



INVITATION TO TENDER 19-07

WATERFRONT SEWER UPGRADES PHASE II

**MASTER MUNICIPAL CONSTRUCTION DOCUMENTS - 2009
Platinum Edition**

UNIT PRICE CONTRACT

March 20th, 2019



INVITATION TO TENDER 19-07

WATERFRONT SEWER UPGRADES PHASE II

TABLE OF CONTENTS

The complete Contract Documents consist of the following parts:

1. The Master Municipal Construction Documents (Tender Package) consisting of the following parts (**included in this tender package**):
 - Invitation to Tender
 - Instructions to Tenderers, Part I
 - Form of Tender
 - Appendix 1 -- Schedule of Quantities and Prices
 - Appendix 2 -- Preliminary Construction Schedule
 - Appendix 3 -- Experience of Superintendent
 - Appendix 4 -- Comparable Work Experience
 - Appendix 5 – Subcontractors
 - Appendix 6 – Tenderer's Current Projects Underway
 - Agreement - Draft
 - Schedule 1 -- Schedule of Contract Documents
 - Schedule 2 -- List of Contract Drawings
 - Appendix 7 - Safety Covenant
 - Appendix 8 - Prime Contractor Agreement
 - Appendix 9 – Letter of Acceptance – Base Course Gravel in Advance of Paving
 - Supplementary General Conditions
 - Supplementary Specifications
2. Additional reference documentation consisting of the following parts (**not distributed in this tender package**) available at www.campbellriver.ca:
 - Supplementary Specifications, City of Campbell River, Design Standards 2010, Appendix A to Subdivision and Development Servicing Bylaw 3419
 - City of Campbell River, Approved Utility Product List April 2011
3. The balance of the Master Municipal Construction Documents, Platinum, 2009 edition. These documents are available in the "MMCD - General Conditions, Specifications and Standard Detail Drawings" (**not distributed in this tender package**):



INVITATION TO TENDER 19-07

WATERFRONT SEWER UPGRADES PHASE II

The City of Campbell River invites tenders for the Waterfront Sewer Upgrades Phase II project which includes the following generalized scope of work:

Work under this Contract includes, but is not limited to, all supervision, construction, equipment, labour, material, permits and related items required for the replacement of approximately 2.0km of 813mm O.D. dia. HDPE sanitary force main. This work will be completed along the City's Highway 19A adjacent to the foreshore and City's Rotary Sea Walk.

The Contractor will be required to maintain 2-way vehicle traffic during the course of construction and to provide temporary patching of trenches. Cold-mix may be used as this temporary patch must be maintained as a smooth running surface for vehicles until the permanent pavement restoration is completed.

Also included is the requirement to coordinate the necessary permanent asphalt paving with the City's paving contractor – Tayco Paving, which is delivered under separate contract, and the requirement to reinstate existing pavements markings after paving work is complete.

This Tender is available electronically by downloading from BC Bid or the City's website at:
<http://www.campbellriver.ca/business-economy/do-business-with-the-city/bidopportunities>

A mandatory site meeting will **NOT** be held.

This Tender is scheduled to close at:

Tender Closing Time: 3:00 p.m. local time

Tender Closing Date: **Wednesday April 10th, 2019**
There will NOT be a Public Opening for this Tender

Delivered to: City of Campbell River City Hall
301 St. Ann's Road
1st Floor Reception Desk
Campbell River, BC V9W 4C7
ATTN: Clinton Crook

Tender Enquiries: Clinton J. Crook, SCMP, CPSM
Purchasing & Risk Management Officer
Telephone: 250.286.5766
Email: purchasing@campbellriver.ca



INVITATION TO TENDER 19-07
WATERFRONT SEWER UPGRADES PHASE II
RECEIPT CONFIRMATION FORM

As receipt of this document, and to directly receive any further information, addendums, etc.
regarding this competition, please return this form to:

ATTN: Clinton J. Crook, SCMP, CPSM
Senior Buyer
Email: purchasing@campbellriver.ca
Fax: 250.286.5741

Company Name: _____

Address: _____

City: _____

Province/State: _____ Postal/Zip Code: _____

Telephone No: _____ Fax No: _____

Contact Person: _____

Title: _____

Email: _____

**CITY OF CAMPBELL RIVER
INVITATION TO TENDER 19-07
WATERFRONT SEWER UPGRADES PHASE II
INSTRUCTIONS TO TENDERERS PART I**

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INSTRUCTIONS TO TENDERERS - PART I

(TO BE READ WITH "INSTRUCTIONS TO TENDERERS - PART II"
CONTAINED IN THE EDITION OF THE PUBLICATION
"MASTER MUNICIPAL CONSTRUCTION DOCUMENTS" AND APPLICABLE CITY OF CAMPBELL
RIVER BYLAWS SPECIFIED IN ARTICLE 2.2 BELOW)

Reference No.: TENDER 19-07

Contract: WATERFRONT SEWER UPGRADES PHASE II

Introduction

1

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

The City of Campbell River invites tenders for the Waterfront Sewer Upgrades Phase II project which includes the following generalized scope of work:

Work under this Contract includes, but is not limited to, all supervision, construction, equipment, labour, material, permits and related items required for the replacement of approximately 2.0km of 813mm O.D. dia. HDPE sanitary forcemain. This work will be completed along the City's Highway 19A adjacent to the foreshore and City's Rotary Sea Walk.

The Contractor will be required to maintain 2-way vehicle traffic during the course of construction and to provide temporary patching of trenches. Cold-mix may be used as this temporary patch must be maintained as a smooth running surface for vehicles until the permanent pavement restoration is completed.

Also included is the requirement to coordinate the necessary permanent asphalt paving with the City's paving contractor – Tayco Paving, which is delivered under separate contract, and the requirement to reinstate existing pavements markings after paving work is complete.

1.2 Direct all tender inquiries regarding the *Contract*, to:

Clinton J. Crook, SCMP, CPSM
Purchasing & Risk Management Officer
Telephone: 250.286.5766
Email: purchasing@campbellriver.ca

Tender Documents

2

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 Drawings".

2.2 A portion of the Contract Documents is included by reference. Copies of these documents have not been included with the tender package. These documents are the Instructions to Tenderers - Part II, General Conditions, Specifications and Standard Detail Drawings contained in the publication entitled "Master Municipal Construction Documents - General Conditions, "Specifications and Standard Detail Drawings" and relevant sections of Supplementary Specifications, City of Campbell River, Design Standards 2010, Appendix A to Subdivision and Development Servicing Bylaw 3419. Refer to Schedule 1 attached to the Agreement or, if no edition has been specified, then the applicable edition shall be the most recent edition as of the date of this *Contract*. 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 judgement about its reliability, accuracy or completeness and neither the *Owner* nor any representative of the *Owner* gives any guarantee or representation that the additional information is reliable, accurate or complete.

**Submission of
Tenders**

3

3.1 Tenders must be submitted in a sealed opaque package, clearly marked on the outside with the above *Contract* Title and Reference No., and must be received on or before:

***Tender Closing Time:* 3:00 p.m. local time**

***Tender Closing Date:* Wednesday April 10th, 2019**
There will NOT be a Public Opening for this Tender

Delivered to: City of Campbell River City Hall
301 St. Ann's Road
1st Floor Reception Desk
Campbell River, BC V9W 4C7
ATTN: Clinton Crook

3.2 Late tenders will not be accepted or considered, and will be returned unopened.

3.3 Tender Submission

.1 Tenders **must** be submitted on the Tender Forms included in these tender documents. The addition to or changing of any

words in these Tender Forms by the tenderer or the failure to comply with and complete all items may be cause for rejection without consideration of the tender.

- .2 The Tender Submission **must** include acknowledgement of receipt of all issued addenda.
- .3 The Tender Submission **must** include the specified financial security, in the form of the "Bid Security" as required in Section 5.2 of the Instructions to Tenderers Part II.
- .4 The Form of Tender **must** bear the signature of a legal signing authority of the tenderer.
- .5 Other than acknowledgement of receipt of addenda, or request for withdrawal or revision, documents submitted as part of a tender will **not** be considered if received by any of the Owner's facsimile machines.
- .6 Except as expressly and specifically permitted in these Instructions to Tenderers, no Tenderers shall have any claim for any compensation of any kind whatsoever, as a result of participating in the tender, and by submitting a bid, each Tenderer shall be deemed to have agreed that it has no claim.

Additional Instructions to Tenderers

4

Freedom of Information

4.1

The *Owner* is subject to the provisions of the Freedom of Information and Protection of Privacy Act. As a result, while Section 21 of the Act does offer some protection for third party business interests, the *Owner* cannot guarantee that any information provided to the *Owner* can be held in confidence. All tenders, after closing time and date become the property of the *Owner*.

Cost of Tender Submission

4.2

The *Owner* shall not be liable for a Tenderer's cost of submitting a tender.

Evaluation Criteria

4.3

(a) The *Owner* reserves the right to waive informalities in or reject any or all tenders or accept the tender deemed most favourable in the interests of the *Owner*. Tenders will be evaluated on the combination of information provided in the Form of Tender and Appendices, which may offer the best value and not necessarily the lowest price. The *Owner* reserves the right to conduct pre-selection meetings with Tenderers. The *Owner* further reserves the right to conduct post-selection meetings in order to correct, change or adapt the selected Tender to the wishes of the *Owner*. **Acceptance of any tender may be subject to budgetary considerations and/or City of Campbell River Council approval, and/or the approval of other jurisdictions having authority.**

- Construction Association Policies** 4.4
- 4.4.1 The *Owner* is not a member of the Public Construction Council of British Columbia, the British Columbia Construction Association or any other construction association.
- 4.4.2 The *Owner* does not adopt or agree to be bound by “The Procedures and Guidelines Recommended For Use on Publicly Funded Construction Projects” produced by the Public Construction Council of British Columbia, September 1989, or any other procedure/guideline recommended, adopted or produced by any construction association in the tendering and award of the *Contract* of this project.
- Good Neighbour Policy** 4.5
- 4.5.1 The *Owner’s* Good Neighbour Policy as adopted by City of Campbell River Council on April 15, 1997 shall apply to this contract.
- 4.5.2 The Policy states: “That Contractors working on Municipal rights-of-way or on private land where new rights-of-way are being created, be required to provide written notice to the residents in the immediate area of the works, describing what is being constructed, when the works will occur, who to contact for more information and what precautions should be taken if necessary; and that the work-site be posted for safety reasons.”
- Mandatory Site Meeting** 4.6 A Mandatory Site Meeting will **NOT** be held.
- Addition\Deletion** 4.7 Tenderers are advised that the *Owner* may, at its option, and subject to available funding and budgetary considerations, delete any *Work* described in the *Contract Documents* or may require that optional work be added to the scope of *Work*.
- Omissions and Discrepancies** 4.8 The Tenderer must carefully examine the *Contract Documents* and the site of the proposed works, judging for and satisfying themselves as to the probable conditions to be encountered. Should a Tenderer find omissions from or discrepancies in the *Contract Documents*, or be in doubt as their meaning, the Tenderer should notify the *Owner* no later than 5 days prior to the tender closing, who may cause to send a written instruction to all Tenderers in the form of an addendum, which shall become part of the contract and shall be covered in the contract price. The Tenderer may not claim, after the submission of a tender, that there was any misunderstanding with respect to the conditions imposed by the documents. No oral interpretations made to a Tenderer as to the meaning of the *Contract Documents* shall be considered binding. Every request for an interpretation shall be made in writing, forwarded to the office referred to in paragraph 3.1 of the Instructions to Tenderers – Part I.

Amendment of Tenders	4.9	
	4.9.1	Delete Paragraphs 12.1 of the Instructions to Tenderers, Part II and replace with the following paragraphs 4.9.2 and 4.9.3:
	4.9.2	A Tenderer may, without prejudice to itself, withdraw or revise a tender after it has been deposited with the <i>Owner</i> , provided the request for withdrawal or revision is filed with the <i>Owner</i> in writing before the time set for the Tender closing. Non-facsimile request(s) should be submitted in a sealed opaque envelope clearly marked with the contract name and reference number to the office referred to in paragraph 3.1 of the Instructions to Tenderers - Part 1. In the case of revision(s), a revised price will not be accepted, only the addition to or deduction from the tender price will be accepted. Written withdrawals or revisions must be signed by the same person or persons who signed the original Form of Tender.
	4.9.3	In the case of facsimile or e-mail requests for withdrawal or revision, they will only be accepted if they are received by the <i>Owner's</i> Supply Management Department facsimile machine at 250.286.5763 or via e-mail at purchasing@campbellriver.ca before the scheduled tender closing time. <u>Tenderers assume the entire risk</u> that the facsimile and computer equipment and staff at the above office will receive the facsimile or e-mail containing the withdrawal or revision. The <i>Owner</i> assumes no risk or responsibility whatsoever that any facsimile or e-mail will be received as required and shall not be liable to any <i>Tenderer</i> if for any reason a facsimile or e-mail is not received. For purposes of this paragraph 4.9.3, "received" means the request for withdrawal or revision is visible to the <i>Owner's</i> staff in its entirety, and is either in printed form or is capable of immediate reproduction in printed form.
Sub-Surface Conditions	4.10	A geotechnical investigation assessment has been completed and has been attached for information. See EBA Engineering Consultants Ltd. February 2007 Geotechnical Investigation Highway 19A Phase 2 and Phase 3 report attached.
Environmental Conditions	4.11	No environmental assessment has been completed for this project.
Archaeological Assessment	4.12	No Archaeological Assessment has been completed for this project.

Form of Tender

CITY OF CAMPBELL RIVER

Reference No.: TENDER 19-07

Contract: WATERFRONT SEWER UPGRADES PHASE II

TO OWNER:

1 I (WE), THE UNDERSIGNED:

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

(ADDENDA, IF ANY)

(TENDERER TO COMPLETE)

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

1.3 have complied with the Instructions to Tenderers; and

2 ACCORDINGLY I (WE) HEREBY OFFER:

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

2.2 to achieve *Substantial Performance* of the *Work* within 110 Days from receipt of a Notice to Proceed; 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 Lump Sums 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

Tenderer's Initial Owner's Initial

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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 I (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.

4 I (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 stated as:

A tender must be accompanied by the *Bid Security* in the form of:

a a Bid Bond issued by a surety licensed to carry on the business of suretyship in British Columbia in a form reasonably satisfactory to the *Owner*; or

b cash, bank draft or letter of credit in a form acceptable to the *Owner*;

in an amount equal to 10% of the *Tender Price*.

5 I (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 10 *Days* of receipt of the written *Notice of Award* deliver to the *Owner*.

Tenderer's Initial Owner's Initial

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- 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*; and
- b a Baseline *Construction Schedule*, as per Supplementary General Condition 4.6.1; and
- c a "clearance letter" indicating that the tenderer is in WCB compliance; and
- d a copy of the insurance policies as specified in GC 24 indicating that all such insurance coverage is in place; and
- e a Health and Safety Program Manual pertaining to the Work;
- f a Traffic Management Plan as specified in Supplementary Specification 01 55 00;

5.1.2 As per General Condition 4.6.6, the Owner shall issue the Notice to Proceed within 14 days of receipt of the documentation required under item 5.1.1 above.

5.1.3 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*.

5.1.4 sign the *Contract Documents* as required by GC 2.1.2.

6 I (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 me (us) to enter into the *Contract* and the *Owner* may, on written notice

Tenderer's Initial Owner's Initial

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to me (us), award the *Contract* to another party. I (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 my (our) *Tender Price* is less than the amount for which the *Owner* contracts with another party to perform the *Work*.

7 I (WE) DECLARE THAT:

7.1 no person, firm or company other than the undersigned, has any interest in this tender or in the proposed *Contract* for which this tender is made;

7.2 this tender is made without any connection, knowledge, comparison of figures, or agreement with any other company, firm or person making a tender for the same work;

7.3 in tendering for this work, and when called upon to enter into an agreement with the *Owner*, I (we) will be bound to comply with all laws, statutes, and municipal bylaws pertaining to the work. The agreement will be governed by the laws of the province of British Columbia;

7.4 in submitting this tender I (we) did not rely upon any information provided by the *Owner*, or any of the *Owner's* employees or agents, relating to the conditions, contingencies, risks or other circumstances, local or otherwise, which might influence or affect the performance or the cost of the work, including, without limiting the nature of the ground, subsoil, substrata of the work site, the means of access to the work site, the quality, quantity, nature or location of the materials to be furnished or removed in performance of the work, and the conditions under which the labour force will be employed, except the extent that any such information is expressly set forth in the *Contract Documents*. I (we) have relied on our own examination of the work site and have informed ourselves as to all conditions, contingencies, risks, and circumstances, local or otherwise, which might influence or affect the performance or the cost of the work. I (we) accept the site prior to the signing of the *Contract*.

Tenderer's Initial Owner's Initial

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8 WE AGREE:

8.1 The work shall be completed entirely in 110 Days from *Notice to Proceed* (The Designated Completion Period);

8.2 There shall be no exclusion of time from the Designated Completion Period for any reason OTHER than delays clearly attributable to the OWNER, its agents, employees or any Authorized Representatives.

9 I (WE) DECLARE THAT:

9.1 I (we) recognize that the lowest or any tender will not necessarily be accepted; and

9.2 I (we) recognize that the *Owner* reserves the right to reject all tenders or to accept the tender which best suits its long term objectives; and

I (we) recognize that the *Owner* reserves the right to accept or reject all or part of this Tender at any time during the period specified by paragraph 5.1 of this Form of Tender.

10 I (WE) DECLARE THAT:

10.1 I (we) do not (or any related company) have any family, ownership, and operating relationships with the City of Campbell River, or any elected official, staff or other officials holding public office in the City of Campbell River and agree that the *Owner* reserves the right to reject any tender that may be perceived to be in a conflict of interest.

11 I (WE) DECLARE THAT:

11.1 In this tender:

(a) "Related Party of the Tenderer" means:

- an officer or director of the Tenderer;
- a shareholder of the Tenderer;
- a corporation with a shareholder or director who is also a shareholder or director of Tenderer;

(b) "Public Authority" has the same meaning as under the Community Charter.

11.2 I (we) hereby declare that neither the Tenderer nor a Related Party of the Tenderer:

Tenderer's Initial Owner's Initial

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- (a) has had a bid bond or performance bond retained or claimed against;
- (b) has breached a contract for works or services with the *Owner* or other Public Authority in British Columbia;
- (c) has been engaged in a legal action against the *Owner* or another Public Authority in British Columbia, or the elected or appointed officers and employees of the *Owner* or that other Public Authority, in relation to:
 - any other contract for works or services;
 - any matter arising from the exercise of the *Owner's* or the other Public Authority's powers, duties or functions under the Community Charter, Local Government Act or other enactment;
- (d) has been charged or convicted of an offence in relation to the performance of a contract for works or services with the *Owner* or other Public Authority;

within five years of the closing date of this Tender.

Tenderers who are unable to truthfully complete this declaration must provide full particulars of the relevant circumstances. Submission of a false declaration is grounds for rejection of a tender.

11.3 I (we) hereby declare that the *Owner* may in its absolute discretion reject a Tender submitted by a Tenderer if the Tenderer or a Related Party of the Tenderer:

- (a) has had a bid bond or performance bond retained or claimed against;
- (b) has breached a contract for work or services with the *Owner* or other Public Authority in British Columbia;
- (c) has been engaged in a legal action against the *Owner* or another public authority in British Columbia, or the elected or appointed officers and employees of the *Owner* or that other public authority, in relation to:
 - any other contract for works or services;
 - any matter arising from the exercise of the *Owner's* or the other public authority's powers, duties or functions under the Community Charter, Local Government Act or other enactment;

Tenderer's Initial Owner's Initial

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- (d) has been charged or convicted of an offence in relation to the performance of a contract for works or services with the *Owner* or other Public Authority;

within five years of the closing date of this Tender.

11.4 I (we) hereby declare that in determining whether to reject a tender the *Owner* will consider whether:

- (a) the legal action is likely to affect the Tenderers ability to work with the *Owner*, its consultants and representatives, and;

whether the *Owner's* or other public authority's experience with the Tenderer indicates that the *Owner* is likely to incur increased costs including but not limited to staff and legal costs in the administration of this contract if it is awarded to the Tenderer.

12 I (WE) AGREE THAT:

12.1 I (we) agree that if any director, officer or employee, agent or other representative of a Tenderer makes any representation or solicitation to the Mayor, any Councillor, officer or employee of the City of Campbell River, other than those specifically designated in the Tender documents, with respect to this Tender, whether before or after the submission of the Tender, the City shall be entitled to reject or not accept the Tender.

Tenderer's Initial Owner's Initial

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MY (OUR) ADDRESS is as follows:

(Full Legal Name of Corporation, Partnership or Individual)

(address)

(city, province) (postal code)

Phone: _____

Fax: _____

E-mail: _____

This Tender is executed this _____ day of _____,
2019.

(Printed Name)

(Authorized Signatory)

Tenderer's Initial Owner's Initial

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Appendix 1

SCHEDULE OF QUANTITIES AND PRICES – GST EXCLUDED

(See paragraph 5.3.1 of the Instructions to Tender – Part II)

(All prices and *Quotations* including the *Contract Price* shall include all *Taxes*, but shall not include *GST*, *GST* shall be shown separately)

Item	MMCD Ref.	Description	Unit	Quantity	Unit Price	Amount
01 - GENERAL ITEMS						
<u>01 01 01 Mobilization and Demobilization</u>						
1	1.1.1-1.1.5	Mobilization & Demobilization (maximum 10% of Tender Price)	LS	1		
<u>01 33 01 Project Record Documents</u>						
2	1.8.1	Project record documents	LS	1		
<u>01 52 01 Temporary Structures</u>						
3	1.6.1	Temporary structures	LS	1		
<u>01 53 01 Temporary Facilities</u>						
4	1.9.1	Sanitary facilities, site storage, loading and hoardings	LS	1		
<u>01 55 00 Traffic Control, Vehicle Access and Parking</u>						
5	1.5.1	Traffic control, vehicle access and parking	LS	1		
<u>01 57 01 Environmental Protection</u>						
6	1.6.1	Temporary erosion and sediment control	LS	1		
Sub-Total Page 9:						\$

Tenderer's Initial Owner's Initial

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Item	MMCD Ref.	Description	Unit	Quantity	Unit Price	Amount
31 - EARTHWORKS						
<u>31 22 16.1 Reshaping Existing Subgrade</u>						
7	1.4.2	Remove unsuitable subgrade <i>(Optional Work)</i>	m ³	100		
<u>31 23 01 Excavating, Trenching and Backfilling</u>						
8	1.10.3	Over-excavation including backfilling <i>(Optional Work)</i>	m ³	150		
9	1.10.9	Pre-locate all the existing utilities	ea	63		
<u>31 23 17 Rock Removal</u>						
10	1.6.4/5	Boulders and rock fragments - blasting not permitted <i>(Optional Work)</i>	m ³	50		
<u>31 23 23 Controlled Density Fill</u>						
11	1.4.1	CDF (Pipe 200 mm diameter)	m	43		
32 - ROADS AND SITE IMPROVEMENTS						
<u>32 01 16.7 Cold Milling</u>						
12	1.5.1	Milling 200mm wide for permanent pavement restoration, 50mm depth	m	1 975		
<u>32 11 16.1 Granular Subbase</u>						
13	1.4.2	Granular subbase <i>(Optional Work)</i>	T	250		
<u>32 11 23 Granular Base</u>						
14	1.4.1	Granular base <i>(Optional Work)</i>	T	150		
15	1.4.5	Gravel shoulder restoration 19 mm gravel; 100 mm thk	m ²	900		
<u>32 12 16 Hot-Mix Asphalt Concrete Paving</u>						
16	1.5.7	Saw cut asphaltic or concrete pavements in preparation for permanent pavement restoration, all depths	m	2 000		
17	1.5.9	Coordination of Owner's Asphalt Contractor	LS	1		
Sub-Total Page 10:						\$

Tenderer's Initial Owner's Initial

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Item	MMCD Ref.	Description	Unit	Quantity	Unit Price	Amount
<u>32 17 23 Painted Pavement Markings</u>						
18	1.5.2	Paint fog line on Hwy 19A	LS	1		
19	1.5.3	Thermoplastic zebra crosswalk	LS	1		
33 - UTILITIES						
<u>33 01 30.1 CCTV Inspection of Pipelines</u>						
20	1.6.2	CCTV pipeline inspection	m	2,367		
<u>33 11 01 Waterworks - Imported Backfill</u>						
21	1.8.1/2	Pipe - 200 mm diam. C900 DR18; all depths	m	6		
22	1.8.3	Bends - 200 mm diam.	ea	4		
23	1.8.5	Remove and replace service connection pipe across trench - 19 mm diam.	ea	14		
24	1.8.5	Remove and replace service connection pipe across trench - 25 mm diam.	ea	1		
25	1.8.5	Remove and replace service connection pipe across trench - 38 mm diam.	ea	1		
26	1.8.14	Tie-in - 200 mm to be performed by Contractor; STA 1+688	ea	1		
<u>33 30 01 Sanitary Sewers - Imported Backfill</u>						
27	1.6.1/2	Pipe - 200 mm diam. PVC DR35; 3m - 4m depth	m	7		
28	1.6.7	Tie-in - 200 mm diam. pipe into existing 200 mm diam. CI pipe	ea	1		
29	1.6.8	Remove and replace service connection pipe across trench - 100 mm diam.	ea	18		
<u>33 34 01 Sewage Force mains - Imported Backfill</u>						
30	1.8.1/1	Pipe - 150 mm diam. PVC at 3m - 4m depth	m	11		
31	1.8.1/2	Pipe - 813 mm diam. HDPE DR21 at <2m depth	m	211		
32	1.8.1/2	Pipe - 813 mm diam. HDPE DR21 at 2m - 3m depth	m	1371		
33	1.8.1/2	Pipe - 813 mm diam. HDPE DR21 at 3m - 4m depth	m	489		
34	1.8.3	Gate valve - 100 mm, FL - FL	ea	3		
Sub-Total Page 11:						\$

Tenderer's Initial Owner's Initial

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**CITY OF CAMPBELL RIVER
TENDER 19-07
WATERFRONT SEWER UPGRADES PHASE II
FORM OF TENDER**

Item	MMCD Ref.	Description	Unit	Quantity	Unit Price	Amount
35	1.8.3	Gate valve - 150 mm, FL - H	ea	1		
36	1.8.3	Gate valve - 200 mm, FL - FL	ea	6		
37	1.8.5	Test point	ea	2		
38	1.8.5	Air release valve chamber	ea	3		
39	1.8.5	Blow-down chamber	ea	3		
40	1.8.10	Tie-in - 813 mm diam. pipe into existing 750 mm diam. sewer	LS	1		
41	1.8.10	Tie-in - 600 mm diam. pipe to 813 mm diam. pipe at STA 0+000	LS	1		
42	1.8.11	Bend 813 mm HDPE DR21 - 22.50 degree	ea	2		
43	1.8.11	Romac STS 420 tapping sleeve; 813mm O.D. to 150mm	ea	1		
44	1.8.12	Electrofusion couplings - 813 mm OD (Optional Work)	ea	20		
45	1.8.12	EZ valve installation to isolate the Pinecrest drop	LS	1		
<u>33 40 01 Storm Sewers - Imported Backfill</u>						
46	1.6.1/2	Pipe - 600 mm diam. PVC ribbed; 1m - 2m depth	m	70		
47	1.6.1/2	Pipe - 900 mm diam. PVC ribbed; 1m - 2m depth	m	30		
48	1.6.9	Tie-in - 900 mm diam. pipe into new DMH	ea	2		
49	1.6.10	Precast concrete headwall incl trash rack; Langley Type II; 600 mm diam. pipe	ea	6		
<u>33 44 01 Manholes and Catchbasins</u>						
50	1.5.1.1	Manhole base, lid, slab, cover and frame - 1050 mm diam.	ea	1		
51	1.5.1.1	Manhole base, lid, slab, cover and frame - 1500 mm diam.	ea	2		
52	1.5.1.2	Manhole riser section - 1050 mm diam.	Vert. m	3		
53	1.5.1.2	Manhole riser section - 1500 mm diam.	Vert. m	6.8		
54	1.5.5	Outside ramp manhole - 1050 mm diam.	ea	1		
Sub-Total Page 12:						\$

Tenderer's Initial Owner's Initial

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SUMMARY

Sub-Total Page 9:	\$
Sub-Total Page 10:	\$
Sub- Total Page 11:	\$
Sub-Total Page 12:	\$
Sub-Total	\$
GST (5%):	\$
GRAND TOTAL:	\$

Tenderer's Initial Owner's Initial

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Appendix 3
EXPERIENCE OF SUPERINTENDENT
(See paragraph 5.3.3 of the Instructions to Tenderers - Part II)

Name: _____

Experience:

1. Dates: _____

Project Name: _____

Responsibility: _____

References: _____

2. Dates: _____

Project Name: _____

Responsibility: _____

References: _____

3. Dates: _____

Project Name: _____

Responsibility: _____

References: _____

Tenderer's Initial Owner's Initial

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Appendix 4

COMPARABLE WORK EXPERIENCE
(See paragraph 5.3.4 of the Instructions to Tenderers - Part II)

PROJECT	OWNER/ CONTRACT NAME	PHONE NUMBER	WORK DESCRIPTION	VALUE (\$)

Tenderer's Initial Owner's Initial

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Appendix 5

SUBCONTRACTORS

(See paragraph 5.3.5 of the Instructions to Tenderers - Part II)

TENDER ITEM	TRADE	SUBCONTRACTOR NAME	PHONE NUMBER

Tenderer's Initial Owner's Initial

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Appendix 6

TENDERERS CURRENT PROJECTS UNDERWAY

PROJECT	OWNER/ CONTRACT NAME	PHONE NUMBER	WORK DESCRIPTION	VALUE (\$)	% COMPLETE

Tenderer's Owner's
Initial Initial

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Draft Agreement

Between Owner and Contractor

THIS AGREEMENT made in duplicate this _____ day of _____, 2019.

Reference No.: TENDER 19-07

Contract: WATERFRONT SEWER UPGRADES PHASE II

BETWEEN: CITY OF CAMPBELL RIVER

(the "Owner")

AND: TBD

(the "Contractor")

The Owner and the Contractor agree as follows:

ARTICLE 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 within 110 Days of being issued a Notice to Proceed subject to the provisions of the Contract Documents for adjustments to the Contract Time.
- 1.3 Time shall be of the essence of the Contract

ARTICLE 2 CONTRACT DOCUMENTS

- 2.1 "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.

ARTICLE 3 CONTRACT PRICE

- 3.1 The price for the Work ("Contract Price") shall be the sum in Canadian dollars of the following:
 - 3.1.1 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 Lump Sums listed in the Schedule of Quantities and Prices; plus
 - 3.1.2 all lump sums, if any, as listed in the Schedule of Quantities and Prices, for items relating to or incorporated into the Work; plus
 - 3.1.3 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*.

ARTICLE 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.

ARTICLE 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*.

ARTICLE 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 hand, e-mail, fax, or by pre-paid registered mail to the addresses as set out below:

The *Owner*: City of Campbell River
301 St. Ann's Road
Campbell River, BC
V9W 4C7
Attention: Mr. Jason Hartley, P.Eng., Capital Works Manager
E-mail: Jason.hartley@campbellriver.ca

The *Contractor*: **TBD**

The *Contract Administrator*: Highland Engineering Services Ltd.
#104-950 Alder Street
Campbell River, BC
V9W 2P8
Attention: Mr. Glenn Blake P.Eng.
E-mail: glennblake@highland-eng.ca

- 6.2 A communication or notice that is addressed as above shall be considered to have been received:
- 6.2.1 immediately upon delivery, if delivered by hand; or
- 6.2.2 immediately upon transmission if sent and received by fax or e-mail; or
- 6.2.3 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*.
- 6.4 The sender of a notice by fax or e-mail assumes all risk that the fax or e-mail will be received properly, and the provisions of paragraph 12.5 of the Instructions to Tenderers, Part II apply to the sender.

ARTICLE 7 GENERAL

- 7.1 This *Contract* shall be construed according to the laws of British Columbia.
- 7.2 The *Contractor* shall not, without the express written consent of the *Owner*, assign this *Contract*, or any portion of this *Contract*.
- 7.3 The headings included in the *Contract Documents* are for convenience only and do not form part of this *Contract* and will not be used to interpret, define or limit the scope or intent of this *Contract* or any of the provisions of the *Contract Documents*.
- 7.4 A word in the *Contract Documents* in the singular includes the plural and, in each case, vice versa.
- 7.5 This agreement shall ensure to the benefit of and be binding upon the parties and their successors, executors, administrators and assigns.

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

Contractor:

TBD

(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

(AUTHORIZED SIGNATORY)

(WITNESS)

Owner:

City of Campbell River

(AUTHORIZED SIGNATORY)

(WITNESS)

SCHEDULE 1

CITY OF CAMPBELL RIVER

Schedule of Contract Documents

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", 2009 PLATINUM edition. All sections of this publication are included in the *Contract Documents*.

The documents noted with "***" are available at www.campbellriver.ca

- a) Agreement;
- b) Addenda;
- c) Supplementary General Conditions;
- d) General Conditions*;
- e) Supplementary Specifications;
- f) Specifications*;
- g) Drawings listed in Schedule 2 to the Agreement;
- h) Supplementary Detail Drawings;
- i) Standard Detail Drawings*;
- j) Executed Form of Tender;
- k) Instructions to Tenderers;
- l) All other Contract Drawings;
- m) Supplementary Specifications, City of Campbell River, Design Standards 2010, Appendix A to Subdivision and Development Servicing Bylaw 3419**;
- n) City of Campbell River: Approved Utility Product List***;

Appendix 7

SAFETY COVENANT

BETWEEN:

_____ of
(Company Name (Print legibly))

(Address)

_____ (City) _____ (Postal Code)

_____ (Phone no.) _____ (Fax no.)

hereinafter referred to as the "Contractor"

AND:

CITY OF CAMPBELL RIVER

hereinafter called the "Owner"

WHEREAS:

The Contractor covenants and agrees that when performing any work for the Owner, whether directly as a contractor or indirectly as a sub-contractor, it will adhere to all of the requirements of the Occupational Health and Safety (OHS) Regulation, B.C. Reg. 296/97, as may be amended from time to time, that are applicable to the work being performed, and as well will comply with the provisions of the *Workers Compensation Act, R.S.B.C., 1996, c.492*, as amended (the 'Act').

