traffic & pedestrian safety; and all other items described in the Traffic Regulation Section, and all labor, material, equipment and work described under ***Appendix A: Traffic Management Detail Specifications*** shall be treated as incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices.

END OF SECTION

1.0	**GENERAL**	Add 1.0.3	The project will require work in an environmentally-sensitive area above the natural boundary of watercourses that meets the definition of a *'stream'* pursuant to the Water Sustainability Act. While the Contractor is not responsible for environmental notifications or approvals, the Contractor is required to review and understand provincial best management practices for working in and about water contained within: *Standards and Best Practices for Instream Works:* www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf *A Users Guide for Working Around Water:* A USERS GUIDE (gov.bc.ca) This section of the supplemental specifications do not supercede MMCD Clause 20.4.
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 the City of Coquitlam Stream and Drainage System Protection Bylaw No. 4403, 2013 during construction and until the Place of Work has been restored to the satisfaction of the *Contract Administrator*. 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 his 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.
		Add 1.2.5	The Contractor will prepare a Spill Response Plan prior to Construction. Costs of the preparation of the spill response plan are incidental to the Contract.

The Contractor will develop and identify waste receptacles for the safe disposal of hydrocarbons and lubricant fouled waste material, and use those receptacles. Contractor shall ensure that any fuel stored on-site is located at least 30m from the nearest stream, and is placed within a bermed and lined area, in order to prevent leaks or spills into the environment.

There will be no machine refueling within 30 m of a watercourse. The Contractor must keep emergency spill kit at each bridge repair site. The Environmental Monitor will inspect and confirm that a spill kit is onsite prior to commencement of bridge repair work. Each spill kit will at a minimum have the following:

- 2 - 5 m long absorbent spill booms
- 50 - 16" x 20" Sorbent Pads (Oil, Gas & Diesel)
- 6 - 48" x 3" Sorbent Socks (Oil, Gas & Diesel)
- 4 -120" x 3" Sorbent Socks (Oil, Gas & Diesel)
- 4 - 8" x 18"Sorbent Pillows (Oil, Gas & Diesel)
- Nitrile Gloves
- Hand Wipes
- 2 - Disposable Respirators N958 HD
- Hazmat Disposal Bags

Spills of any substance toxic to aquatic life of reportable quantities will be immediately reported to the Provincial Emergency Program 24 hour phone line at 1-800-663-3456.

Contractor shall immediately contain and clean up any leaks and spills of prohibited materials on the Project Site.

Contractor shall immediately notify the Contract Administrator of any leaks or spills of prohibited materials that occur on the job site.

The Contractor is wholly responsible for costs associated with clean-up of spills originating from their equipment or work practices.

Add 1.2.6

The Contractor is required to complete construction in a manner that will prevent the release of sediment or sediment laden waters to the watercourses, ditches, and swales draining to fish habitat.

Add 1.2.7

There will be no disposal of solid wastes into sumps, ditches, streams, culverts, road edges or private property.

The Contractor's will supply trash cans for the disposal of crew generated wastes.

Littering is prohibited and monitoring for this activity will be on-going throughout the project.

Add 1.2.8

The Contractor shall undertake all concrete/grouting work with caution, as wet cement/grout is highly toxic to aquatic organisms. The Contractor shall comply with, at a minimum, the following procedures:

1. The Work shall be isolated from watercourses through the use of berms, pits or tarpaulins.
2. There shall be no direct contact between work activity and any watercourse through spillage, hosing off

surfaces, rain or cleaning of tools.

3. Complete isolation of all cast-in-place concrete and grouting from any watercourse for a minimum of 72 hours.
4. Exposed concrete will be covered if there are forecast rains.
5. No wash water shall be allowed to discharge to any watercourse.
6. Any water that contacts uncured or partly cured concrete shall be isolated and held (and treated until the pH is between 6.5 and 9.0.
7. The Contractor must follow BC Environmental Management Act – Spill reporting regulation procedures relating to emergency mitigation and clean up measures for managing the cleanup and recover of concrete materials.
8. All wash water from concrete works shall be contained and removed from site.
9. All accepted temporary disposal area locations must be cleaned up and re-seeded prior to demobilization.
10. Concrete dust from saw cutting and drilling shall be prevented from entering any watercourse.

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. Any spill of reportable quantities must be immediately reported to the Provincial Emergency Program's 24 hour phone line at 1-800-663-3456.
		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 metres 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 metres 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, unless included in the Schedule of Quantities and Prices, performed under this section will be incidental to payment for work described in other Sections. These works for Erosion and Sediment Control (ESC) will include silt fencing, interceptor channel/swale/ditch construction, interceptor drain pipe, check dams, catch basin, socks, and all materials to complete the work as shown on the Contract Drawings or as directed by the Contract Administrator

		Add 1.6.2	Payment for this item as directed by the Contractor Administrator includes supply, placement, maintenance, materials, removal and incidentals required for environmental protection.
		Add 1.6.3	Payment for the poly cover or temporary tarps over stock pile materials or exposed road subgrades shall be treated as incidental work.
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. The Contractor must allow the Archaeological and Historical Resources group to perform duties around the site during construction. The Contract Administrator shall coordinate all other work being performed at the site with the Contractor.
1.10	**Contractor's Hydrocarbon Wastes and Fuel Spill Mitigation Measures**	Add 1.10	The Contractor will prepare a Spill Response Plan prior to Construction. Costs of the preparation of the spill response plan are incidental to the Contract. The Contractor will develop and identify waste receptacles for the safe disposal of hydrocarbons and lubricant fouled waste material, and use those receptacles. There will be no machine refueling within 30 m of a watercourse. The Contractor must keep emergency spill kit at each bridge repair site. The Environmental Monitor will be inspect and confirm that a spill kit is on site prior to commencement of bridge repair work. Each spill kit will at a minimum have the following: • 2 - 5 m long absorbent spill booms • 50 - 16" x 20" Sorbent Pads (Oil, Gas & Diesel) • 6 - 48" x 3" Sorbent Socks (Oil, Gas & Diesel) • 4 -120" x 3" Sorbent Socks (Oil, Gas & Diesel) • 4 - 8" x 18"Sorbent Pillows (Oil, Gas & Diesel) • Nitrile Gloves • Hand Wipes • 2 - Disposable Respirators N958 HD • Hazmat Disposal Bags Spills of any substance toxic to aquatic life of reportable quantities will be immediately reported to the Provincial Emergency Program 24 hour phone line at 1-800-663-3456. The Contractor is wholly responsible for costs associated with clean-up of spills originating from their equipment or work practices.
1.11	**Non-Hazardous Waste Handling Requirements**	Add 1.11	There will be no disposal of solid wastes into sumps, ditches, streams, culverts, road edges or private property. The Contractor's will supply trash cans for the disposal of crew generated wastes. Littering is prohibited and monitoring for this activity will be ongoing throughout the project.

1.12 Control of Cement and Cement Grouts Add 1.12

The Contractor shall undertake all concrete/grouting work with caution. The Contractor shall comply with, at a minimum, the following procedures:

.1 The Work shall be isolated from watercourses through the use of berms, pits or tarpaulins.

.2 There shall be no direct contact between work activity and any watercourse through spillage, hosing off surfaces, rain or cleaning of tools.

.3 Complete isolation of all grouting from any watercourse for a minimum of 72 hours.

.4 No wash water shall be allowed to discharge to any watercourse.

.5 The Contractor must follow BC Environmental Management Act – Spill reporting regulation procedures relating to emergency mitigation and clean up measures for managing the cleanup and recovery of concrete materials.

.6 All wash water from concrete works shall be contained and removed from site.

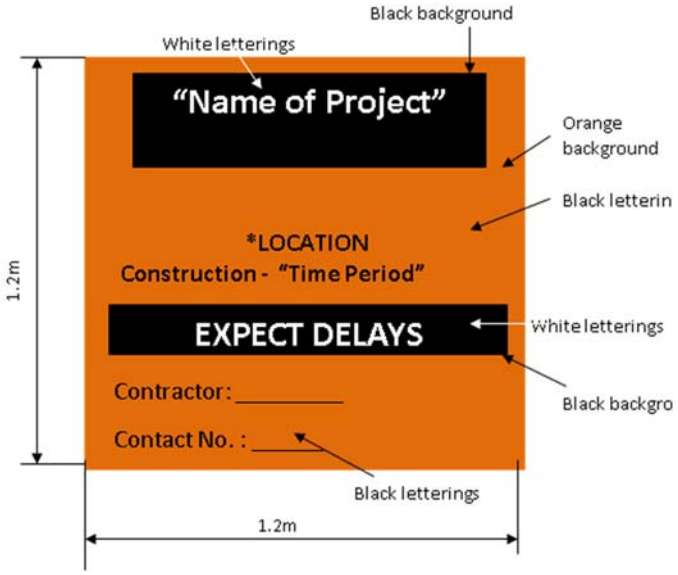
.7 If required, concrete wash water may be disposed in a temporary disposal location that has been reviewed and accepted by the Owner. This location may be a rock pit or grassy area, provided the wash water will be contained in an upland location at least 30m away from the high water mark, and at least 30m away from the top of bank of watercourses and there is landowner approval.

.8 All accepted temporary disposal area locations must be cleaned up and re-seeded prior to demobilization.

Concrete dust from saw cutting and drilling shall be prevented from entering any watercourse.

END OF SECTION

1.1	**Section 01 58 01 includes**	Add 1.1.3	Work described in Appendix A – Traffic Management Detail Specifications.
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 notification signs (shown below) with all the details as described in Appendix A – Traffic Management Detail Specifications, includes supply, placement & removal and will be incidental to payment for work described in other Sections, 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 will be incidental to payment for work described in other Sections, unless shown otherwise in the Schedule of Quantities and Prices.

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 and gutter, concrete curb on gravel base (COQ-C6), concrete rollover curb and gutter excluding granular subbase and base, includes supply and placing of the concrete curb and gutter and will cover all straight and curve sections and will be made separately for each specified type. Payment includes the removal and disposal off-site of all amterials necessary to complete the work as described in the Contract Documents. Payment for granular subbase and granular base under curb and gutter under this section will be incidetanl 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.
3.0	**EXECUTION**		
3.5	**Concrete Placement**	Delete 3.5.9 and replace with the following	The *Contractor* is responsible for adjusting all utility manhole frames and valve boxes, belonging to Coquitlam and/or other agencies that are affected by the road works. All adjustments to utilities must be completed to the satisfaction of the utility owner. Riser rings will not be accepted. The *Contractor* should note that certain utility owners may decide to complete their own adjustments. The *Contractor* will be required to cooperate with any utility company providing their own adjustments. The *Contractor* shall be responsible to contact the appropriate utility company within a minimum of seventy two (72) hours of the work. No adjustment shall be made without the written approval of the utility company. <u>All manholes must be vertically adjusted a minimum of twenty four (24) hours prior to concrete placement.</u>
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 SECTION

1.4	**Measurement and Payment**	Delete 1.4.2 and replace with the following	Payment for Allan Block Retaining Wall includes excavation and disposal of excavated material for the wall construction and removal of any existing retaining wall, all work and incidentals, site preparation, 19mm Clear Crush Drain Rock backfill, SDR28 perforated pipe, weep hole, and capstone. Measurement of height of all for purposes of calculating areas for payment will be taken from the bottom of the installed block to top of cap above the block. Payment will be made at the respective unit prices bid in the Schedule of Quantities and Prices.

END OF SECTION

1.0 GENERAL

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.

2.0 PRODUCTS

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:

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.

2.13 Low Permeability Mineral Soil

Add 2.13

Approved low permeability mineral soil shall consist of either high fines (15 to 30% passing 75µm sieve) silty sand or medium to low plasticity clay, free of organics and other deleterious materials and/or debris.

END OF SECTION

1.2	**Definitions**	Add 1.2.5	Trimming of trees, hedges and shrubs, and snag cutting of trees, removal of hedges and shrubs is included with Clearing and Grubbing. Use the services of a certified arborist when necessary. Generally trees, bushes and shrubs shall be cleared for the full width of the work, within the construction limits, with the extent of clearing minimized. Final height of the snag cut will be per approval of the Contract Administrator.
		Add 1.2.6	Clearing and grubbing does not include removal of grass, topsoil and ditch vegetation as these items are deemed part of trench excavation.
1.4	**Measurement and Payment**	Delete 1.4 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; and Includes removal and disposal of all branches, stumps, roots, trees, timbers and vegetation to complete the work as shown on the Contract Drawings or as directed by the Contract Administrator. Works include cutting of branches & trees as required to create the necessary clearance to accommodate the construction; and Includes removal and offsite disposal of all trees, roots, vegetation, organic matter, invasive species, stumps and topsoil stripping and disposal that are located within the work area(s).

END OF SECTION

1.3	**Measurement and Payment**	Delete 1.3.1 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.
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 on the Contract Drawings. *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.
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 hydroseed 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-G4. Temporary patch shall be a minimum thickness of 50 mm thickness. Dry if necessary and paint clean, dry edge with asphalt emulsion (tack coat).

END OF SECTION

1.8 Measurement and Payment

Delete 1.8.4 and replace with the following

Payment under this item will only apply to removal of the components included in this item under a separate operation as shown on the Contract Drawings or as directed by the Contractor Administrator. No payment will be made under this item for removal of these components as part of the operation for common excavation, and such removal will be treated as common excavation.

Payment will be made at the respective unit prices bid in the Schedule of Quantities and Prices and will include sawcutting, removal, offsite disposal and all labour, and equipment required to complete the work, including offsite disposal. It is the responsibility of the contractor to locate and verify all utilities.

Delete 1.8.5 and replace with the following

Payment for Common Excavation includes:

1. Unless noted in the Schedule of Quantities and Prices as removal in square meters, common excavation will be measured in cubic metres calculated from measurements taken by the Contract Administrator in the areas of excavation (stripping inclusive).

2. Cross-sections will be taken after clearing and grubbing immediately prior to excavation of material to be incorporated into work.

3. Cross-section will be taken after excavation to deisgn elevation and prior to placement of fill.

4. Where determined by the Contract Administrator that truck box volume will be used to determine excavation quantities, the table below will be used.