Without limiting the generality of the foregoing, the Contractor agrees:

- 1) Before commencing any work for the Owner, the Contractor will consult the OHS Regulation and will determine which provisions of the OHS Regulation is applicable to the work that the Contractor is to perform. The Contractor will strictly comply with all applicable OHS Regulations when performing the work.
- 2) Before commencing any work for the Owner, the Contractor will review and familiarize itself with any existing policies or procedures developed by the Owner in relation to the work. If in the opinion of the Contractor, by following a policy or procedure that the Owner has established in relation to the work, the Contractor, or an employee of the Contractor or of the Owner, or any other worker, is put at increased risk, the Contractor must request a written change of policy or procedure from the Owner, applicable only to the work the Contractor is to perform, before proceeding with the work. The Owner reserves the right to refuse to amend its policies or procedures in response to any such request where the Owner, after such consultation with WorkSafe BC as the Owner considers necessary, determines that the Owner's policy or procedure does not increase the risk to any worker at the location of the work to be performed, and determines that the

Contractor's request is unreasonable, or is unnecessary for the protection of workers at the location of the work.

- 3) To have read every section of the OHS Regulation that pertains to the job at hand, to ensure that it understands the pertinent OHS Regulation and its application to the supervisor(s) and to all of the workers at the location of the work, and to ensure that each worker under the Contractor's supervision follows the applicable OHS Regulation. To assist Contractors with this task, the City of Campbell River directs them to consult with WorkSafe BC directly, to access the WorkSafe BC Regulations and Policies available on the WorkSafe BC website.
- 4) To understand, comply with and, to the full extent of the Contractor's lawful authority, to enforce all of the following provisions of the OHS Regulation as they pertain to the job at hand and to the workers employed by the Contractor, and to provide to the owner, at any time upon request, evidence of compliance with the following:
 - a) Rights & Responsibilities – Occupational Health & Safety Program (Part 3, including investigations, inspections, written instructions, records and statistics, adequate supervision, complete understanding by the workforce of the right and responsibility to refuse unsafe work)
 - b) General Conditions (Regulation – Part 4)
 - c) Chemical and Biological Substances (Regulation – Part 5)
 - d) Substance Specific requirements (Regulation – Part 6)
 - e) Noise, Vibration, Radiation and Temperature (Regulation – Part 7)
 - f) Personal Protective Clothing and Equipment (Regulation - Part 8)
 - g) Confined Space Entry (Regulation – Part 9)
 - h) Lock-out (Regulation – Part 10)
 - i) Fall Protection (Regulation – Part 11)
 - j) Tools, Machinery and Equipment (Regulation – Part 12)
 - k) Ladders, Scaffolds and Temporary Work Platforms (Regulation – Part 13)
 - l) Cranes and Hoists (Regulation – Part 14)
 - m) Rigging (Regulation – Part 15)
 - n) Mobile Equipment (Regulation – Part 16)
 - o) Traffic Control (Regulation – Part 18)
 - p) Electrical Safety (Regulation – Part 19)
 - q) Construction, Excavation & Demolition (Regulation – Part 20)
 - r) Forestry Operations (Regulation – Part 26)
 - s) Evacuation and Rescue (Regulation – Part 32)
 - t) Occupational First Aid (Regulation – Part 33)
 - u) Coordination of Multiple Employer Workplaces (Regulation – Part 20, s. 20.3)

PROVISIONS OF THE *WORKERS COMPENSATION ACT* – PART 3 SPECIFIC TO CONTRACTORS ON A WORKSITE:

- i. Division 3 – General duties of Employers, Workers and Others (Sections 115, 116, 117, 118, 119, 120, 121, 122, 123, 124);
 - ii. Division 4;
 - iii. Division 10.
- 5) The *Workers Compensation Act* stipulates that the Owner (the City of Campbell River) is required to enforce any observed infraction of the Act or Regulation. The Contractor accepts that the City of Campbell River will be conducting periodic checks of the Contractor during the Contractor's work for the City of Campbell River and will be asking the Contractor to comply with the Act/Regulation in the event that any contravention is observed. If a contravention is observed and not corrected, the Contractor may be asked to leave the worksite and may result in termination of the contract for the work.

- 6) For the purposes of streamlining large construction projects and multiple employer worksites, the Owner reserves the right to designate a “prime contractor” amongst contractors who are working on a job-site together. A designated person employed by the “prime contractor” – appointed by the Owner - will act as the coordinator of the other contractors on that job-site and will ensure that each of the contractors on the job site are following all of the Act and WorkSafe BC Regulations as well as site-specific policies and procedures. This includes having in place an approved WorkSafe BC Safety Program and a list of the qualified persons amongst the other contractors who have been designated to be responsible for each of the other contractor’s site health and safety activities.
- 7) In the event that a prime contractor has been designated, it is the responsibility of the Contractor to inquire who the “prime contractor” is for the worksite and to comply with the requirements for a multiple employer worksite where a prime contractor has been designated, as set out in the preceding section.

NOTE:

- a) Payment of WorkSafe BC Assessments by any Contractor does not obviate the responsibility of the contractor to any of the foregoing.
- b) The foregoing constitutes requirements of the Prevention Division of WorkSafe BC for any workplace in the Province of British Columbia and constitutes the Owner’s expectations of contractors.

The Contractor covenants and agrees that when performing any work for the Owner, whether directly as a contractor or indirectly as a sub-contractor, it will adhere to all of the requirements of the B.C. Employment Standards Act (RSBC 1996), as may be amended from time to time, that are applicable to the work being performed, including but not limited to:

- 1) Section 36 (2); an employer must ensure that each employee has at least 8 consecutive hours free from work between each shift worked.
- 2) Section 39; despite any provision of this Part, an employer must not require or directly or indirectly allow an employee to work excessive hours or hours detrimental to the employee’s health or safety.

THIS Covenant made the _____ day of _____, 2019, in
_____ in the Province of British Columbia.
(City)

CONTRACTOR:

Company Name

Authorized Signatory

Appendix 8

PRIME CONTRACTOR AGREEMENT

1. The Contractor shall, for the purposes of the Workers Compensation Act, and for the duration of the Work of this Contract:
 - .1 be the "prime contractor" for the "Work site", and
 - .2 do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the Act and its regulations, as required to ensure the health and safety of all persons at the "Work site".
- .2 The Contractor shall direct all Subcontractors, Sub-subcontractors, Other Contractors, employers, Workers and any other persons at the "Work site" on safety related matters, to the extent required to fulfill its "prime contractor" responsibilities pursuant to the Act, regardless of:
 - .1 whether or not any contractual relationship exists between the Contractor and any of these entities, and
 - .2 whether or not such entities have been specifically identified in this Contract.

As per the requirements of the Workers Compensation Act Part 3, Division 3, Section 118(1-3) which states:

Coordination of multiple-employer Workplaces

118(1) In this section:

"multiple-employer Workplace" means a Workplace where Workers of 2 or more employers are Working at the same time;

"prime contractor" means, in relation to a multiple-employer Workplace,

- (a) the directing contractor, employer or other person who enters into a written agreement with the owner of that Workplace to be the prime contractor for the purposes of this Part, or
- (b) if there is no agreement referred to in paragraph (a), the owner of the Workplace.

(2) The prime contractor of a multiple-employer Workplace must

- (a) ensure that the activities of employers, Workers and other persons at the Workplace relating to occupational health and safety are coordinated, and
- (b) do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with this Part and the regulation in respect to the Workplace.

(3) Each employer of Workers at a multiple-employer Workplace must give to the prime contractor the name of the person the employer has designated to supervise the employer's Workers at that Workplace.

**CITY OF CAMPBELL RIVER
TENDER 19-07
WATERFRONT SEWER UPGRADES PHASE II
DRAFT AGREEMENT**

The Contractor covenants and agrees that when performing any work for the Owner, whether directly as a contractor or indirectly as a sub-contractor, it will adhere to all of the requirements of the B.C.

Employment Standards Act (RSBC 1996), as may be amended from time to time, that are applicable to the work being performed, including but not limited to:

- 3) Section 36 (2); an employer must ensure that each employee has at least 8 consecutive hours free from work between each shift worked.
- 4) Section 39; despite any provision of this Part, an employer must not require or directly or indirectly allow an employee to work excessive hours or hours detrimental to the employee's health or safety.

I fully understand and accept the responsibilities of the prime contractor designation in accordance with the Workers Compensation Act and the B.C. Employment Standards Act while contracted by the *City* on

project location: _____ and will abide by all Workers Compensation Board Regulation requirements.

Date: _____

Project: _____

Company Name: _____

Authorized Signatory: _____

Printed Name: _____

Witness Signatory: _____

Printed Name: _____

Appendix 9

ACCEPTANCE OF BASE COURSE FOR ASPHALT PAVING PLACEMENT

FORM MUST BE COMPLETED 36 HOURS PRIOR TO ASPHALT PLACEMENT

For contracted projects, Prior to the placement of asphalt pavement, representatives from the City the Contract Administrator, the General Contractor and Tayco Paving agree to the condition, surface elevations and quality of the road base as having met the required MMCD Specifications 31 22 16 and 32 11 23

Date: _____

Owner or Contract Administrator:

General Contractor Representative:

Tayco Paving Representative:

This acceptance does not relieve the General Contractor of their responsibilities for the surface elevations and/or condition or subsequent failure of materials below the asphalt pavement. Tayco Paving will continue to be responsible for the asphalt paving relating to the asphalt material and its placement.

The general conditions and specifications for the work will apply and take the precedence over this acceptance. The "Limiting Terms and Conditions" of Tayco Paving also take precedence over this acceptance.

An acceptable method of checking elevations will be used to ensure that the road base is graded to within the specified tolerances and is ready for asphalt placement. The intention of this survey is confirm the roadbed preparations meet with the contract requirements and to ensure that asphalt tonnage does not exceed Tayco's calculated estimated tonnage by more than 5%.

Conversion from square metres to tonnage will be calculated at the rate of 125 Kg per square metre for a 50mm thickness of asphalt.



SUPPLEMENTARY GENERAL CONDITIONS

**TO BE READ WITH "General Conditions"
CONTAINED IN THE PLATINUM EDITION (printed 2009) OF THE PUBLICATION
"MASTER MUNICIPAL CONSTRUCTION DOCUMENTS"**

Reference No.: TENDER 19-07

Contract: WATERFRONT SEWER UPGRADES PHASE II

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18	Payment	8
21	Workers Compensation Regulations	8
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25	Maintenance Period	10

DEFINITIONS

1.0

1.67.1

(delete clause 1.67.1 and replace as follows)

"Substantial Performance" means the stage of completion of all of the *Work*, as certified by the *Payment Certifier*, when:

- a) the *Work* is ready for use or is being used for its intended purpose; **and**
- b) the total of the incomplete, defective and deficient *Work* can be completed at an estimated cost of no more than:

3% of the first \$500,000 of the *Contract Price*
2% of the next \$500,000 of the *Contract Price*
1% of the balance of the *Contract Price*

1.79

(add new clause 1.79 as follows)

"(amend clause X.XX as follows)" preceding a supplementary clause means this clause provides additional information or restrictions to the referenced clause in the Master Municipal Construction Documents, Volume II.

1.80

(add new clause 1.80 as follows)

"(add new clause X.XX as follows)" preceding a supplementary clause means this clause provides additional requirements or information not found in the Master Municipal Construction Documents, Volume II.

1.81

(add new clause 1.81 as follows)

"(delete clause X.XX and replace as follows)" preceding a supplementary clause means this clause replaces the referenced clause in the Master Municipal Construction Documents, Volume II, in its entirety.

1.82

(add new clause 1.82 as follows)

"Payment Certifier" has the meaning set out in SGC 18.6.6.

1.83

(add new clause 1.83 as follows)

"Provide" or "Provision of" means supply and placement of an item.

1.84

(add new clause 1.84 as follows)

"Engineer" shall mean the *Owner's* engineer appointed to provide technical support during the course of the *Work*.

1.85

(add new clause 1.85 as follows)

"Critical Path Method" (CPM) means the method of scheduling a project as follows:

The essential technique for using CPM is to construct a model of the project that includes:

- (1) A list of all activities required to complete the project (typically categorized within a work breakdown structure),
- (2) The time (duration) that each activity will take to completion, and

(3) The dependencies between the activities.

Using these values, CPM calculates the longest path of planned activities to the end of the project, and the earliest and latest that each activity can start and finish without making the project longer. This process determines which activities are "critical" (i.e., on the longest path) and which have "total float" (i.e., can be delayed without making the project longer). This determines the shortest time possible to complete the project. Any delay of an activity on the critical path directly impacts the planned project completion date (i.e. there is no float on the critical path). A project can have several, parallel, near critical paths. An additional parallel path through the network with the total durations shorter than the critical path is called a sub-critical or non-critical path.

DOCUMENTS 2.0

Interpretation 2.2.4

(delete clause 2.2.4.1 and replace as follows)

the *Contract Documents* shall govern and take precedence in the following order with the Agreement taking precedence over all other *Contract Documents*:

- (a) Agreement
- (b) Addenda
- (c) Supplementary General Conditions
- (d) General Conditions
- (e) Supplementary Specifications
- (f) Supplementary Specifications, City of Campbell River Design Standards, 2010
- (g) Specifications
- (h) Drawings listed in Schedule 2 to the Agreement
- (i) Supplementary Detail Drawings, City of Campbell River Design Standards, 2010
- (j) Standard Detail Drawings
- (k) Executed Form of Tender
- (l) Instructions to Tenderers
- (m) All other Contract Documents

2.2.4.5

(add new clause 2.2.4.5 as follows)

The *Contract Drawings* will be updated post Tender and will be Issued For Construction by the *Contract Administrator* prior to the commencement of the *Work*.

CONTRACTOR 4.0

Protection of Work, Property and the Public 4.3.7

(add new clause 4.3.7 as follows)

The *Contractor* shall locate, mark and protect from damage or disturbance, any and all stakes, survey pins, monuments and markers at the *Place of the Work*.

Good Neighbour Policy 4.3.8

(add new clause 4.3.8 as follows)

The *Owner's* Good Neighbour Policy as adopted by City of Campbell River Council on April 15, 1997 shall apply to this contract. The Policy states: "That *Contractors* working on Municipal rights-of-way or on private land where new rights-of-way are being created, be required to provide written notice to the residents in the immediate area of the works, describing what is being constructed, when the works will occur, who to contact for more information and what

precautions should be taken if necessary; and that the work-site be posted for safety reasons.”

Damage to Improvements and Utilities

4.3.9

(add new clause 4.3.9 as follows)

The *Contractor's* Work shall be confined to the *Owner's* premises, including statutory right-of-ways easements and construction permit limits, whenever possible. The *Contractor* shall not enter upon or place materials on other private premises except by written consent of the individual *Owners* and shall save the *Owner* harmless from all suits and actions of every kind and description that might result from use of private property.

Use of Working Site

4.3.10

(add new clause 4.3.10 as follows)

The *Contractor* shall confine his equipment, storage of materials and operation of Work to the limits indicated by law, permits, or direction of the *Contract Administrator*, and shall not unreasonably encumber the premises with his materials. The *Contractor* shall comply with the *Contract Administrator* instructions regarding signs, advertisements, fires and smoking.

The working site shall at all times be kept free of rubbish and unnecessary hazards to persons, materials, and equipment.

Local, Emergency Traffic and Property Access

4.3.11

(add new clause 4.3.11 as follows)

Local traffic shall be provided access to private properties at all times.

Emergency traffic such as Police, Fire, and Disaster Units shall be provided reasonable access at all times. The *Contractor* shall be liable for any damage which may result from his failure to provide such reasonable access.

Traffic Management Plan

4.3.12

(add new clause 4.3.12 as follows)

If required, the *Contractor* shall submit a Traffic Management Plan for Approval prior to start of construction in which the extent and duration of any road closures associated with the work are identified. Two-way traffic via one open lane each way shall be maintained on public roads at all times unless the *Contractor* has obtained the *Owner's* approval via a Road Closure Permit. The *Contractor* is cautioned that approval of full road closures is not guaranteed. Traffic control on all roads shall be in strict accordance with the Traffic Control Manual for Work on Roadways published by the Ministry of Transportation and Highways. The *Contractor* shall only use appropriately accredited personnel for Traffic Control.

Temporary Structures and Facilities

4.4.3

(add new clause 4.4.3 as follows)

The *Contractor* shall provide clean sanitary latrine accommodations for the use of his employees as may be necessary to comply with the requirements and regulations of the Ministry of Health and other bodies having jurisdiction. The *Contractor* shall permit no public nuisance.

**Construction
Schedule**

4.6.1

(delete clause 4.6.1 and replace as follows)

The Contractor shall, within the time set out in the *Form of Tender*, prepare and submit to the *Contract Administrator* a schedule in the form of a Gantt chart with precedence network (the "*Baseline Construction Schedule*") prepared using the *Critical Path Method* (CPM). The schedule shall:

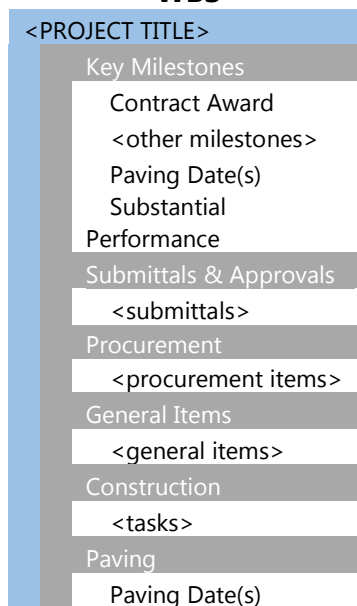
- .1 Show all significant construction activities, shop drawing submittals and procurement activities.
- .2 Show the dependencies between activities so that it may be established what effect the progress of any one activity has on the schedule.
- .3 Show completion time and all specific dates and sequencing requirements. Identify activities making up the critical path.
- .4 Show anticipated dates for all activities related to Hot-Mix Asphalt Concrete Paving.

Unless specifically approved by the Contract Administrator, show activities on the schedule with a duration not longer than 10 working days or an assigned value not greater than \$50,000 (except activities showing only submittal, fabrication or delivery of material or equipment). Divide activities which exceed these limits into more detailed components. Base the scheduled duration of each activity on the work being performed during the normal 40-hour work week with allowances made for legal holidays and normal weather conditions. The project calendar is to include legal holidays and company shutdowns.

For linear activities such as pipework, divide the activities which exceed these limits into more detailed sub-tasks between stations e.g. Stn 0+000 to Stn 0+200.

The schedule's minimum 2-level Work Breakdown Structure (WBS) is to follow the outline shown below.

WBS



The WBS heading is to be a summary bar with no dependencies to tasks.

The *Baseline Construction Schedule* shall indicate completion of the *Work* in compliance with the *Milestone Dates*. The *Contractor* shall ensure that the *Baseline Construction Schedule* is in more detail than the *Preliminary Construction Schedule* so as to enable the *Contract Administrator* to compare actual construction progress during the performance of the *Work* with the *Baseline Construction Schedule* as adjusted pursuant to GC 4.6.2.

4.6.8 **(add new clause 4.6.8 as follows)**

The *Contractor* shall submit the *Adjusted Baseline Schedule* to the Contract Administrator with each Monthly Progress Claim.

4.6.9 **(add new clause 4.6.9 as follows)**

When the project requires Hot-Mix Asphalt Concrete Paving, the *Contractor* shall submit the *Adjusted Baseline Schedule* to the Owner's Asphalt Paving Contractor – Tayco Paving Ltd. on a monthly basis.

Fair Wages

4.8.2 **(add new clause 4.8.2 as follows)**

The *Contractor* attests to compliance with Section 5 of the Skills Development and Fair Wage Act in projects where the provincial contribution to a Municipal project exceeds \$250,000.

Tests and Inspections

4.12.1 **(delete clause 4.12.1 and replace as follows)**

The *Contractor* shall as part of the *Work* perform, or cause to be performed, all tests, inspections and approvals of the *Work* as specified in the *Contract Documents* or as required by the *Contract Administrator* as part of the *Quality Control*. Any reference in the specifications to inspection and testing shall mean that the *Work* described in the specification must be inspected and approved in a manner approved by the *Contract Administrator*. The *Contractor* shall only employ or engage, as an agent or consultant for testing, a person approved by the *Owner*. Where the specification indicates that the *Contract Administrator* will arrange for testing, the *Contractor* continues to be solely responsible for testing of the *Work*. The *Contract Administrator* may perform additional tests for the *Owner's* sole benefit. The costs of these tests will be the responsibility of the *Owner*.

Truck Routes and Disposal Sites

4.17.1 **(add new clause 4.17.1 as follows)**

In hauling of material to and from the work site, the routes to be followed by trucks shall be confined to designated arterial and collector roads as shown on the road classification plan as issued by the City. Where a dumpsite can only be accessed by way of a local road, the route shall be the shortest possible way from an arterial or collector road, and shall be agreed to by the *Contract Administrator* in advance of the work. The *Contractor* shall be responsible for road cleanup along all trucking routes used in association with the work. The cost of this cleanup shall be paid by the *Contractor* and considered incidental to the work. It should be noted that a "Soil Deposition Permit" is required for any dumpsite within the City of Campbell River. The *Contractor* shall be responsible for obtaining and securing a legal dumpsite. All costs associated with that

dumpsite shall be the responsibility of the *Contractor* and shall be considered incidental to the *Work*.

**Disposal of Wood
Debris, Organic
Debris, and/or
Waste Excavated
Material**

4.18.1

(add new clause 4.18.1 as follows)

Prior to disposal of any wood debris, organic debris and/or waste excavated material, the *Contractor* shall submit a disposal management strategy in accordance with all applicable Laws, Bylaws and Regulations to the *Contract Administrator* for approval. Subject to the *Contract Administrator's* approval, the *Contractor* shall ensure that all wood debris, organic debris and/or waste excavated material that is removed from the work site is managed in accordance with this approved disposal management strategy. The *Contractor* shall be required to employ acceptable methods of disposal, approved disposal site location(s), and shall be required to obtain and submit copies of all relevant permits and/or approvals prior to the disposal of any wood debris, organic debris and/or waste excavated material

Regardless of the aforementioned, the *Owner* reserves the right to disallow any or all of the *Contractor's* proposed disposal management strategy if it is determined that they will result in undesirable environmental impacts.

Hours of Work

4.19.1

(add new clause 4.19.1 as follows)

The *Contractor* shall, for each *Day*, keep an accurate, complete and up-to-date record, in a form satisfactory to the *Contract Administrator*, showing, on a shift-by-shift basis, all *Contractor* and *Subcontractor* labour, equipment and materials allocations on the project. The *Contractor* shall submit such resource allocation records to the *Contract Administrator* weekly, for the current week. This is in addition to the requirements of GC 10.3. Approved working hours are: 07:00 to 22:00 Monday to Saturday

**VALUATION OF
CHANGES AND
EXTRA WORK**

9.0

Valuation Method

9.2.1.3

(add new clause 9.2.1.3 as follows)

Should a lump sum method be used for determination of the value of a *Change*, the *Contractor* shall determine the value of the *Change* by calculating the cost for each item contained within the *Change* and applying a 10% mark up on all costs associated with the *Change* for Overhead and Profit. All costs are required to be supported by documentation satisfactory to the *Contract Administrator* and all applicable rates are to be satisfactory to the *Contract Administrator*.

FORCE ACCOUNT

10.0

**Force Account
Costs**

10.1.1.4

(delete clause 10.1.1.4 and replace as follows)

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

DELAYS 13.0

Liquidated Damages for Late Completion 13.9.1.1 **(delete clause 13.9.1.1 and replace as follows)**
as a genuine pre-estimate of the *Owner's* increased costs for the *Contract Administrator* and the *Owner's* own staff caused by such delay an amount of \$1,000 per day or pro rata portion for each calendar day that actual *Substantial Performance* is achieved after the *Substantial Performance Milestone Date*; plus

13.9.2 **(add new clause 13.9.2 as follows)**
If the *Contractor* causes the scheduled date for paving to be missed as a result of an unapproved *Change* to the *Adjusted Baseline Schedule*, the *Contractor* shall be responsible for all direct and related costs to the *Owner* as a result of a *Contractor* caused *Delay* in paving. The *Owner* shall be responsible to demonstrate any related costs to the satisfaction of the *Contract Administrator*.

PAYMENT 18.0

Supporting Documentation 18.2.3 **(add new clause 18.2.3 as follows)**
The *Contractor* shall provide to the *Contract Administrator* the *Adjusted Baseline Schedule* as a pre-condition of the issuance of each *Payment Certificate*.

Holdbacks 18.4.1 **(delete clause 18.4.1 and replace as follows)**
The *Owner* will retain a holdback but will not establish a Holdback Trust Account pursuant to Section 5 of the *Builders Lien Act*.

Substantial Performance 18.6.5 **(delete clause 18.6.5 and replace as follows)**
The *Owner* will release any builder's lien holdback on the 56th day following the date of *Substantial Performance*, or other date as required by law, but the *Owner* may holdback the amounts for any deficiencies or filed builders liens as provided in GC 18.4.2, GC 18.4.3 and 18.4.4, or the Maintenance Period Financial Security if not received by this date.

Payment Certifier 18.6.6 **(delete clause 18.6.6 and replace 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 co-operate with and assist the *Contract Administrator* by providing information and assistance in as 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 with 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 or 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.

**WORKERS
COMPENSATION
REGULATIONS** 21.0

**Contractor is
"Prime Contractor"** 21.2.2

(add new clause 21.2.2 as follows)

If the *Work* is being completed as part of a project for which the *Owner* already has a *Prime Contractor* designated then the *Contractor* will be responsible to ensure that they assume direction from the *Prime Contractor* as per the requirements of the Workers Compensation Act Part 3, Division 3, Section 118(1-3).

INSURANCE 24.0

Required Insurance 4.1.7

(add new clause 24.1.7 as follows)

The *Contractor* shall ensure the following are additional named insured under this contract:

- The City of Campbell River
- Stantec Consulting Ltd.
- Highland Engineering Services Ltd.

**MAINTENANCE
PERIOD** 25.0

**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* and may be deducted from the Maintenance Period Financial Security, or other holdbacks. The *Contractor* shall promptly pay any shortfall.

**Maintenance
Period Financial
Security** 25.4.1

(add new clause 25.4.1 as follows)

within 10 days of the issue of the Certificate of Substantial Performance deliver to the *Owner*, a Maintenance Period Financial Security in the form of cash or a clean, irrevocable Letter of Credit in a form acceptable to the *Owner* in the amount of 5% of the Contract Price, issued by a major Canadian chartered bank which has a branch in Campbell River, payable to the *Owner* within the Maintenance Period.



SUPPLEMENTARY SPECIFICATIONS

TO BE READ IN CONJUNCTION WITH THE "MASTER MUNICIPAL CONSTRUCTION DOCUMENTS"

Reference No.: TENDER 19-07

Contract: WATERFRONT SEWER UPGRADES PHASE II

- General**
- 1.1
- a) Payments will be made on the basis of the unit prices bid in the Tender, and in accordance with Article 18 of the General Conditions.
 - b) The unit prices bid, unless specifically noted otherwise, shall include the supply of all *LABOUR, PLANT, MATERIAL* and *PRODUCT* equipment necessary to construct *THE WORK* in accordance with the specifications.
 - c) The prices bid for supply and installation shall be full compensation for supplying, hauling, installing, cleaning, testing, and placing in service together with all other work subsidiary and incidental thereto for which separate payment is not provided elsewhere.
 - d) Other materials on site, whether existing structures, vegetation, topsoil, gravel, sand or other excavated or piled materials, are the property of the *OWNER* or of the owner of the land on which *THE WORK* is located. Only those materials specifically noted in the specification or on drawings, as belonging to the *CONTRACTOR* shall become the *CONTRACTOR's* property.
 - e) Where there are excess excavated materials, unsuitable materials excavated or materials of any kind that are excavated but not used in *THE WORK*, such materials are not the property of the *CONTRACTOR* unless authorized in writing by the *CONTRACT ADMINISTRATOR* or specified to be disposed of by the *CONTRACTOR*.
- Unit Price Contracts**
- 2.1
- a) Payments will be made on the basis of the following:
 - .1 Unit Price items in the Schedule of Quantities and Unit Prices.
 - .2 Changes in *THE WORK* for items not covered by unit prices, in accordance with Article 7 - *CHANGES IN THE WORK* of the General Conditions.

- b) For each item in the Schedule of Quantities and Unit Prices, the *Contract Administrator* will, in cooperation with the *Contractor*, measure the quantity of the item completed at the end of the payment period and this will be shown as a percentage of the work completed against the appropriate value for the lump sum assigned to the respective line item.
- Mobilization and Demobilization** 3.1 a) Mobilization and demobilization shall include the *Contractor's* costs of mobilization at the beginning of the project; and the costs of demobilization at the end of the project.
- b) Included in mobilization are such items as bonding, insurance, permits, moving personnel, materials and equipment to the site, setting up temporary facilities, First-Aid, Site Safety, temporary utilities and all preparation for performing *THE WORK*.
- c) Included in demobilization are preparation and submission of operation and maintenance manuals, As-Constructed Record Drawings, comprehensive Bill Of Materials, removal of all personnel, materials and equipment; and cleanup of the site and *THE WORK*.
- d) The lump sum price bid for this work shall be relative to the costs involved but shall not exceed ten percent of the Tender Price.
- e) Payment will be made as follows, as approved by the *CONTRACT ADMINISTRATOR*:
- I. 60% of the lump sum bid will be included in the first progress payment certificate;
 - II. 40% of the lump sum bid will be included in the final progress payment certificate.
- The *CONTRACT ADMINISTRATOR* may at his discretion recommend partial payment if mobilization or demobilization is not complete.
- Dust Control** 4.1 During the performance of *THE WORK*, the *CONTRACTOR* is to at all times keep the worksite and such immediate surrounding areas which it may utilize free from waste materials, debris or rubbish and is to employ adequate dust control measures. Water shall be the only material acceptable for dust suppression. If accumulation of such materials, debris, rubbish or dust constitutes a nuisance or safety hazard or is otherwise objectionable in any way, as reasonably determined by the *OWNER* or *CONTRACT ADMINISTRATOR*, the *CONTRACTOR* is to promptly remove it. If any claim, suit, losses, or action is brought by a person affected by the transportation of materials, equipment, goods or wastes to and from the worksite, the *CONTRACTOR* shall defend, indemnify and hold harmless all indemnified parties.

**Underground
Utilities**

5.1 It is the *CONTRACTOR'S* responsibility wherever necessary to determine location of existing pipes, valves, conduits, vaults, or other underground structures. Wherever it is necessary to explore and excavate to determine the location of the existing underground structures, the *CONTRACTOR*, at his own expense, shall make explorations and excavations for such purposes. The *CONTRACTOR* shall notify the *CONTRACT ADMINISTRATOR* or his representative of any conflicts.

The *CONTRACTOR* shall, at his own expense, provide for the uninterrupted flow of all watercourses, sewers, drains, and any other utility encountered during the work. Water control and siltation control shall be under the direction of a qualified environmental monitor engaged by the *CONTRACTOR*.

When any existing mains and/or service pipes, utility ducts, vaults or other utility structures are encountered, the *CONTRACTOR* shall support them to the satisfaction of the *CONTRACT ADMINISTRATOR* so as to protect them from injury. The *CONTRACTOR* shall, at his own expense, at once repair and make good any injury which may occur to any mains, service or utility pipes or ducts, or facilities, or to any electrical conductor, telephone, cable or natural gas facility or to any sidewalk, crosswalk as a result of this operation.

Support of power, telephone poles, underground mains, wiring and light standards required to complete the work, shall be the responsibility of the *CONTRACTOR* and completed in accordance with utility company standards. The *CONTRACTOR* shall schedule the work with the appropriate utility company in advance, so as not to delay the work. All costs associated with the work shall be considered incidental and no separate payment be made for this item.

**Construction
Surveys**

6.1 The *CONTRACTOR is responsible for all survey layout, including stakes, hubs, and grade control.*

The *CONTRACTOR* shall survey and layout the work including, but not limited to, as-built invert elevations, offsets and stations of all grade changes, miscellaneous appurtenances, and all existing utilities exposed during construction.

The *CONTRACTOR* shall provide all stakes, hubs, nails, flagging, and including the supply of casual labour for checking of the work, as required by the *CONTRACT ADMINISTRATOR*. The *CONTRACTOR* shall provide the *CONTRACT ADMINISTRATOR* with records of the actual surveys, and "as-built" information pick-up.

No separate or additional payment will be made for this work.

**General
Coordination**

7.1 The *CONTRACTOR* shall work cooperatively with B.C. Hydro, Telus, Shaw and Fortis to locate private utility ducting.

No additional payment shall be made for this work.