Truck Type	Material Type	Volume (cu.m)
Tandem	ordinary material	7
Tandem	asphalt/concrete/pipe	4
Triaxle	ordinary material	8
Triaxle	asphalt/concrete/pipe	5
Tandem and Pony	ordinary material	11
Tandem and Pony	asphalt/concrete/pipe	7.5
Triaxle and Pony	ordinary material	13
Triaxle and Pony	asphalt/concrete/pipe	9
Tandem and Transfer	ordinary material	19
Tandem and Transfer	asphalt/concrete/pipe	13

5. Contractor to provide truck slips detailing location type of common excavation, time loaded and location of dump site. The slips are to be given to Contract Administrator by the end of shift or Contract Administrator can deny quantities subsequently submitted.

6. Payment for on-site reuse includes grading, adjustment of moisture content and compaction of the reused material

Payment will be made at the respective unit prices bid in the Schedule of Quantities and Prices and will include all labour, and equipment required to complete the work, offsite disposal, and

			includes all costs associated with temporarily supporting utilities and third party utilities within the excavation. It is the responsibility of the contractor to locate and verify all utilities.
		Delete 1.8.10 and replace with the following	Payment for replacement of areas of unsuitable granular base, sub-base or sub-grade will include excavation with off-site disposal, installation & compaction of granular sub-base material (75mm minus), and all remedial work required to achieve a suitable base. Payment will be based on the cubic metre volume removed, measured as described in 1.8.5. Payment includes all applicable works described in 1.8.5.
2.0	**PRODUCTS**		
2.2	**Specified Materials**	Delete 2.2.1.3	Pit Run Sand
		Delete 2.2.1.4	River Sand
		Delete 2.2.2	

END OF SECTION

1.5 Measurement and Payment Add 1.5.4

Payment for this item will be made for the depth specified in the Schedule of Quantities in the Form of Tender. Payment will be made for the removal of existing asphalt, granular and native materials within the roadway to the depth specified, as detailed in the Contract Documents, regardless of removal method, as conditions of the existing asphalt pavement may or may not be suitable for removal by cold milling operations. If asphalt removal is done by excavation methods, there will be no common excavation quantity associated with the removal of granular to the removal depths indicated below design elevations.

Payment will be made for each square metre of asphalt removed and includes the off-site disposal of all milled material. Payment includes mobilization, demobilization, demonstration milling test section, the cost of transport and disposal off-site, saw cutting, street sweeping or cleaning to allow for the placement of required thickness of asphaltic concrete. Saw cutting and milled key at project limits will be incidental under payment item 32 12 16 – Hot Mix Asphaltic Concrete Paving.

MILLING OF EXTENSIVE AREAS THAT CANNOT BE PAVED WITHIN 48 HOURS PERIOD (2 DAYS) WILL NOT BE PERMITTED.

No additional payment will be made for multiple passes or remobilization, as required, to mill to the depth(s) specified in the Schedule of Quantities in the Form of Tender.

END OF SECTION

1.4	**Measurement and Payment**	Delete 1.4.1 and replace with the following	Measurement for granular subbase of variable thickness will be for actual quantity placed based on weigh tickets provided to Contract Administrator as loads are delivered.
		Delete 1.4.2 and replace with the following	Measurement for granular subbase for each specified thickness will be for the actual area placed.
		Delete 1.4.3 and replace with the following	Payment for Subsection 1.4.1 & 1.4.2 above includes supply, placement and compaction of granular subbase material, adjustment of moisture content, and boning to establish the road cross-section, shall be included in the unit price bid in the Schedule of Quantities and Prices. Payment includes submission of tickets as loads are delivered. Tickets not submitted within 72 hours of load delivery to site will not be paid.
		Delete 1.4.4 and replace with the following	Payment for removal of unsuitable subgrade including disposal off-site prior to direct placement of granular subbase will be made under Section 31 24 13S – Roadway Excavation, Embankment and Compaction.
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 1.4.1 and replace with the following	Measurement for granular base of variable thickness will be for actual quantity placed based on weigh tickets provided to Contract Administrator as loads are delivered.
		Delete 1.4.2 and replace with the following	Measurement for granular base for each specified thickness will be for the actual area placed.
		Delete 1.4.3 and replace with the following	Payment for Subsection 1.4.1 & 1.4.2 above includes supply, placement and compaction of granular base material, adjustment of moisture content, and boning to establish the road cross-section, factored into the unit price bid in the Schedule of Quantities and Prices. Payment includes submission of tickets as loads are delivered. Tickets not submitted within 72 hours of load delivery to site will not be paid.
		Delete 1.4.4 and replace with the following	Payment for removal of unsuitable subgrade including disposal off-site prior to direct placement of granular subbase will be made under Section 31 24 13S – Roadway Excavation, Embankment and Compaction.
2.0	**PRODUCTS**		
2.1	**Granular Base**	Add 2.1.1.3	19 mm minus crushed gravel conforming to the gradation specifications for Collector/Arterial Roads under Section 31 05 17S – 2.10.3.

END OF SECTION

1.5	**Measurement and Payment**	Delete 1.5.1 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.
		Delete 1.5.2 and replace with the following	Pavement surface cleaning, as per section 32 01 11, and all other work incidental to the application of tack coat is deemed to be incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices.
3.0	**EXECUTION**		
3.2	**Application**	Add to 3.2.3	Asphalt tack coat to be applied using a truck mounted spray bar unless otherwise approved by the *Contract Administrator* and the City. Contractor shall demonstrate, to the *Contract Administrator* and the City, prior to application that all spray nozzles are operational and providing a consistent application.

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, saw cutting, supply and placing of the asphaltic concrete, reinstatement of permanent painted lines with thermoplastic, compaction and cleaning frames, covers and lids of castings affected, and will be made at the unit price bid per square meter of surface layer of asphalt lift placed. Payment for the temporary taped pavement markings and installation of the temporary pavement trench patch is incidental to the payment for the work described in the other Sections. The contractor will not receive any additional compensation above the respective unit prices bid in the Schedule of Quantities and Prices for Hand Work, Special Equipment & Machinery to complete the Hot Mix Asphaltic Paving Work as shown on the Contract Drawings or as directed by the Contract Administrator.
		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 and is considered to be incidental to payment for work described in other Sections. Payment for this item includes all applicable materials and work described in 1.5.1.
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 or any other materials not specified in the Contract Documents 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 2.2.2 and replace with the following	Mix may contain up to a maximum of 10 % by mass of RAP for Upper Course Asphalt and 15 % by mass of RAP for Lower Course Asphalt without a special mix design. The *Contract Administrator* and the City may approve higher proportion of RAP if *Contractor* demonstrates ability to produce mix meeting requirements of the specification.
		Delete 2.2.3.2 Marshall Stability and replace with the following	Marshall Stability at 60^{o}C for both lower and upper courses to be 10 KN min.
3.0	**EXECUTION**		

3.3	**Preparation**	Delete 3.3.3 and replace with the following	The *Contractor* is responsible for adjusting all utility manhole frames and valve boxes, belonging to Coquitlam and/or other agencies that are affected by the road works. All adjustments to utilities must be completed to the satisfaction of the utility owner. Utility adjustment within the paved surface will be considered incidental to the *Work* unless otherwise noted in the *Contract Documents*. The *Contractor* should note that certain utility owners may decide to complete their own adjustments. The *Contractor* will be required to cooperate with any utility company providing their own adjustments. The *Contractor* shall be responsible to contact the appropriate utility company with in minimum of seventy-two (72) hours of the work. No adjustment shall be made without the written approval of the utility company. <u>All manholes must be vertically adjusted a minimum of twenty-four (24) hours prior to paving.</u> The use of riser rings for adjusting manhole frames and value boxes will not be permitted.
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

1.5	**Measurement and Payment**	Delete Clause 1.5 and replace with	Payment for all work performed under this section will be incidental to work described in other sections.

END OF SECTION

1.5	**Measurement and Payment**	Delete 1.5.1 and replace with the following	Payment for the removal and replacement of chain link fence includes fence and gate removal and excavation of existing posts, 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. 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 supply and installation of new sliding gate and all materials and work as shown on MMCD C13to install new gate. Finish and color to match existing gate. Measurement will be made along the surface of the ground for length of each item of fence installed.

END OF SECTION

1.0	**GENERAL**		
1.1	**Related Work**	Add 1.1.6	Shrubs & Tree Preservation ……Section 31 11 41
1.4	**Measurement and Payment**	Delete 1.4.1 and replace with	Payment for growing medium and imported topsoil shall include supply of materials, on-site handling, and placement to 150mm thickness for hydroseed, compaction, finish grading and swales.
3.0	**EXECUTION**		
3.4	**Placing Growing Medium**	Add 3.4.6	Scarify soil, feather grades and remove noxious weeds from the edge of tree preservation areas.

END OF SECTION

1.8	**Measurement and Payment**	Delete 1.8.2 and replace with the following	Payment for watermain will include location and exposure of existing utilities, sawcutting and disposal of existing pavement, trench excavation, shoring, offsite disposal of native excavated material and surplus/displaced excavated material including concrete curbs and sidewalks, dewatering, bedding and all imported, supply and installation of pipe, tracer wire, bolts, gaskets, thrust blocks, couplings, joint restraints and tie rods, cleaning, pressure and leakage testing, flushing, disinfection where required, supply, placement and compaction of granular base and sub-base, all surface restoration as specified under Section 31 23 01 – Sub-section 3.6 (COQ-G4), grass restoration using seed (Sun & Shade #1 Mix), 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. Measurement for watermain will be made along the centerline of the main, through the valves and fittings, with no deduction for length of valve or fittings, over surface after work has been completed. Pressure and leakage testing cannot be performed against live valves. Reinstatement of temporary painted lines and/or taped pavement markings to be incidental to contract. **NOTE: PAYMENT FOR ANY WATER MAIN WORKS WILL NOT BE MADE UNTIL RESTORATION WORK IS COMPLETE TO CITY'S SATISFACTION.**
		Delete 1.8.3 and replace with the following	Payment for inline gate valves or butterfly valves including Terminal City Nelson Type valve boxes; and for fittings (crosses, tees, bends, reducers, blind flanges, caps, anchors and etc) will be made for items identified on Contract Drawings and installed as part of watermain as described under 1.8.2 in this Section. Payment for fittings, unless specified in the Schedule of Quantities and Prices, performed under this section will be incidental to payment for work described in other Sections. Measurement will be for each respective item installed without deduction of length of valves and fittings from length of pipe measured for payment under 1.8.1 and 1.8.2 in this Section.
		Delete 1.8.4 replace with the following	Payment for temporary works and abandonments includes supply and installation of temporary 200mm diameter cap, 20mm POLY water service to 831 North Rd, permanent caps, and all labour and materials as required to complete installation of as per the Contract Drawings. Payment includes removal of temporary cap and reinstatement of water service connection to 831 North Rd. Contractor is responsible for protecting the temporary water service throughout construction period. Payment for the works to be made per lump sum basis for each type of work as described in the Schedule of Quantities and Prices.
2.8	**Granular Pipe Bedding and Surround Material**	Add 2.8.3	Bedding and pipe surround to be MMCD Pit Run Sand 31 05 17 (2.4). Sechelt Sand is acceptable.

3.0 EXECUTION

3.6	**Pipe Installation**	Add 3.6.15	When the watermain crosses a storm or sanitary sewer, the watermain shall be installed a minimum 0.5 m clear above the sewer. Where this is not possible, the watermain shall have a minimum 0.3 m clearance under the sewer with all joints within a 3.0 m horizontal distance from the sewer wrapped with heat shrink plastic or packed and wrapped with petrolatum tape in accordance to the following standards: .1 ANSI/AWWA C214 (factory applied) .2 ANSI/AWWA C209 (field applied) .3 ANSI/AWWA C217-90 (petrolatum tape) .4 All materials used are to have zero health hazard Installation shall be in accordance with the requirements of the Regional Health Engineer under the Health Act.
3.10	**Service Connection Installation**	Delete 3.10.4	
		Delete 3.10.5 and replace with the following	Tappings in cast iron or ductile iron mains to AWWA CISI pipe to be made using double strap saddles specified in 2.5.3 of this Section.
		Add 3.10.13	Water service connections (19 mm and 25 mm) must be installed as one continuous length of pipe.
3.23	**Connection to Existing Mains**	Delete 3.23.1 and replace with the following	Connections to existing waterworks systems will be made by the Contractor under the supervision of the Contract Administrator. Make all necessary arrangements with the Contract Administrator and the City to schedule work to prevent construction delays.
		Add 3.23.2	Provide written notification to all affected residents a minimum 48 hours prior to service interruption.
		Add 3.23.3	Arrange shutdown of the existing valves by the City. *Contractor* shall not operate any valves without prior approval of the *Contract Administrator* and the City.
		Add 3.23.4	Provide temporary water service while existing service is interrupted as detailed in *Contract Drawing* or Project Specific Specifications.
		Add 3.23.5	Fittings used for tie ins should be cleaned of all foreign material and sprayed with a 1% hypochlorite solution prior to assembly. Disinfect all pipes and fittings installed at the connection.
		Add 3.23.6	*Contractor* shall be responsible for the costs for the City to flush and purge all air from existing mains and services in the area affected by the water service interruption.
		Add 3.23.7	Procedures for Bateriological Tests shall be as described in AWWA C651-99.No connection to existing watermains will be authorized until final results of coliform bacterial testing have been received and reviewed by the Water Superintendant. All samples shall be taken by the City Water Utility. All valve operation shall be handled by the City Water crews. The *Contractor* shall provide sampling points, one every 366m plus the end of each main segment. The *Contractor* shall provide all labour to temporarily connect and disconnect the new main in order to properly acquire test samples.

Initial flushing, testing and chlorination will be undertaken by the *Contractor* from a water source approved by the Water *Superintendent*.

Coordination for the bacterial testing and tie in shall be coordinated by the project Engineering Inspector and the Water *Superintendent* prior to final flushing.

The *Contract Administrator* shall review with the Water *Superintendent* and the *Contractor* sampling locations and appurtenances.