**Supplementary
Specifications**

8.1 The following Supplementary Specifications are complementary to the MMCD.

Section	Title
01 30 00	Submittals
01 40 00	Quality Control
01 55 00	Traffic Control, Vehicle Access & Parking
01 73 00	Operating and Maintenance Data
31 23 01	Excavating, Trenching and Backfilling
31 23 23	Controlled Density Fill
32 12 16	Hot-Mix Asphalt Concrete Paving
33 11 01	Waterworks
33 30 01	Sanitary Sewers
33 34 01	Sewerage Forcemains

1.0 GENERAL

- .1 This section specifies general requirements and procedures for Contractors submissions of shop drawings, product data, samples and mock-ups to Contract Administrator for review.
- .1 Additional specific requirements for submissions are specified in individual sections.
 - .2 Do not proceed with work until relevant submissions are reviewed by Contract Administrator.
 - .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
 - .4 Where items or information is not produced in SI Metric units converted values are acceptable.
 - .5 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submissions.
 - .6 Notify Contract Administrator, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
 - .7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator's review of submission, unless Contract Administrator gives written acceptance of specific deviations.
 - .8 Make any changes in submissions which Contract Administrator may require consistent with Contract Documents and resubmit as directed by Contract Administrator.
 - .9 Notify Contract Administrator, in writing, when resubmitting, of any revisions other than those requested by Contract Administrator.

1.1 SUBMITTALS

- .1 The following is a list of submittals required for this project. This list is not authoritative, and it is the *Contractor's* responsibility to submit all required submittals as outlined in this Section and all other Sections of the *Contract Documents*.
- 1. All submittals required in the Form of Tender.
 - 2. Traffic and Pedestrian Management Plans per Supplementary Specification 01 55 00.
 - 3. All Quality Control and Quality Assurance tests and inspections of the Work per Supplemental General Condition 4.12.
 - 4. Weekly Environmental Monitoring reports per Form of Tender 5.1.1 (g)
 - 5. Pre-cast concrete manholes and headwalls per 33 44 01
- Shop drawings and product specifications for:
- 6. HDPE pipe per 33 34 01
 - 7. Stainless steel pipework and appurtenances per 33 34 01
 - 8. Valve per 33 34 01
 - 9. Material certifications for Pipe Bedding per Specification 31 05 17.
 - 10. CDF mix design per 31 23 23
 - 11. Material certifications for granular subbase per Specification 32 11 16.1.
 - 12. Material certifications for granular base per Specification 32 11 23.

13. Acceptance of Base Course for Asphalt Paving per Supplemental Specification 32 12 16 and Appendix 9 of the Form of Tender.

1.2 PAYMENT

Payment for all submittals is incidental to all other parts of the Work.

END OF SECTION 01 34 00

1.0 GENERAL

1.1 REQUIREMENTS INCLUDED

- .1 Inspection and testing, administrative and enforcement requirements.
- .2 Testing and mix designs.
- .3 Commissioning and testing of diaphragm pump & pipe system
- .4 Geotechnical testing of backfill materials and compaction testing.

1.2 INSPECTION SERVICES

- .1 The Owner and the CA shall have access to the Work. If parts of the Work are in preparation at locations other than the Place of the Work, access shall be given to such work whenever it is in progress.
- .2 Give timely notice (1-week advanced notice with 2 business Days (confirmation prior) requesting inspection. If Work is designated for special tests, inspections or review by CA instructions, or the law of the Place of the Work.
- .3 If the Contractor covers or permits to be covered Work that has been designated for special tests, inspections or reviews before such is made, uncover such Work, have the inspections or tests satisfactorily completed and make good such Work at the Contractors expense.
- .4 The CA may order any part of the Work to be examined if such work is suspected to be not in accordance with the Contract Documents. If, upon examination, such work is found not in accordance with the Contract Documents, correct such work and pay the cost of examination and correction. If such Work is found in accordance with the Contract Documents, the Owner shall pay the cost of examination and replacement.

1.3 QUALITY ASSURANCE TESTING BY OWNER

- .1 Independent Inspection/Testing Agencies may be engaged by the Owner for the purpose of inspecting and/or testing portions of Work to confirm that specific requirements for materials and workmanship are being met. The Owner is not responsible for ensuring Contractors' Quality Control.
- .2 Provide equipment required for executing inspection and testing by the appointed agencies.
- .3 If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by CA at no cost to the Owner. Pay costs for retesting and re-inspection.
- .4 Allow inspection/testing agencies access to the Work, off site manufacturing and fabrication plants.

- .5 Cooperate to provide reasonable facilities for such access.
- .6 Notify the appropriate agency and CA in advance of the requirement for tests, in order that attendance arrangements can be made.
 - .1 one (1) week advanced notice with two (2) business days (48hrs) confirmation prior.
- .7 Submit samples and/or materials required for testing, as specifically requested in specifications or by the CA. Submit test results specifying that material requirements are being met. Submit with responsible promptness and in an orderly sequence so as not to cause delay in the Work.
- .8 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

**1.4 QUALITY CONTROL TESTING
BY THE CONTRACTOR**

- .1 The Contractor shall retain the services of an independent testing agency under supervision of a registered professional engineer, and pay the cost of testing services for quality control including, but not limited to, the following:
 - .1 Concrete mix designs.
 - .2 Concrete testing.
 - .3 Any product testing that is required and is specified under various sections and specifications.
 - .4 Compaction testing shall be completed by the contractor at the contractor's expense for quality control testing as prescribed in Section 31 23 01 Excavating, Trenching and Backfilling.
- .2 Testing shall be in accordance with pertinent codes and regulations, and with selected standards of the American Society for Testing and Materials (ASTM), Canadian Standards Association (CSA), and the Hydraulic Institute.
- .3 The Contractor shall promptly process and distribute all required copies of test reports and test information and related instructions to all of his Sub-Contractors and Suppliers to ensure that all necessary retesting and replacement of construction can proceed without delay.
- .4 The Contractor shall promptly provide the CA with copies of all test results.

1.5 REJECTED WORK

- .1 Remove defective Work, whether the result of poor workmanship, use of defective products or damage and whether incorporated in the Work or not, which has been rejected by the CA as failing to conform to the Contract Documents. Replace or re-execute in accordance with the Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacement promptly.
- .3 If in the opinion of the CA it is not expedient to correct defective Work or Work not performed in accordance with

Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work performed and that called for by the Contract Documents, the amount of which shall be determined by the CA.

1.6 TESTS AND MIX DESIGNS

- .1 Furnish tests results and mix design as required by contract documents.
- .2 The costs of tests and mix designs beyond those called for in the Contract Documents or beyond those required by the law of the Place of Work shall be appraised by the Engineer and may be authorized as recoverable.

1.7 MOCKUPS

- .1 Prepare mock-ups for all piping, valves, fittings and pump to ensure proper and accurate fit and alignment of all components.

1.8 MILL TEST

- .1 Submit mill tests as required or indicated on the drawings.

2.0 PRODUCTS

- .1 Not Used

3.0 EXECUTION

- .1 Not Used

END OF SECTION 01 40 00

1.0 GENERAL

.4 (Delete and replace as follows)

Give minimum 72-hour notice to Owner prior to beginning construction and comply in all respects with their requirements. The Contractor will be responsible for any and all local permits required to execute the work.

.6 (Add)

The Contractor is required to provide 24-hour written notice to all residents, homes and businesses including all units in a multifamily site for any service or vehicle access interruption.

.7 (Add)

The Contractor shall prepare, or cause to be prepared, a Traffic Management Plan (TMP) and a Pedestrian Management Plan (PMP). The TMP and PMP shall be submitted to the Contract Administrator for approval and the approved TMP and PMP shall be implemented and maintained during the Work.

.8 (Add)

The following provisions must be included in the TMPs:

- .1 Road closures on Highway 19A will not be permitted.
- .2 Two-way traffic on Highway 19A must be maintained at all times.
- .3 Safe pedestrian movement must be maintained.
- .4 Pedestrian and cyclist traffic should be accommodated by maintaining the sidewalks and Sea Walk, except where shown otherwise on the Contract Drawings and using fencing and other protection measures to segregate this traffic and the construction activities.
- .5 Daily co-ordination with the Contractor working on the City's Rockland Road to Pump Station No.6 contract.

.9 (Add)

The TMP and PMP shall:

- .1 Include an accurate road configuration, with road names, north arrow marker, speed limit and proposed extents of the Work.
- .2 Indicate placement and distance of signs, delineators, cones, barricades, position of certified TCP's and traffic control equipment.
- .3 Identify the number of lanes to be obstructed, along with taper lengths and widths of lanes.
- .4 Identify impacts to driveways and bus stops, intersections, turning isles, sidewalks, and bike lanes. Include measures to facilitate and maintain access.

- .5 Consider project specific restrictions (work hours etc.) as outlined in the Contract Documents.
- .6 Include a map of full detour routes including the above requirements along each route.

.10 **(Add)**

The Highway 19A TMP to be submitted as per Item 5.1.1.f of the Form of Tender. The Contractor will not be permitted to start any of the Work until the TMP has been approved by the Owner.

Other TMP's are to be submitted 15 Days prior to commencing Work at other locations.

.11 **(Add)**

If required, the Contractor shall prepare, or cause to be prepared, a PMP. The PMP shall be submitted to the Contract Administrator for approval and the approved PMP shall be implemented and maintained during the Work.

1.4 Traffic Control

.4.8 **(Delete and replace as follows)**

Maintain uninterrupted access / egress to / from all properties within or in the vicinity of the Work, unless authorized as part of the approved Traffic Management Plan or by the Contract Administrator.

.4.10 **(Delete first paragraph and replace as follows)**

Provide Traffic Control Personnel (TCP), trained and certified by the BC Construction Safety Alliance (BCCSA), and properly equipped for the following situations:

1.5 Payment

.1 **(Delete and replace as follows)**

Payment for all work performed under this Section will be on a lump sum basis. Payment shall be 30% upon preparing TMP(s) (and PMP(s)), securing permits and erecting traffic control devices; 60% distributed in monthly Progress Payments for traffic control persons and related control devices; and 10% upon Substantial Performance.

.2 **(Add)**

Payment for supply, installation and maintenance of Dynamic Message Signs, also known as Changeable Message Boards, to be on a per sign per calendar week basis, pro-rated based on Work Days. Payment shall be for the number of signs requested by the Owner in accordance with the TMP and related permits.

END OF SECTION 01 55 00

- 1.0 GENERAL**
- .1 Compile product data and related information as specified in each section appropriate for the Owner's maintenance and operation of products furnished under the Contract using the standard template for O&M manuals.
 - .2 Prepare operating and maintenance data as specified in this Section, and as referenced in other pertinent Sections of the Specifications.
 - .3 Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.
 - .4 Refer to General Conditions re: holdback until complete compliance with the performance of the Work of this Section.
 - .5 Submit two sets of operating and maintenance manuals for all equipment, valves, and fittings described herein or as requested by the contract. Include descriptive and technical data, all shop drawings, operating procedures, routine and preventative maintenance, wiring diagrams, spare parts lists, warranties, service companies, suppliers for replacement parts, test results, fire alarm certificate of verification, electrical inspection authority certificate and contract guarantee.
 - .1 Additionally Contractor to provide electronic copy in Word format. Capable of being edited for future work.
- 1.1 QUALITY ASSURANCE**
- .1 Preparation of data shall be done by personnel:
 - .1 Trained and experienced with knowledge in maintenance and operation of the described products.
 - .2 Completely familiar with requirements of the Section.
 - .3 Skilled as a technical writer to the extent required to communicate essential data.
 - .4 Skilled as a draftsman competent to prepare required drawings.
- 1.2 FORM OF SUBMITTALS**
- .1 Prepare data in the form of an instructional manual for use for Owner's personnel.
 - .2 In the format required by the standard template for O&M manuals.

- .3 Submit two (2) complete copies for review. Once Owners comments have been incorporated, provide two (2) complete copies and an electronic copy. Provide the electronic copy in MS Word format and sections, such as, manufacturer's information may be in PDF format. O&M shall include "As-Constructed" drawings of the completed works provided in AutoCAD and PDF format complete with plot style table (CTB file), a DWF file(s) containing all drawings and a reproducible copy to match the project coordinate system.
- .4 Format:
 - .1 Each system shall be bound in a separate binder.
 - .2 Size: 215 mm x 280 mm
 - .3 Cover: Identifying each volume with types of printed title "OPERATING AND MAINTENANCE INSTRUCTIONS".
 - .4 List:
 - .1 Title of Project
 - .2 Identity of general subject matter covered in the manual
 - .5 Binders:
 - .1 Two D-Ring binders with clear view pockets on front and side for each manual.
 - .2 Binders to fit 215 mm x 280 mm size paper.
 - .3 When multiple binders are used, correlate the data into related consistent groupings.

1.3 CONTENT OF MANUALS

- .1 Neatly typewritten table of contents for each volume, arranged in systematic order where applicable following specification format.
 - .1 Contractor, name of responsible principal, address and telephone number.
 - .2 Names of subcontractors and suppliers.
 - .3 A list of each product required to be included, indexed to the content and the volume. Relate Index and Contents to sequence of the 16-Division Master Format.
- .2 Include only those product data sheets pertinent to the specific product. On each sheet clearly identify the data applicable to the installation or delete inapplicable references.
- .3 Include the following information plus data specified:
 - .1 List all equipment which will require regular inspections and servicing.
 - .2 Maintenance instructions for all equipment and materials.
- .4 Drawings: do not use Project Record Drawings as Maintenance Drawings.
- .5 Adjusting tools, keys, spare parts: necessary adjusting tools, wrenches, brushes, keys, spares and the like as

stipulated shall be provided at no additional cost to the Owner.

- .6 Equipment and Systems:
 - .1 Each Item of Equipment and Each System: include description of unit or system, and component parts;
 - .2 Panelboard Circuit Directories: provide electrical service characteristics, controls and communications;
 - .3 Include installed colour coded wiring diagrams;
 - .4 Operating Procedures: include start-up, break in and routing normal operating instructions and sequences. Include registration, control, stopping, shut-down and emergency instructions. Include any special operating instruction;
 - .5 Maintenance Requirements: include routine procedures and guide for troubleshooting, disassembly, repair and reassemble instructions; and alignment, adjusting, balancing and checking instructions;
 - .6 Provide servicing and lubrication schedule, and list of lubricants required;
 - .7 Include manufacturers printed operation and maintenance instructions;
 - .8 Include sequence of operation by controls manufacturer;
 - .9 Provide original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance;
 - .10 Provide installed control diagrams by controls manufacturer;
 - .11 Provide Contractor's coordination drawings, with installed colour code piping diagrams;
 - .12 Provide list of original manufacturer's spare parts, current price and recommended quantities to be maintained in storage;
 - .13 Include test reports as specified in Section 01 40 00 – Quality Control or other sections;
 - .14 Additional Requirements: as specified in individual specification sections.

- .7 Warranties and Bonds
 - .1 Compile specified warranties and bonds;
 - .2 Co-execute warranty submittals when so specified;
 - .3 Review submittals to verify compliance with Contract Documents;
 - .4 Submit to Contract Administrator for review and onward transmittal to the Owner;
 - .5 Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors;
 - .6 Number of original copies required: one (1) each.

1.4 PAYMENT

Incidental

2.0 PRODUCTS

- .1 Not Used

3.0 EXECUTION

- .1 Not Used

END OF SECTION 01 73 00

1.10 Measurement and Payment

.9 (Add clause 1.10.9 as follows)
Pre-locating all existing sanitary, water and drain services locations will be required prior to installing new SFM and payment will be made on a per unit basis as per the Schedule of Quantities and Prices.

.10 (Add clause 1.10.10 as follows)
Removal of temporary asphalt is incidental to each utility installation in readiness for permanent pavement restoration.

3.6 Surface Restoration

.6 (Delete and replace as follows)
.3 Cold-mix may be used as patching material. This temporary patch must be maintained as a smooth running surface for vehicles until the permanent pavement restoration is completed.

END OF SECTION 31 23 01

1.4 Measurement and Payment

.1 (*Delete and replace as follows*)

Payment for Controlled Density Fill (Pipe) includes preparation of the pipe, formwork, temporary piping, supply and placement of the Controlled Density Fill, protection during curing and all other work and materials necessary to complete the installation as shown on the Contract Drawings and specified under this Section.

Payment will be made by lineal pipe metre of main sanitary sewer pipe based on the size of pipe to be filled, as shown on the Contract Drawings.

2.2 Mixes

.1 (*Delete and replace as follows*)

Proportion Controlled Density Fill to meet the following design criteria:

- .1 Compressive strength: 0.5MPa at 28 days
- .2 Cement content: 25kg per m³
- .3 Slump: 150-200mm
- .4 Air entrainment: 4-6%

3.1 General

.1 (*Delete and replace as follows*)

Completely fill pipe with Controlled Density Fill. Ensure no voids are left inside pipe.

END OF SECTION 31 23 23

- 1.5 Measurement and Payment
- .7 **(Add to this clause)**
Saw cutting along the permanent reinstatement lines as per the trench and pavement reinstatement detail (sheet 2) for pipe laying work is not permitted.
- .9 **(Add clause 1.5.9 as follows)**
Supply and installation of all Hot-Mix Asphalt Concrete Paving will be by *Other Contractor* for which the *Contractor* will be responsible for scheduling, coordinating and supporting all of the necessary *Work* effort to ensure the Hot-Mix Asphalt Concrete Paving is installed in accordance with the *Baseline Construction Schedule*. Payment for all related efforts will be lump sum as per the Schedule of Quantities and Prices.
- 3.13 Scheduling and Coordination
- .1 **(Add clause 3.13.1 as follows)**
Scheduling and Coordination of the Owner's Paving Contractor shall include as a minimum, the following tasks:
- .1 Invite the Owner's Paving Contractor to all project meetings where asphalt paving and any related tasks will be discussed including the Pre-Construction Meeting set by the Contract Administrator
- .2 Establish and maintain point of contact with the Owner's Paving Contractor Project Manager and Paving Superintendent
- .3 Maintain ongoing dialogue with the Owner's Paving Contractor during the course of the project and advise of any anticipated changes in schedule dates for paving as part of the monthly issuance of the *Adjusted Baseline Schedule*
- .4 Confirm all parties roles and responsibilities related to Appendix 9 - Base Course Acceptance are understood and executed in full conformance with the contract requirements
- .5 In the event that the Environment Canada 7-Day Weather Forecast for Campbell River, BC suggests *Abnormal Weather* is likely to conflict with the scheduled date for paving, the *Contractor* shall immediately notify the *Contract Administrator* and the Owner's Paving Contractor and seek direction from the *Contract Administrator* on any necessary adjustments to paving dates.
- .6 In the event that the outside temperature on the scheduled dates for paving falls below the requirements of item 3.5.3.1 of Specification 32 12 16, the *Contract Administrator* will advise if paving is to proceed or be rescheduled.

- | | | | |
|------------|--------------------------------|-----|---|
| 1.8 | Measurement and Payment | .12 | (Add)
Payment of service connection reinstatement will be paid at the unit price for each individual connection including the supply of all material, equipment and labour to reinstate service connections where they have been cut as part of trenching work. Payment does not include upgrading any service connections. |
| 3.0 | Execution | .11 | (Add)
Contractor shall coordinate with the Contract Administrator to ensure that an Owner representative from the Water Department is present for all service reconnections. |

END OF SECTION 33 11 01

**1.8 Measurement and
Payment**

.8

(Add)

Payment of service connection reinstatement will be paid at the unit price for each individual connection including the supply of all material, equipment and labour to reinstate service connections where they have been cut as part of trenching work. Payment does not include upgrading any service connections. The pipe type for the replacement must meet the City's current Design Standards.

END OF SECTION 33 30 01

1.8 Measurement and Payment

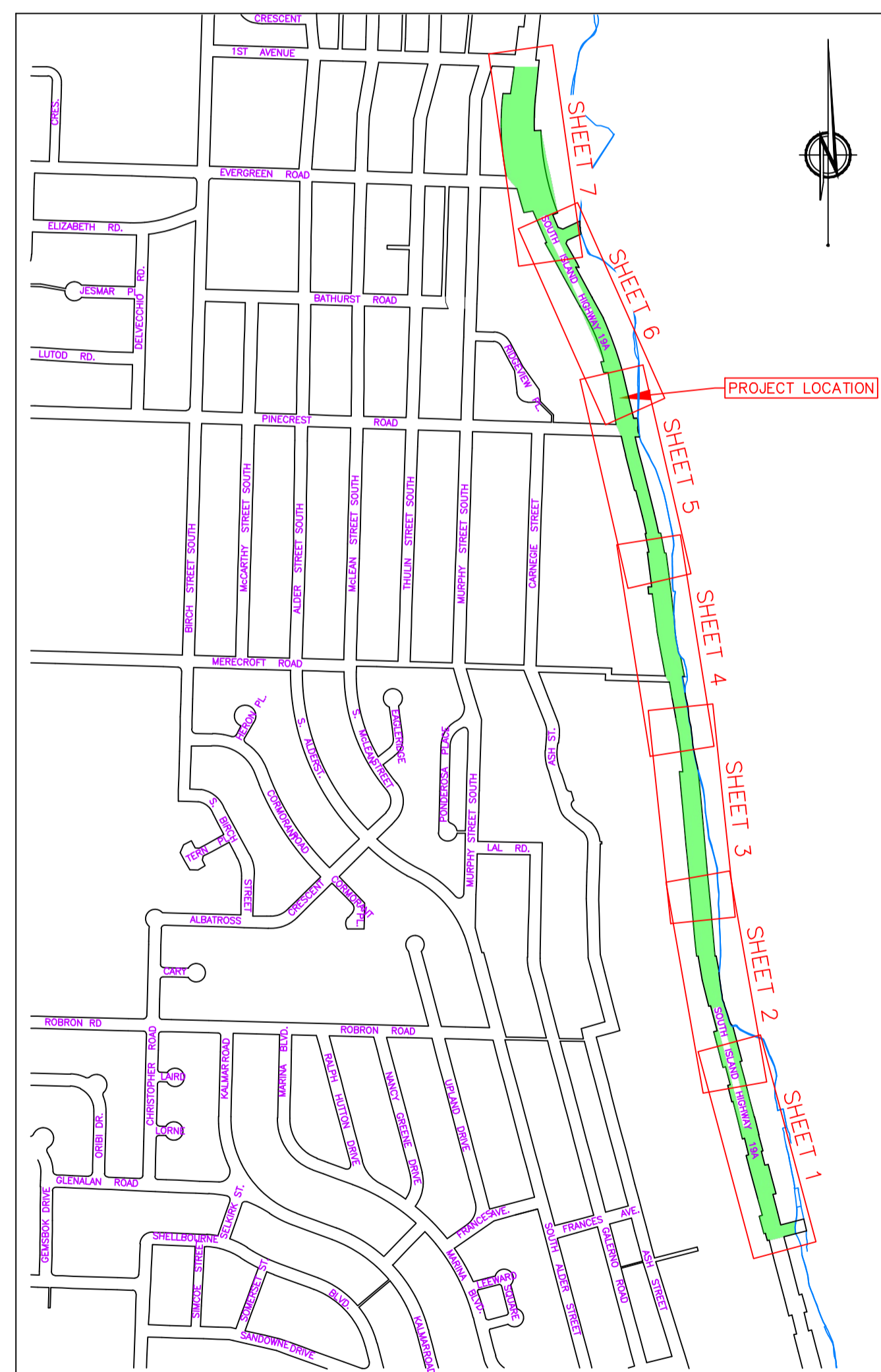
- .5 (*Delete clause 1.8.5 and replace with*)**
Payment for test points, combination air valves, low point drains as separate items includes all materials, works and appurtenances shown on the Contract Drawings including:
- a) Air valve chambers includes 813x813x600 mm HDPE tees, flanges, specials, couplings, stainless steel piping, cast-in-place and pre-cast manhole sections, lids, frames and covers and all other appurtenances shown on the details within the Contract Drawings.
 - b) Low point drains include 813x813x600 mm HDPE tees, flanges, specials, couplings, stainless steel piping, cast-in-place and pre-cast manhole sections, lids, frames and covers and all other appurtenances shown on the details within the Contract Drawings.
- .11 (*Add to this Clause*)**
Payment for tees, bends, blind flanges, tapping sleeves and caps will be made for items identified on Contract Drawings and installed as part of the forcemain as described under 1.8.2 of this section.
- .12 (*Add to this Clause*)**
Payment for the inline valve (AVT EZ Valve or approved equivalent) installed on the live 200 mm diameter cast iron Pinecrest gravity drop, includes all work and components. Concurrent work for the overbuild manhole on the same pipe and the tie-in to the existing gravity sewer will be made separately under 33 44 01 1.5 and 33 34 01 1.8.10 respectively.
Electrofusion couplers will only be allowed with the prior authorization of the Contract Administrator.

END OF SECTION 33 34 01

WATERFRONT SEWER SYSTEM UPGRADES - PHASE 2 FORCEMAIN FROM LIFT STATION No. 6 TO 1ST AVE

Prepared For:
 City of
**Campbell
 River**

JANUARY 2019



KEY PLAN
 NTS

GENERAL NOTES

ALL ELEVATIONS ARE GEODETIC BASED ON INTEGRATED SURVEY MONUMENT 94H1249 (ELEV: 24.198 m) LOCATED ON HWY 19A AT 1ST AVE
 79H9072 (ELEV: 7.392 m) LOCATED ON HWY 19A ± 250 m SOUTH OF 1ST AVE
 79H9069 (ELEV: 3.826 m) LOCATED ON HWY 19A ± 215 m NORTH OF PUMP STATION #5
 79H9066 (ELEV: 3.780 m) LOCATED ON HWY 19A AT PUMP STATION #5
 79H9063 (ELEV: 4.206 m) LOCATED ON HWY 19A ± 50 m SOUTH OF MERE CROFT RD
 79H9060 (ELEV: 4.022 m) LOCATED ON HWY 19A ± 470 m SOUTH OF MERE CROFT RD
 79H9049 (ELEV: 3.809 m) LOCATED ON HWY 19A ± 930 m SOUTH OF MERE CROFT RD

SPECIFICATIONS, PERMITS AND SAFETY
 ALL WORKS TO THE M.M.C.D. (2009) AND THE CITY OF CAMPBELL RIVER CONSTRUCTION SPECIFICATION (2010).
 THE CONTRACTOR IS RESPONSIBLE FOR ALL SAFETY.

EXISTING UTILITIES
 LOCATIONS OF EXISTING UTILITIES SHOWN ARE DERIVED FROM FIELD SURVEY, AS CONSTRUCTED DRAWINGS AND THIRD PARTY SOURCES. THIS INFORMATION CANNOT BE GUARANTEED.
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL UTILITIES AT THE START OF THE CONTRACT AND INFORM THE ENGINEER OF ANY DISCREPANCY.

PIPE BEDDING AND BACKFILLING
 ALL PIPE BEDDING AND BACKFILLING MATERIALS TO CONFORM TO MMCD SECTION 31 05 17 SUBSECTION 2.7 GRANULAR PIPE BEDDING AND SUBROUND AND SUBSECTION 2.3 PIT RUN GRAVEL 100 mm MINUS.

ACCESS
 ENSURE CONTINUOUS AND SAFE ACCESS FOR VEHICLES AND PEDESTRIANS TO ALL LOTS DURING CONSTRUCTION AS PER THE CONTRACT SUPPLEMENTAL SPECIFICATIONS.

SITE SPECIFIC NOTES AND INSTRUCTIONS
 REFER TO DRAWINGS FOR SITE SPECIFIC NOTES AND INSTRUCTIONS.

QUANTITIES AND TRENCH EXCAVATIONS
 QUANTITIES FOR SURFACE RESTORATION ASSOCIATED WITH THE PIPELINE WORKS HAVE BEEN CALCULATED ASSUMING THE EXCAVATION LIMITS SHOWN ON THE UTILITY TRENCH DETAIL AND THAT SHOWN ON THE CONTRACT DRAWINGS. CONTRACTOR MAY ONLY EXCAVATE OUTSIDE OF THE LIMIT AS SHOWN WITH THE CONTRACT ADMINISTRATOR'S WRITTEN PERMISSION.
 CONTRACTOR TO PROVIDE ADEQUATE TRENCH SHORING TO ENSURE TRENCHING DOES NOT EXCEED THE LIMITS SHOWN. UNAUTHORIZED TRENCH EXCAVATION OUTSIDE THE APPROVED LIMITS RESULTING IN ADDITIONAL SURFACE RESTORATION WILL NOT BE COMPENSATED.

CONSTRUCTION LAYOUT
 THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT. HIGHLAND WILL PROVIDE A DIGITAL DRAWING FOR LAYOUT PURPOSES. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ALL LINES, GRADES AND ELEVATIONS PRIOR TO INSTALLATION OF THE WORKS.

WATERWORKS
 ALL NEW WATER WORKS SHALL BE INSTALLED, DISINFECTED, TESTED, FLUSHED AND BIOLOGICALLY APPROVED PRIOR TO CONNECTION TO THE CITY OF CAMPBELL RIVER WATER SYSTEM IN ACCORDANCE WITH THE M.M.C.D. (2009) SECTION 33 11 01 AND THE AWWA STANDARD C651-14 DISINFECTING WATER MAINS AND THE CITY OF CAMPBELL RIVER SUPPLEMENTAL SPECIFICATIONS.

THE CONTRACTOR SHALL NOTIFY THE CITY WATER OPERATOR (VIA THE C.A.) A MINIMUM OF 72 HRS PRIOR TO ANY PLANNED DISCONNECTION / RECONNECTION OF LIVE WATER SERVICES AND IMMEDIATELY FOR ANY UNFORESEEN WATER SERVICE BREAKS.
 ANY DISCONNECTION / RECONNECTION OF LIVE WATER SERVICES SHALL BE WITNESSED BY THE CITY WATER OPERATOR.
 ACCEPTANCE OF THESE WORKS SHALL BE SUBJECT TO THE RESULTS OF THE WATER QUALITY TESTS CARRIED OUT.

PROVIDE 5 BUSINESS DAYS ADVANCE NOTICE TO THE CITY OF CAMPBELL RIVER FOR WATER MAIN ACTIVATION. A WORK ON CITY LANDS PERMIT IS REQUIRED FOR ALL WORKS ON CITY INFRASTRUCTURE.

ALL BURIED STEEL, CAST IRON AND DUCTILE IRON FITTINGS AND VALVES SHALL BE CATHODICALLY PROTECTED WITH MAGNESIUM ANODES IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 33 11 015, REFER TO MMCD DRAWINGS W104-W119.

ALL BOLTS, NUTS AND WASHERS TO BE STAINLESS STEEL TYPE 304 OR APPROVED EQUIVALENT. THE USE OF CADMIUM PLATED REDI-ROD IS NOT PERMITTED.

THRUST BLOCKS OR APPROVED MECHANICAL RESTRAINTS REQUIRED AT ALL TEES, BENDS AND CROSSES. REFER TO TABLE (DETAIL SHEET) FOR RESTRAINED LENGTH. REFER TO THE C.C.R. STANDARD DRAWINGS CR-W1 & CR-W1g. MECHANICAL RESTRAINTS BY EBBA, UNIFLANGE OR APPROVED EQUIVALENT AS PER THE C.C.R. APPROVED PRODUCTS LIST. PRE-CAST CONCRETE BLOCKS ARE NOT PERMITTED.

MINIMUM VERTICAL SEPARATION BETWEEN A WATERMAIN AND ANY PIPE SHALL BE 0.15 m.
 WHERE WATERMAIN CROSSES OVER STORM / SANITARY WITH LESS THAN 0.50 m VERTICAL SEPARATION WRAP ALL WATERMAIN JOINTS WITHIN 3.0m OF CROSSING.
 WHERE WATERMAIN CROSSES UNDER STORM / SANITARY WRAP ALL WATERMAIN, STORM AND SANITARY JOINTS INCLUDING TEES, BENDS, CROSSES, REDUCERS, VALVES ETC. WITHIN 6.0m OF CROSSING.
 WRAP ALL WATERMAIN JOINTS WITH LESS THAN 3.0m HORIZONTAL SEPARATION TO ANY PIPE.
 JOINT WRAP SHALL MEET OR EXCEED THE B.C. MINISTRY OF HEALTH REQUIREMENTS FOR WATERMAIN JOINT PROTECTION AND AWWA/ANSI STANDARD C209 (CANUS "JointWrap" COLD APPLIED PIPE JOINT SLEEVE, OR EQUAL).

SANITARY SEWER AND STORM DRAIN
 ALL FORCEMAIN PIPE TO BE 813 mm O.D. HDPE DR-21 PE 4710 UNLESS OTHERWISE SPECIFIED.
 ALL WORKS SHALL BE SUPPLIED AND CONSTRUCTED IN ACCORDANCE WITH THE M.M.C.D. (2009) SPECIFICATIONS AND STANDARDS.
 ALL SANITARY AND STORM MANHOLES ARE TO BE 1050 mm IN DIAMETER EXCEPT WHERE NOTED.
 ALL PIPE TYPES AND SIZES ARE AS SHOWN ON THE DRAWINGS.
 THERE SHALL BE NO SUBSTITUTIONS WITHOUT THE WRITTEN CONSENT OF THE CONTRACT ADMINISTRATOR.
 GASKETED MOLDED FITTINGS SHALL BE USED AT ALL TEES, WYES, BENDS AND TERMINAL ENDS.

THERE WILL BE NO PAYMENT FOR THRUST BLOCKS AND LOCALIZED CONCRETE REQUIRED FOR THE INSTALLATION OF THE NEW FORCEMAIN, OR FOR ANY TEMPORARY BLOCKS THAT MAY BE REQUIRED DURING THE FORCEMAIN CONSTRUCTION. PAYMENT FOR THESE BLOCKS WILL BE INCLUDED IN THE PRICE FOR FORCEMAIN INSTALLATIONS AND THE VARIOUS FITTINGS.