The *Contract Administrator* shall check and record chlorine residual prior to final flushing.

After final flushing the City Water crew will collect two sets of samples 24 hours apart. Samples will be taken at least every 366m of the new main as well as the terminus and all branches.

Test results will be delivered to the Water Superintendant who will provide a copy to the Contract Administrator.

The Water *Superintendent* will judge the adequacy of the test results and issue an authorization to connect.

City Water crews will provide shutdown and flushing as required.

END OF SECTION

1.0 GENERAL

1.6	**Measurement and Payment**	Delete 1.6.1 and replace	Payment for sanitary sewer will be made separately for various sections of sanitary sewer 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, disposal of pavement, trench excavation, shoring, offsite disposal of native excavated material and surplus/displaced excavated material including concrete curbs and sidewalks, removal and disposal of stumps, 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, 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 to include all pumps, labour and materials required to facilitate the work. Payment for the by-pass pumping will be incidental. Measurement for sanitary sewer will be made horizontally from manhole centreline to manhole centreline over surface after work has been completed. **NOTE: PAYMENT FOR ANY SANITARY SEWER WORKS WILL NOT BE MADE UNTIL RESTORATION WORK IS COMPLETE TO CITY'S SATISFACTION.**
		Delete 1.6.3 and replace with	Payment for service connections includes 150mm SDR28 and 200mm SDR35 PVC pipe, shear band couplers, bends, increaser, pvc wye, stubs, caps, bedding and all import backfill material 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. 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 includes support of poles if necessary and manhole barrel preparation to accommodate the service connection. Payment will be made per the unit price bid for each sanitary service connection capped and abandoned.
		Add to Clause 1.6.7	Payment includes all applicable works, labor, material and equipment as described in Clause 1.6.2

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

1.0 GENERAL

1.6	**Measurement and Payment**	Delete 1.6.1 and replace	Payment for storm sewer will be made separately for various sections of storm sewer 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 storm sewers includes asphalt & concrete saw cutting, disposal of pavement, trench excavation, disposal of surplus excavated material including existing pipes, supply and installation of all pipe, fittings and related materials, tie-ins other than noted in Clause 1.6.9, bedding and all import backfill material, granular base, granular subbase, excavation, shoring, dewatering, testing (if applicable), all temporary surface restoration as per COQ-G4 and all other work and materials necessary to complete installation as shown on Contract Drawings and described under individual payment items in the Schedule of Quantities and specified under this Section; and Payment for concrete driveway and curb & gutter will be made under Section 03 30 20S. 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. Payment includes by-pass pumping to include all pumps, labour and materials required to facilitate the work. Payment for the by-pass pumping will be incidental. Payment includes all applicable materials and work described in 1.6.4.1. Measurement for storm sewer will be made horizontally along the ground from the start to the terminus of the concrete pipe. **NOTE: PAYMENT FOR ANY STORM SEWER WORKS WILL NOT BE MADE UNTIL RESTORATION WORK IS COMPLETE TO CITY'S SATISFACTION.**
		Delete 1.6.3 and replace with	Payment for service connection includes 150mm SDR28 PVC pipe, shear band couplers, bends, increaser, pvc wye, stubs, caps, 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 unless specified otherwise in the Schedule of Quantities and Prices. 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 includes support of poles if necessary and manhole barrel preparation to accommodate the service connection. Payment for service connection will be made on lump sum basis for the complete service installed for each location.
		Add 1.6.4.1	Remove and dispose of all trees, roots, vegetation, organic matter and stumps that are located in the right of way and which fall within the work area (including stripping of ditches). Remove existing concrete storm pipe within alignment of proposed storm sewer. Trim small branches from trees or hedges as required and where necessary

			use an approved tree paint to repair damage to surviving vegetation where branches have been removed. Obtain the Contract Administrator's approval before trees are removed. Replace shrubs and trees that are located on private properties that are damaged during construction. Materials removed within private property remain the property of the private property owner. Discard 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. Where possible and as agreed with the *Contract Administrator*, reuse topsoil obtained from within the right of way. Lump sum to include for all labour, materials, and equipment required to supply and install the work as specified and restore surface to its original conditions.
		Delete 1.6.5 and replace with the following	Payment for catch basin or lawn basin leads include all applicable materials and work described in 1.6.2. Measurement for catch basin leads or lawn basin leads will be made horizontally from mainline pipe to centreline of catch basin or lawn basin for each pipe size installed with no regards to depth range.
		Add 1.6.9	Payment includes all applicable works described in Clause 1.6.2.
		Add 1.6.12	Payment includes supply, transport, and installation of stormwater treatment facility and manholes as per the Contract Drawings and as per Imbrium Systems Proposal Drawings and specifications. Flush mount sleeve for 3" diameter davit arm pole and receiver to allow for access to four Jellyfish units, and all connecting pipes and manholes located between MH D08 and MH D09. Payment includes all applicable works and materials described in Clause 1.6.2.
2.0	**PRODUCTS**		
2.1	**Concrete Pipe**	Delete 2.1.6 and replace with	Pre-Test in accordance with Section 33 30 01 Clause 2.1.4.
2.6	**Service Connections**	2.6.1	Replace 100 mm minimum diameter with PVC SDR 28 **150 mm** minimum diameter.
		Delete 2.6.8.1 and replace with	Connections to HDPE main pipe to be made with a fusion machine.
		Delete 2.6.8.2 and replace with	Connections to ribbed PVC pipe to be made with a manufactured wye fitting where wye locations are known in advance. For connections to ribbed PVC mainline pipe larger than 300 mm an insertable tee for ribbed PVC pipe is permitted for connections more than two sizes smaller than mainline pipe. When an insertable tee is used, hole cut into mainline pipe to cut as few ribs as possible.
		Add 2.6.11	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

2.9	**Granular Pipe Bedding and Surround Material**	Add 2.9.3	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**		
3.6	**Pipe Installation**	Add 3.6.14	Test pipe in accordance with Section 33 30 01 Clause 3.12.
3.8	**Connections to Existing Mainline Pipes**	Add 3.8.5	Connections to existing mainlines 300 mm and smaller 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. Connections to existing concrete mainline and mainlines larger than 450 mm shall be made in accordance with this section and will be made using a core cutter. The contractor shall video inspect all connections to existing mains following completion of installation

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, imported granular trench backfill, dewatering, base preparation and compaction, manhole base, benching, lid, slab, frame & lid, cover, ladders & setting frame & lid to the finished grade, except riser for circular manholes in accordance with the Contract Drawings. Shop drawings are to be provided for review/approval as noted in the Contract Drawings.	
		Delete 1.5.1.2 and replace with the following	Payment for manhole riser sections will be for risers of standard or non-standard heights required to complete manhole from specified invert to finishing level. Payment includes all risers as shown on the Standard Detailed Drawings. Measurement will be made vertically for the length of risers required from the top of the manhole base (cast-in-place or precast) to reach the underside of concrete lid or slab. Payment includes all applicable work and materials described in Clause 1.5.1.1.	
		Delete 1.5.1.3 and replace with the following	Payment includes all applicable work and materials described in Clause 1.5.1.1.	
		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 removal of existing catch basin, excavation, disposal of surplus excavated material, supply of all units, cast-in-place concrete, pipes, fittings, imported backfill, temporary pavement restoration and related materials together with all labour, materials and equipment required. Payment includes all applicable materials and work described in COQ S11-A and is to be paid per unit basis.	
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 catchbasins 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

These supplementary Specifications must be read in conjunction with the Master Municipal Specifications contained in the Master Municipal Construction Documents (Platinum), Volume II, 2009.

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 (MOT) Traffic Control 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 5 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	.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 Identification of risks to traffic during the Work .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.

.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	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. 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. 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	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	The Contractor shall minimize any abrupt changes in roadway elevation left exposed to traffic during both working and non-working hours. 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	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	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 $50 permit fee is waived on this project. 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. .3 Total Road Closure Is Not Permitted

.4 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
- Access to properties to be maintained
- Sufficient Traffic Control Persons are required for each Road and Sidewalk Closure (or any work activities), including side street intersections, to safely guide traffic through the work site

4.3 Hours of Work

The hours of work shall be from **0700 h** to **1900 h** inclusive Monday to Friday and **0900 h** to **1800 h** 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 www.coquitlam.ca and can be found under **Residents, Transit & Transportation, Trucking Routes**.

5.2 Road Specific Considerations

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

5.3 Work stoppage due to traffic

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

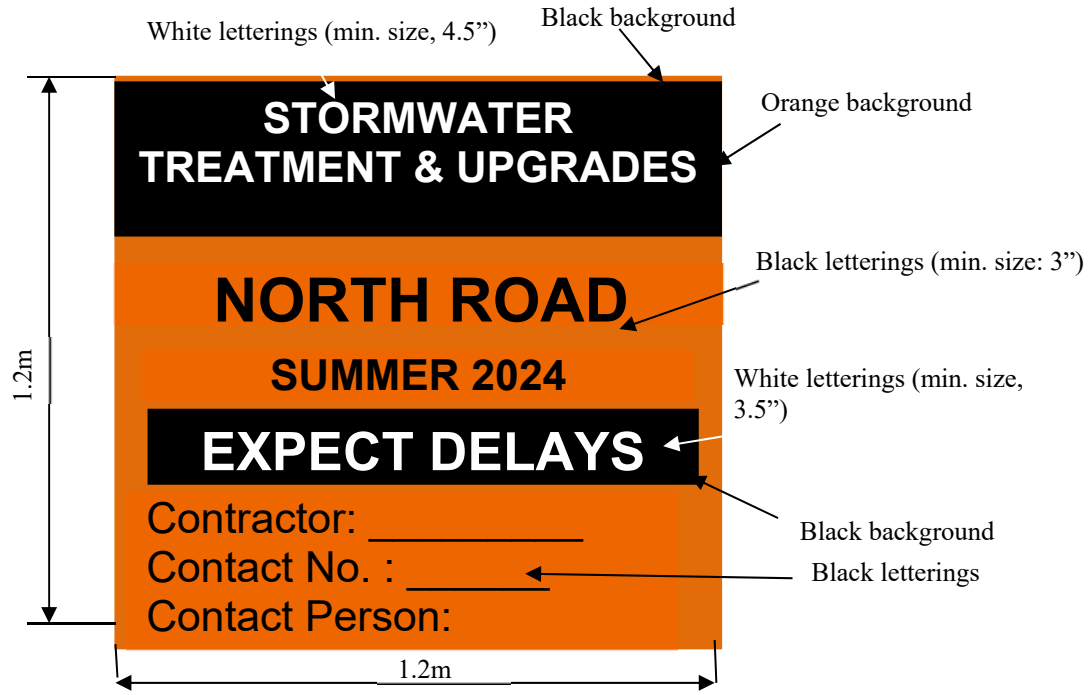
The Contractor will be responsible to place other construction information signs as required to inform the public of construction activities, and ensure safe travel through the work site.

5.5 Construction Zone Information Signs

If the duration of the work is to be longer than 2 days, the Contractor is required to provide, one week prior to start of work, stationary signs to inform traffic of existing and anticipated conditions at all entry points of the street to be worked on. Signs can be re-used provided that the street name is legible and reflects the actual street & work duration for the street currently working on.

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.

Construction Zone Information Signs to follow specifications below:



APPENDIX 1

Coquitlam

City of Coquitlam

Road and Sidewalk Closure Permit Request

Traffic Operations Division
3000 Guildford Way, Coquitlam BC V3B 7N2
Phone: 604-927-6250 Fax: 604-927-6255
Email: trafficoperations@coquitlam.ca

Submit to the Traffic Operations Division a minimum of 5 business days prior to the intended closure date.

Permit Fee - $75.00 (Effective February 1, 2019) **Payment Methods –** After review, and if approved, payment options will be emailed to the applicant.

Application Date: _____ **City Project Number** (if applicable): **81293**

Contact Information

Company Name: _____

Applicant Name: _____

Name of Contractor doing work for Company/Applicant: _____

Phone: _____ **Fax:** _____

24 Hour Emergency Phone: _____ **Email:** _____

Location, date and time, and traffic control plan information

I request approval to close (check all that apply): Direction: ☐ Northbound ☐ Southbound ☐ Eastbound ☐ Westbound

☐ Curb/Outside Lane ☐ Centre/Inside Lane ☐ Right Turn Lane ☐ Left Turn Lane ☐ Cycling Lane ☐ Sidewalk

☐ Single Lane Alternating Traffic ☐ Full Closure

Road/Street Name: _____

Location Description: _____

_____

Date & Time Information: **Dates:** _____ (*Starting*) _____ (*Ending*)

Hours: _____ (*Starting*) _____ (*Ending*)

Purpose: _____

_____

Will this closure disrupt: Bus Routes or Stops? ☐ Yes ☐ No If yes, the Applicant will need to contact Coast Mountain Bus Company regarding disruptions.

Will this closure disrupt: Garbage/Recycling Routes or Pick Up? ☐ Yes ☐ No If yes, the Applicant will need to assist the contractor and/or contact the City's Environmental Services Group. www.coquitlam.ca/trashtalk

Traffic Control Plan*:
(a) Traffic Management Manual for Work on Roadways Figure Number _____, or
(b) A Traffic Control Plan *(attach separately)* indicating signage, taper lengths, direction of traffic, work area, and north arrow

Traffic control persons (flag persons) on duty? ☐ Yes ☐ No If yes, specify how many: _____

***Important Notice:** All operations within the road right-of-way must comply with Worksafe BC regulations and BC Ministry of Transportation standards for work on roadways.*

Application Checklist

☐ Permit Fee

☐ Prime Contractor Designation Letter

☐ City of Coquitlam Certificate of Insurance

☐ Traffic Control Plan or Traffic Management Manual for Work on Roadways Figure Number

☐ Coast Mountain Bus Company (Phone: 778-593-5774 | Email: special.events@coastmountainbus.com) contacted regarding impact to bus routes and bus stops

☐ City of Coquitlam Environmental Services Group (Phone: 604-927-3500| Email: wastereduction@coquitlam.ca contacted regarding impact to garbage/recycling routes and pick up

I HEREBY AGREE to the terms stipulated herein and further agree to indemnify and save harmless the City against any and all claims, actions, or expenses whatsoever or by whomsoever brought against the City by the reason of the City granting us this Road and Sidewalk Closure Permit. I further agree to accept responsibility to ensure proper situation control and street sweeping for the duration of the road or sidewalk obstruction.