SANITARY FORCEMAIN HYDROTESTING
 HYDROTESTING THE FORCEMAIN: MAXIMUM FILL VELOCITY SHALL NOT EXCEED 1.8 m/s. TEST TO 816 kPa (120 psi). CLEAN PIPELINE BY PIGGING PRIOR TO HYDROTESTING AND PRIOR TO COMPLETING THE TIE-IN AT STN 0+000. TEST THE FORCEMAIN IN TWO (2) SECTIONS: STN 1+097 - 1+989 AND 0+000 TO 1+097. THE TEST SECTION INCLUDES THE ±28 m LONG SECTION OF #750 PVC DR25 PC165 PIPE INSTALLED IN THE PHASE 1 CONTRACT.

THIRD PARTY UTILITIES
 THE OVERHEAD BC HYDRO, TELUS AND SHAW CABLES SYSTEMS WIRES ARE SHOWN ON THE CONTRACT DRAWINGS FOR INFORMATION ONLY. THE CONTRACTOR SHALL MAKE THEMSELVES AWARE OF THE LOCATIONS OF AND CLEARANCE FROM THESE WIRING SYSTEMS AND SHALL MAKE ALLOWANCE IN THEIR PROCEDURES FOR CONSTRUCTION OF THE WORKS UNDER OR NEAR THEM IN ACCORDANCE WITH WORKSAFE BC RULES AND GOOD WORK PRACTICES.

SUPPORT OF ALL UTILITY POLES BY THE CONTRACTOR SHALL BE CARRIED OUT BY A BC HYDRO CERTIFIED POWER LINE INSTALLER. THE COST OF THIS WORK IS CONSIDERED INCIDENTAL TO THE WORKS AND SERVICES INSTALLED FOR THIS CONTRACT.

THE CONTRACTOR WORKING IN THE VICINITY OF THE NATURAL GAS LINE SHALL BE RESPONSIBLE TO EXCAVATE AND BACKFILL THE AREA IN ACCORDANCE WITH THE CONSTRUCTION STANDARDS OF FORTIS BC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MEET WITH A REPRESENTATIVE OF FORTIS BC AND TO RECEIVE INSTRUCTION ON MANAGING THEIR WORK IN THE VICINITY OF THE NATURAL GAS LINE TO THE SATISFACTION OF FORTIS BC.

ENVIRONMENTAL NOTES
 COMPLY WITH THE CITY OF CAMPBELL RIVER EROSION AND SEDIMENTATION CONTROL BYLAW AND MMCD PLATINUM SPECIFICATIONS FOR ENVIRONMENTAL PROTECTION DURING CONSTRUCTION.

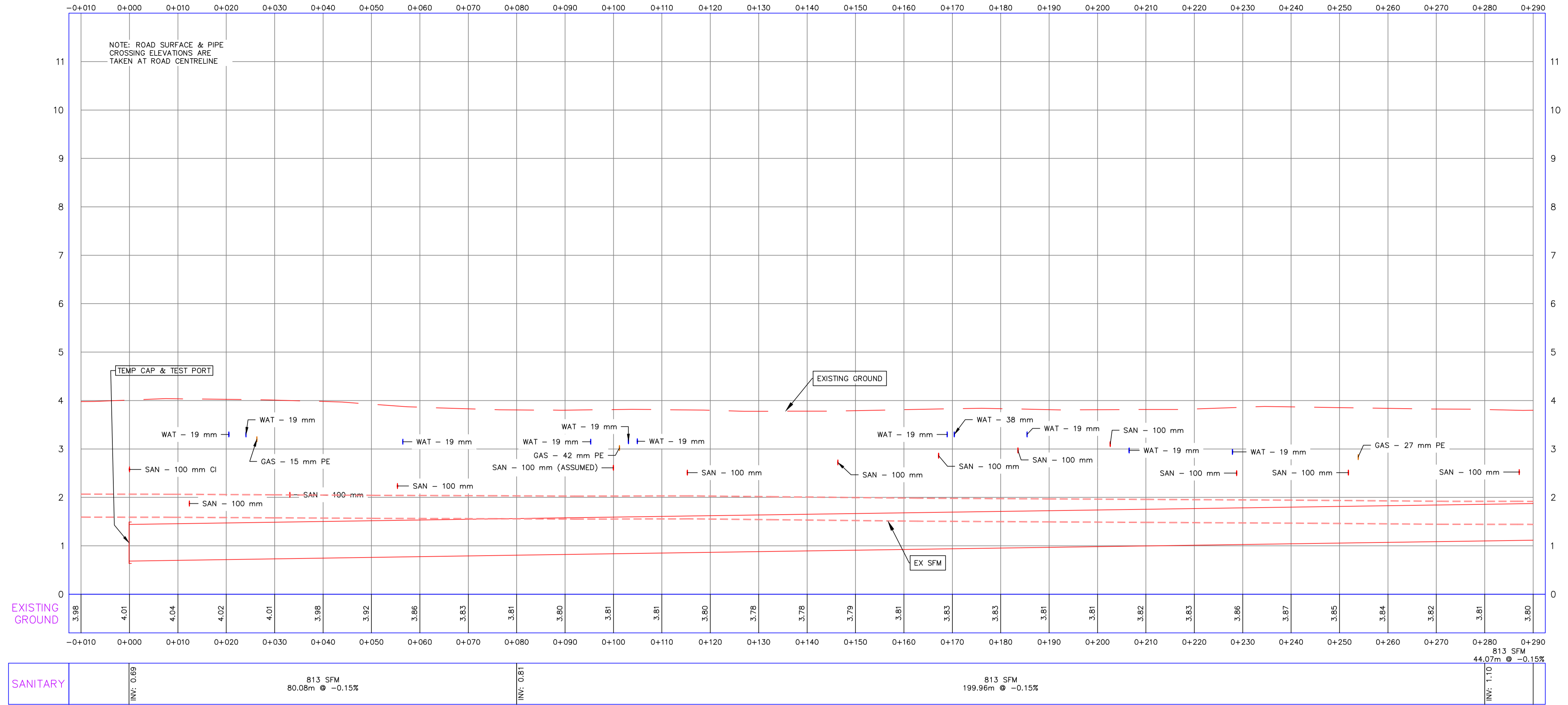
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SHEET #	DESCRIPTION	ISSUE	DATE
0	COVER, GENERAL NOTES	B	19/03/20
1	STA 0+000 TO 0+280	B	
2	STA 0+280 TO 0+560	B	
3	STA 0+560 TO 0+840	B	
4	STA 0+840 TO 1+120	B	
5	STA 1+120 TO 1+400	B	
6	STA 1+400 TO 1+680	B	
7	STA 1+680 TO 1+960	B	
8	DETAILS SHEET	B	

HIGHLAND
 Engineering Services Ltd.

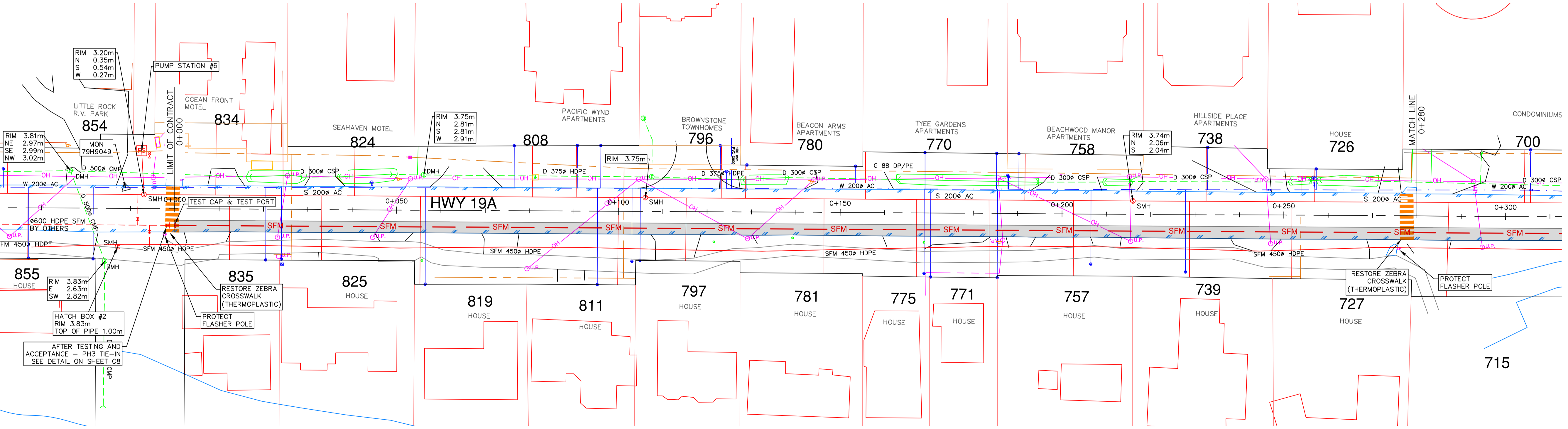
#104-950 Alder Street,
 Campbell River, B.C., V9W 2P8
 (250) 287-2825
 highland@highland-eng.ca
 www.highland-eng.ca

Project: 4075-02
 CCR FILE: 17-524-02

HWY 19A PROFILE



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NO.	ISSUE	BY	YY/MM/DD	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN
B	CHANGED PH3 TIE-IN NOTE	FG	19/03/20															
A	ISSUED FOR TENDER	FG	19/03/12															

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Engineering Services Ltd.

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(250) 287-2825
highland@highland-eng.ca
www.highland-eng.ca

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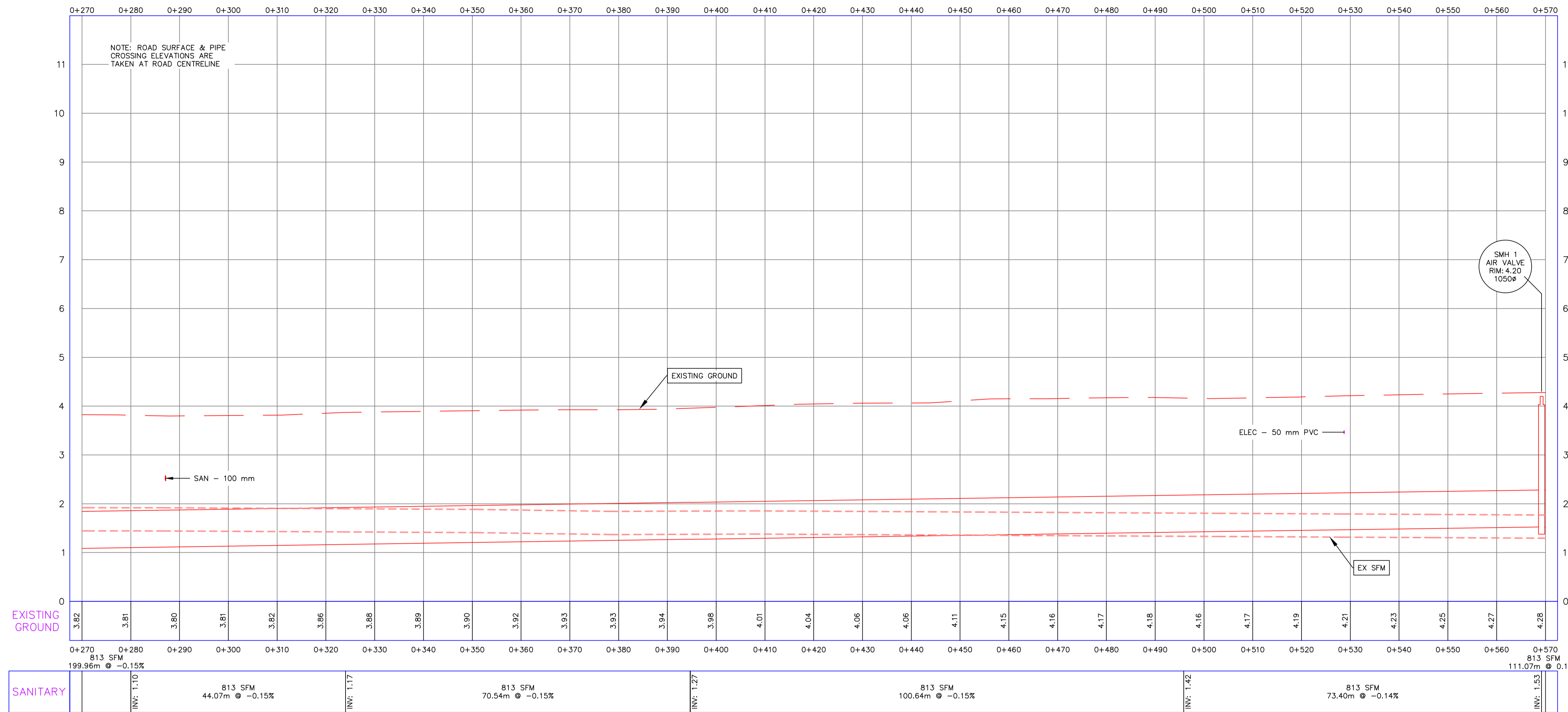
CITY OF CAMPBELL RIVER
WATERFRONT SEWER SYSTEM UPGRADES - PH 2
CAMPBELL RIVER, BC
HWY 19A
STA 0+000 TO 0+280

CITY DWG #
17-524-02-C1
PROJECT:
4075-02
SHEET 1 OF 8
ISSUE B

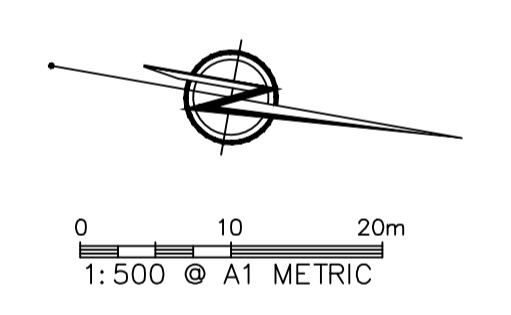
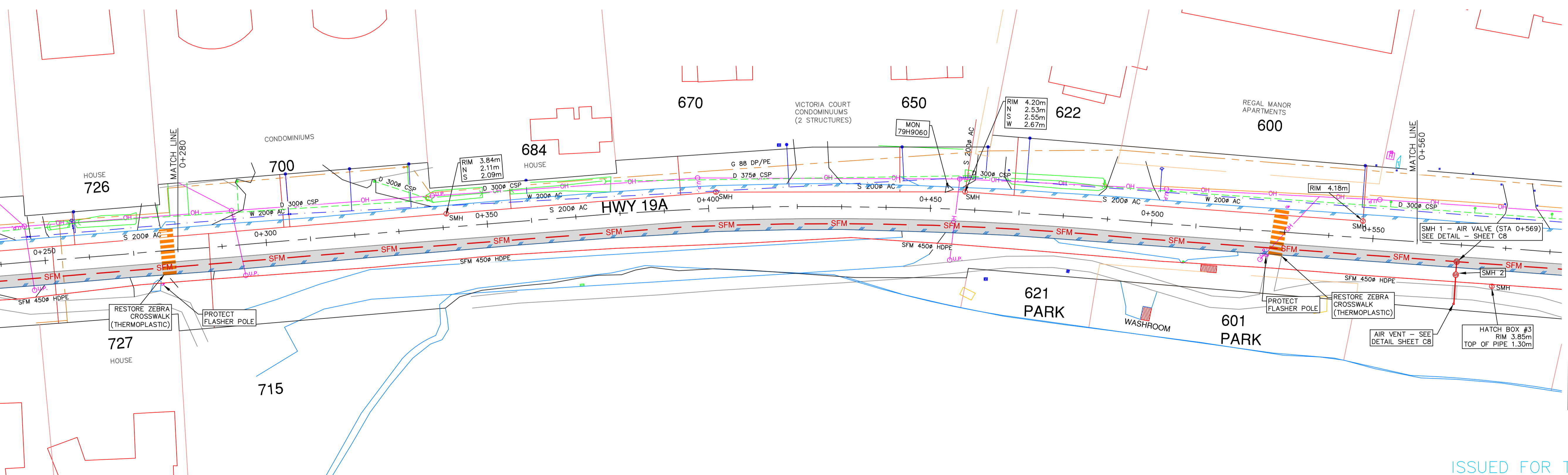
CALL BEFORE YOU DIG!
 1-800-474-6886
 or by CELLULAR *6886
CALL AT LEAST 3 FULL WORKING DAYS BEFORE YOU START TO DIG!

DESTROY PRINTS OF PREVIOUS REVISION

HWY 19A PROFILE



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CALL BEFORE YOU DIG!
 1-800-474-6886
 or by CELLULAR *6886
CALL AT LEAST 3 FULL WORKING DAYS BEFORE START OF WORK

NO.	ISSUE	BY	YY/MM/DD	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN
B	CHANGED PIPE SIZE LABEL	FG	19/03/20												
A	ISSUED FOR TENDER	FG	19/03/12												

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 Engineering Services Ltd.
 #104-950 Alder Street,
 Campbell River, B.C.
 V9W 2P8
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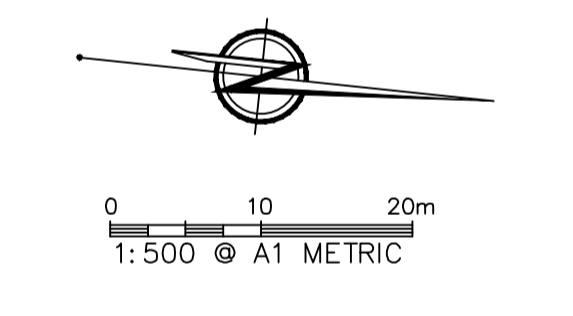
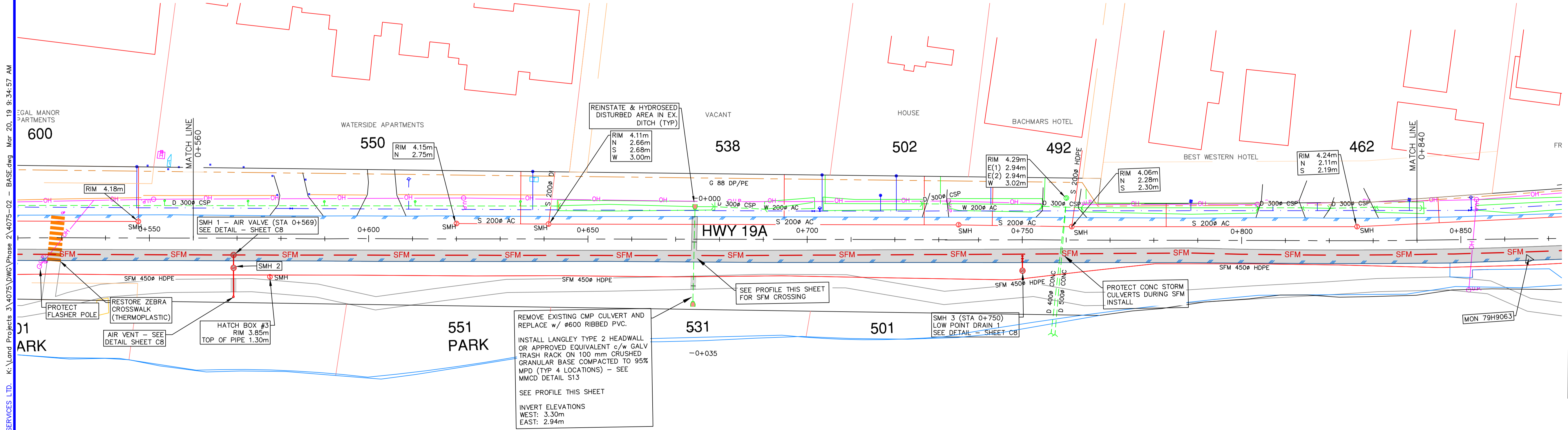
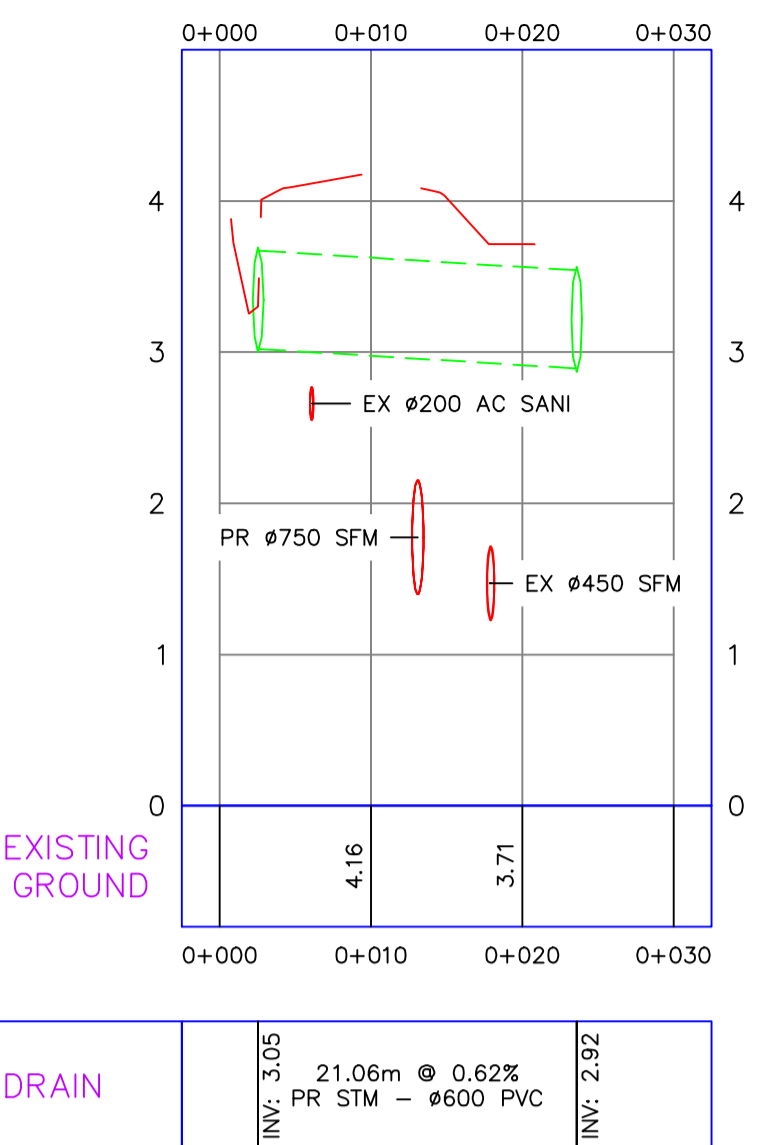
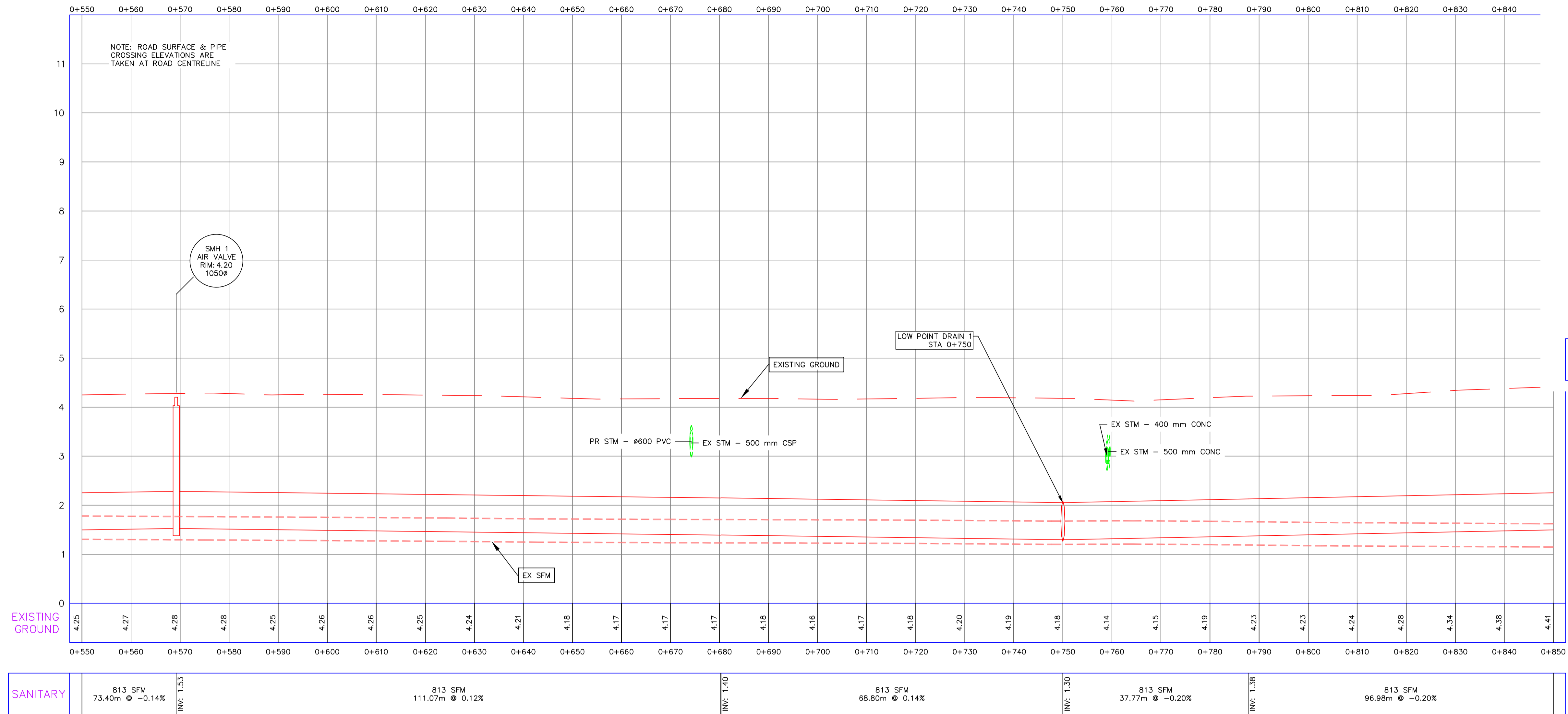
ISSUED FOR TENDER
CITY OF CAMPBELL RIVER
 WATERFRONT SEWER SYSTEM UPGRADES - PH 2
 CAMPBELL RIVER, BC
 HWY 19A
 STA 0+280 TO 0+560

CITY DWG #	17-524-02-C2
PROJECT:	4075-02
SHEET 2 OF 8	
ISSUE B	

DESTROY PRINTS OF PREVIOUS REVISION

HWY 19A PROFILE

STM CROSSING 0+673 PROFILE



EXISTING UTILITIES

LOCATIONS OF EXISTING UTILITIES SHOWN ARE DERIVED FROM FIELD SURVEY, AS CONSTRUCTED DRAWINGS AND THIRD PARTY SOURCES. THIS INFORMATION CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL UTILITIES AT THE START OF THE CONTRACT AND INFORM THE ENGINEER OF ANY DISCREPANCY. NOT ALL UTILITY SERVICES SHOWN ON PROFILE VIEWS.

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NO.	ISSUE	BY	DATE	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN	EXISTING	LEGEND	DESIGN
B	CHANGED PIPE SIZE LABEL	FG	19/03/20																					
A	ISSUED FOR TENDER	FG	19/03/12																					

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Campbell River, B.C.
V9W 2P8