_____ _____
Date *Applicant Signature*

Office Use Only PERMIT STATUS

☐ Permit Fee	☐ Prime Contractor Letter	☐ Certificate of Insurance
☐ Traffic Control Plan	☐ Impact to bus service	☐ Impact garbage and recycling collection

☐ Request is denied for the following reason(s): _____

_____

☐ Request is approved with the following change(s): _____

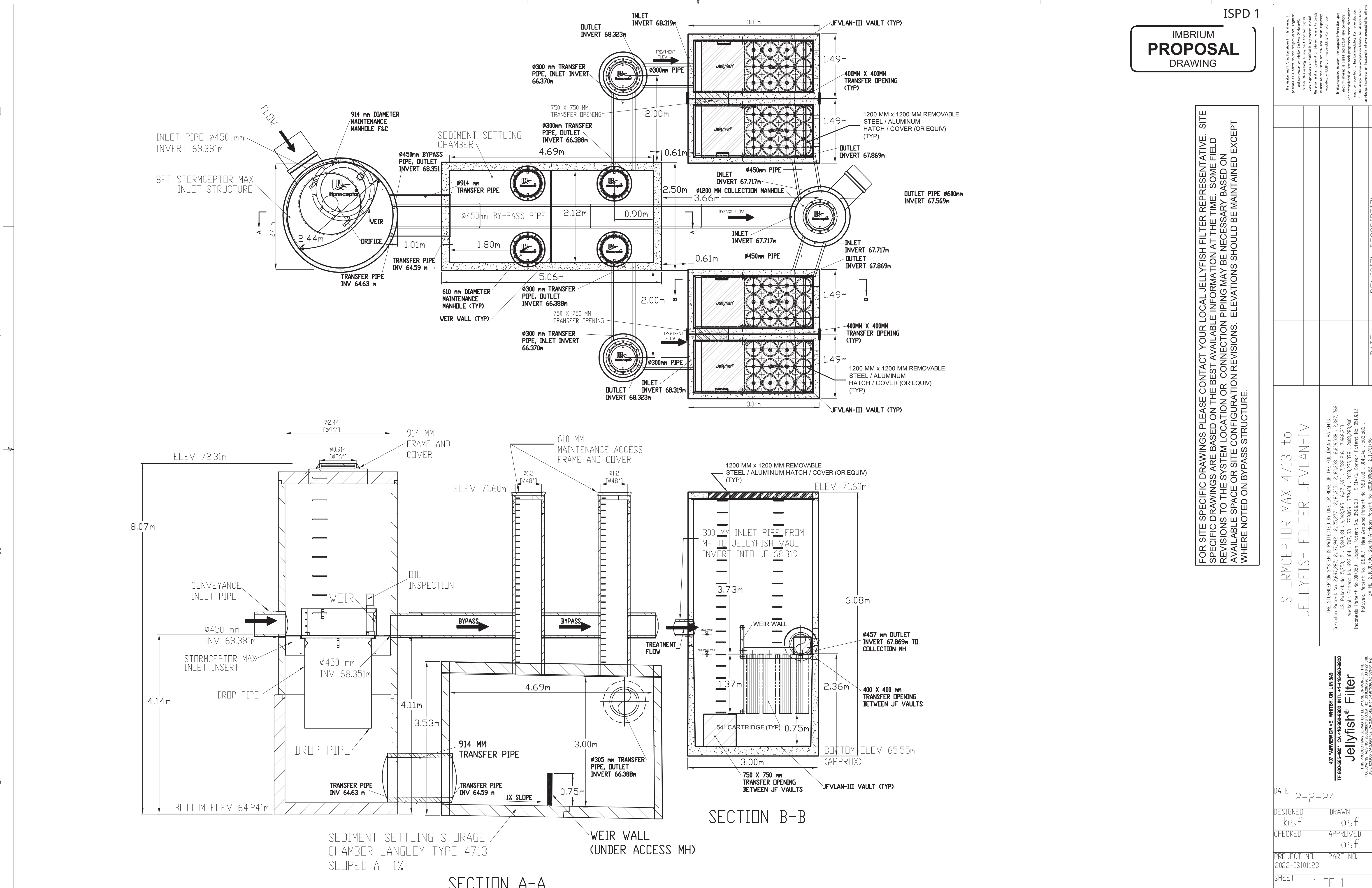
_____

☐ Request is approved as submitted

_____ _____
Date *Traffic Technologist or Designate*

Appendix B -

Imbrium Systems Proposal Drawings & Specifications



ISPD 1
IMBRIUM
PROPOSAL
DRAWING
FLOW
INLET PIPE ø450 mm
INVERT 68.381m
8FT STORMCEPTOR MAX
INLET STRUCTURE
914 mm DIAMETER
MAINTENANCE
MANHOLE F&C
SEDIMENT SETTLING
CHAMBER
ø450mm BYPASS
PIPE, OUTLET
INVERT 68.351
WEIR
ORIFICE
2.44m
1.01m
4.69m
5.06m
1.80m
2.12m
0.90m
2.50m
3.66m
0.61m
2.00m
ø914 mm
TRANSFER PIPE
ø450mm BY-PASS PIPE
TRANSFER PIPE
INV 64.59 m
TRANSFER PIPE
INV 64.63 m
610 mm DIAMETER
MAINTENANCE
MANHOLE (TYP)
WEIR WALL (TYP)
ø300 mm TRANSFER
PIPE, OUTLET
INVERT 66.388m
ø300 mm TRANSFER
PIPE, INLET INVERT
66.370m
750 X 750 MM
TRANSFER OPENING
ø300mm TRANSFER
PIPE, OUTLET
INVERT 66.388m
OUTLET
INVERT 68.323m
INLET
INVERT 68.319m
TREATMENT
FLOW
ø300mm PIPE
3.0 m
JFVLAN-III VAULT (TYP)
1.49m
400MM X 400MM
TRANSFER OPENING
(TYP)
1200 MM x 1200 MM REMOVABLE
STEEL / ALUMINUM HATCH / COVER (OR EQUIV)
(TYP)
OUTLET
INVERT 67.869m
INLET
INVERT 67.717m
ø450mm PIPE
ø1200 MM COLLECTION MANHOLE
BYPASS FLOW
OUTLET PIPE ø600mm
INVERT 67.569m
INLET
INVERT 67.717m
ø2.44
[ø96"]
ø0.914
[ø36"]
914 MM
FRAME AND
COVER
610 MM
MAINTENANCE ACCESS
FRAME AND COVER
ø1.2
[ø48"]
ELEV 72.31m
ELEV 71.60m
8.07m
4.14m
4.11m
3.53m
3.00m
0.75m
CONVEYANCE
INLET PIPE
ø450 mm
INV 68.381m
STORMCEPTOR MAX
INLET INSERT
DROP PIPE
OIL
INSPECTION
ø450 mm
INV 68.351m
BYPASS
TREATMENT
FLOW
914 MM
TRANSFER PIPE
ø305 mm TRANSFER
PIPE, OUTLET
INVERT 66.388m
TRANSFER PIPE
INV 64.63 m
TRANSFER PIPE
INV 64.59 m
1% SLOPE
BOTTOM ELEV 64.241m
SEDIMENT SETTLING STORAGE
CHAMBER LANGLEY TYPE 4713
SLOPED AT 1%
WEIR WALL
(UNDER ACCESS MH)
SECTION A-A
300 MM INLET PIPE FROM
MH TO JELLYFISH VAULT
INVERT INTO JF 68.319
3.73m
6.08m
WEIR WALL
1.37m
2.36m
ø457 mm OUTLET
INVERT 67.869m TO
COLLECTION MH
400 X 400 mm
TRANSFER OPENING
BETWEEN JF VAULTS
54" CARTRIDGE (TYP)
BOTTOM ELEV 65.55m
(APPROX)
750 X 750 mm
TRANSFER OPENING
BETWEEN JF VAULTS
JFVLAN-III VAULT (TYP)
SECTION B-B
FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL JELLYFISH FILTER REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE.
MARK
DATE
REVISION DESCRIPTION
BY
STORMCEPTOR MAX 4713 to
JELLYFISH FILTER JFVLAN-IV
Jellyfish® Filter
407 FAIRVIEW DRIVE, WHITBY, ON L1N 3A9
DATE 2-2-24
DESIGNED bsf
DRAWN bsf
CHECKED
APPROVED bsf
PROJECT NO. 2022-IS101123
PART NO.
SHEET 1 OF 1

STANDARD SPECIFICATION
STORMWATER QUALITY – MEMBRANE FILTRATION TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

Specifies requirements for construction and performance of an underground stormwater quality membrane filtration treatment device that removes pollutants from stormwater runoff through the unit operations of sedimentation, floatation, and membrane filtration.

1.2 REFERENCE STANDARDS

ASTM C 891: Specification for Installation of Underground Precast Concrete Utility Structures
ASTM C 478: Specification for Precast Reinforced Concrete Manhole Sections
ASTM C 443: Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM D 4101: Specification for Copolymer steps construction

CAN/CSA-A257.4-M92
Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections and Fittings Using Rubber Gaskets

CAN/CSA-A257.4-M92
Precast Reinforced Circular Concrete Manhole Sections, Catch Basins and Fittings

Canadian Highway Bridge Design Code

1.3 SHOP DRAWINGS

Shop drawings for the structure and performance are to be submitted with each order to the contractor. Contractor shall forward shop drawing submittal to the consulting engineer for approval. Shop drawings are to detail the structure's precast concrete and call out or note the fiberglass (FRP) internals/components.

1.4 PRODUCT SUBSTITUTIONS

No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the engineer of record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

1.5 HANDLING AND STORAGE

Prevent damage to materials during storage and handling.

PART 2 – PRODUCTS

2.1 GENERAL

2.1.1 The device shall be a cylindrical or rectangular, all concrete structure (including risers), constructed from precast concrete riser and slab components or monolithic precast structure(s), installed to conform to ASTM C 891 and to any required state highway, municipal or local specifications; whichever is more stringent. The device shall be watertight.

2.1.2 Cartridge Deck The cylindrical concrete device shall include a fiberglass deck. The rectangular concrete device shall include a coated aluminum deck. In either instance, the insert shall be bolted and sealed watertight inside the precast concrete chamber. The deck shall serve as: (a) a horizontal divider between the lower treatment zone and the upper treated effluent zone; (b) a deck for attachment of filter cartridges such that the membrane filter elements of each cartridge extend into the lower treatment zone; (c) a platform for maintenance workers to service the filter cartridges (maximum manned weight = 450 pounds (204 kg)); (d) a conduit for conveyance of treated water to the effluent pipe.

2.1.3 Membrane Filter Cartridges Filter cartridges shall be comprised of reusable cylindrical membrane filter elements connected to a perforated head plate. The number of membrane filter elements per cartridge shall be a minimum of eleven 2.75-inch (70-mm) diameter elements. The length of each filter element shall be a minimum 15 inches (381 mm). Each cartridge shall be fitted into the cartridge deck by insertion into a cartridge receptacle that is permanently mounted into the cartridge deck. Each cartridge shall be secured by a cartridge lid that is threaded onto the receptacle, or similar mechanism to secure the cartridge into the deck. The maximum treatment flow rate of a filter cartridge shall be controlled by an orifice in the cartridge lid, or on the individual cartridge itself, and based on a design flux rate (surface loading rate) determined by the maximum treatment flow rate per unit of filtration membrane surface area. The maximum design flux rate shall be 0.21 gpm/ft^2 (0.142 lps/m^2).

Each membrane filter cartridge shall allow for manual installation and removal. Each filter cartridge shall have filtration membrane surface area and dry installation weight as follows (if length of filter cartridge is between those listed below, the surface area and weight shall be proportionate to the next length shorter and next length longer as shown below):

Filter Cartridge Length (in / mm)	Minimum Filtration Membrane Surface Area (ft2 / m2)	Maximum Filter Cartridge Dry Weight (lbs / kg)
15	106 / 9.8	10.5 / 4.8
27	190 / 17.7	15.0 / 6.8
40	282 / 26.2	20.5 / 9.3
54	381 / 35.4	25.5 / 11.6

2.1.4 Backwashing Cartridges The filter device shall have a weir extending above the cartridge deck, or other mechanism, that encloses the high flow rate filter cartridges when placed in their respective cartridge receptacles within the cartridge deck. The weir, or other mechanism, shall collect a pool of filtered water during inflow events that backwashes the high flow rate cartridges when the inflow event subsides. All filter cartridges and membranes shall be reusable and allow

for the use of filtration membrane rinsing procedures to restore flow capacity and sediment capacity; extending cartridge service life.

2.1.5 Maintenance Access to Captured Pollutants The filter device shall contain an opening(s) that provides maintenance access for removal of accumulated floatable pollutants and sediment, removal of and replacement of filter cartridges, cleaning of the sump, and rinsing of the deck. Access shall have a minimum clear vertical clear space over all of the filter cartridges. Filter cartridges shall be able to be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

2.1.6 Bend Structure The device shall be able to be used as a bend structure with minimum angles between inlet and outlet pipes of 90-degrees or less in the stormwater conveyance system.

2.1.7 Double-Wall Containment of Hydrocarbons The cylindrical precast concrete device shall provide double-wall containment for hydrocarbon spill capture by a combined means of an inner wall of fiberglass, to a minimum depth of 12 inches (305 mm) below the cartridge deck, and the precast vessel wall.

2.1.8 Baffle The filter device shall provide a baffle that extends from the underside of the cartridge deck to a minimum length equal to the length of the membrane filter elements. The baffle shall serve to protect the membrane filter elements from contamination by floatables and coarse sediment. The baffle shall be flexible and continuous in cylindrical configurations, and shall be a straight concrete or aluminum wall in rectangular configurations.

2.1.9 Sump The device shall include a minimum 24 inches (610 mm) of sump below the bottom of the cartridges for sediment accumulation, unless otherwise specified by the design engineer. Depths less than 24 inches may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

2.2 PRECAST CONCRETE SECTIONS

All precast concrete components shall be manufactured to a minimum live load of HS-20 truck loading or greater based on local regulatory specifications, unless otherwise modified or specified by the design engineer, and shall be watertight.

2.3 JOINTS All precast concrete manhole configuration joints shall use nitrile rubber gaskets and shall meet the requirements of ASTM C443, Specification C1619, Class D or engineer approved equal to ensure oil resistance. Mastic sealants or butyl tape are not an acceptable alternative.

2.4 GASKETS Only profile neoprene or nitrile rubber gaskets in accordance to CSA A257.3-M92 will be accepted. Mastic sealants, butyl tape or Conseal CS-101 are not acceptable gasket materials.

2.5 FRAME AND COVER Frame and covers must be manufactured from cast-iron or other composite material tested to withstand H-20 or greater design loads, and as approved by the local regulatory body. Frames and covers must be embossed with the name of the device manufacturer or the device brand name.

2.6 DOORS AND HATCHES If provided shall meet designated loading requirements or at a minimum for incidental vehicular traffic.

2.7 CONCRETE All concrete components shall be manufactured according to local specifications and shall meet the requirements of ASTM C 478.

2.8 FIBERGLASS The fiberglass portion of the filter device shall be constructed in accordance with the following standard: ASTM D-4097: Contact Molded Glass Fiber Reinforced Chemical Resistant Tanks.

2.9 STEPS Steps shall be constructed according to ASTM D4101 of copolymer polypropylene, and be driven into preformed or pre-drilled holes after the concrete has cured, installed to conform to applicable sections of state, provincial and municipal building codes, highway, municipal or local specifications for the construction of such devices.

2.10 INSPECTION All precast concrete sections shall be inspected to ensure that dimensions, appearance and quality of the product meet local municipal specifications and ASTM C 478.

PART 3 – PERFORMANCE

3.1 GENERAL

3.1.1 Verification – The stormwater quality filter treatment device shall have been field tested in accordance with either TARP Tier II Protocol (TARP, 2003) and New Jersey Tier II Stormwater Test Requirements – Amendments to TARP Tier II Protocol (NJDEP, 2009) or Washington State Technology Assessment Protocol – Ecology (TAPE), 2011 or later version. The field test shall have been verified in accordance with ISO 14034:2016 Environmental Management – Environmental Technology Verification (ETV). See Section 3.2 of this specification for field test performance requirements.

3.1.2 Function - The stormwater quality filter treatment device shall function to remove pollutants by the following unit treatment processes; sedimentation, floatation, and membrane filtration.

3.1.3 Pollutants - The stormwater quality filter treatment device shall be ISO 14034 ETV verified to remove oil/grease, suspended solids, metals and nutrients from stormwater runoff.

3.1.4 Bypass - The stormwater quality filter treatment device shall typically utilize an external bypass to divert excessive flows. Internal bypass systems shall be equipped with a floatables baffle, and must avoid passage through the sump and/or cartridge filtration zone.

3.1.5 Treatment Flux Rate (Surface Loading Rate) – The stormwater quality filter treatment device shall treat 100% of the required water quality treatment flow based on a maximum design treatment flux rate (surface loading rate) across the membrane filter cartridges of 0.21 gpm/ft^2 (0.142 lps/m^2).

3.2 FIELD TEST PERFORMANCE

At a minimum, the stormwater quality filter treatment device shall have been field tested in accordance with either TARP Tier II Protocol (TARP, 2003) and New Jersey Tier II Stormwater Test Requirements – Amendments to TARP Tier II Protocol (NJDEP, 2009) or Washington State Technology Assessment Protocol – Ecology (TAPE), 2011 or later version. The field test shall have been verified in accordance with ISO 14034:2016 Environmental Management – Environmental Technology Verification (ETV). The field test shall have monitored a minimum of twenty (20) TARP or TAPE qualifying storm events.

3.2.1 Suspended Solids Removal - The stormwater quality filter treatment device shall have ISO 14034 ETV verified load based median TSS removal efficiency of at least 85% and load based median SSC removal efficiency of at least 98%.

3.2.2 Runoff Volume – The stormwater quality filter treatment device shall be engineered, designed, and sized to treat a minimum of 90 percent of the annual runoff volume determined from use of a minimum 15-year rainfall data set.

3.2.3 Fine Particle Removal - The stormwater quality filter treatment device shall have demonstrated the ability to capture fine particles as indicated by a minimum median removal efficiency of 75% for the particle fraction less than 25 microns, and an effluent d_{50} of 15 microns or lower for all monitored storm events.

3.2.4 Turbidity Reduction - The stormwater quality filter treatment device shall have demonstrated the ability to reduce turbidity such that effluent turbidity is 15 NTU or lower.

3.2.5 Nutrients:

3.2.5.1 Total Phosphorus (TP) Removal - The stormwater quality filter treatment device shall have ISO 14034 ETV verified load based median TP removal efficiency of at least 49%.

3.2.5.2 Total Nitrogen (TN) Removal - The stormwater quality filter treatment device shall have ISO 14034 ETV verified load based median TN removal efficiency of at least 39%.

3.2.6 Metals:

3.2.6.1 Total Zinc (Zn) Removal - The stormwater quality filter treatment device shall have ISO 14034 ETV verified load based median Zn removal efficiency of at least 69%.

3.2.6.2 Total Copper (Cu) Removal - The stormwater quality filter treatment device shall have ISO 14034 ETV verified load based median Cu removal efficiency of at least 91%.

3.3 INSPECTION and MAINTENANCE

The stormwater quality filter device shall have the following features:

3.3.1 Durability of membranes are subject to good handling practices during inspection and maintenance (removal, rinsing, and reinsertion) events, and site specific conditions that may have heavier or lighter loading onto the cartridges, and

pollutant variability that may impact the membrane structural integrity. Membrane maintenance and replacement shall be in accordance with manufacturer's recommendations.

3.3.2 Inspection which includes trash and floatables collection, sediment depth determination, and visible determination of backwash pool depth shall be easily conducted from grade (outside the structure).

3.3.3 Manual rinsing of the reusable filter cartridges shall promote restoration of the flow capacity and sediment capacity of the filter cartridges, extending cartridge service life.

3.3.4 The filter device shall have a minimum 12 inches (305 mm) of sediment storage depth, and a minimum of 12 inches between the top of the sediment storage and bottom of the filter cartridge tentacles, unless otherwise specified by the design engineer. Variances may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

3.3.5 Sediment removal from the filter treatment device shall be able to be conducted using a standard maintenance truck and vacuum apparatus, and a minimum one point of entry to the sump that is unobstructed by filter cartridges.

3.3.6 Maintenance access shall have a minimum clear height that provides suitable vertical clear space over all of the filter cartridges. Filter cartridges shall be able to be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

3.3.7 Filter cartridges shall be able to be maintained without the requirement of additional lifting equipment.

PART 4 – EXECUTION

4.1 INSTALLATION

4.1.1 PRECAST DEVICE CONSTRUCTION SEQUENCE

The installation of a watertight precast concrete device should conform to ASTM C 891 and to any state highway, municipal or local specifications for the construction of manholes, whichever is more stringent. Selected sections of a general specification that are applicable are summarized below.

4.1.1.1 The watertight precast concrete device is installed in sections in the following sequence:

- aggregate base
- base slab
- treatment chamber and cartridge deck riser section(s)
- bypass section
- connect inlet and outlet pipes
- concrete riser section(s) and/or transition slab (if required)
- maintenance riser section(s) (if required)
- frame and access cover

4.1.2 The precast base should be placed level at the specified grade. The entire base should be in contact with the underlying compacted granular material. Subsequent sections, complete with joint seals, should be installed in accordance with the precast concrete manufacturer's recommendations.

4.1.3 Adjustment of the stormwater quality treatment device can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets should be repaired or replaced as necessary to restore original condition and watertight seals. Once the stormwater quality treatment device has been constructed, any/all lift holes must be plugged watertight with mortar or non-shrink grout.

4.1.4 Inlet and Outlet Pipes Inlet and outlet pipes should be securely set into the device using approved pipe seals (flexible boot connections, where applicable) so that the structure is watertight, and such that any pipe intrusion into the device does not impact the device functionality.

4.1.5 Frame and Cover Installation Adjustment units (e.g. grade rings) should be installed to set the frame and cover at the required elevation. The adjustment units should be laid in a full bed of mortar with successive units being joined using sealant recommended by the manufacturer. Frames for the cover should be set in a full bed of mortar at the elevation specified.

4.2 MAINTENANCE ACCESS WALL
In some instances the Maintenance Access Wall, if provided, shall require an extension attachment and sealing to the precast wall and cartridge deck at the job site, rather than at the precast facility. In this instance, installation of these components shall be performed according to instructions provided by the manufacturer.

4.3 FILTER CARTRIDGE INSTALLATION Filter cartridges shall be installed in the cartridge deck only after the construction site is fully stabilized and in accordance with the manufacturer's guidelines and recommendations. Contractor to contact the manufacturer to schedule cartridge delivery and review procedures/requirements to be completed to the device prior to installation of the cartridges and activation of the system.

PART 5 – QUALITY ASSURANCE

5.1 FILTER CARTRIDGE INSTALLATION Manufacturer shall coordinate delivery of filter cartridges and other internal components with contractor. Filter cartridges shall be delivered and installed complete after site is stabilized and unit is ready to accept cartridges. Unit is ready to accept cartridges after is has been cleaned out and any standing water, debris, and other materials have been removed. Contractor shall take appropriate action to protect the filter cartridge receptacles and filter cartridges from damage during construction, and in accordance with the manufacturer's recommendations and guidance. For systems with cartridges installed prior to full site stabilization and prior to system activation, the contractor can plug inlet and outlet pipes to prevent stormwater and other influent from entering the device. Plugs must be removed during the activation process.

5.2 INSPECTION AND MAINTENANCE

5.2.1 The manufacturer shall provide an Owner's Manual upon request.

5.2.2 After construction and installation, and during operation, the device shall be inspected and cleaned as necessary based on the manufacturer's recommended inspection and maintenance guidelines and the local regulatory agency/body.

5.3 REPLACEMENT FILTER CARTRIDGES When replacement membrane filter elements and/or other parts are required, only membrane filter elements and parts approved by the manufacturer for use with the stormwater quality filter device shall be installed.

END OF SECTION

STANDARD SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREAMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, designing, maintaining, and constructing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV). Work includes supply and installation of concrete bases, precast sections, and the appropriate precast section with OGS internal components correctly installed within the system, watertight sealed to the precast concrete prior to arrival to the project site.

1.2 REFERENCE STANDARDS

1.2.1 For Canadian projects only, the following reference standards apply:

CAN/CSA-A257.4-14: Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections, and Fittings Using Rubber Gaskets
CAN/CSA-A257.4-14: Precast Reinforced Circular Concrete Manhole Sections, Catch Basins, and Fittings
CAN/CSA-S6-00: Canadian Highway Bridge Design Code

1.2.2 For ALL projects, the following reference standards apply:

ASTM D-4097: Contact Molded Glass Fiber Reinforced Chemical Resistant Tanks
ASTM C 478: Specification for Precast Reinforced Concrete Manhole Sections
ASTM C 443: Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM C 891: Standard Practice for Installation of Underground Precast Concrete Utility Structures
ASTM D2563: Standard Practice for Classification of Visual Defects in Reinforced Plastics

1.3 SHOP DRAWINGS

1.3.1 Shop drawings shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail the precast concrete components and OGS internal components prior to shipment, including the sequence for installation.

1.3.2 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record. Any and all changes to project cost estimates, bonding amounts, plan check fees for revision of approved documents, or design impacts due to regulatory requirements as a result of a product substitution shall be coordinated by the Contractor with the Engineer of Record.

1.4 HANDLING AND STORAGE

Prevent damage to materials during storage and handling.

1.4.1 OGS internal components supplied by the Manufacturer for attachment to the precast concrete vessel shall be pre-fabricated, bolted to the precast and watertight sealed to the precast vessel surface prior to site delivery to ensure Manufacturer's internal assembly process and quality control processes are fully adhered to, and to prevent materials damage on site.

1.4.2 Follow all instructions including the sequence for installation in the shop drawings during installation.

PART 2 – PRODUCTS

2.1 GENERAL

2.1.1 The OGS vessel shall be cylindrical and constructed from precast concrete riser and slab components.

2.1.2 The precast concrete OGS internal components shall include a fiberglass insert bolted and watertight sealed inside the precast concrete vessel, prior to site delivery. Primary internal components that are to be anchored and watertight sealed to the precast concrete vessel shall be done so only by the Manufacturer prior to arrival at the job site to ensure product quality.

2.1.3 The OGS shall be allowed to be specified and have the ability to function as a 240-degree bend structure in the stormwater drainage system, or as a junction structure.

2.1.4 The OGS to be specified shall have the capability to accept influent flow from an inlet grate and an inlet pipe.

2.2 PRECAST CONCRETE SECTIONS

All precast concrete components shall be designed and manufactured to meet highway loading conditions per State/Provincial or local requirements.

2.3 GASKETS

Only profile neoprene or nitrile rubber gaskets that are oil resistant shall be accepted. For Canadian projects only, gaskets shall be in accordance to CSA A257.4-14. Mastic sealants, butyl tape/rope or Conseal CS-101 alone are not acceptable gasket materials.

2.4 JOINTS

The concrete joints shall be watertight and meet the design criteria according to ASTM C-990. For projects where joints require gaskets, the concrete joints shall be watertight and oil resistant and meet the design criteria according to ASTM C-443. Mastic sealants or butyl tape/rope alone are not an acceptable alternative.

2.5 FRAMES AND COVERS

Frames and covers shall be manufactured in accordance with State/Provincial or local requirements for inspection and maintenance access purposes. A minimum of one cover, at least 22-inch (560 mm) in diameter, shall be clearly embossed with the OGS manufacturer’s product name to properly identify this asset’s purpose is for stormwater quality treatment.