(250) 287-2825
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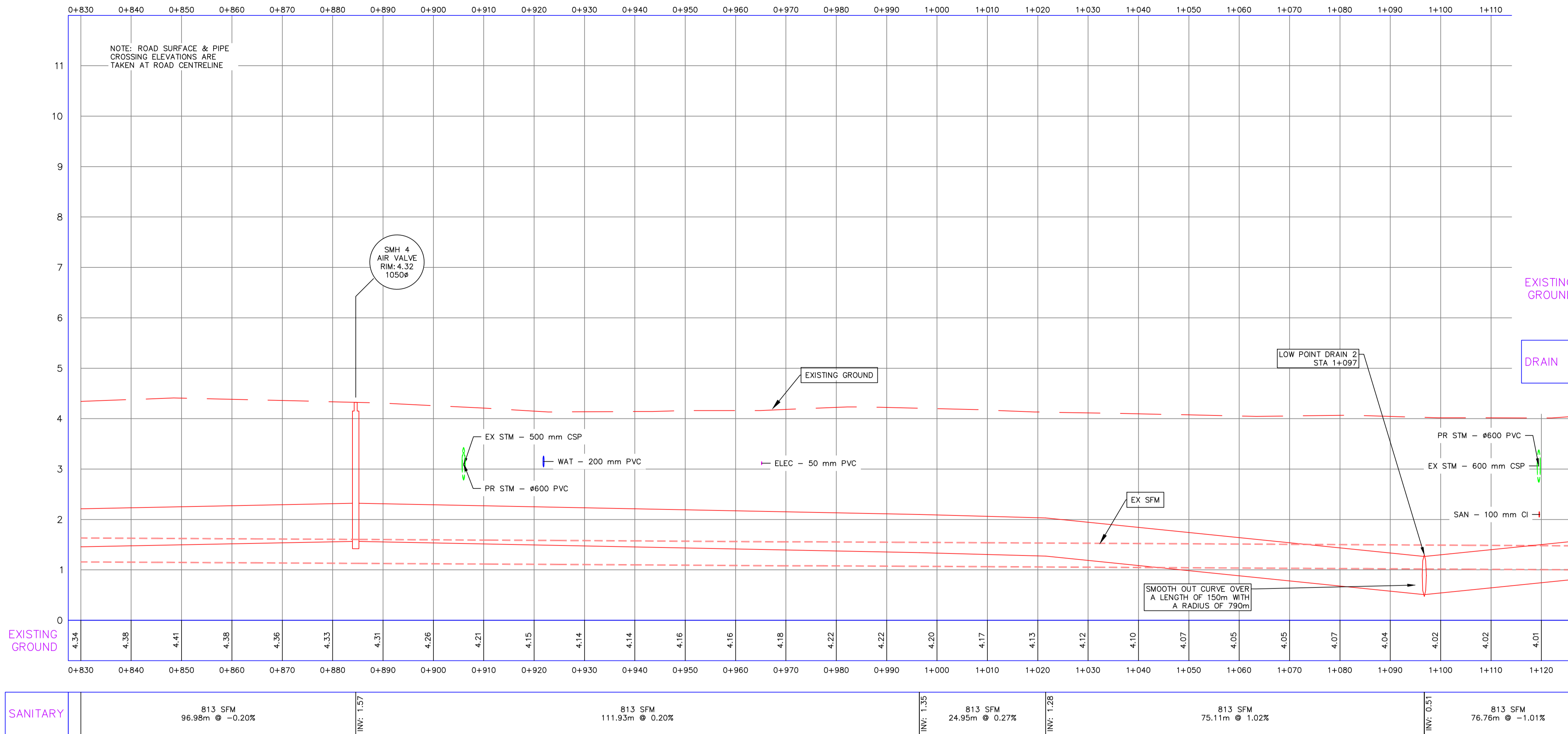
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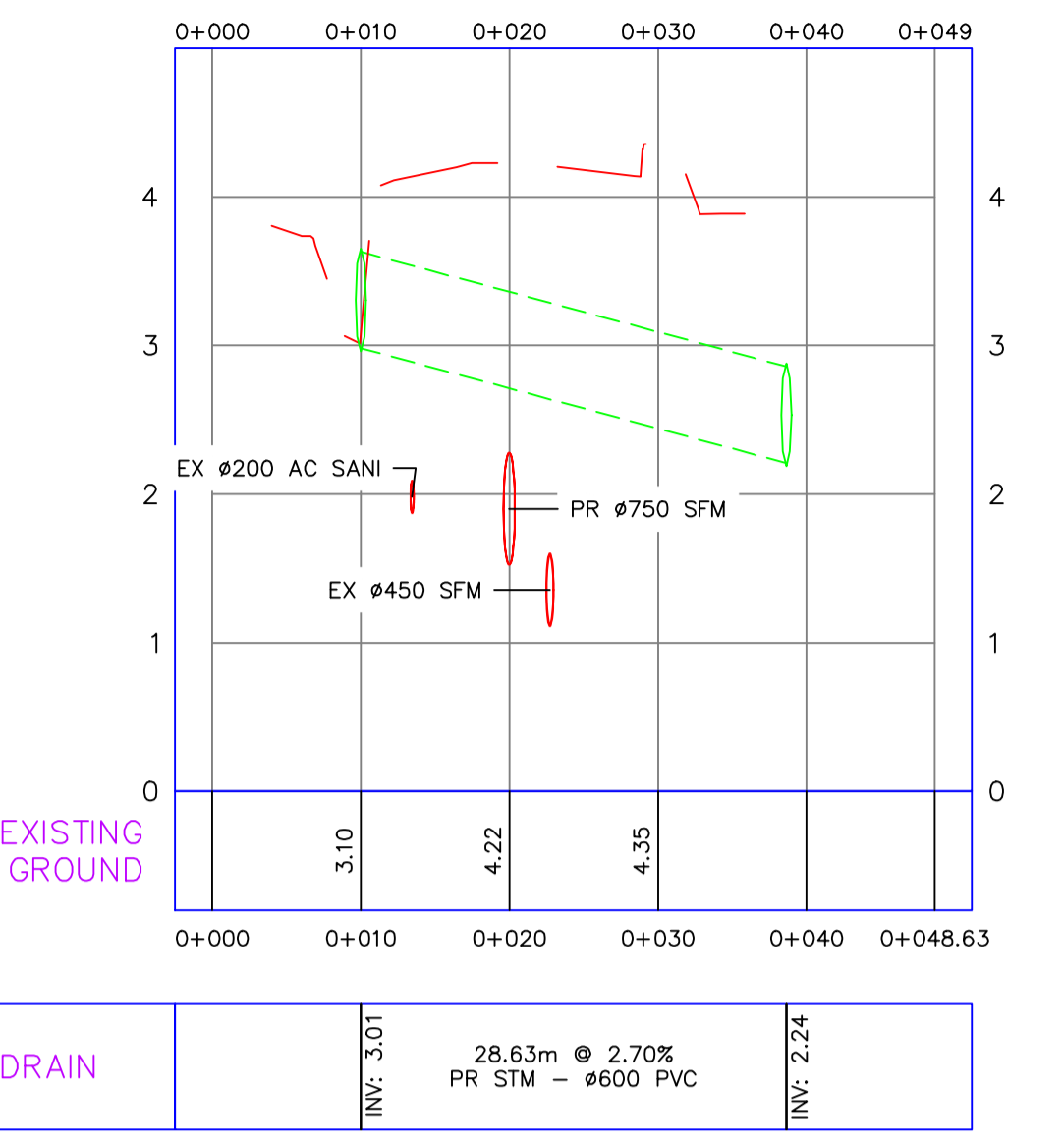
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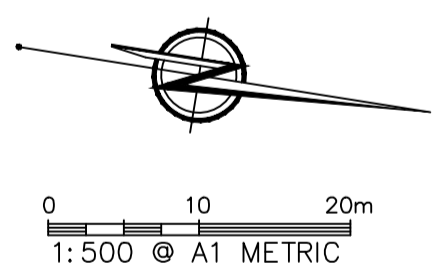
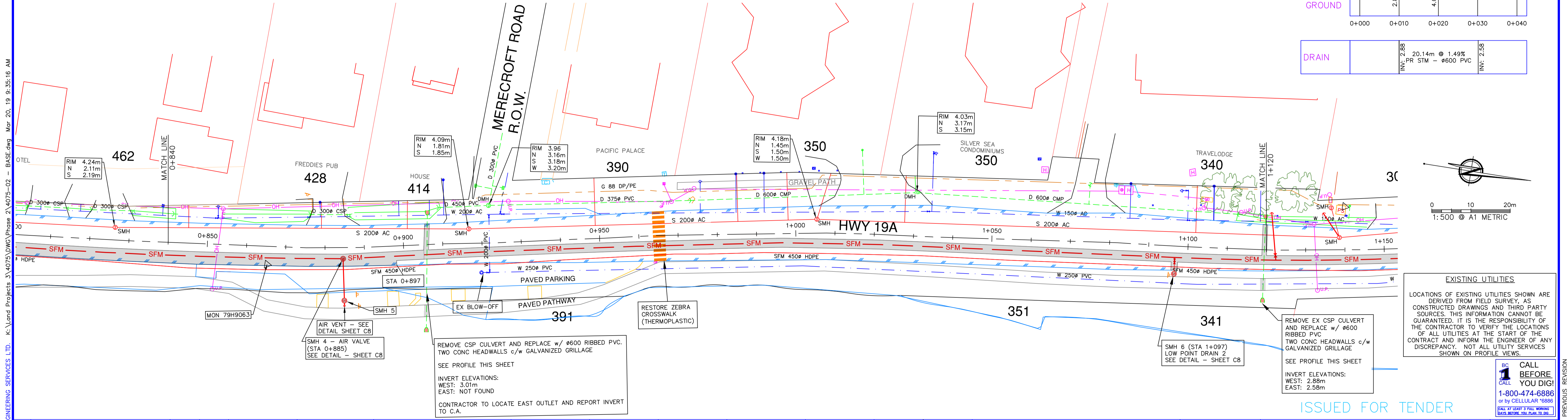
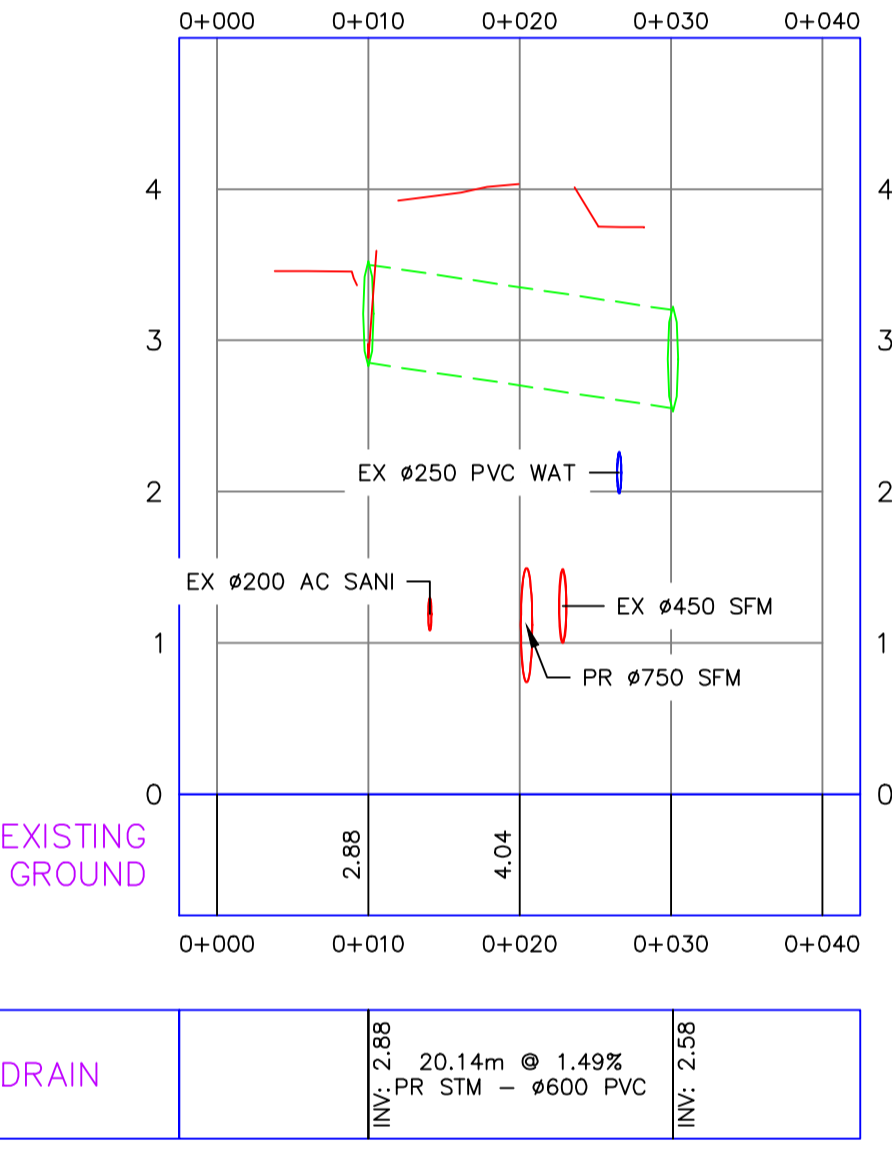
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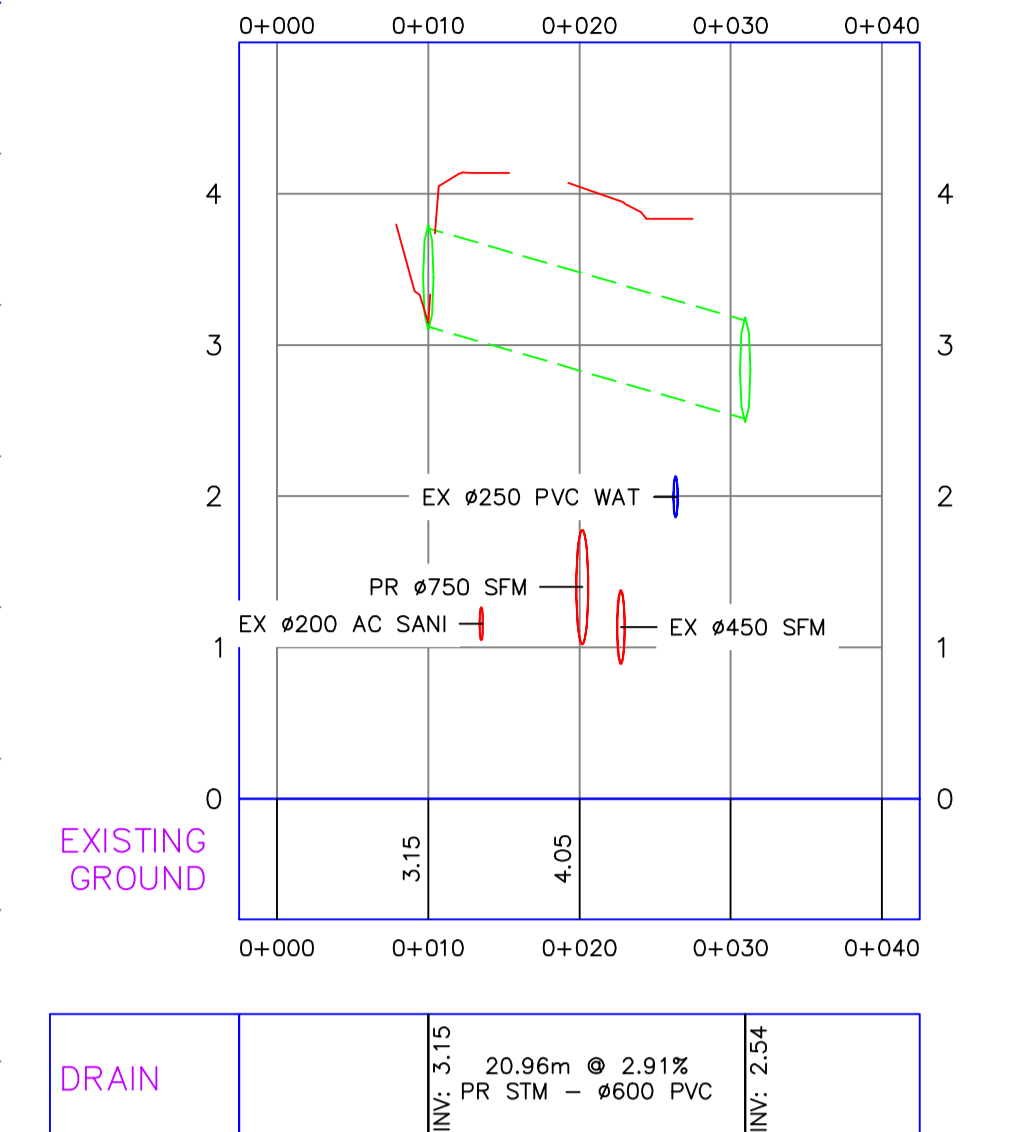
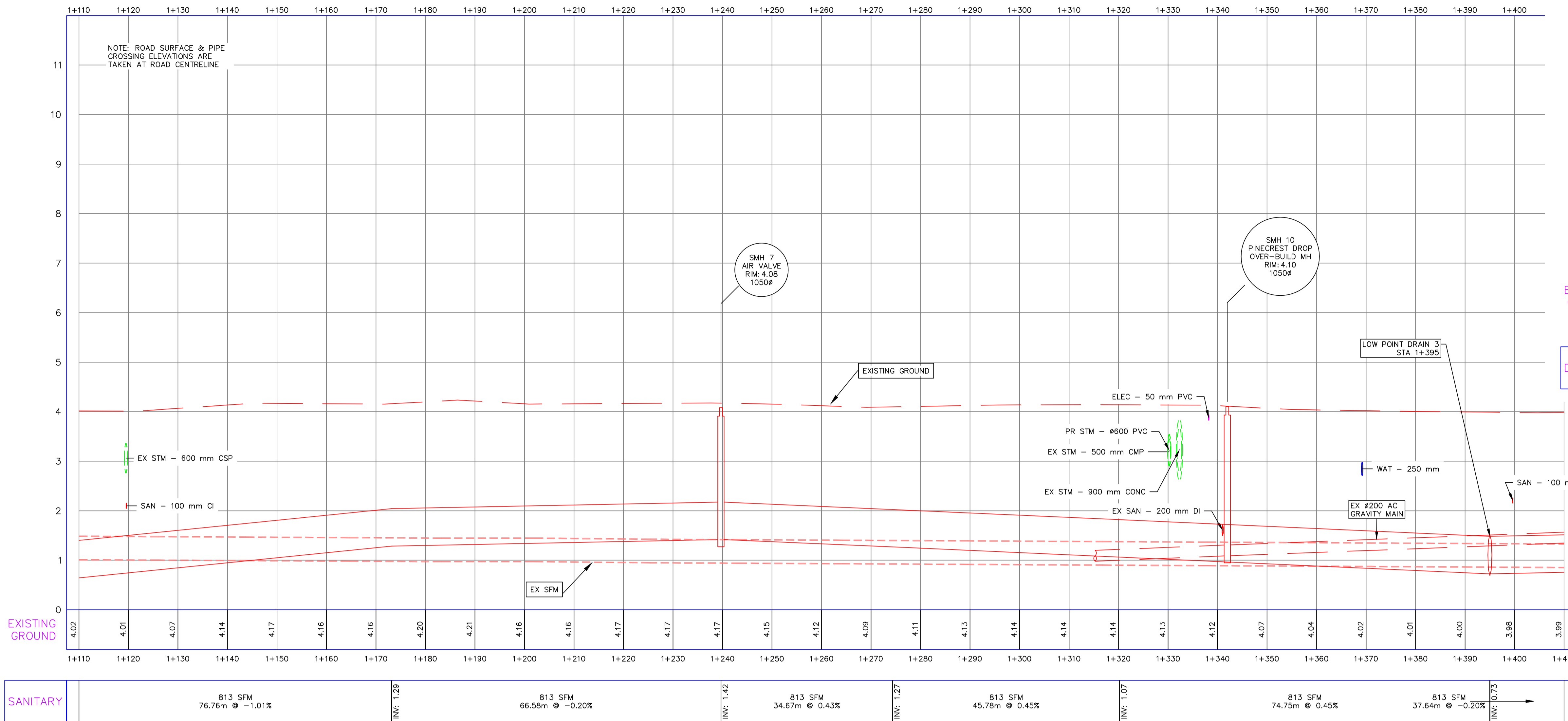
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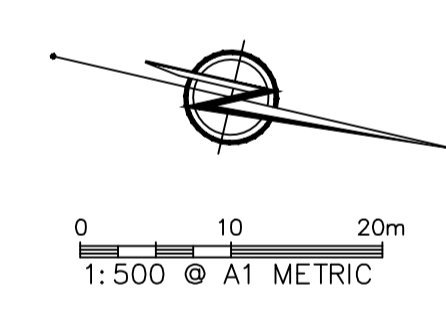
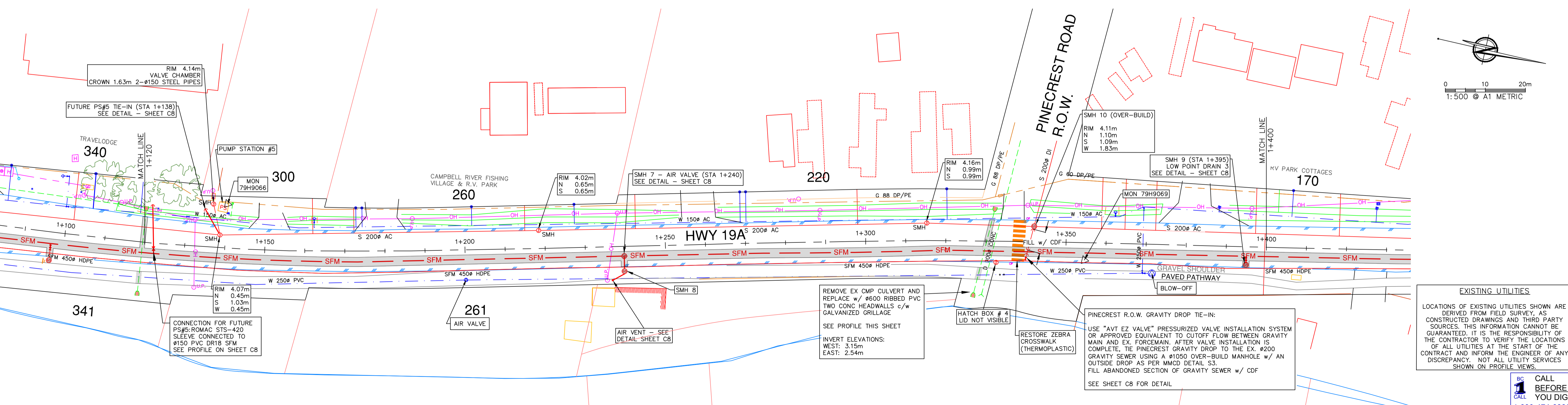
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G	NATURAL GAS	G	WATER MAIN	DMH	STORM MANHOLE	DMH	STORM MANHOLE
P	PERMEABLE PAVING	P	PAVEMENT	W	CATCH BASIN	W	CATCH BASIN
C	CURB & GUTTER	C	SIDEWALK	HYD.	FIRE HYDRANT	HYD.	FIRE HYDRANT
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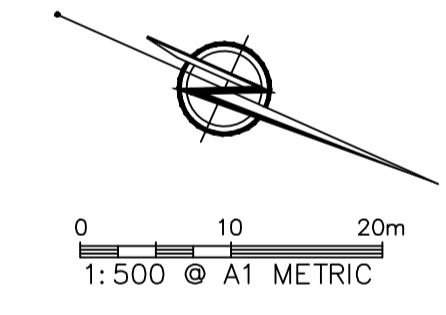
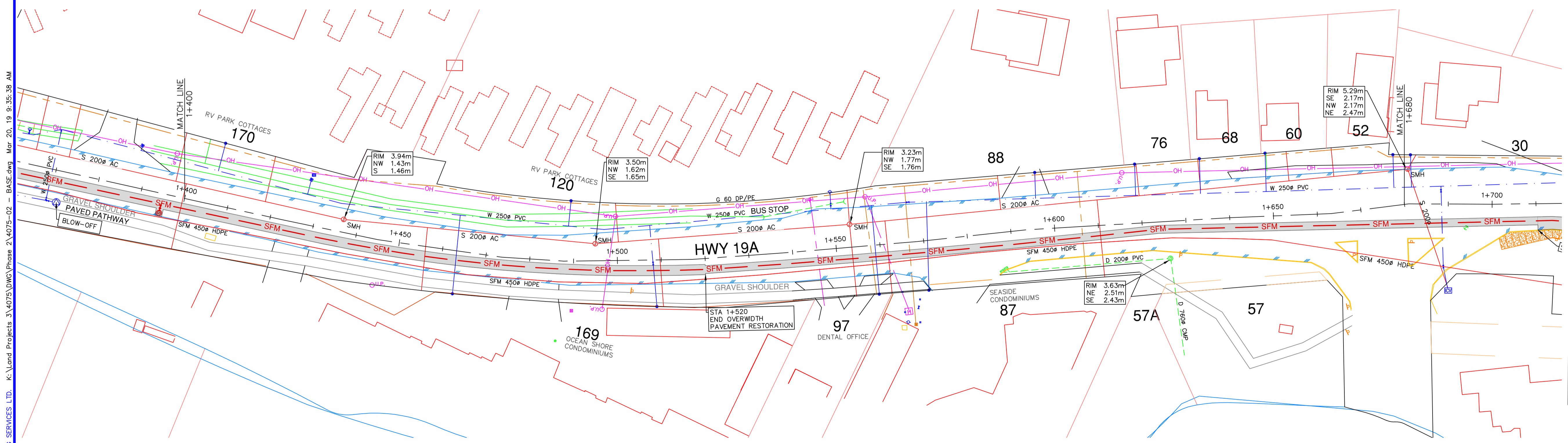
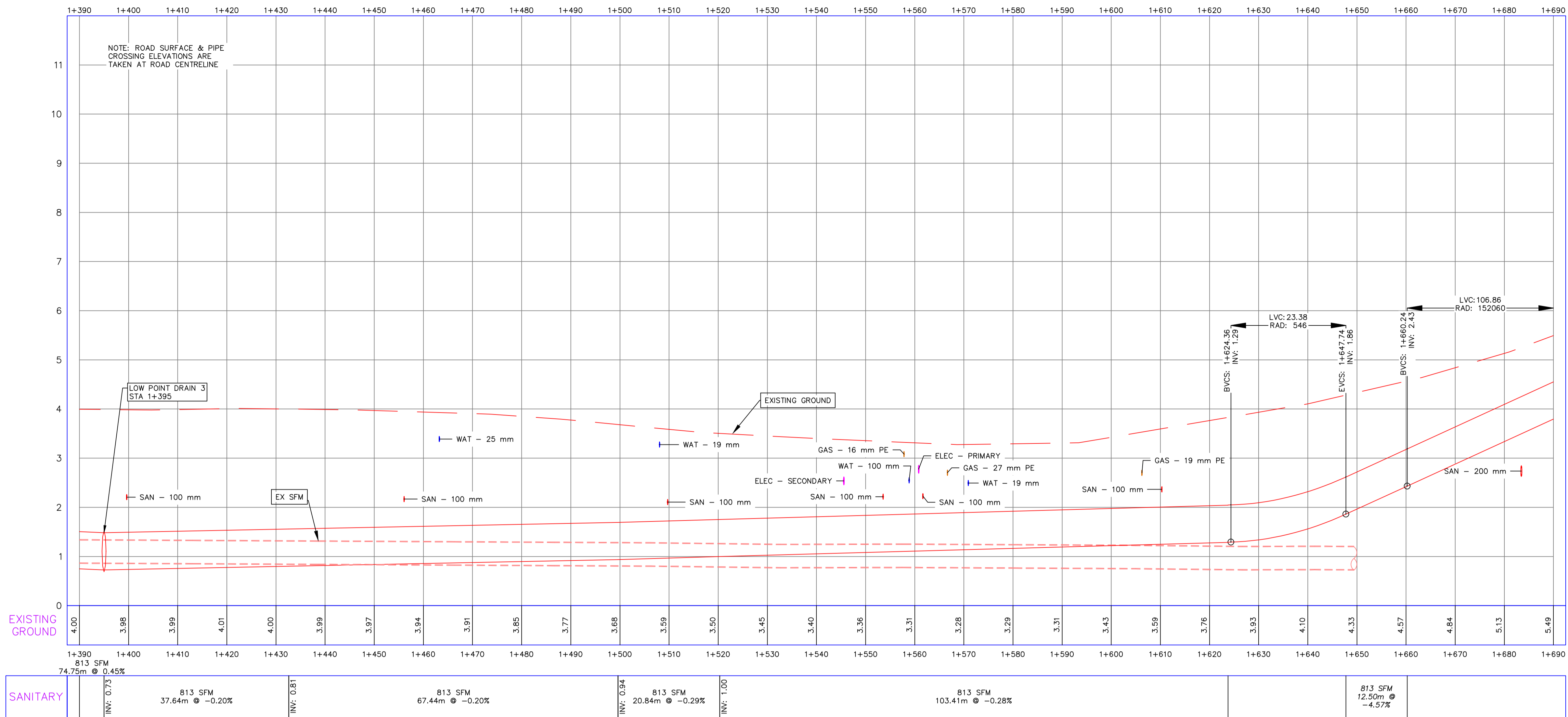
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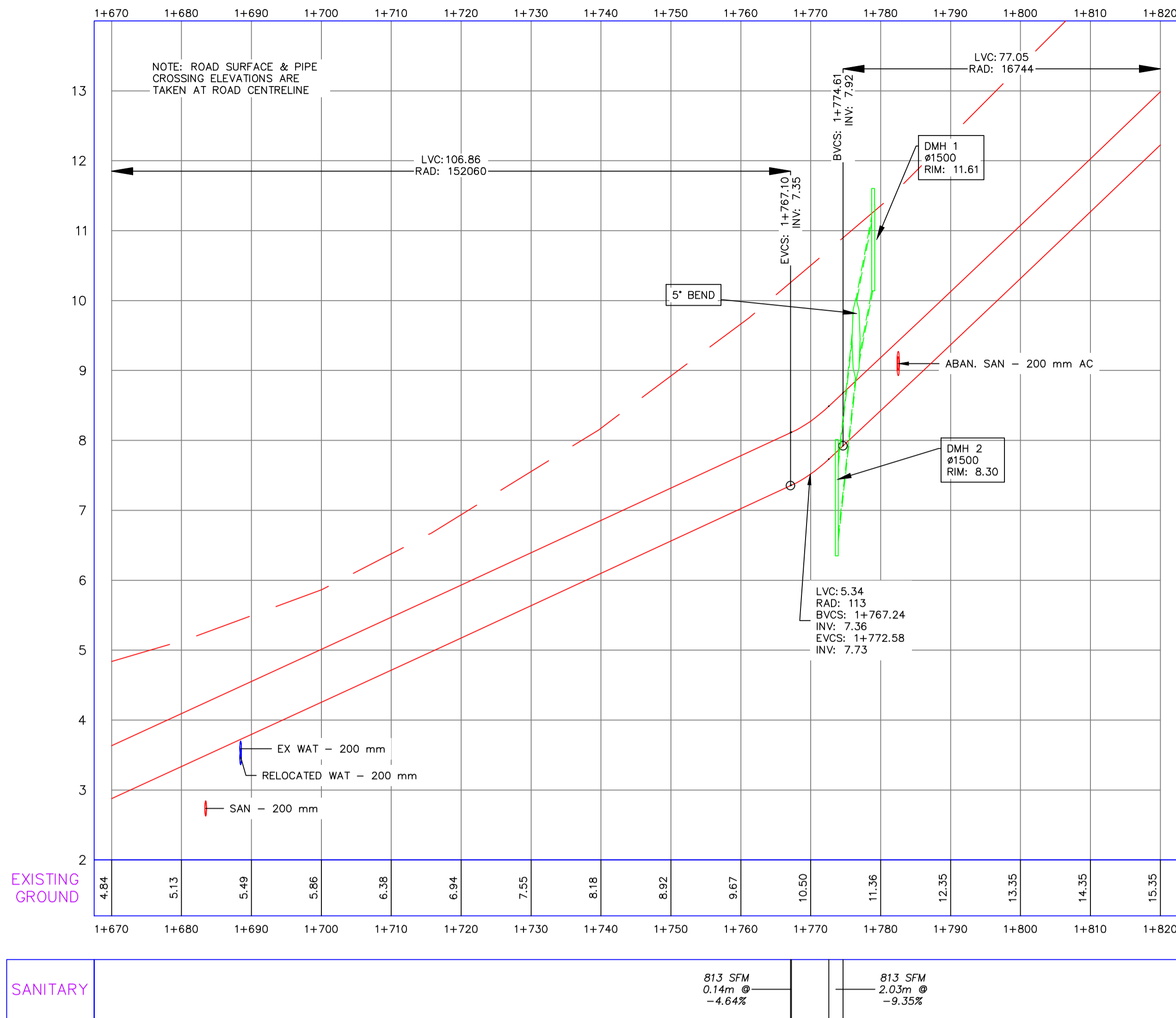
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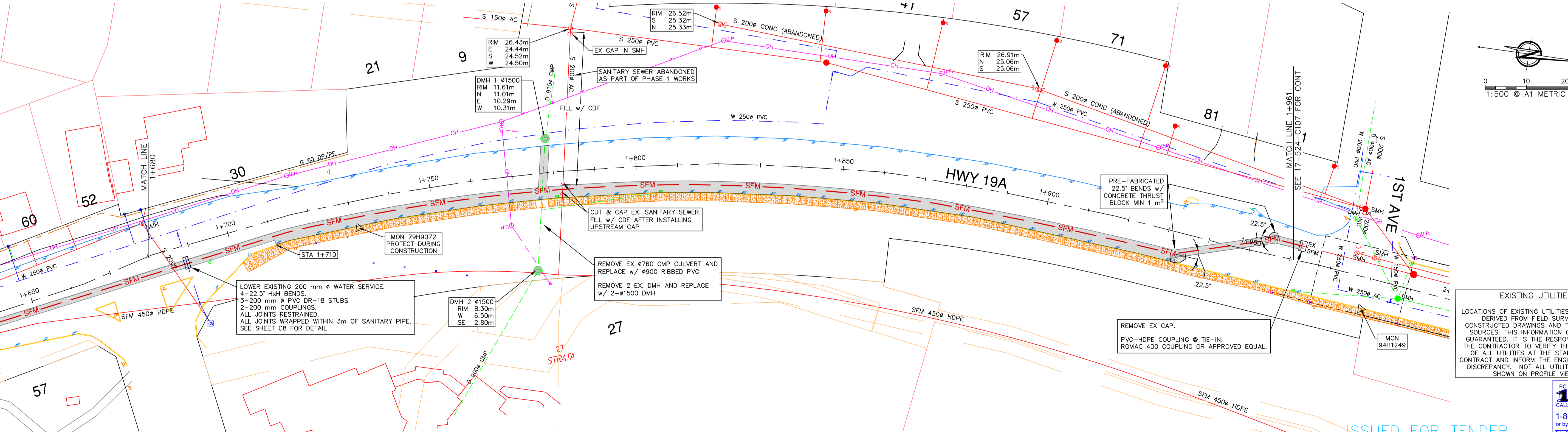
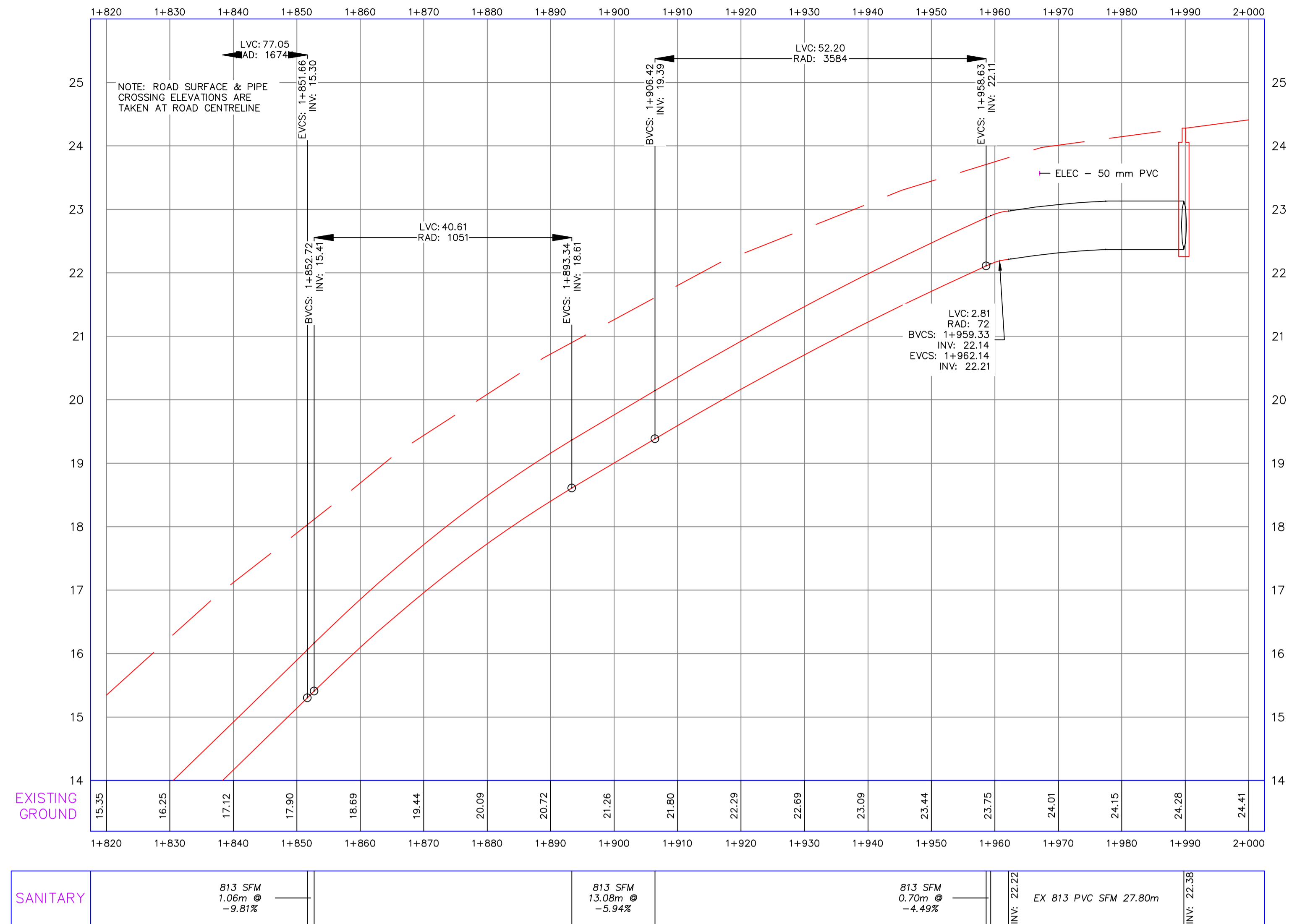
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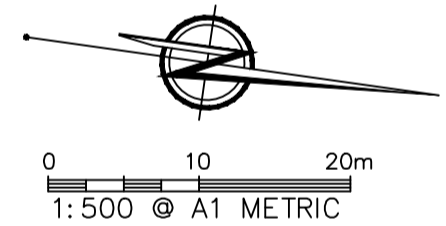
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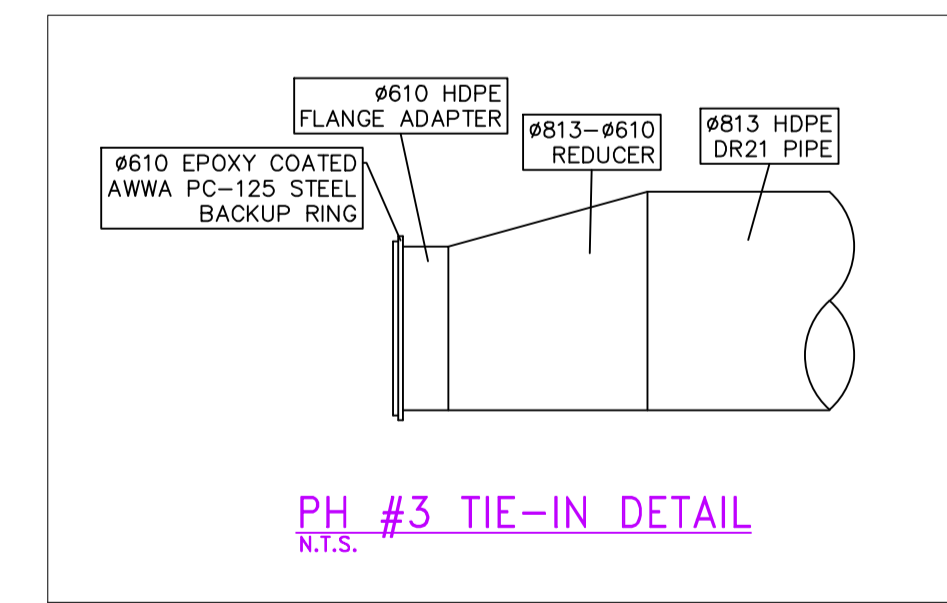
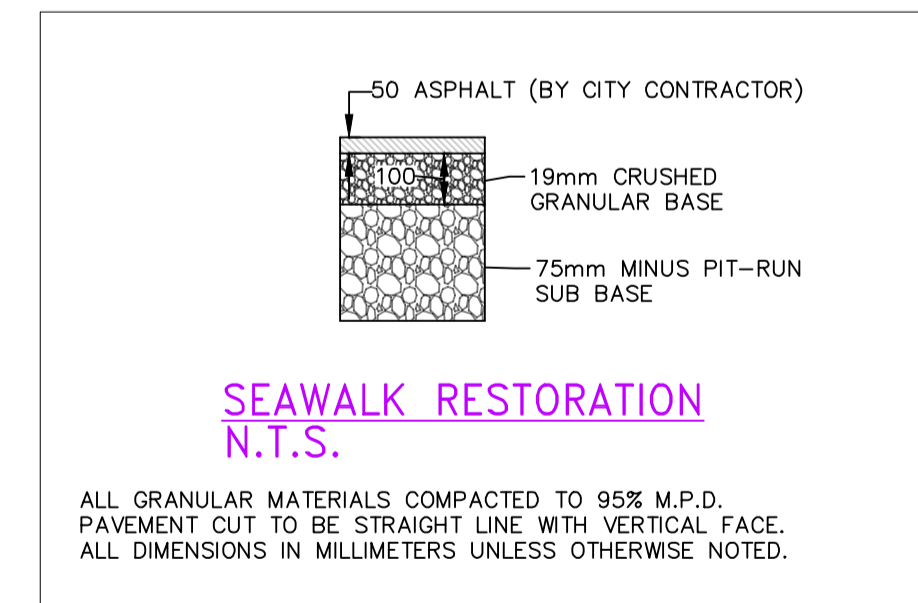
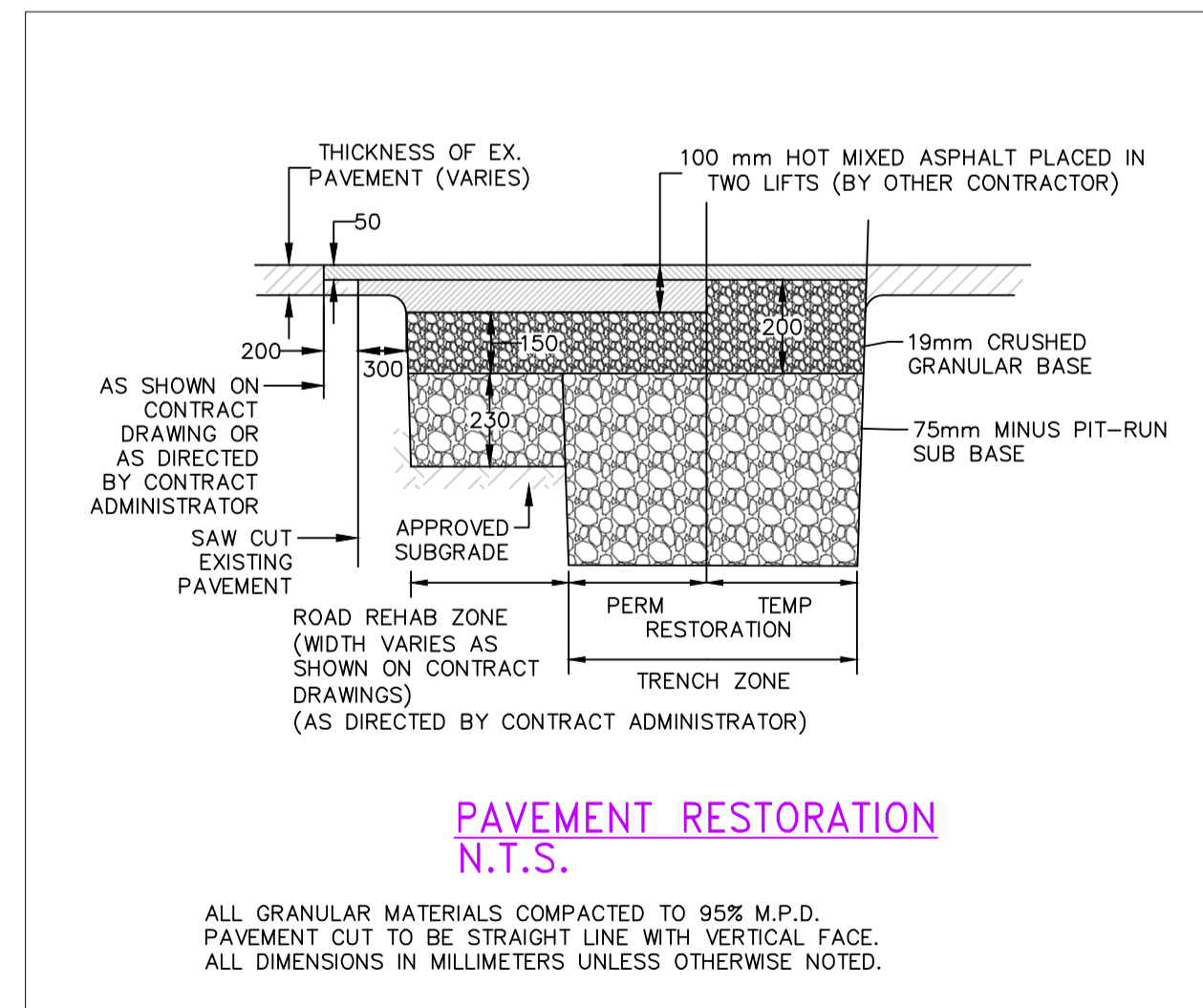
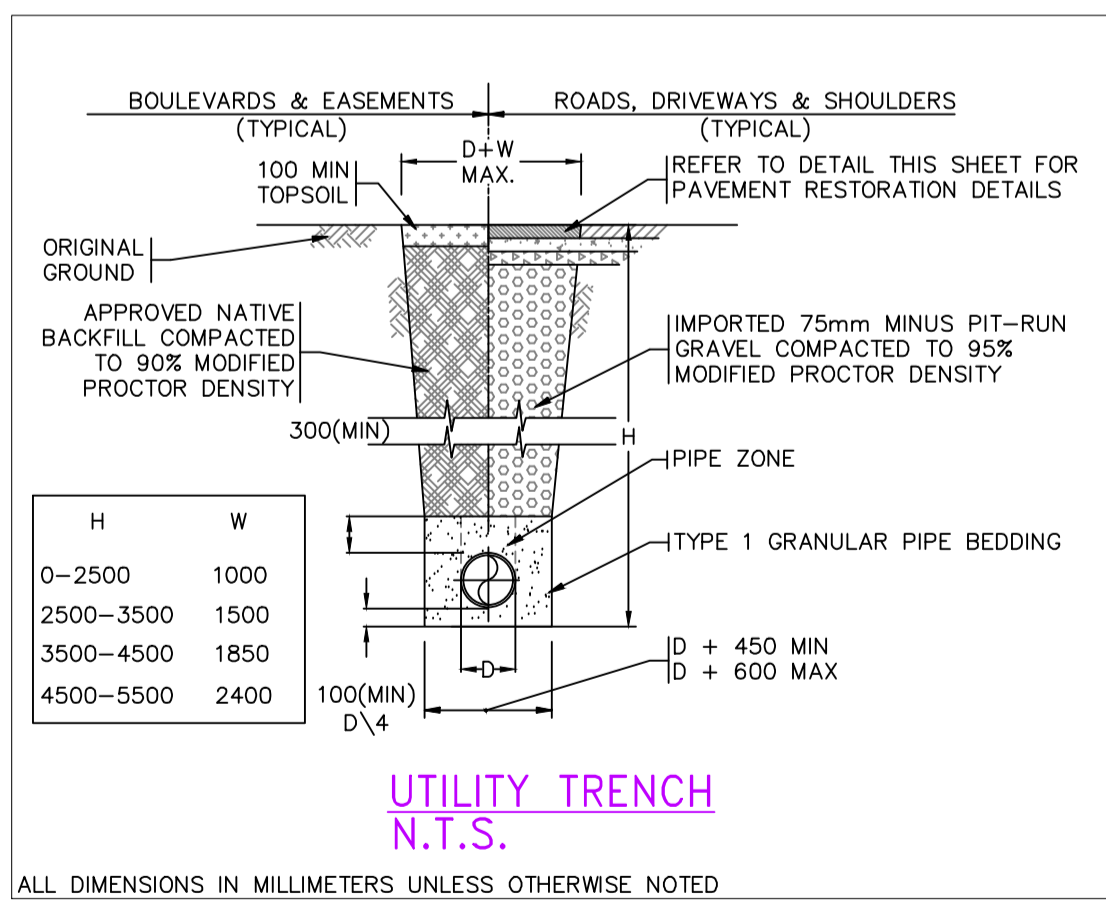
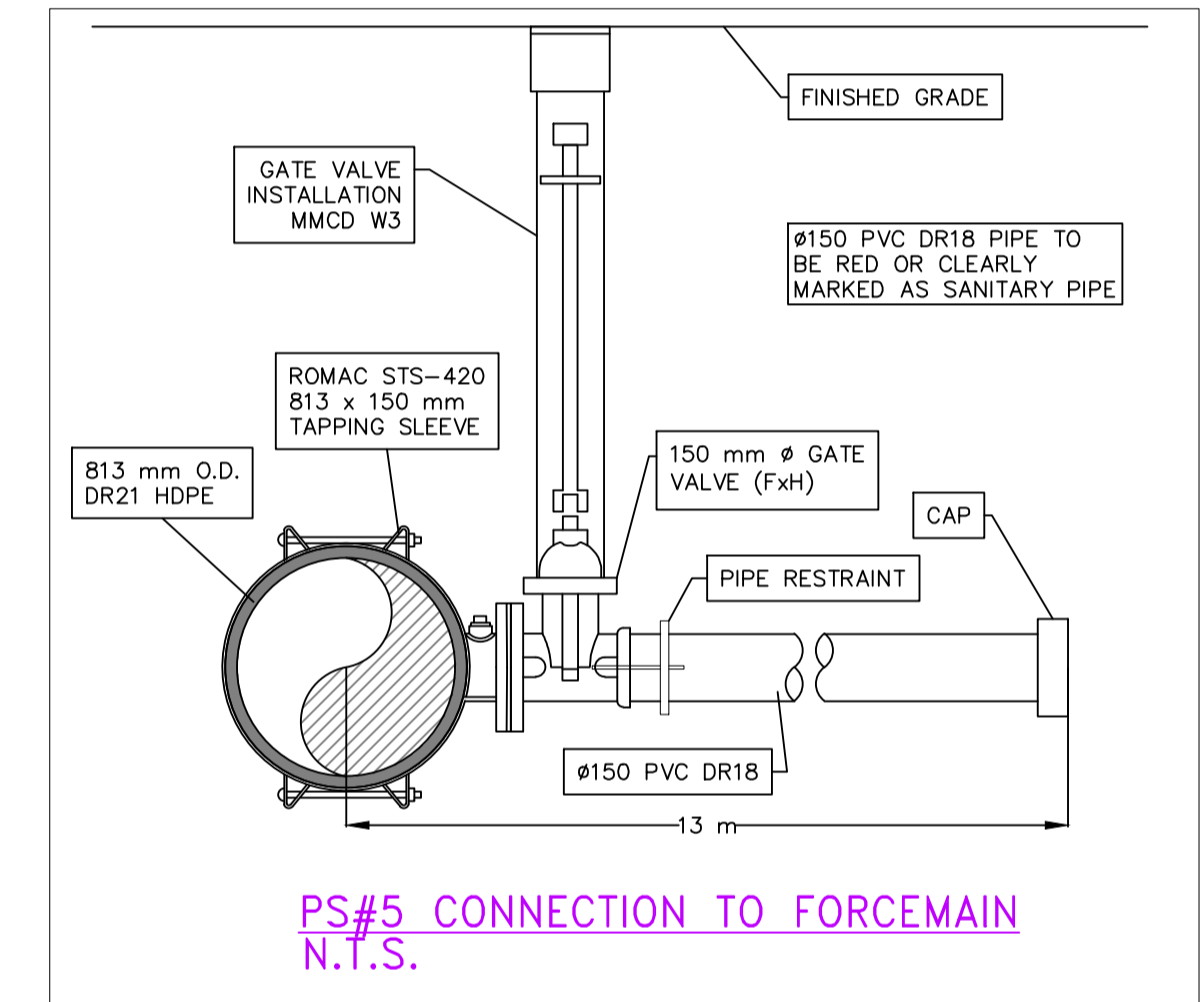
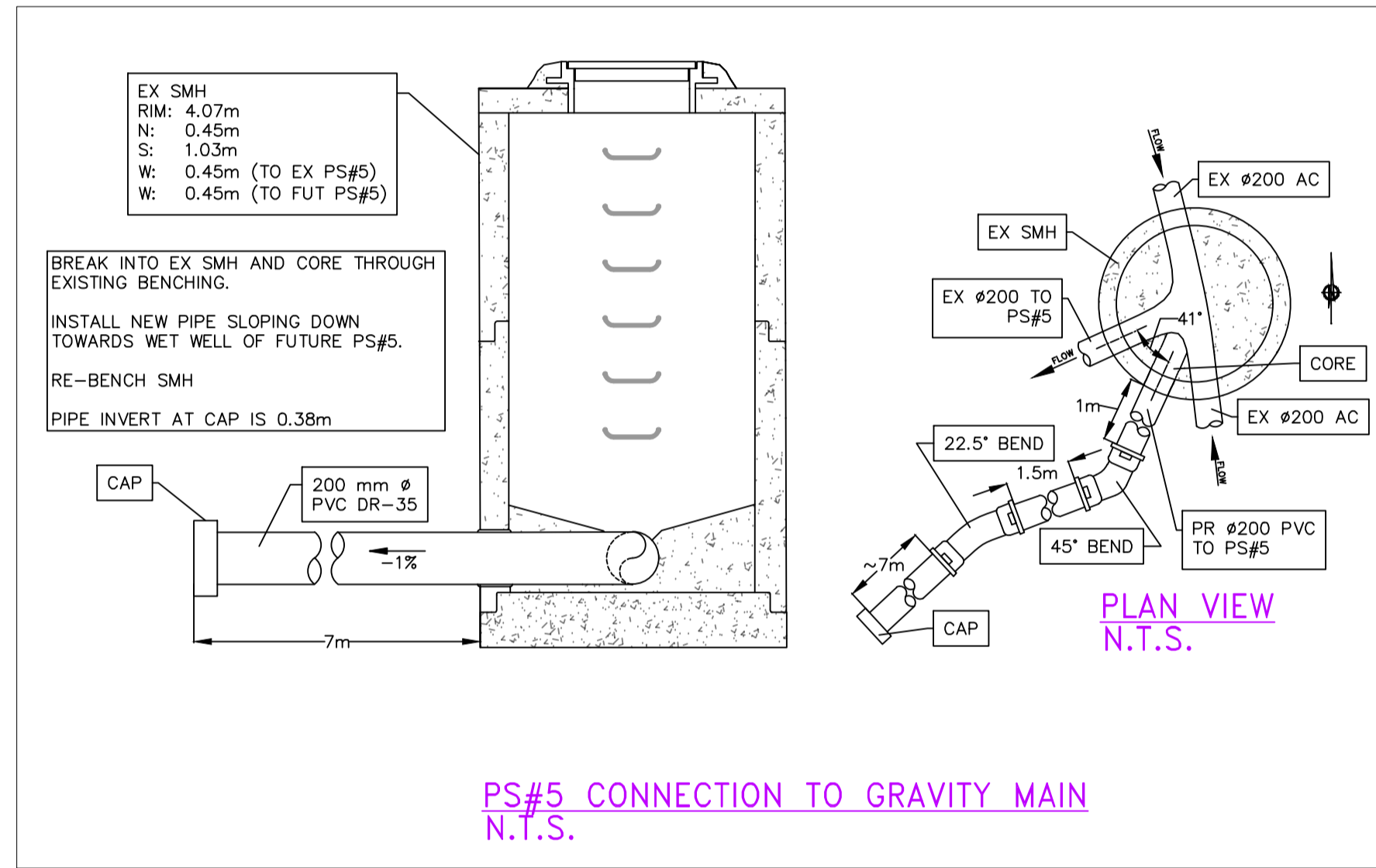
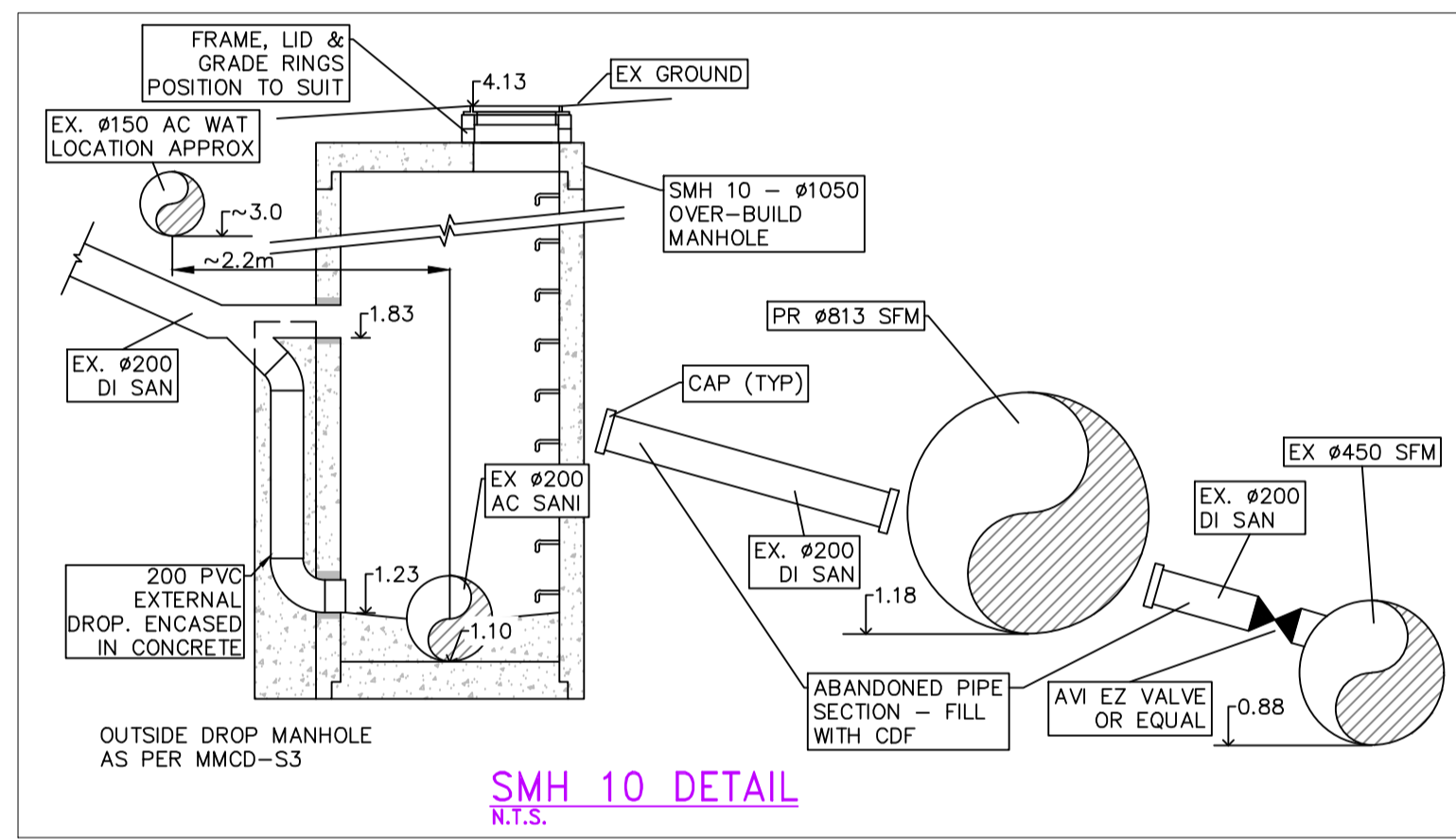
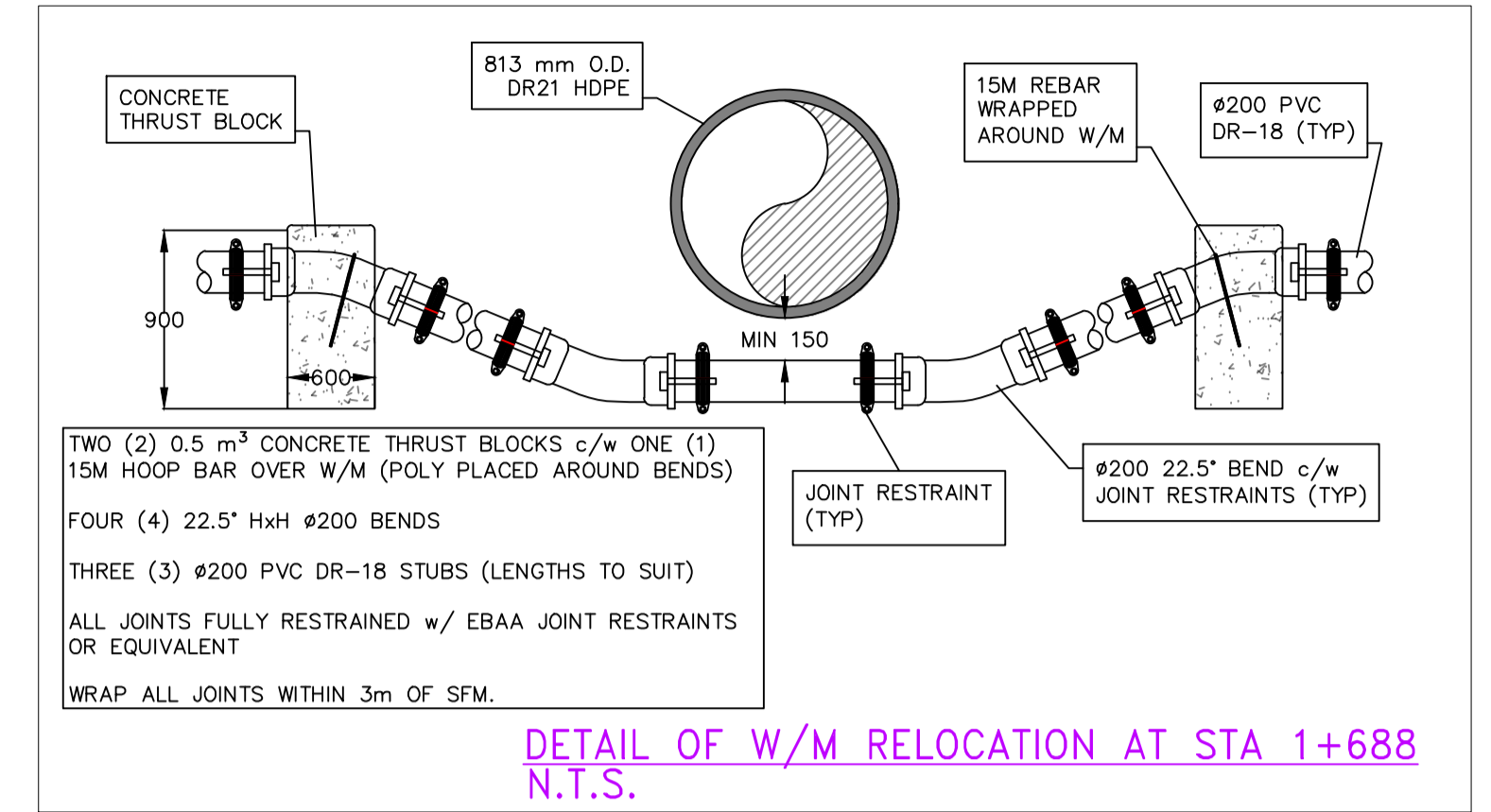
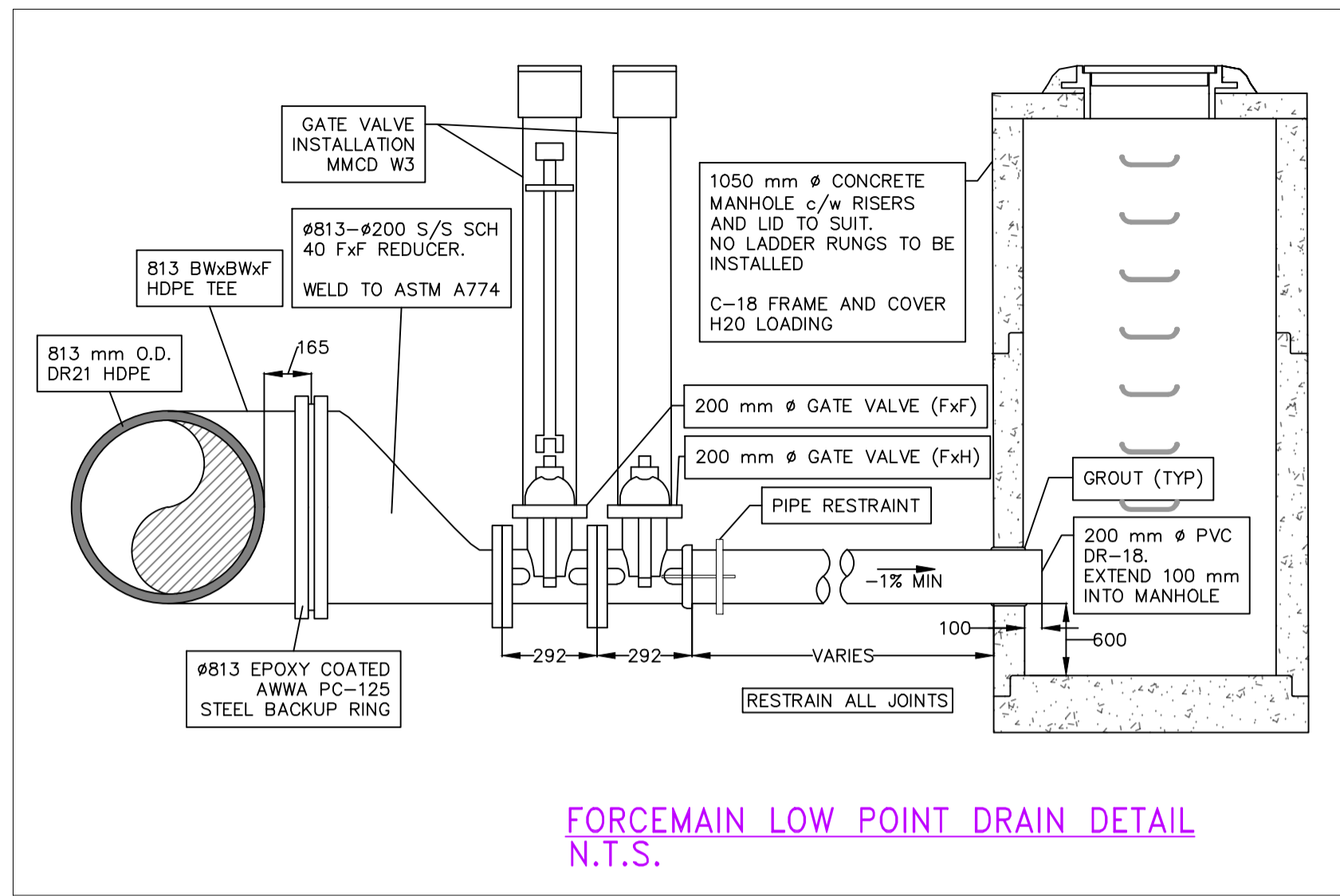
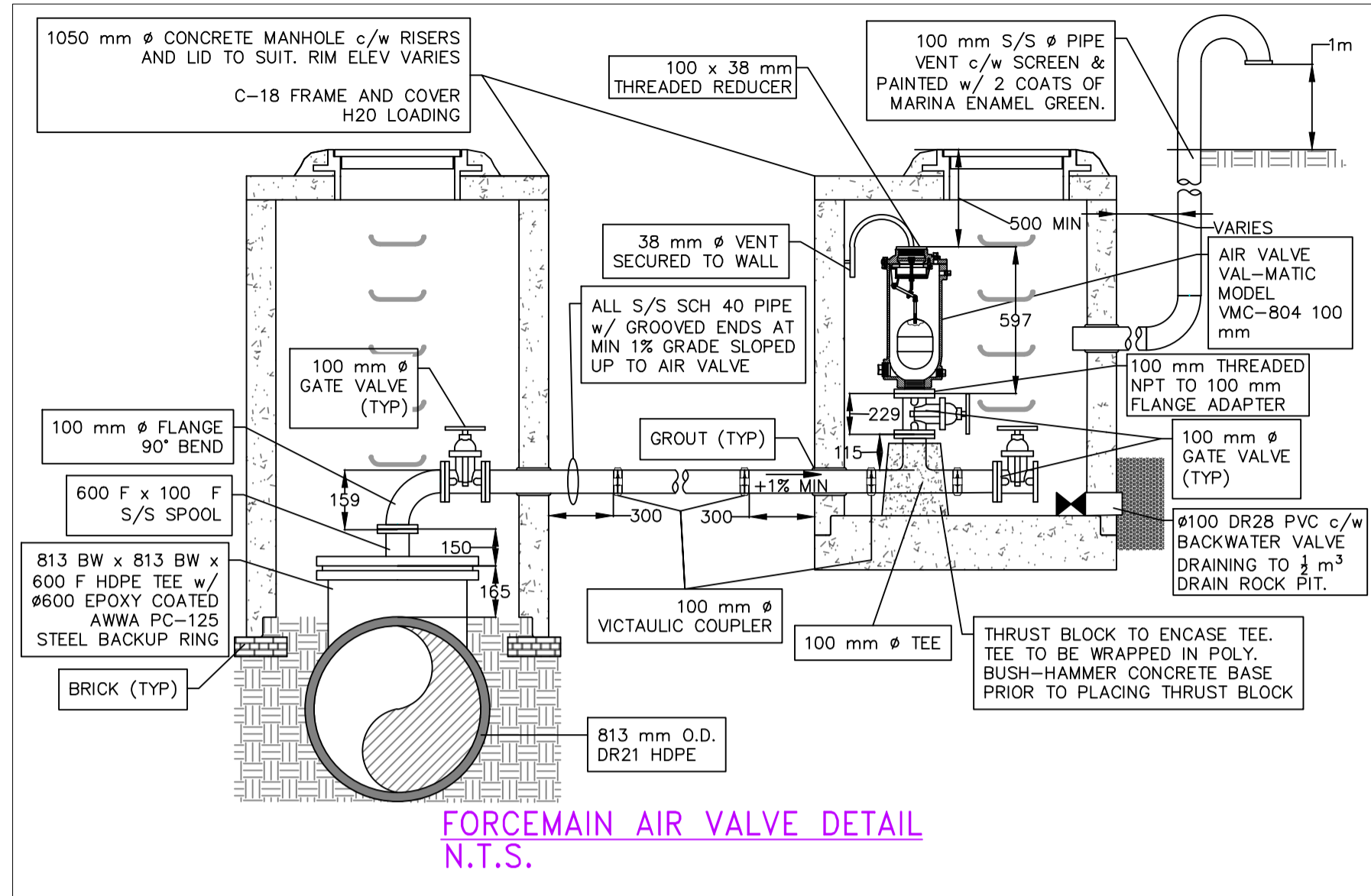
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---	---	---	G	NATURAL GAS	---	G	W	WATER MAIN	---	W	DMH	STORM MANHOLE	---	DMH	DRAWN:	DATE:
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15 – 1353 ALBERNI HIGHWAY
PARKSVILLE, BRITISH COLUMBIA