2.6 PRECAST CONCRETE

All precast concrete components shall conform to the appropriate CSA or ASTM specifications.

2.7 FIBERGLASS

The fiberglass portion of the OGS device shall be constructed in accordance with ASTM D2563, and in accordance with the PS15-69 manufacturing standard, and shall only be installed, bolted and watertight sealed to the precast concrete by the Manufacturer prior to arrival at the project site to ensure product quality.

2.8 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a fiberglass insert for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The total sediment storage capacity shall be a minimum 40 ft^3 (1.1 m^3). The total petroleum hydrocarbon storage capacity shall be a minimum 50 gallons (189 liters). The access opening to the sump of the OGS device for periodic inspection and maintenance purposes shall be a minimum 16 inches (406 mm) in diameter.

2.9 LADDERS

Ladder rungs shall be provided upon request or to comply with State/Provincial or local requirements.

2.10 INSPECTION

All precast concrete sections shall be level and inspected to ensure dimensions, appearance, integrity of internal components, and quality of the product meets State/Provincial or local specifications and associated standards.

2.11 WEIR

Weir shall be constructed of 5052 aluminum alloy and shall be installed, bolted and watertight sealed by the Manufacturer prior to shipment to the project site to ensure product quality.

2.12 DROP PIPE

Drop pipe shall be constructed of 5052 aluminum alloy and shall be watertight sealed to the insert with silicone adhesive. Based on assessment of the dimensions of the precast riser section containing the fiberglass insert and the dimensions of the drop pipe, the drop pipe may be installed by the Manufacturer prior to shipment to the project site, or may be installed at the project site by the Contractor, at the Manufacturer's discretion.

2.13 OUTLET RISER VANE

Outlet riser vane shall be constructed of ¼-inch 60 durometer EPDM rubber and shall be installed by the Manufacturer prior to shipment to the site.

2.14 SAFETY GRATE

Safety grate shall be constructed of 6061-T6 aluminum alloy and shall be installed by the Manufacturer prior to shipment to the site.

2.15 FASTENERS

All fasteners for component attachment shall be constructed of stainless steel. These include bolts, washers, and nuts used for attachment of the fiberglass insert, weir, drop pipe, outlet riser vane, and safety grate.

2.16 OIL INSPECTION PIPE

Oil inspection pipe shall be constructed of 3-inch diameter Schedule 40 PVC and shall be watertight sealed to the oil inspection port with Sikaflex 1a adhesive. Oil inspection pipe shall be installed by the Manufacturer prior to shipment to the site.

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 HYDROLOGY AND RUNOFF VOLUME

The OGS device shall be engineered, designed and sized to treat a minimum of 90 percent of the average annual runoff volume, unless otherwise stated by the Engineer of Record, using historical rainfall data. Rainfall data sets should be comprised of a minimum 15-years of rainfall data or a longer continuous period if available for a given location, but in all cases a minimum 5-year period of rainfall data.

3.3 ANNUAL (TSS) SEDIMIMENT LOAD AND STORAGE CAPACITY

The OGS device shall be capable of removing and have sufficient storage capacity for the calculated annual total suspended solids (TSS) mass load and volume without scouring previously captured pollutants prior to maintenance being required. The annual (TSS) sediment load and volume transported from the drainage area should be calculated and compared to the OGS device's available storage capacity by the specifying Engineer to ensure adequate capacity between maintenance cycles. Sediment loadings shall be determined by land use and defined as a minimum of 450 kg (992 lb) of sediment (TSS) per impervious hectare of drainage area per year, or greater based on land use, as noted in Table 1 below.

Annual sediment volume calculations shall be performed using the projected average annual treated runoff volume, a typical sediment bulk density of 1602 kg/m^3 (100 lbs/ft^3) and an assumed Event Mean Concentration (EMC) of 125 mg/L TSS in the runoff, or as otherwise determined by the Engineer of Record.

Example calculation for a 1.3-hectares parking lot site:

- 1.28 meters of rainfall depth, per year
- 1.3 hectares of 100% impervious drainage area
- EMC of 125 mg/L TSS in runoff
- Treatment of 90% of the average annual runoff volume
- Target average annual TSS removal rate of 60% by OGS

Annual Runoff Volume:

- 1.28 m rain depth x 1.3 ha x 10,000 m^2/ha= 16,640 m^3 of runoff volume
- 16,640 m^3 x 1000 L/m^3 = 16,640,000 L of runoff volume
- 16,640,000 L x 0.90 = 14,976,000 L to be treated by OGS unit

Annual Sediment Mass and Sediment Volume Load Calculation:

- 14,976,000 L x 125 mg/L x kg/1,000,000 mg = 1,872 kg annual sediment mass
- 1,872 kg x m^3/1602 kg = 1.17 m^3 annual sediment volume
- 1.17 m^3 x 60% TSS removal rate by OGS = 0.70 m^3 minimum expected annual storage requirement in OGS

As a guideline, the U.S. EPA has determined typical annual sediment loads per drainage area for various sites by land use (see Table 1). Certain States, Provinces and local jurisdictions have also established such guidelines.

Table 1 – Annual Mass Sediment Loading by Land Use

	Commercial	Parking	Residential	Highways	Industrial	Shopping

		Lot	High	Med.	Low			Center
(lbs/acre/yr)	1,000	400	420	250	10	880	500	440
(kg/hectare/yr)	1,124	450	472	281	11	989	562	494

Source: U.S. EPA Stormwater Best Management Practice Design Guide Volume 1, Appendix D, Table D-1, Burton and Pitt 2002

3.4 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in Table 2, Section 3.5, and based on third-party performance testing conducted in accordance with the Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol *Procedure for Laboratory Testing of Oil-Grit Separators*, as follows:

3.4.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.4.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.4.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.4.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 3.3.

3.4.5 The Peclet Number is not an approved method or model for calculating TSS removal, sizing, or scaling OGS devices.

3.4.6 If an alternate OGS device is proposed, supporting documentation shall be submitted that demonstrates:

- Canadian ETV or ISO 14034 ETV Verification Statement which verifies third-party performance testing conducted in accordance with the **Procedure for Laboratory Testing of Oil-Grit Separators**
- Equal or better sediment (TSS) removal of the PSD specified in Table 2 at equivalent surface loading rates, as compared to the OGS device specified herein.
- Equal or greater sediment storage capacity, as compared to the OGS device specified herein.
- Supporting documentation shall be signed and sealed by a local registered Professional Engineer. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

3.5 PARTICLE SIZE DISTRIBUTION (PSD) FOR SIZING

The OGS device shall be sized to achieve the Engineer-specified average annual percent sediment (TSS) removal based solely on the test sediment used in the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** This test sediment is comprised of inorganic ground silica with a specific gravity of 2.65, uniformly mixed, and containing a broad range of particle sizes as specified in Table 2. No alternative PSDs or deviations from Table 2 shall be accepted.

Table 2
Canadian ETV Program Procedure for Laboratory Testing of Oil-Grit Separators
Particle Size Distribution (PSD) of Test Sediment

Particle Diameter (Microns)	% by Mass of All Particles	Specific Gravity
1000	5%	2.65
500	5%	2.65
250	15%	2.65
150	15%	2.65
100	10%	2.65
75	5%	2.65
50	10%	2.65
20	15%	2.65
8	10%	2.65
5	5%	2.65
2	5%	2.65

3.6 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. This scour testing is conducted with the device pre-loaded with test sediment comprised of the particle size distribution (PSD) illustrated in Table 2.

3.6.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

Data generated from laboratory scour testing performed with an OGS device pre-loaded with a coarser PSD than in Table 2 (i.e. the coarser PSD has no particles in the 1-micron to 50-micron size range, or the D_{50} of the test sediment exceeds 75 microns) shall not be acceptable for the determination of the device's suitability for on-line installation.

3.7 DESIGN ACCOUNTING FOR BYPASS

3.7.1 The OGS device shall be specified to achieve the TSS removal performance and water quality objectives without washout of previously captured pollutants. The OGS device shall also have sufficient hydraulic conveyance capacity to convey the peak storm event, in accordance with hydraulic conditions per the Engineer of Record. To ensure this is achieved, there are two design options with associated requirements:

3.7.1.1 The OGS device shall be placed **off-line** with an upstream diversion structure (typically in an upstream manhole) that only allows the water quality volume to be diverted to the OGS device, and excessive flows diverted downstream around the OGS device to prevent high flow washout of pollutants previously captured. This design typically incorporates a triangular layout including an upstream bypass manhole with an appropriately engineered weir wall, the OGS device, and a downstream junction manhole, which is connected to both the OGS device and bypass structure. In this case with an external bypass required, the OGS device manufacturer must provide calculations and designs for all structures, piping and any other required material applicable to the proper functioning of the system, stamped by a Professional Engineer.

3.7.1.2 Alternatively, OGS devices in compliance with Section 3.6 shall be acceptable for an **on-line** design configuration, thereby eliminating the requirement for an upstream bypass manhole and downstream junction manhole.

3.7.2 The OGS device shall also have sufficient hydraulic conveyance capacity to convey the peak storm event, in accordance with hydraulic conditions per the Engineer of Record. If an alternate OGS device is proposed, supporting documentation shall be submitted that demonstrates equal or better hydraulic conveyance capacity as compared to the OGS device specified herein. This documentation shall be signed and sealed by a local registered Professional Engineer. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

3.8 PETROLEUM HYDROCARBONS AND FLOATABLES STORAGE CAPACITY

Petroleum hydrocarbons and floatables storage capacity in the OGS device shall be a minimum 50 gallons (189 Liters), or more as specified.

3.8.1 The OGS device shall have gasketed precast concrete joints that are watertight, and oil resistant and meet the design criteria according to ASTM C-443 to provide safe oil and other hydrocarbon materials storage and ground water protection. Mastic sealants or butyl tape/rope alone are not an acceptable alternative.

3.9 SURFACE LOADING RATE SCALING OF DIFFERENT MODEL SIZES

The reference device for scaling shall be an OGS device that has been third-party tested in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. Other model sizes of the tested device shall only be scaled such that the claimed TSS removal efficiency of the scaled device shall be no greater than the TSS removal efficiency of the tested device at identical **surface loading rates** (flow rate divided by settling surface area). The depth of other model sizes of the tested device shall be scaled in accordance with the depth scaling provisions within Section 6.0 of the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.9.1 The Peclet Number and volumetric scaling are not approved methods for scaling OGS devices.

PART 4 – INSPECTION & MAINTENANCE

The OGS manufacturer shall provide an Owner's Manual upon request.
Maintenance shall be performed by a professional service provider who has experience in cleaning OGS devices and has been trained and certified in applicable health and safety practices, including confined space entry procedures.

4.1 A Quality Assurance Plan that provides inspection for a minimum of 5 years shall be included with the OGS stormwater quality device, and written into the Environmental Compliance Approval (ECA) or the appropriate State/Provincial or local approval document.

4.2 OGS device inspection shall include determination of sediment depth and presence of petroleum hydrocarbons and floatables below the insert. Inspection shall be easily conducted from finished grade through a Frame and Cover of at least 22 inch (560 mm) in diameter.

4.3 Inspection and pollutant removal from below the OGS's insert shall be conducted as a periodic maintenance practice using a standard maintenance truck and vacuum apparatus, and shall be easily conducted from finished grade through a Frame and Cover of at least 22-inches (560 mm) in diameter.

4.4 Diameter of the maintenance access opening to the lower chamber and sump shall be scaled consistently across all model sizes, and shall be 1/3 the inside diameter of the OGS structure, or larger.

4.5 No confined space entry shall be required for routine inspection and maintenance cleaning activities.

4.6 For OGS model sizes of diameter 72 inches (1828 mm) and greater, the access opening to the OGS device's lower chamber and sump shall be large enough to allow a maintenance worker to enter the lower chamber to facilitate non-routine maintenance cleaning activities and repairs, as needed.

4.7 The orifice-containing component (i.e. drop pipe, duct, chute, etc.) of the OGS device used to control flow rate into the lower chamber shall be removable from the insert to facilitate cleaning, repair, or replacement of the orifice-containing component, as needed.

PART 5 – EXECUTION

5.1 PRECAST CONCRETE INSTALLATION

The installation of the precast concrete OGS stormwater quality treatment device shall conform to ASTM C 891, ASTM C 478, ASTM C 443, CAN/CSA-A257.4-14, CAN/CSA-A257.4-14, CAN/CSA-S6-00 and all highway, State/Provincial, or local specifications for the construction of manholes. Selected sections of a general specification that are applicable are summarized below. The Contractor shall furnish all labor, equipment and materials necessary to offload, assemble as needed the OGS internal components as specified in the Shop Drawings.

5.2 EXCAVATION

5.2.1 Excavation for the installation of the OGS stormwater quality treatment device shall conform to highway, State/Provincial or local specifications. Topsoil that is removed during the excavation for the OGS stormwater quality treatment device shall be stockpiled in designated areas and not be mixed with subsoil or other materials. Topsoil stockpiles and the general site preparation for the installation of the OGS stormwater quality device shall conform to highway, State/Provincial or local specifications.

5.2.2 The OGS device shall not be installed on frozen ground. Excavation shall extend a minimum of 12 inch (300 mm) from the precast concrete surfaces plus an allowance for shoring and bracing where required. If the bottom of the excavation provides an unsuitable foundation additional excavation may be required.

5.2.3 In areas with a high water table, continuous dewatering shall be provided to ensure that the excavation is stable and free of water.

5.3 BACKFILLING

Backfill material shall conform to highway, State/Provincial or local specifications. Backfill material shall be placed in uniform layers not exceeding 12 inches (300 mm) in depth and compacted to highway, State/Provincial or local specifications.

5.4 OGS WATER QUALITY DEVICE CONSTRUCTION SEQUENCE

5.4.1 The precast concrete OGS stormwater quality treatment device is installed and leveled in sections in the following sequence:

- aggregate base

- base slab, or base
- riser section(s) (if required)
- riser section w/ pre-installed fiberglass insert
- upper riser section(s)
- internal OGS device components
- connect inlet and outlet pipes
- riser section, top slab and/or transition (if required)
- frame and access cover

5.4.2 The precast concrete base shall be placed level at the specified grade. The entire base shall be in contact with the underlying compacted granular material. Subsequent sections, complete with oil resistant, watertight joint seals, shall be installed in accordance with the precast concrete manufacturer's recommendations.

5.4.3 Adjustment of the OGS stormwater quality treatment device can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets shall be repaired or replaced as necessary. Once the OGS stormwater quality treatment device has been constructed, any lift holes must be plugged with mortar.

5.5 DROP PIPE AND OIL INSPECTION PIPE

Once the upper precast concrete riser has been attached to the lower precast concrete riser section, the OGS device Drop Pipe and Oil Inspection Pipe must be attached, and watertight sealed to the fiberglass insert using Sikaflex 1a. Installation instructions and required materials shall be provided by the OGS manufacturer.

5.6 INLET AND OUTLET PIPES

Inlet and outlet pipes shall be securely set using grout or approved pipe seals (flexible boot connections, where applicable) so that the structure is watertight. Non-secure inlets and outlets will result in improper performance.

5.7 FRAME AND COVER OR FRAME AND GRATE INSTALLATION

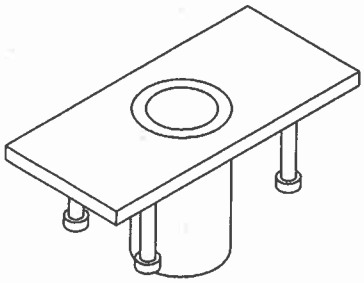
Precast concrete adjustment units shall be installed to set the frame and cover/grate at the required elevation. The adjustment units shall be laid in a full bed of mortar with successive units being joined using sealant recommended by the manufacturer. Frames for the cover/grate should be set in a full bed of mortar at the elevation specified.

5.7.1 A minimum of one cover, at least 22-inch (560 mm) in diameter, shall be clearly embossed with the OGS device brand or product name to properly identify this asset's purpose is for stormwater quality treatment.

Appendix C -
Additional Information

Flush Mount Sleeve
Model#: 8510311 (Mild Steel) / 8512828 (S.S.)

AI 1



Description

Zinc plated mild steel or 304 stainless steel construction. Comes with cast-in-place concrete anchors for new construction or renovation. Flush mount design allows passage of traffic and eliminates trip hazards when not in use. Comes with PVC sleeve liner.

General Specifications:

Rated Capacity(*working load*)	450 lbs. (205 Kgs.) @ minimum 4:1 Design Factor *(see appl. restriction 2)*
Mast Moment Proof Load	90.000 In.-lbs (10,000 N.m)
Mast Rotation	360°
Weight	21 lbs(9.5 Kg)

Note: Sleeves are designed to withstand the proof load rating of all standard CSG Systems masts.

Materials and Construction:

General Construction	Welded Steel/Stainless Steel
Weld Certification	CWB-47.1
Structure Material	A-36 Steel Plate/304 S.S.
Sleeve Material	Sch. 40 Pipe/304 S.S.
Sleeve Bearing Material	PVC Pipe - ASTM-D-1785
Thrust Bearing Material	High Density Polyethene
Finish (*Steel Sleeves*)	Zinc Plated
Finish (*Stainless Steel*)	Brush Blast
Plating Specification	ASTM Designation B633-85, Type III, SC2

Mounting Requirements(minimum):

Concrete: thickness 6" (150 mm)

The Structure and mounting hardware must be capable of withstanding a 90,000 in.-lbs (10000 N.m) moment and a 5000 lbs. (2268 Kg.) vertical load. Installation **MUST BE** approved to local regulations by a qualified engineer.

Application Restrictions:

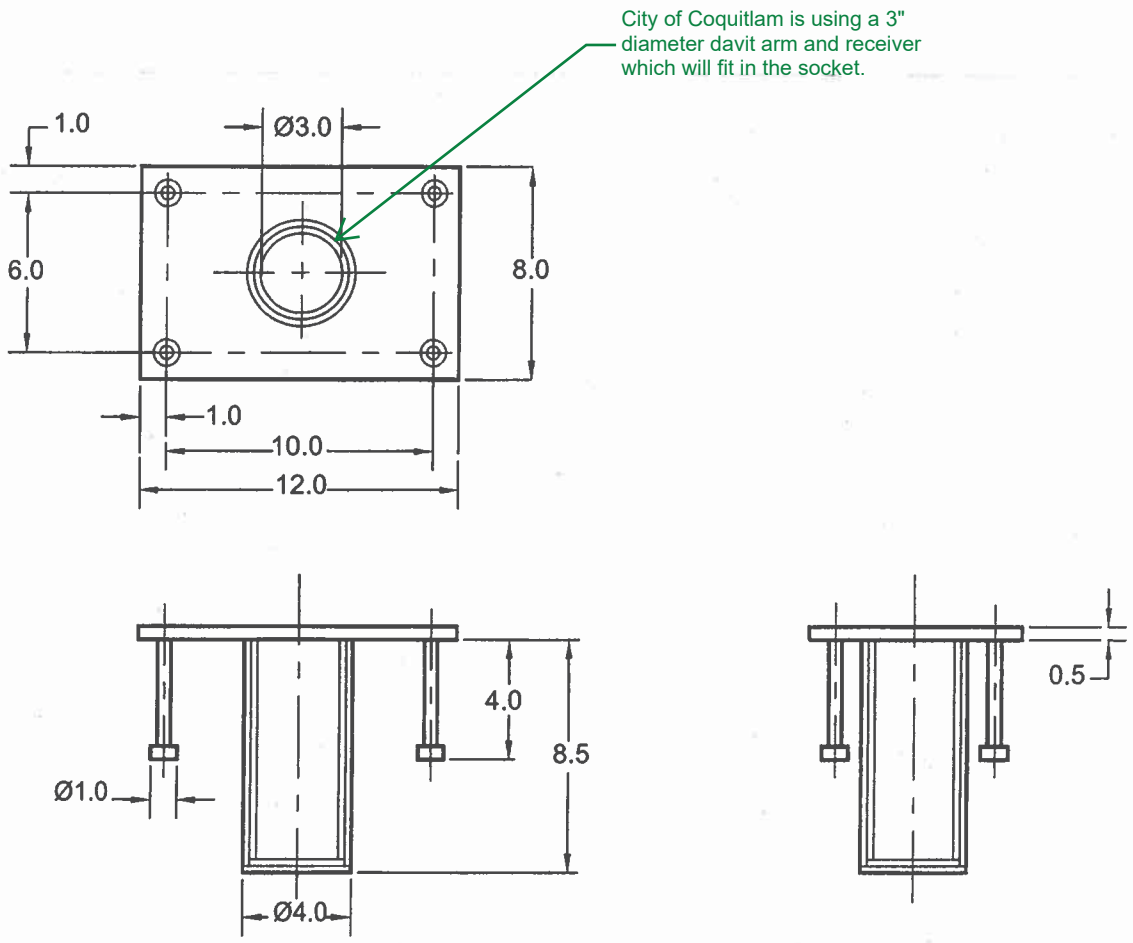
1. Sleeves are for use with masts & accessories manufactured by Capital Safety Group Ltd. **ONLY**.
2. System design factor depends on other system components and the configuration in which they are assemblied. The minimum design factor for all standard CSG Safety Systems masts and accessories is 4:1.
3. If base material does not meet minimum requirements, reinforcement **MUST BE** added to meet minimum requirements.
4. Each installation **MUST BE** approved to local standards by a qualified engineer.

Certification

CE

ISO 9001 REGISTERED

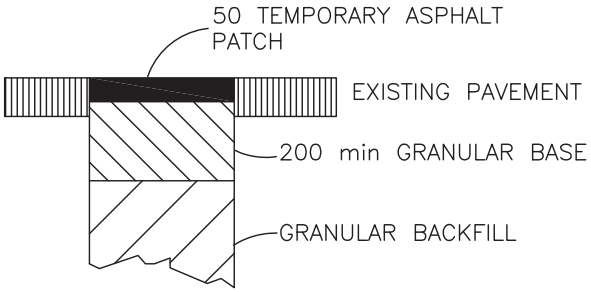
Flush Mount Sleeve
Model#: 8510311 (Mild Steel) / 8512828 (S.S.)