GEOTECHNICAL INVESTIGATION
HIGHWAY 19A
PHASE 2 AND PHASE 3
CAMPBELL RIVER, B.C.

N13100011

February 2007



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FIGURES

Figure 1 Approximate Borehole Location Plan

APPENDICES

Appendix A Testpit Logs

Appendix B Grain Size Analysis

Appendix C geotechnical Report General Conditions

1.0 INTRODUCTION

1.1 GENERAL

EBA Engineering Consultants Ltd. (EBA) was retained by R.F. Binnie and Associates Ltd. to complete a geotechnical investigation for an approximate 3500 m length of reconstruction proposed for Highway 19A in Campbell River, B.C. (see Figure 1).

The objective of this geotechnical study was to determine the general subsurface conditions and to provide recommendations for the proposed reconstruction of the road. The general location of the site is shown on Figure 1.

1.2 AUTHORIZATION

Authorization to carry out this geotechnical investigation was provided by R.F. Binnie and Associates Ltd. on October 19, 2006.

1.3 SCOPE OF WORK

The services provided are in general in accordance with the revised Work Plan submitted in September, 2006 and included:

- Pre-clearance and layout;
- Field investigation;
- Laboratory testing; and
- Analysis and report.

2.0 SITE AND PROJECT DESCRIPTION

This proposed improvement of Highway 19A is located approximately between 1st Avenue and Vista Bay Drive of Campbell River, BC. The total length of the section of road evaluated was approximately 3500 metres. The project location is shown on Figure 1. The existing roadway consists of two to three lanes in width and has a paved median strip and gravel shoulders.

Upgrading of Highway 19A is scheduled for construction in early 2007. The design life of the asphalt road pavement is to be a minimum of 20 years.

The improvement will follow the existing road alignment and include underground utility replacement and pavement reconstruction. No restrictions in vertical grade apply for the proposed improvement.

The site of the subject improvement is relatively flat or gently rolling from BH01 to BH13. At the locations from BH14 to BH15, the terrain is rolling and slopes towards the south. Storm ditches exist on the east side and partly on the west side of the existing road. The remaining surface water is directed in a west direction and follows the natural sloping contours of the property.

3.0 GEOLOGY

3.1 SURFICIAL GEOLOGY

The surficial geology is described as Fluvial Sediments that are typically formed of sand and gravel reworked by river flows (Guthrie, 2006).

3.2 BEDROCK GEOLOGY

The bedrock geology is described as the Nanaimo Group consisting of undivided sedimentary rocks (Guthrie, 2006).

4.0 METHODOLOGY

This geotechnical investigation included a drilling investigation, laboratory testing program and the preparation of this report. The findings of this study are summarized in the following sections.

4.1 DRILLING INVESTIGATION

The drilling investigation was completed on December 20 and 21, 2006 with a truck mounted drill rig. A total of 15 boreholes were completed at the approximate locations shown on Figure 1. No boreholes were drilled in two approximate 500 m sections (between BH07 and BH08 and between BH14 and BH15) because of the existence of underground utilities. Disturbed soil samples were collected at all borehole locations. Soil samples were visually classified in the field according to Unified Soil Classification guidelines. The boreholes were completed with solid stem auger drilling techniques.

Specific details of the stratigraphy encountered at each borehole are presented on the borehole logs in Appendix A.

4.2 LABORATORY WORK

Laboratory work included: Moisture Content, Grain size analyses, California Bearing Ratio (CBR) and Classification of soils and soil-aggregate mixtures for highway construction. The categorization of soils within each group was determined by means of group index.

The results of the grain size analyses are included in Appendix B.

5.0 GEOTECHNICAL FINDINGS

5.1 SOIL CONDITIONS

The general stratigraphy encountered during the field investigation was as follows:

- Asphalt generally 50 mm to 300 mm in thickness; overlying
- Base and sub-base, overlying
- A granular deposit between 0.6 m and 3.0 m in thickness;

- Sand till was encountered underlying the base and subbase and extended to the maximum depth of exploration in BH15;
- Sand and gravel with some silt was encountered underlying the existing asphalt surface in BH11 and BH12 and extended to depths of 0.6 m below ground surface.
- Fill, containing some organics and wood chips was encountered between the asphalt and the granular deposit in BH13 and BH14 and extended to depths of 0.7 m to 0.8 m below ground surface.
- Borehole refusal was encountered at depths between 1.8 m to 2.7 m below ground surface in BH03, BH05, BH07, BH08 and BH11.

Specific details of the stratigraphy encountered at each borehole are presented on the borehole logs in Appendix A and are discussed in the following section.

Table 1 is a summary of the road structure encountered by the boreholes.

TABLE 1: SUMMARY OF EXISTING ROAD STRUCTURE		
Borehole	Asphalt (mm)	Base and Subbase (mm)
01	50	400
02	50	400
03	N/A - Drilled on gravel shoulder	450
04	N/A - Drilled on gravel shoulder	450
05	150	150
06	230	300
07	300	150
08	200	400
09	230	Minimal to none
10	200	Minimal to none
11	200	Minimal to none
12	250	Minimal to none
13	230	Minimal to none
14	200	Minimal to none
15	230	200

Asphalt

The asphalt varied in thickness from 50 to 300 mm.

Granular Deposit

Sand or gravel varied in thickness from 0.6 m to 3.0 m. Based on the results of Grain Size Analysis, the fines content of the sand or gravel ranged from 1.8 % to 5.5 % with an average of 3.8 %.

Sand Till

Sand till with some gravel content was encountered underlying the existing base and subbase in boreholes BH15 and extended to the maximum depth of exploration.

Sand and Gravel with Some Silt

Sand and gravel with some silt was encountered underlying the existing asphalt surface in boreholes BH11 and BH12 and extended to depth of 0.6 m below ground surface.

Fill

Fill was encountered underlying the existing asphalt in BH13 and BH14 and extended to depths of 0.7 m to 0.8 m below ground surface. The fill was comprised of sandy silt or sand and gravel with organic and woodchip inclusions.

5.2 GROUNDWATER

The groundwater table was measured during the geotechnical investigation. The depth to groundwater is shown on Table 2.

Groundwater levels can fluctuate seasonally in response to periods of heavy and prolonged precipitation. Higher water levels should be expected during periods of increased precipitation. Therefore, contractors should anticipate that the groundwater level will be encountered at a shallower depth than shown on Table 2, except during extended dry periods.

TABLE 2: SUMMARY OF BOREHOLE INVESTIGATION		
Borehole No.	Depth of Borehole(m)	Depth to Seepage or Wet Soil (m)
BH01	3.1	1.8
BH02	3.1	1.5
BH03	2.4	1.5
BH04	1.5	No
BH05	2.4	2.1
BH06	3.1	2.1
BH07	1.8	1.5
BH08	2.4	1.8
BH09	3.1	1.8
BH10	3.1	1.8
BH11	2.7	2.1
BH12	3.1	1.5
BH13	3.1	1.5
BH14	3.1	No
BH15	3.1	No

6.0 GEOTECHNICAL EVALUATION AND RECOMMENDATIONS

6.1 GENERAL

The project scope included the full reconstruction and upgrade of the road and reconstruction of underground utilities. No grade restrictions apply for the proposed improvement. Periodic fills such as those encountered in BH13 and BH14 have considerable organic content and are compressible. These soils are poor subgrade soils and may require removal and backfill with select granular soils or millings.

Other than the fill and organics identified above, relatively good sand and gravel was encountered with the road alignment, which is considered to be a good subgrade soil as well as generally acceptable soils for re-use as trench backfill.

6.1 UNDERGROUND UTILITY INSTALLATIONS

A brief summary of the subsurface conditions that are of specific interest to the proposed utility installation work is presented below. The attached borehole logs should be reviewed as well to obtain a more complete understanding of the subsurface conditions.

- Generally the stratigraphy consisted of compact to dense sands, or sand and gravel (with some local fills);
- Very dense sand till was encountered at a depth of 0.4 m in BH15;
- Sand and gravel fill containing a trace of organics (woodchips) was encountered in BH13 and BH14, to a depth of 0.6 m below ground surface.
- Dense sand till was encountered at depths as follows:
 - BH15 - 0.4 m.
- Auger refusal (auger advancement was either extremely slow or not possible) occurred at the following depths:
 - BH03 at 2.4 m.
 - BH05 at 2.4 m.
 - BH07 at 1.8 m.
 - BH08 at 2.4 m.
 - BH11 at 2.7 m.
- At the time of our drilling in December, 2006, the groundwater was generally found to be at depths ranging from 1.5 m to 2.0 m below ground surface.

It should be noted that subsurface conditions can vary across the site, and may vary from those encountered at the borehole locations. It is possible that more extensive organics exist, or till is at a shallower depth, or the till or bedrock that resulted in the auger refusal may be at a shallower depth.

Discussion and recommendations related to the design and construction of the underground utilities is provided in the following sections.

6.1.1 Excavation and Temporary Slopes

The sand, and the sand and gravel should generally be a good material for excavation and for re-use as trench backfill. The dense till material encountered at depth of 0.4 m in BH15, will be more difficult to excavate, resulting in slower production, and the need of a larger excavator with an appropriate bucket.

The areas where auger refusal occurred ranged in depth from 1.8 m to 2.7 m and this may represent a very hard till, a boulder or bedrock. In the areas of deeper utility installation, a rock breaker, specialized bucket, or some localized blasting may be needed.

All excavation slopes must be in compliance with WCB regulations. After examination of the excavation slopes, a geotechnical engineer may be able to approve the use of steeper slopes.

It is felt that where the depth of the excavation is less than the depth to the groundwater table, temporary excavation slopes of 2V:1H or slightly steeper may be possible, where these will be open for less than 3 days, and less than 2 m in depth. Where the excavation depth is greater than the depth to groundwater table, slopes should not be steeper than 1H:1V, and may need to be flatter based on field direction by the geotechnical engineer.

In the hard sand till, near vertical temporary excavation slopes may be possible, but this would be the decision of geotechnical engineer at the time of excavation, based on field inspections. In the case where near vertical slopes are possible in the lower dense till, the overlying granular material should be excavated to create a 0.5 m to 1.0 m wide horizontal bench on the top of the till, with the upper materials sloped as discussed above. .

6.1.2 Dewatering

If it is possible to do the underground utility excavations during the summer, the groundwater table may be lower than encountered during the drilling in December, 2006. Where the excavation is below the groundwater table and in the sand, or sand and gravel, significant amounts of seepage can be expected. If seepage is only expected in limited areas, it may be appropriate to deal with this using appropriate construction techniques and local sump pumps. Completing the excavation and pipe installation quickly and using a coarser bedding sand should be considered as a method to reduce difficulties where seepage is encountered.

It should be noted that some perched groundwater may be encountered on the top of the dense till, and this may be of limited quantity that can be handled by local sump pumps.

6.1.3 Bedding and Trench Backfill

The sand and sand and gravel are generally expected to be an acceptable material to be used as backfill. Where organics are a considerable portion of the excavated material, or the soils are saturated, reuse of the excavated soil as backfill is not recommended.

It is recommended that normal pipe bedding sand meeting the local specifications be used on this project, with a coarser bedding sand or a pea gravel being used in areas where seepage is encountered and compaction of the normal bedding sand is difficult.

All trench backfill must be approved and placed in accordance with good practices and should meet the City of Campbell River specifications, including compaction levels that must be confirmed by field density testing. It is recommended that the design consider that some settlement of the trench backfill will occur. It may be considered prudent to delay the second lift of asphalt for one year to allow fill soils to reach equilibrium.

6.2 PAVEMENT STRUCTURE

EBA completed a road structure design based on the American Association of State Highway and Transportation Officials (AASHTO). No traffic data was available to assist with the design of the road structure at the time of this report. For the purpose of this design, the pavement structure thickness was considered based on a variable Equivalent Single Axle Loads (ESAL) matrix of 1E6, 2E6 and 5E6, ESAL. Final structural design may then be formulated once actual traffic information becomes available.

The AASHTO flexible pavement design methodology, outlined in the Guide for Design of Pavement Structures (1993), was used for the analysis of pavement design.

The design inputs required by the AASHTO method are shown in Table 3.

Based on the grain size analysis and CBR test results, a design CBR of 20 is considered representative of the majority of the granular subgrade. Although this material has somewhat more fines than conventional sub-base requirements, its strength and considerable depth, for all intents and purposes, can be considered to have an equivalent to sub-base strength module, provided that free drainage material is applied above it.

Removing the fill in BH13 and BH14 and backfilling with select granular soils would be required to maintain a uniform subgrade support policy. On the basis of the laboratory data, a design subgrade resilient modulus of 66 MPa was used. The design Structural Number (SN) is calculated as shown in Table 4.

TABLE 3: AASHTO PAVEMENT DESIGN INPUTS		
Criterion	Value	Rationale
Reliability	85%	Based on engineering judgment, the roadway classification, 20-year design ESALs, and MoT practice.
Serviceability		
Initial Serviceability Index (P_i)	4.2	In accordance with generally accepted pavement engineering principles and AASHTO practice. (MoT Technical Circular T-04/01)
Terminal Serviceability Index (P_t)	2.5	
Serviceability Loss (Δ PSI)	1.7	
Overall Standard Deviation (S_o)	0.45	
Resilient Modulus Reduction Factor	0.33	This factor is required to adjust the back-calculated subgrade resilient modulus to be consistent with the values used to represent the AASHTO Road Test subgrade. As recommended in the AASHTO Guide, a value of 0.33 has been selected.

TABLE 4: STRUCTURAL NUMBER (SN)		
ESAL	DESIGN RESILIENT MODULUS (MPa)	STRUCTURAL NUMBER (SN)
1E6	66	77
2E6	66	87
5E6	66	100

On the basis of the AASHTO analysis, the following road structures are recommended in Table 5:

TABLE 5: PAVEMENT REQUIREMENTS			
Material	ESAL = 1E6	ESAL = 2E6	ESAL = 5E6
75 mm Minus Select Granular Sub-Base (mm)	230	250	300
25 mm Minus Crushed Base Course (mm)	130	150	200
HMAC (mm)	75	100	100
Pavement Thickness (mm)	435	500	600

As no vertical grade restrictions apply, the reconstruction of the existing roadway alignment may be undertaken in accordance with two options presented as follows:

- 1) Option 1
 - Remove the existing asphalt by milling for reuse or by bulk excavation to a crusher site for future processing;

- Deleterious materials exposed after excavation must be further sub-cut to the depth of competent sand and gravel, or an additional depth consistent with the applicable sub-base depth, whichever is less. Deleterious materials include excessive organic inclusions, silt or areas of unstable wet soils. These areas should be replaced with clean pit run gravel or millings to match the adjacent grade. Trench excavations should also have a minimum thickness of approved sub-base material, consistent with the applicable sub-base depth, of pit run gravel or millings to match the adjacent grade (underside of base course);
- Shape the proofrolled surface to a uniform, plane surface to the specified lines and grades; and
- Place compacted well graded crushed granular base course to the thicknesses as described in Table 5 prior to placement of the applicable asphalt surface.

2) Option 2

- As the near surface granular deposits are relatively comparable with granular sub-base requirements, the use of a full depth reclamation technique incorporating all or part of the existing asphalt and underling granular materials can be accomplished. The effect of incorporating the asphalt into the underlying granular material will also enhance the gradation of the combined material. The recommended reclamation depth should be consistent with the depth of the applicable sub-base thickness. Where the thicker asphalt is anticipated, reclamation should be considered in two passes to facilitate proper compaction;
- The reclaimed surface should be proofrolled and compacted. Any soft areas determined by proofrolling should be sub-cut a minimum depth equal to the thickness of sub-base as described in Table 5 and backfilled with pit run gravel. Specific proofrolling or deflection testing should be performed near BH13 and BH14 where near surface organic materials were encountered; and
- Place compacted well graded crushed granular base course to the thicknesses as described in Table 5 prior to placement of the finished asphalt surface.

It should be noted that a significantly variable thickness of surficial asphalt was indicated at the discrete borehole locations. If reclamation techniques are considered, it may be considered prudent to further identify the asphalt thickness by continuous ground penetrating radar techniques.

Regardless of the option selected, all construction materials and placement methods should conform to current District of Campbell River Specifications.

The final asphalt surface should be placed in two lifts to provide a more uniform pavement density and surface profile.

7.0 LIMITATIONS OF LIABILITY

Recommendations presented herein are based on a geotechnical evaluation of the findings in 15 boreholes. The conditions encountered during the field work are considered to be reasonably representative of the site. If, however, conditions other than those reported are noted during subsequent phases of the project, EBA should be notified and given the opportunity to review our current recommendations in light of new findings.

This report has been prepared for the exclusive use of R.F. Binnie and Associates Ltd. for the specific application to the development described in this report. It has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranty is made, either expressed or implied.

The scope of this assignment did not include an investigation for contaminated soils. For further limitations, reference should be made to the Geotechnical Report - General Conditions in Appendix C.

8.0 CLOSURE

We trust this report meets your present requirements. Should any part of this report require clarification or should you require additional information please contact the writer. As well, EBA would be pleased to provide additional services during detailed design, as well as monitoring services during construction.

Respectfully Submitted;
EBA Engineering Consultants Ltd.



Yan Cui
Project Manager



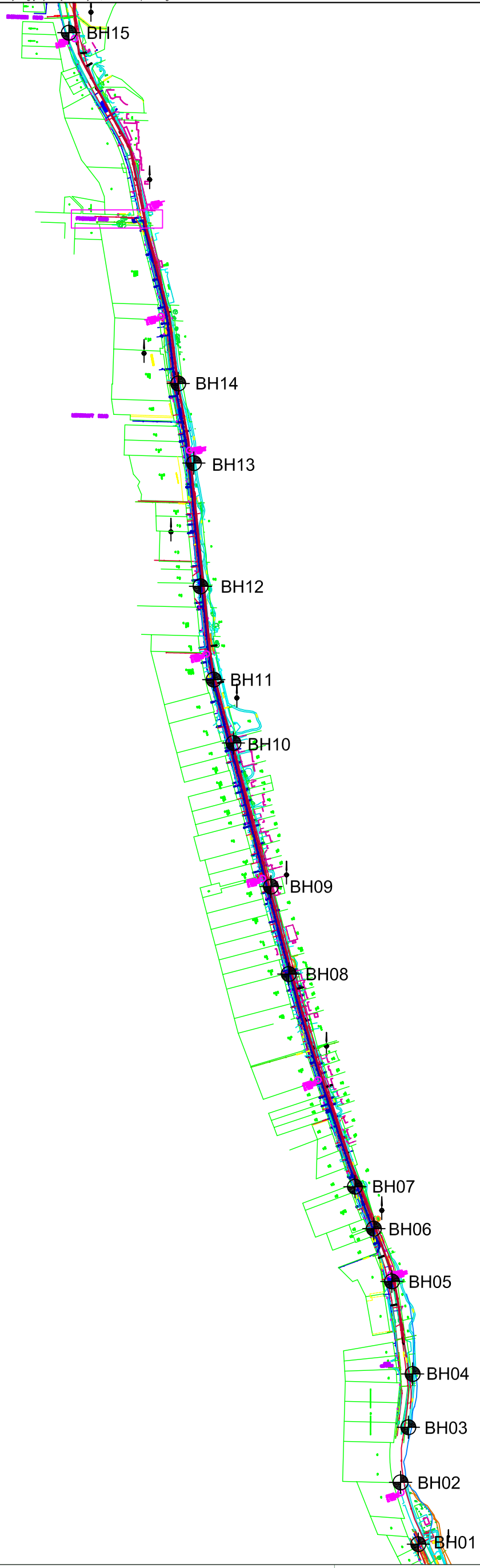
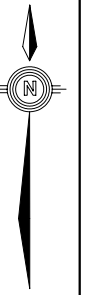
R. L. Kennett, P.Eng.
Principal Consultant



Jerry Schmidt, P.Eng.
Senior Geotechnical Engineer



FIGURES



LEGEND
Borehole Location



CLIENT
R.F. Binnie and Associates Ltd.

Highway #19A Reconstruction Design Phases 2 and 3

BOREHOLE LOCATION PLAN

EBA Engineering Consultants Ltd.



PROJECT NO. N13100011	DWN CP	CKD YC	REV 1
OFFICE EBA-NANAIMO	DATE JAN. 17, 2007		

Figure 1

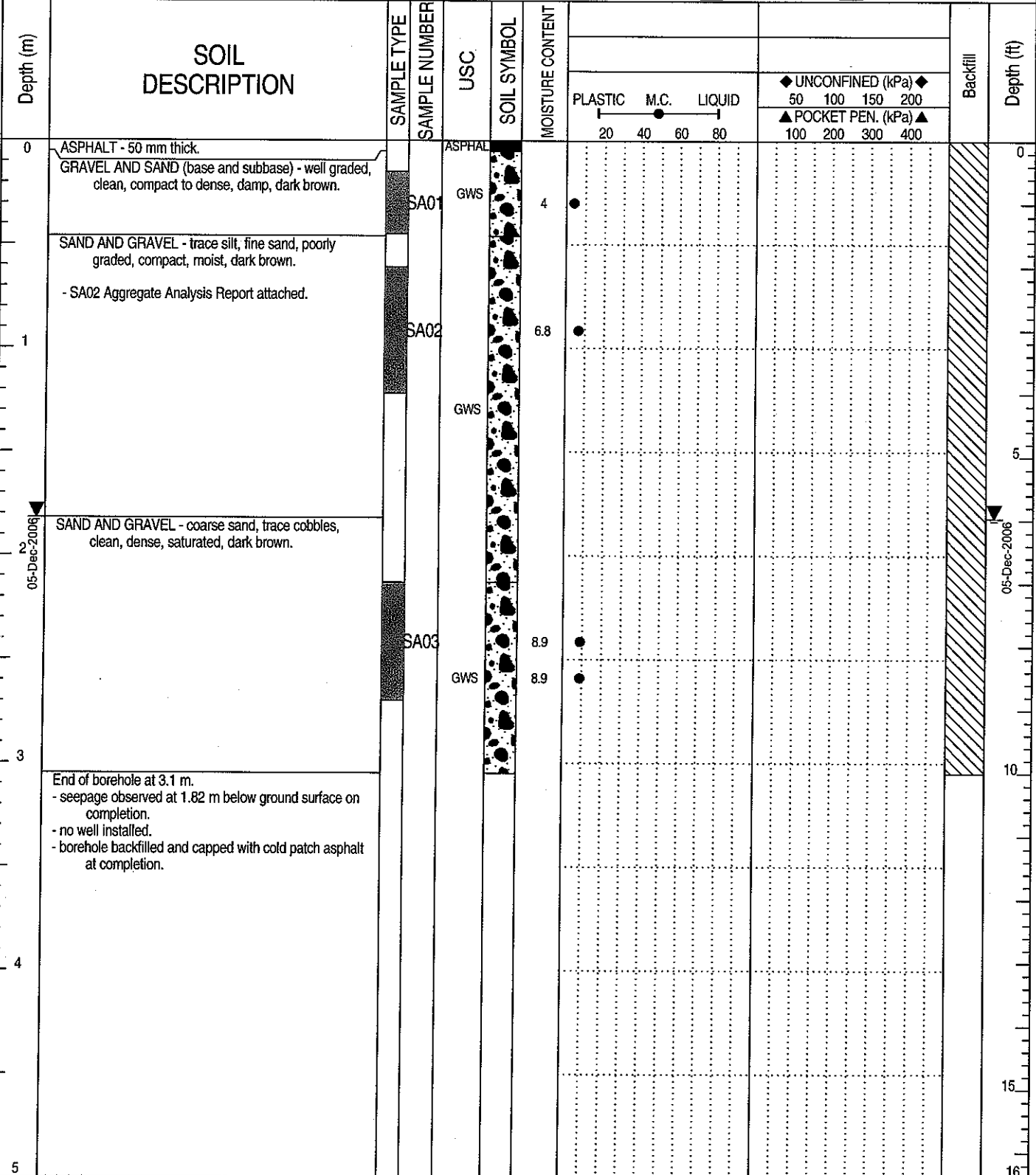


APPENDIX

APPENDIX A TESTPIT LOGS

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH01
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340690N;5538679E;Z10	

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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> DRILL CUTTINGS	<input type="checkbox"/> SAND



 EBA Engineering Consultants Ltd.	LOGGED BY: YC	COMPLETION DEPTH: 3.05m
	REVIEWED BY: PM	COMPLETE: 12/5/2006
	DRAWING NO: BH 01	Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH02
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340606N;5538852E;Z10	

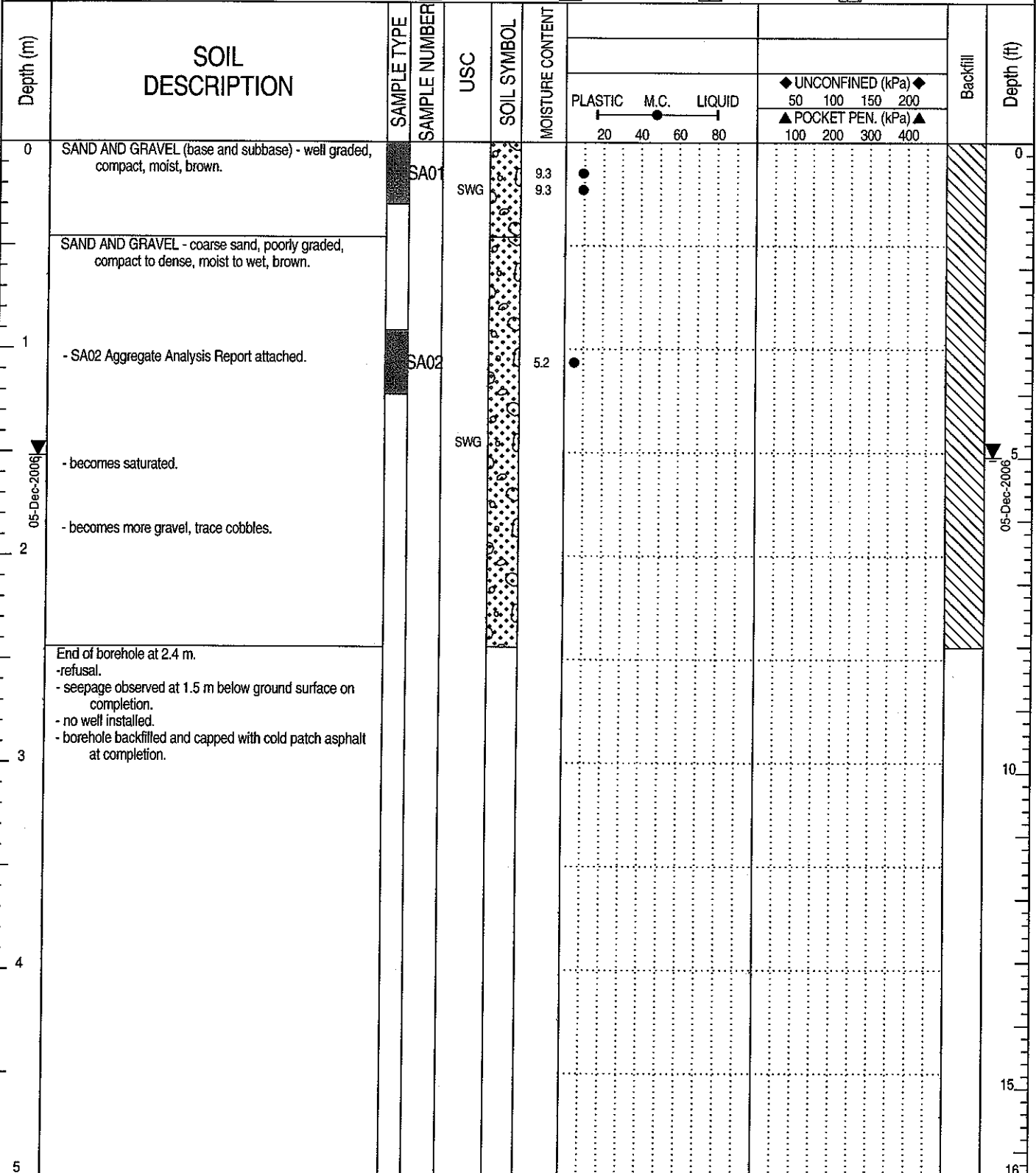
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> DRILL CUTTINGS	<input type="checkbox"/> SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	USC	SOIL SYMBOL	MOISTURE CONTENT	PLASTIC M.C. LIQUID		UNCONFINED (kPa)	POCKET PEN. (kPa)	Backfill	Depth (ft)
							20	40				
0	ASPHALT - 50 mm thick.			ASPHALT								0
	SAND AND GRAVEL(base and subbase) - well graded, clean, compact to dense, moist, dark brown.		SA01	GWS		5.8						
	GRAVEL AND SAND - well graded, coarse sand, compact, moist to wet, brown.		SA02	GWS		6.6						
1												
2	- becomes saturated.			GWS								5
3	- becomes more gravel, trace cobbles.											10
4	End of borehole at 3.1 m. - seepage observed at 1.52 m below ground surface on completion. - no well installed. - borehole backfilled and capped with cold patch asphalt at completion.											15
5												16

 EBA Engineering Consultants Ltd.	LOGGED BY: YC	COMPLETION DEPTH: 3.05m
	REVIEWED BY: PM	COMPLETE: 12/5/2006
	DRAWING NO: BH 02	Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH03
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340588N;5538992E;Z10	

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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> DRILL CUTTINGS	<input type="checkbox"/> SAND



	LOGGED BY: YC	COMPLETION DEPTH: 2.44m
	REVIEWED BY: PM	COMPLETE: 12/5/2006
	DRAWING NO: BH 03	Page 1 of 1

Project: Geotechnical Investigation - Client: City of Campbell River BOREHOLE NO: BH04
 Address: Highway 19A Method: Solid Stem PROJECT NO: N131000011
 City: Campbell River 340598N;5539129E;Z10

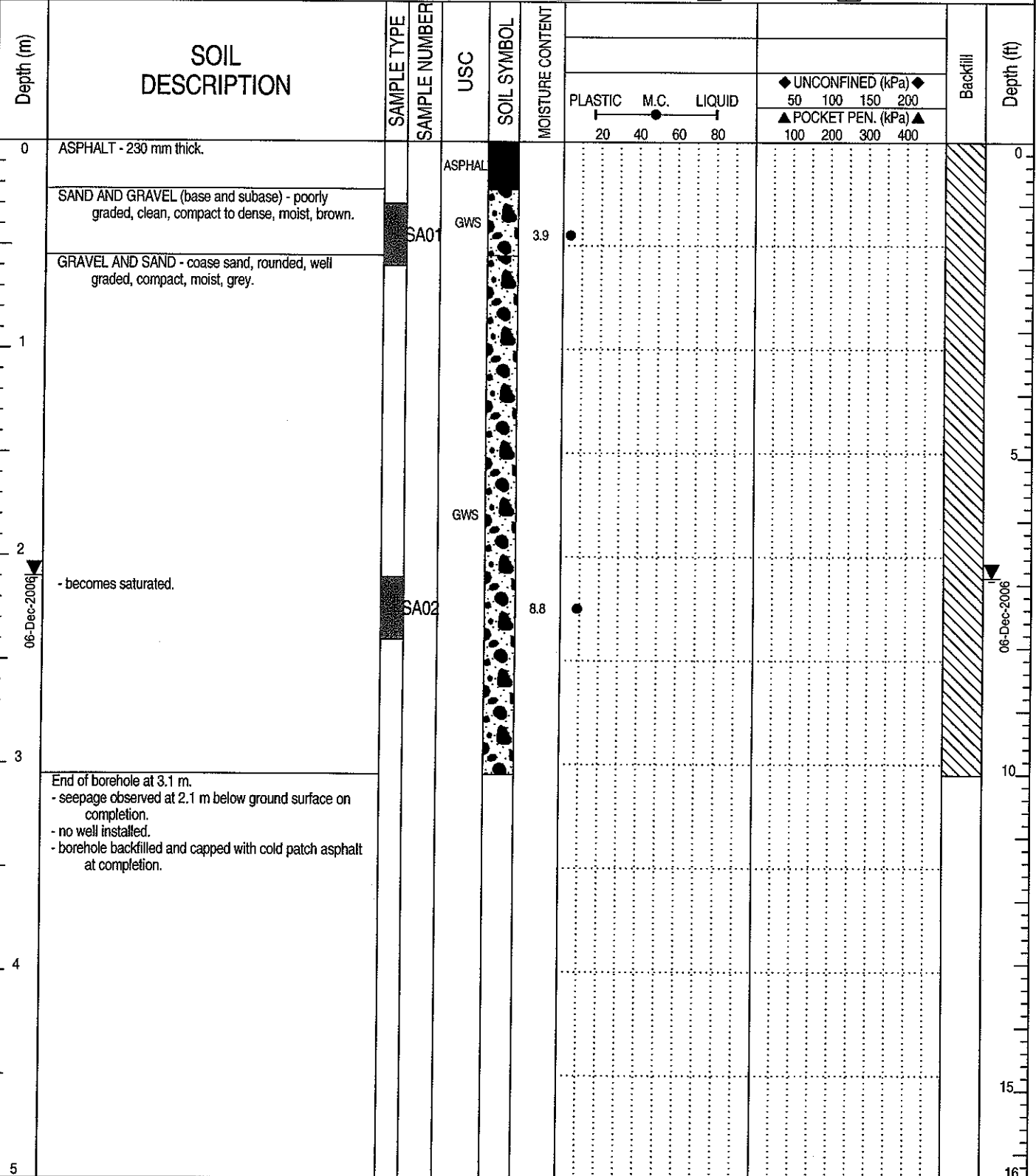
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 BACKFILL TYPE BENTONITE PEA GRAVEL SLOUGH GROUT DRILL CUTTINGS SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	USC	SOIL SYMBOL	MOISTURE CONTENT	PLASTIC M.C. LIQUID		UNCONFINED (kPa)				Backfill	Depth (ft)	
							20	40	60	80	50	100			150
0	SAND AND GRAVEL (base and subbase) - well graded, clean, compact, moist, brown.		SA01	GWS		6.2									0
1	SAND AND GRAVEL - well graded, compact to dense, grey, moist to wet.			GWS											
2	End of borehole at 1.5 m. - stop drilling due to potential unpredicted underground pipe. - no seepage observed during borehole drilling. - no well installed. - borehole backfilled and capped with cold patch asphalt at completion.														
3															
4															
5															

EBA Engineering Consultants Ltd. LOGGED BY: YC COMPLETION DEPTH: 1.52m
 REVIEWED BY: PM COMPLETE: 12/5/2006
 DRAWING NO: BH 04 Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH06
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340487N;5539538E;Z10	

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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> DRILL CUTTINGS	<input type="checkbox"/> SAND



 EBA Engineering Consultants Ltd.	LOGGED BY: YC	COMPLETION DEPTH: 3.05m
	REVIEWED BY: PM	COMPLETE: 12/6/2006
	DRAWING NO: BH 06	Page 1 of 1