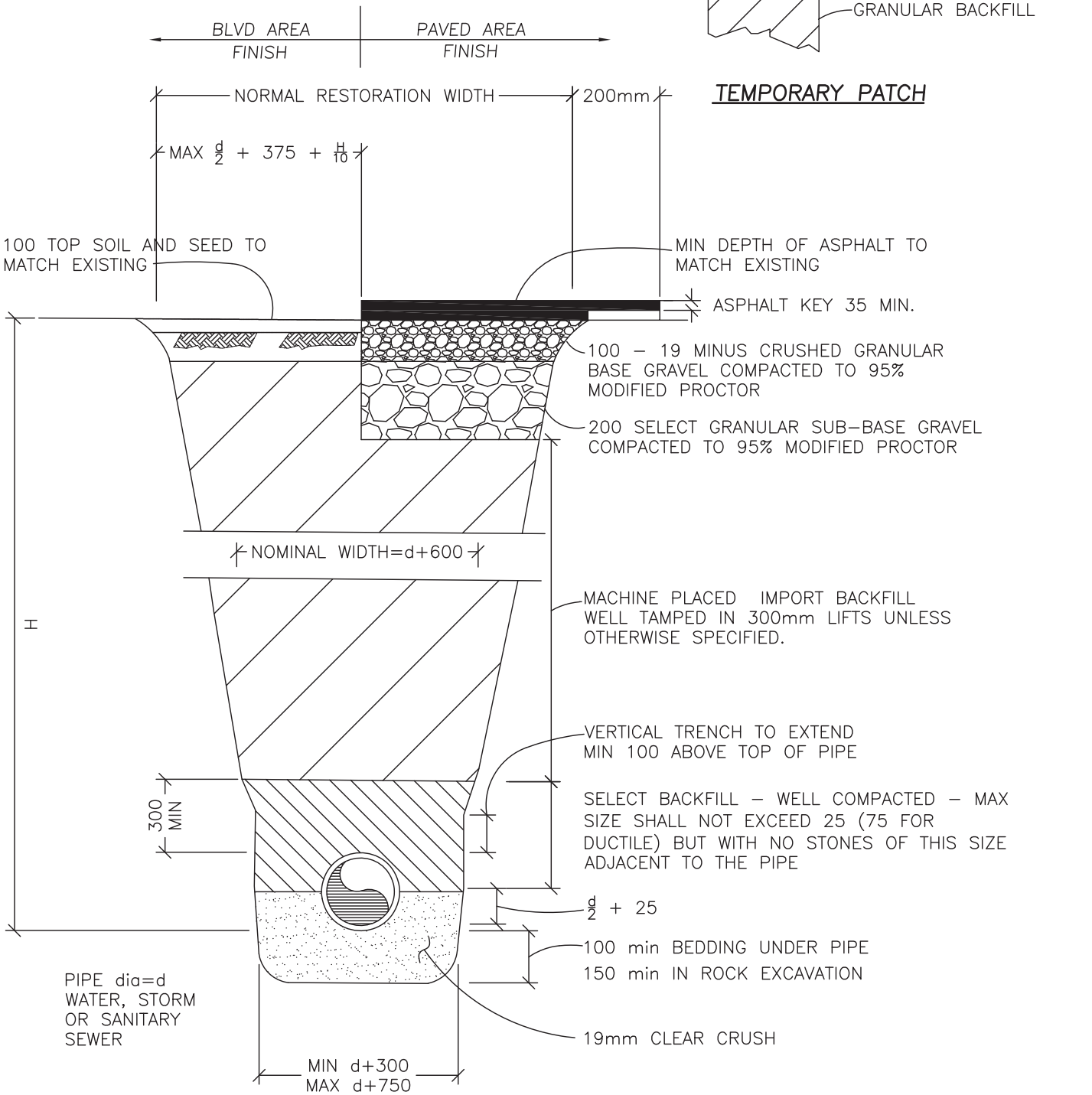
ALL DIMENSIONS IN MILLIMETRES

d = PIPE DIA IN mm

H = TRENCH DEPTH IN mm

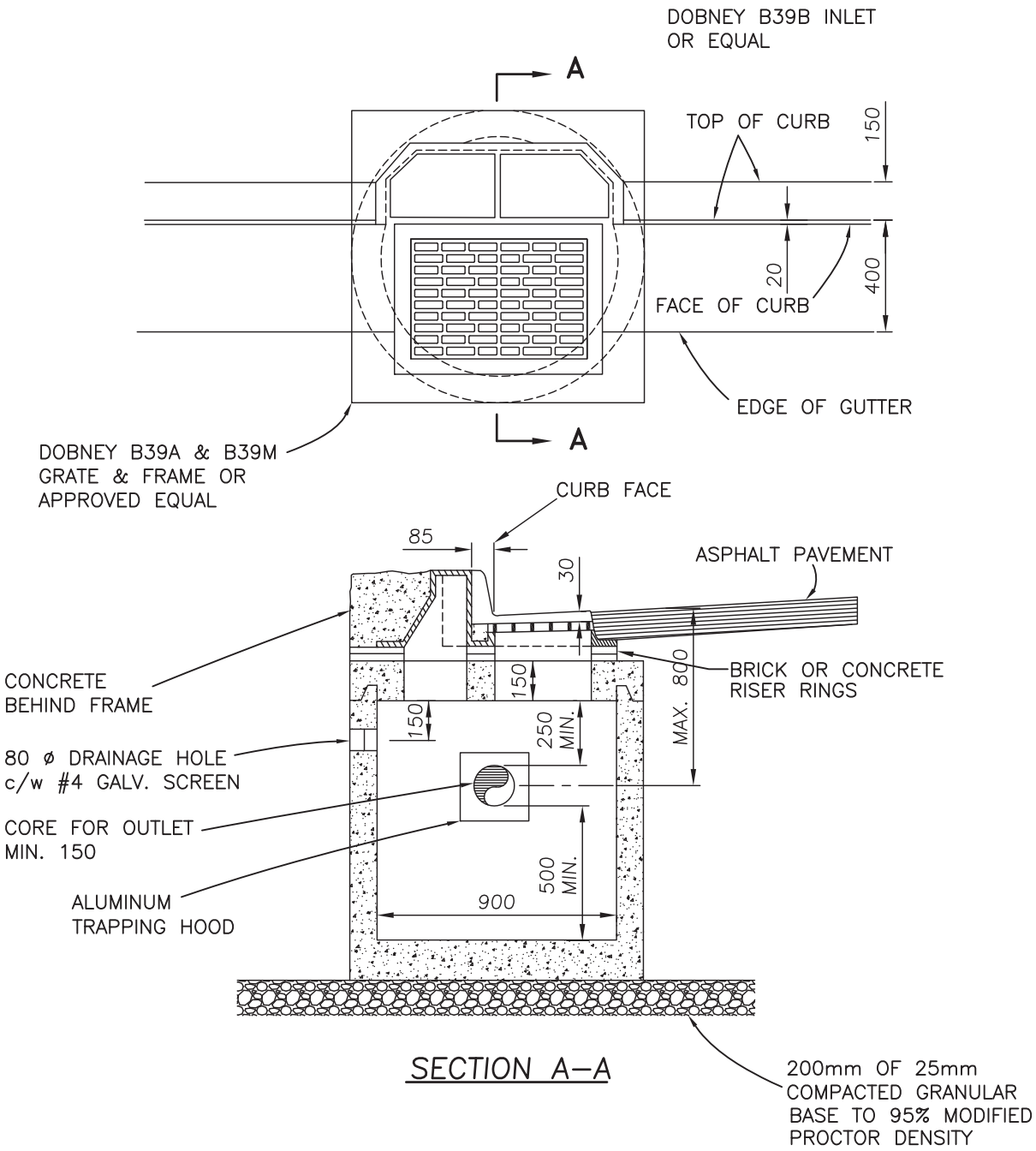


TEMPORARY PATCH



PLOTTED: 20–Sep–21

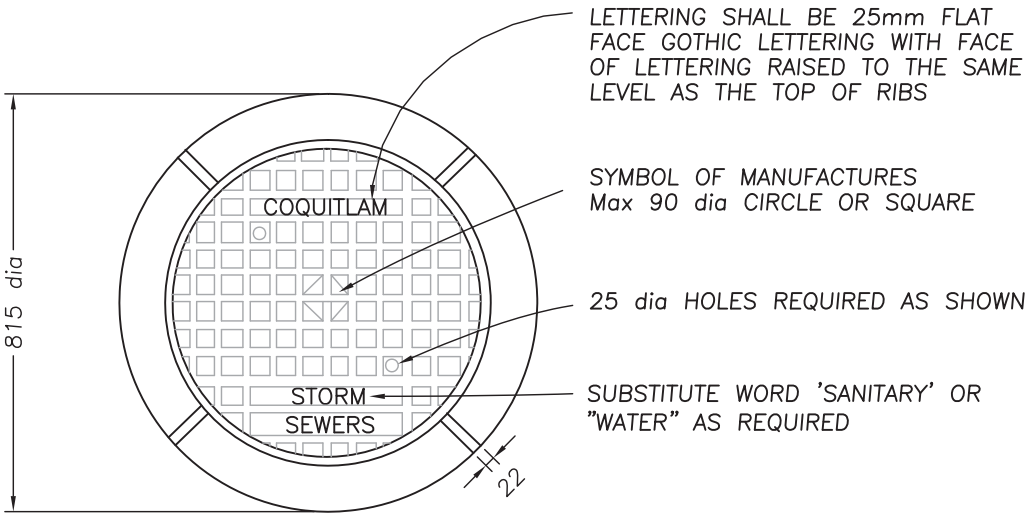
TRENCH DETAILS FOR STANDARD SECTION	DATE: AUG/2021 DRAWN: REY SCALE: N.T.S.	DRAWING NUMBER: COQ-G4



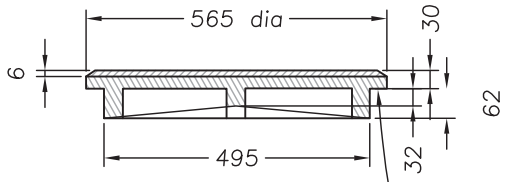
NOTES:
1. *REFER TO CONTRACT DRAWINGS, SECTION 33 44 01 FOR DETAILED SPECIFICATIONS.*
2. *PLACE 0.05 cu m DRAIN ROCK ADJACENT TO DRAINAGE HOLE WHEN BACKFILLING.*

PLOTTED: 19–Nov–18

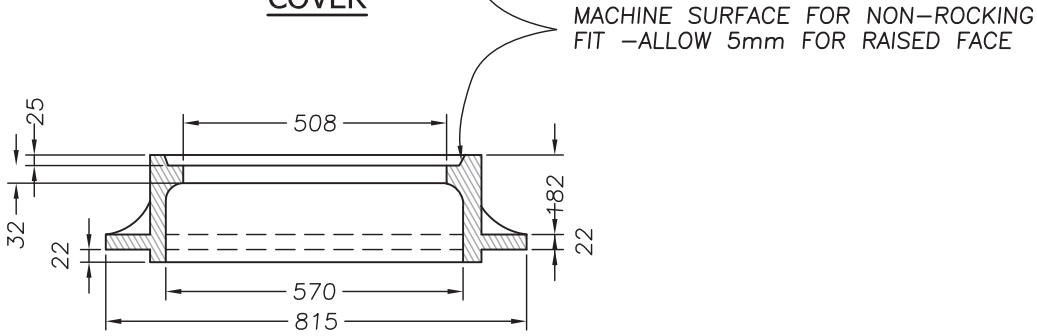
SIDE INLET CATCH BASIN ASSEMBLY	DATE: AUGUST/2014 DRAWN: REY SCALE: N.T.S.	DRAWING NUMBER: COQ-S11A



PLAN



COVER



FRAME

APPROX. WEIGHT

COVER 60–65 kg

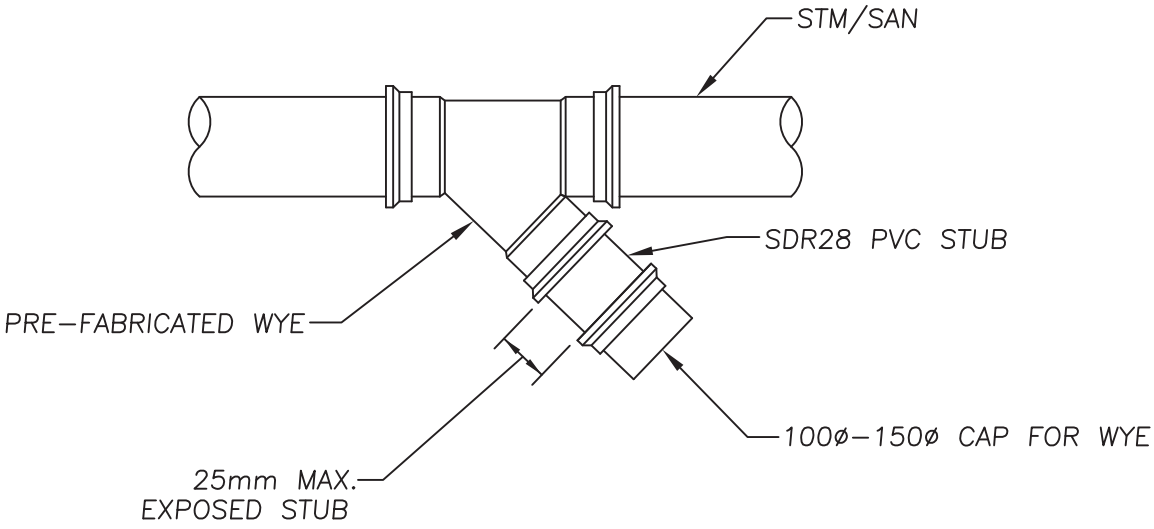
FRAME 100–110 kg

PLOTTED: 9–Dec–15

ALL DIMENSIONS IN METRES.

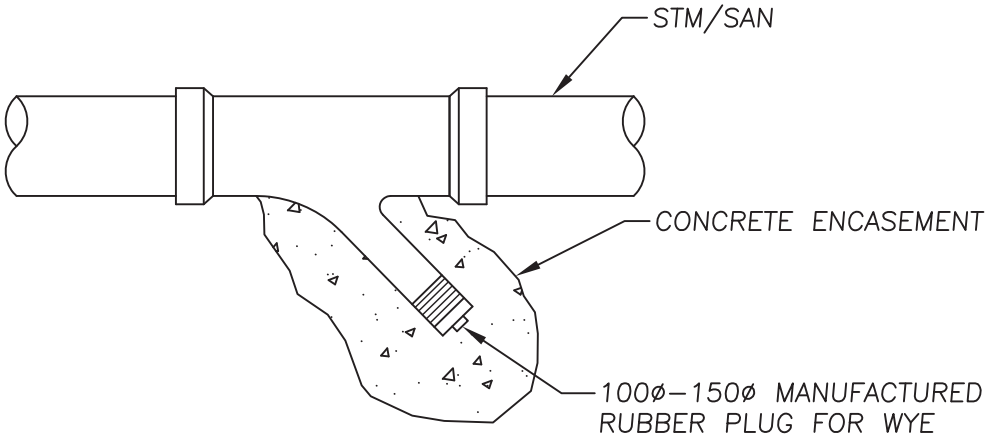
MANHOLE COVER & FRAME	DATE: DEC/2015 DRAWN: REY SCALE: N.T.S.	DRAWING NUMBER: COQ-S16

PLASTIC PIPE CONNECTIONS



(1) 100ø OR 150ø GASKETED PLASTIC CAP PLACED AT WYE. SAME PROCESS FOR ALL WYE SIZES.

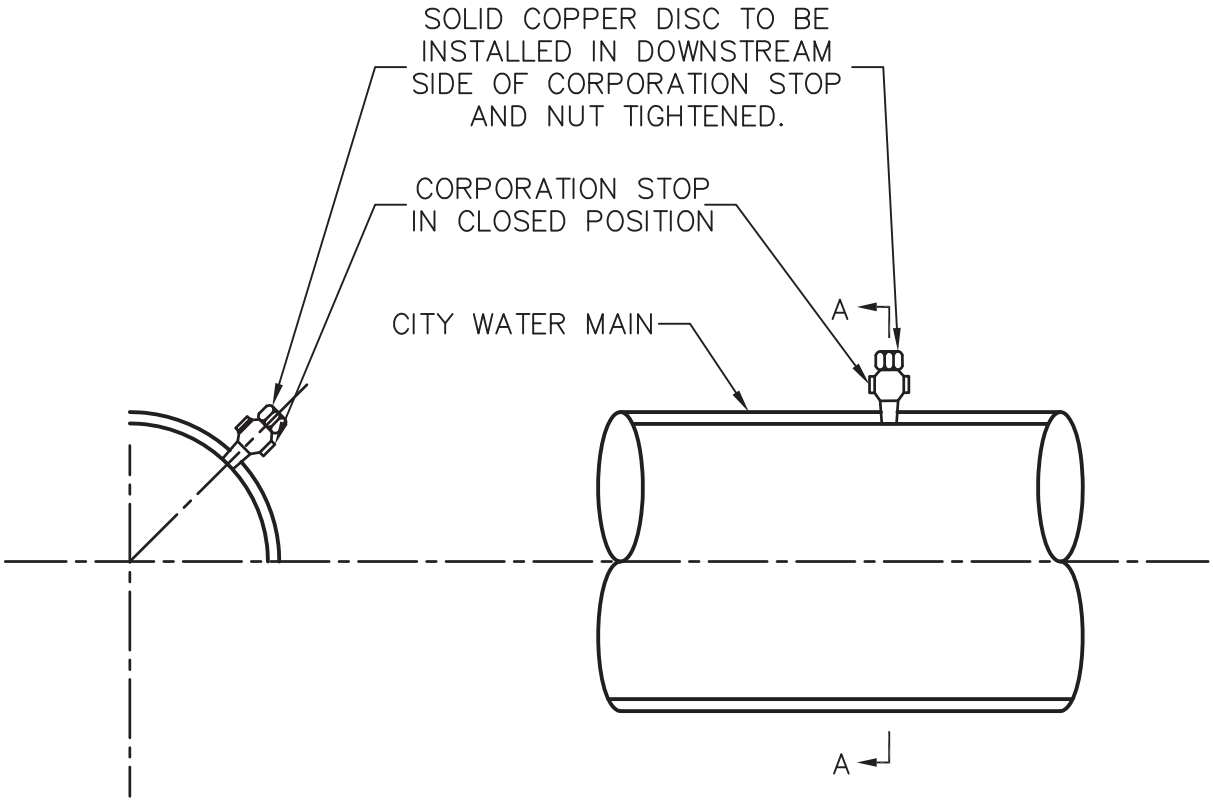
ALL OTHER PIPE MATERIAL



(2) 100ø OR 150ø RUBBER EXPANDIBLE PLUG–PLASTIC INSERT FOR EXPANSION WITH OPERATING NUT AND CONCRETE ENCASEMENT.

PLOTTED: 20–Jan–16

PERMANENT CAP FOR SANITARY AND STORM SERVICES	DATE: DEC/2015	DRAWING NUMBER: COQ-S18
	DRAWN: REY	
	SCALE: N.T.S.	



A–A SECTION

NOTES:

1. EXISTING CORPORATION STOP MUST BE FIRMLY THREADED INTO PIPE OR EXISTING VALVE MUST BE REMOVED AND A STAINLESS STEEL MAIN REPAIR CLAMP INSTALLED.

2. REFER TO CONTRACT DRAWINGS AND SECTION 33 11 01 FOR DETAILED SPECIFICATIONS.

PLOTTED: 20–Jan–16

PERMANENT CAP FOR WATER SERVICES 19mm TO 25mm ONLY	DATE: JUNE/2015	DRAWING NUMBER: COQ-W2g
	DRAWN: REY	
	SCALE: N.T.S.	