Project: Geotechnical Investigation - Client: City of Campbell River BOREHOLE NO: BH07
 Address: Highway 19A Method: Solid Stem PROJECT NO: N131000011
 City: Campbell River 340445N;5539657E;Z10

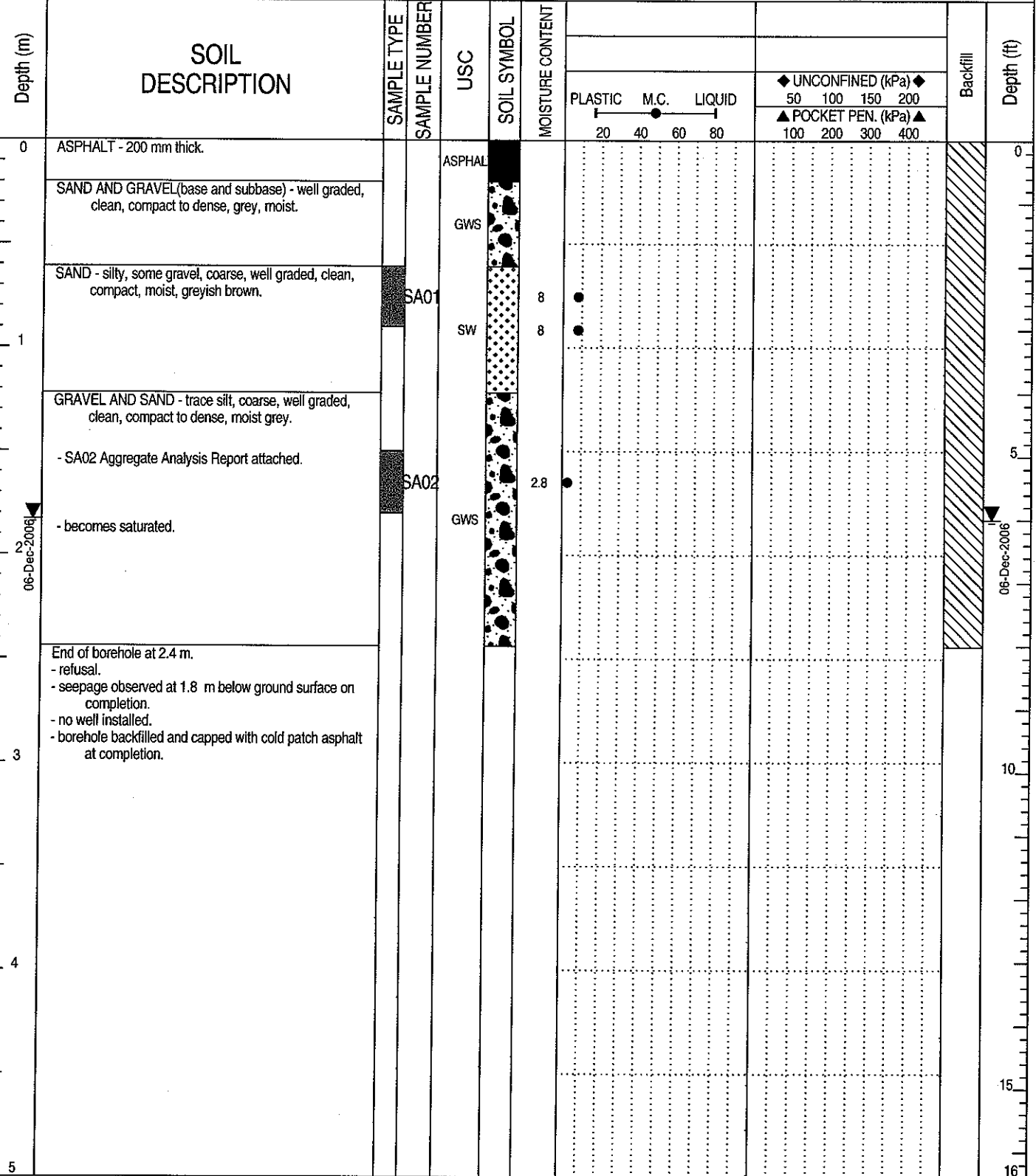
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Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	USC	SOIL SYMBOL	MOISTURE CONTENT			UNCONFINED (kPa)		Backfill	Depth (ft)
						PLASTIC	M.C.	LIQUID	50	100		
0	ASPHALT - 300 mm thick.			ASPHAL								0
	GRAVEL AND SAND (base and subbase) - trace silt, well graded, compact to dense, moist, brown. - SA01 Aggregate Analysis Report attached.	<input checked="" type="checkbox"/>	SA01	GW								
	GRAVEL - well graded, some sand, trace silt, very dense, moist, brown.			GW								
1	- SA02 Aggregate Analysis Report attached.	<input checked="" type="checkbox"/>	SA02									
	- becomes saturated.											
2	End of borehole at 1.8 m. - refusal. - seepage observed at 1.5 m below ground surface on completion. - no well installed. - borehole backfilled and capped with cold patch asphalt at completion.											
3												
4												
5												

EBA Engineering Consultants Ltd. LOGGED BY: YC COMPLETION DEPTH: 1.83m
 REVIEWED BY: PM COMPLETE: 12/6/2006
 DRAWING NO: BH 07 Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH08
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340283N;5540247E;Z10	

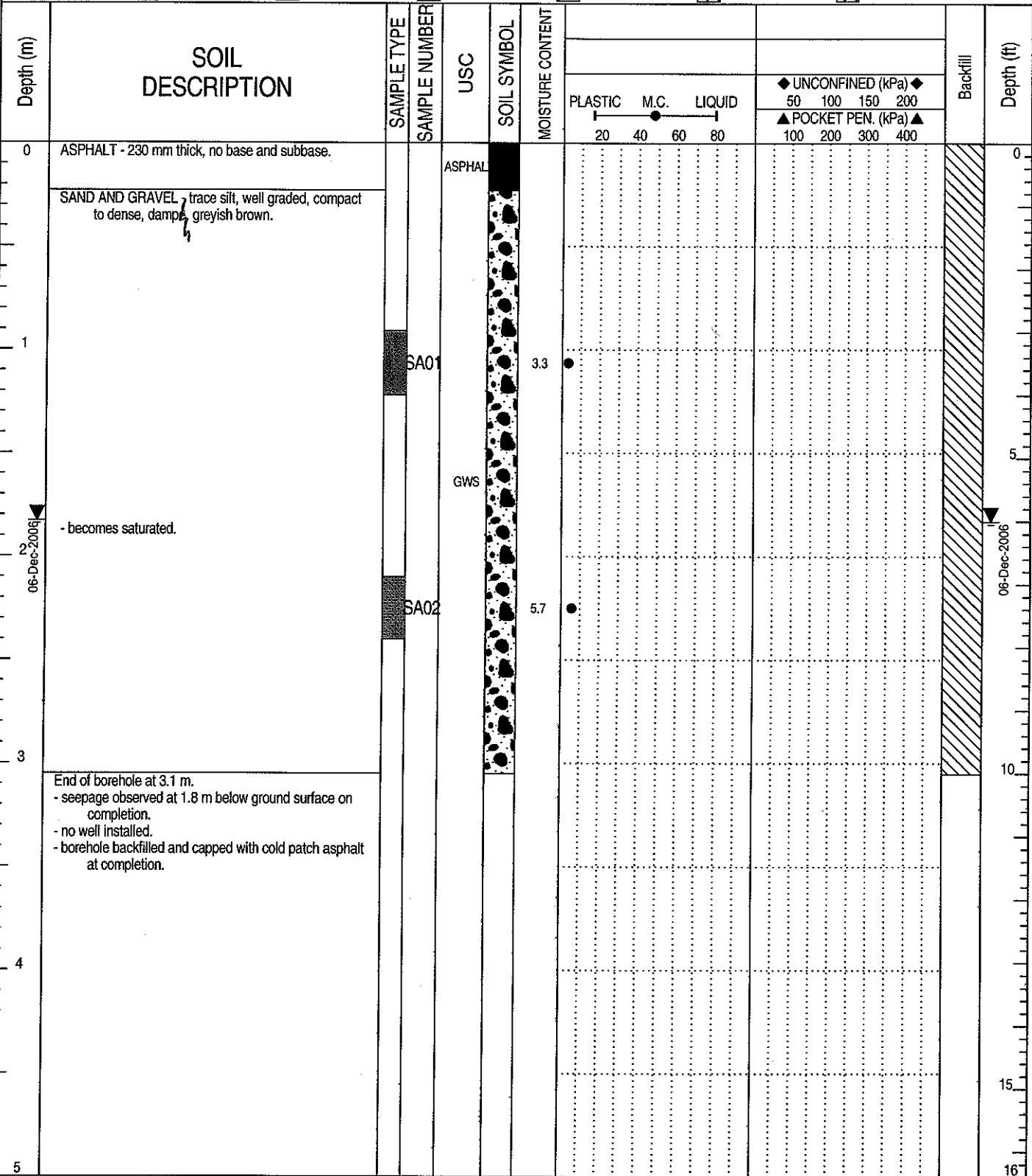
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> DRILL CUTTINGS <input type="checkbox"/> SAND



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	REVIEWED BY: PM	COMPLETE: 12/6/2006
	DRAWING NO: BH 08	Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH09
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340224N;5540412E;Z10	

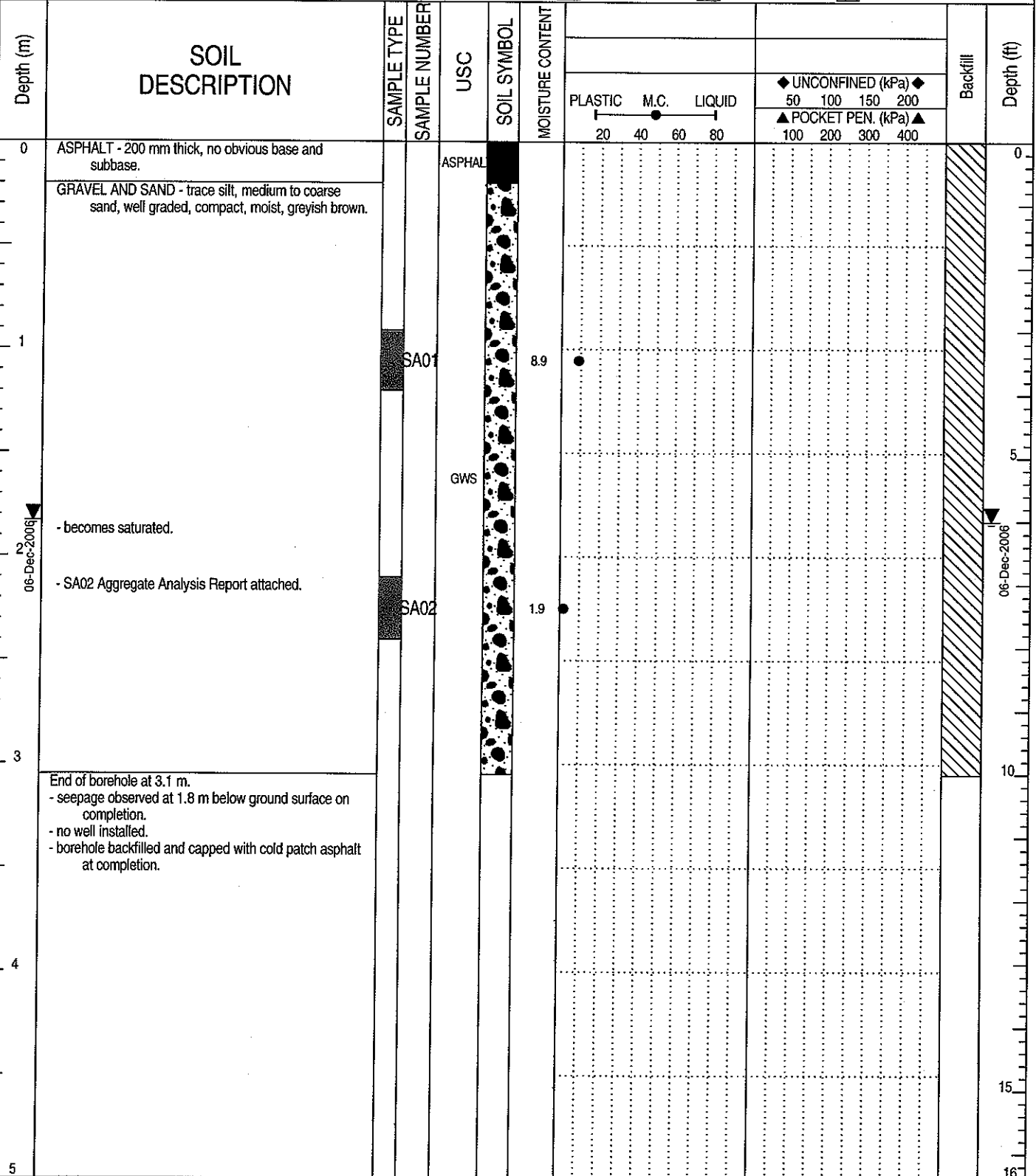
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> DRILL CUTTINGS	<input type="checkbox"/> SAND



	LOGGED BY: YC	COMPLETION DEPTH: 3.05m
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	DRAWING NO: BH 09	Page 1 of 1

Project: Geotechnical Investigation - Client: City of Campbell River BOREHOLE NO: BH10
 Address: Highway 19A Method: Solid Stem PROJECT NO: N131000011
 City: Campbell River 340192N;5540696E;Z10

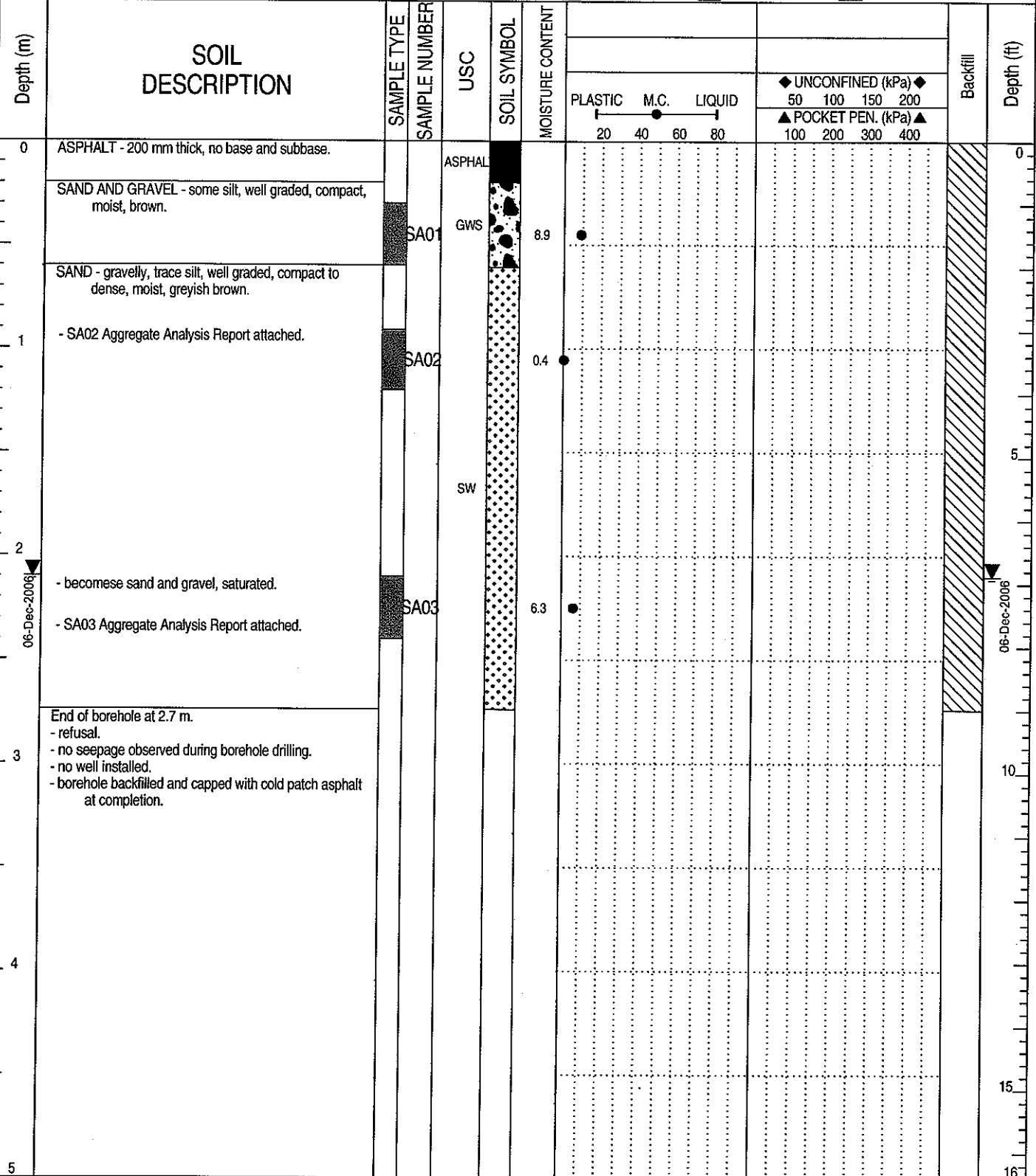
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EBA Engineering Consultants Ltd. LOGGED BY: YC COMPLETION DEPTH: 3.05m
 REVIEWED BY: PM COMPLETE: 12/6/2006
 DRAWING NO: BH 10 Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH11
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340173N;5540817E;Z10	

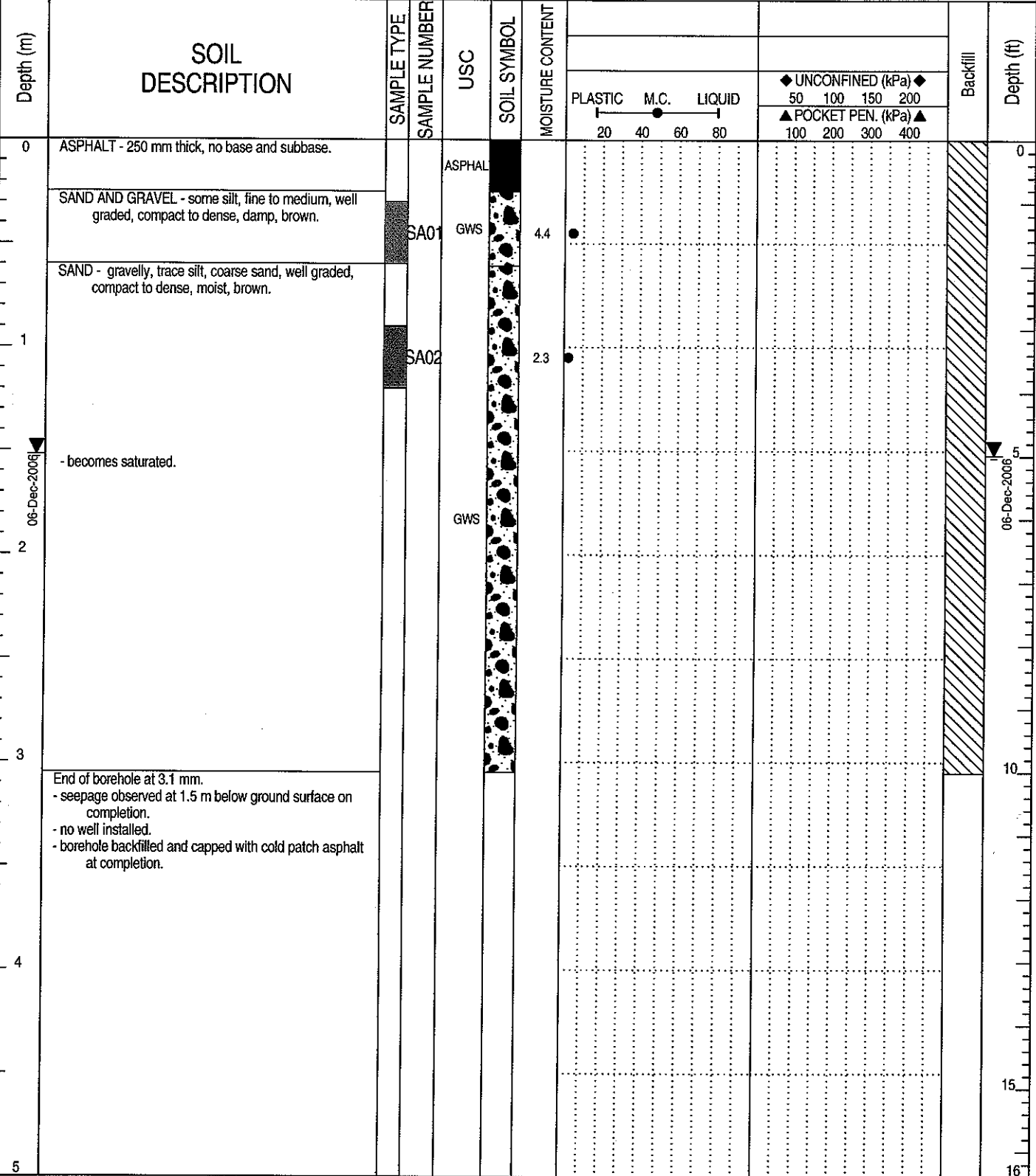
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	REVIEWED BY: PM	COMPLETE: 12/6/2006
	DRAWING NO: BH 11	Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH12
Address: Highway 19A	Method: Solid Stern	PROJECT NO: N131000011
City: Campbell River	340152N;5540997E;Z10	

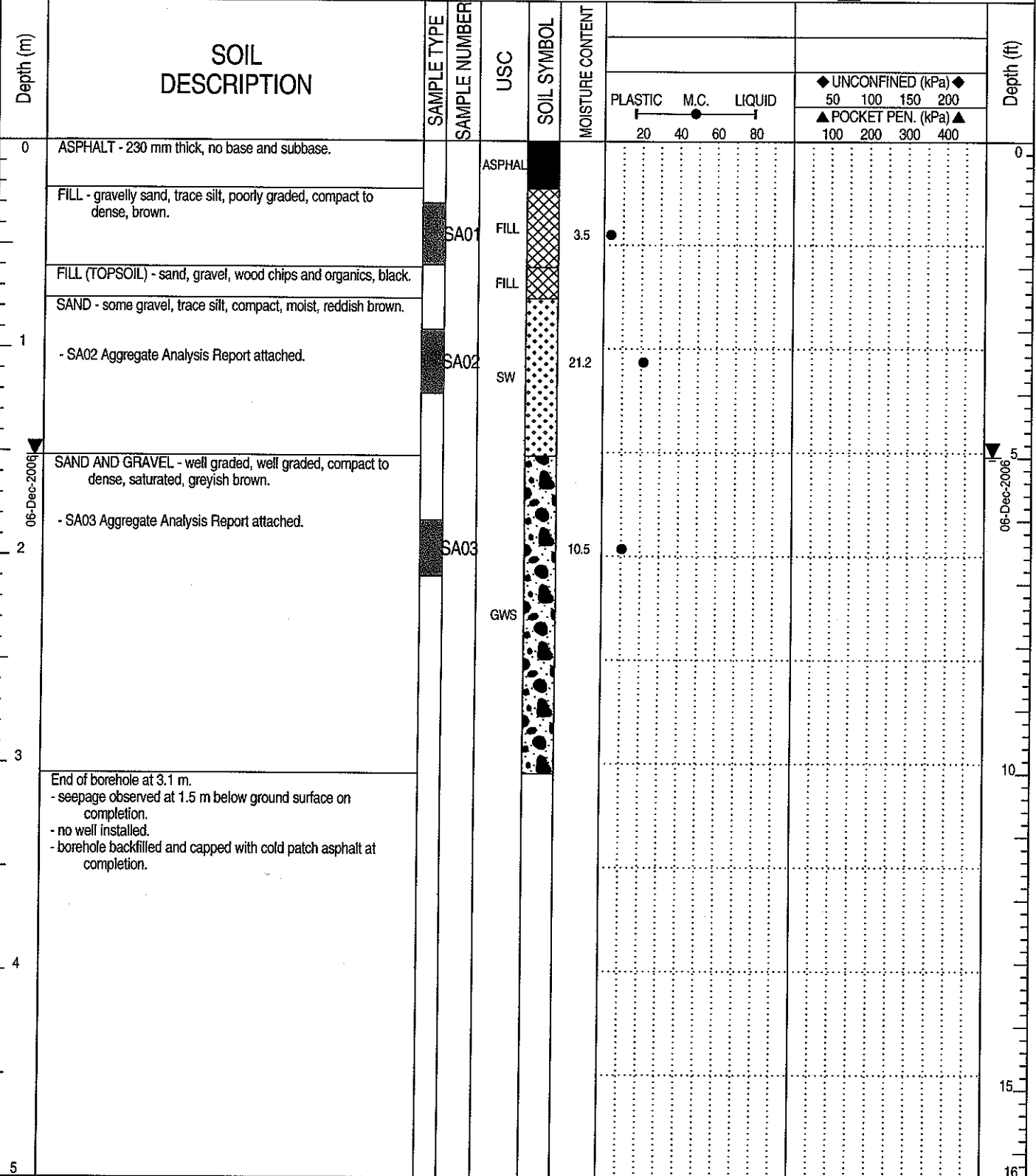
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> DRILL CUTTINGS <input type="checkbox"/> SAND



	LOGGED BY: YC	COMPLETION DEPTH: 3.05m
	REVIEWED BY: PM	COMPLETE: 12/6/2006
	DRAWING NO: BH 12	Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH13
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340110N;5541225E;Z10	

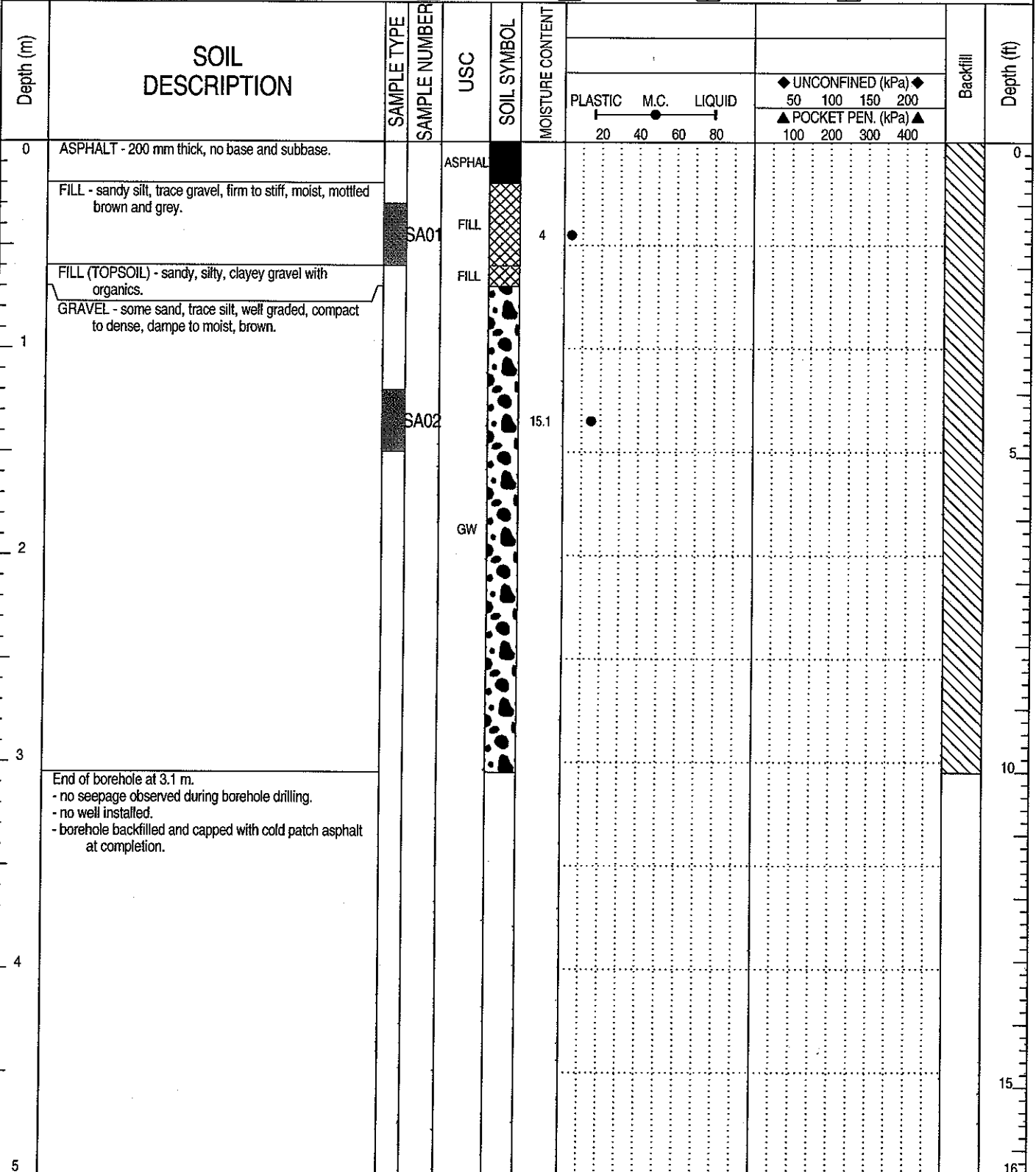
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EBA Engineering Consultants Ltd.	LOGGED BY: YC	COMPLETION DEPTH: 3.05m
	REVIEWED BY: PM	COMPLETE: 12/6/2006
	DRAWING NO: BH 13	Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH14
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	340085N;5541373E;Z10	

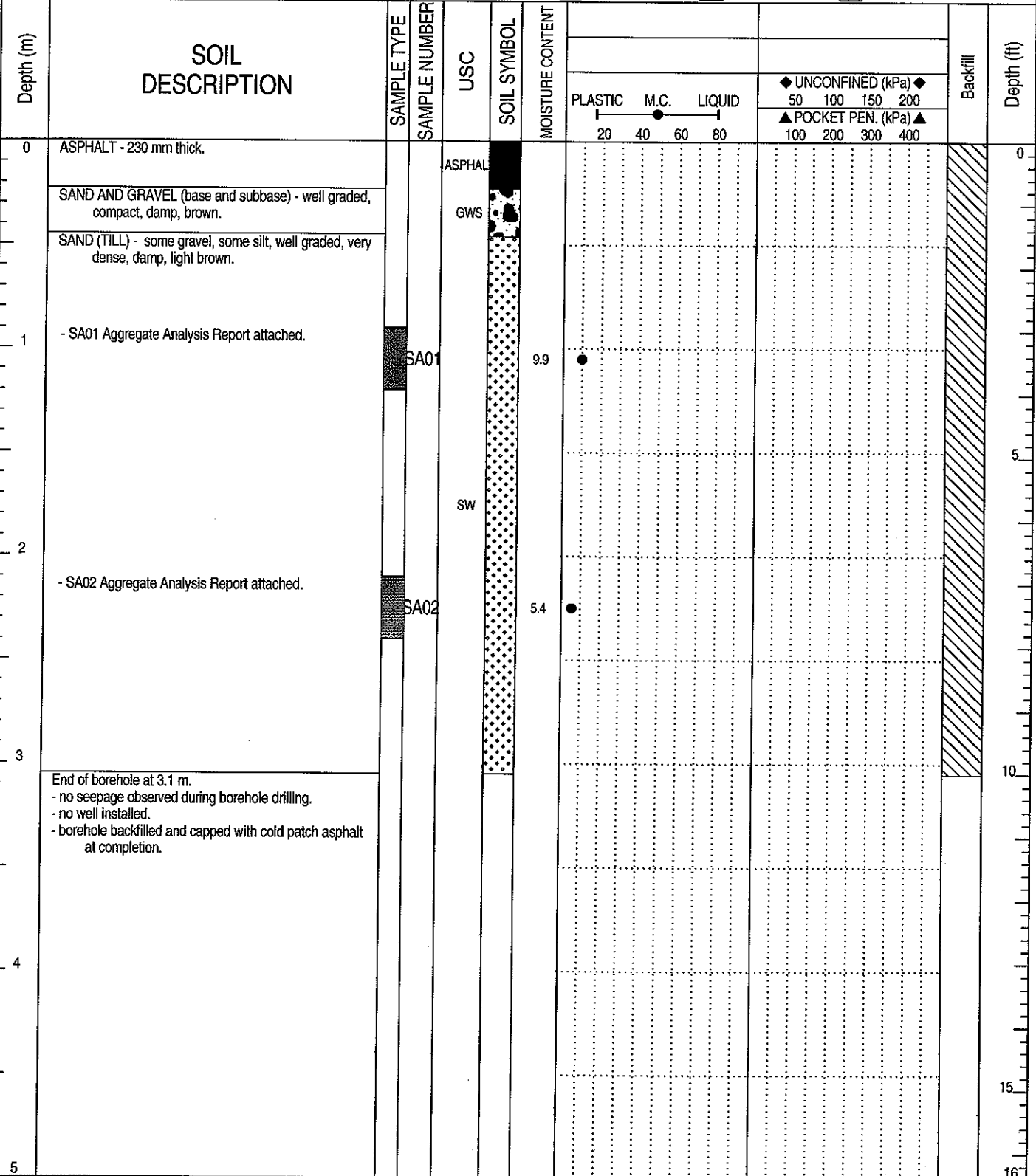
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	LOGGED BY: YC	COMPLETION DEPTH: 3.05m
	REVIEWED BY: PM	COMPLETE: 12/6/2006
	DRAWING NO: BH 14	Page 1 of 1

Project: Geotechnical Investigation -	Client: City of Campbell River	BOREHOLE NO: BH15
Address: Highway 19A	Method: Solid Stem	PROJECT NO: N131000011
City: Campbell River	339896N;5541979E;Z10	

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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> DRILL CUTTINGS	<input type="checkbox"/> SAND



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	DRAWING NO: BH 15	Page 1 of 1



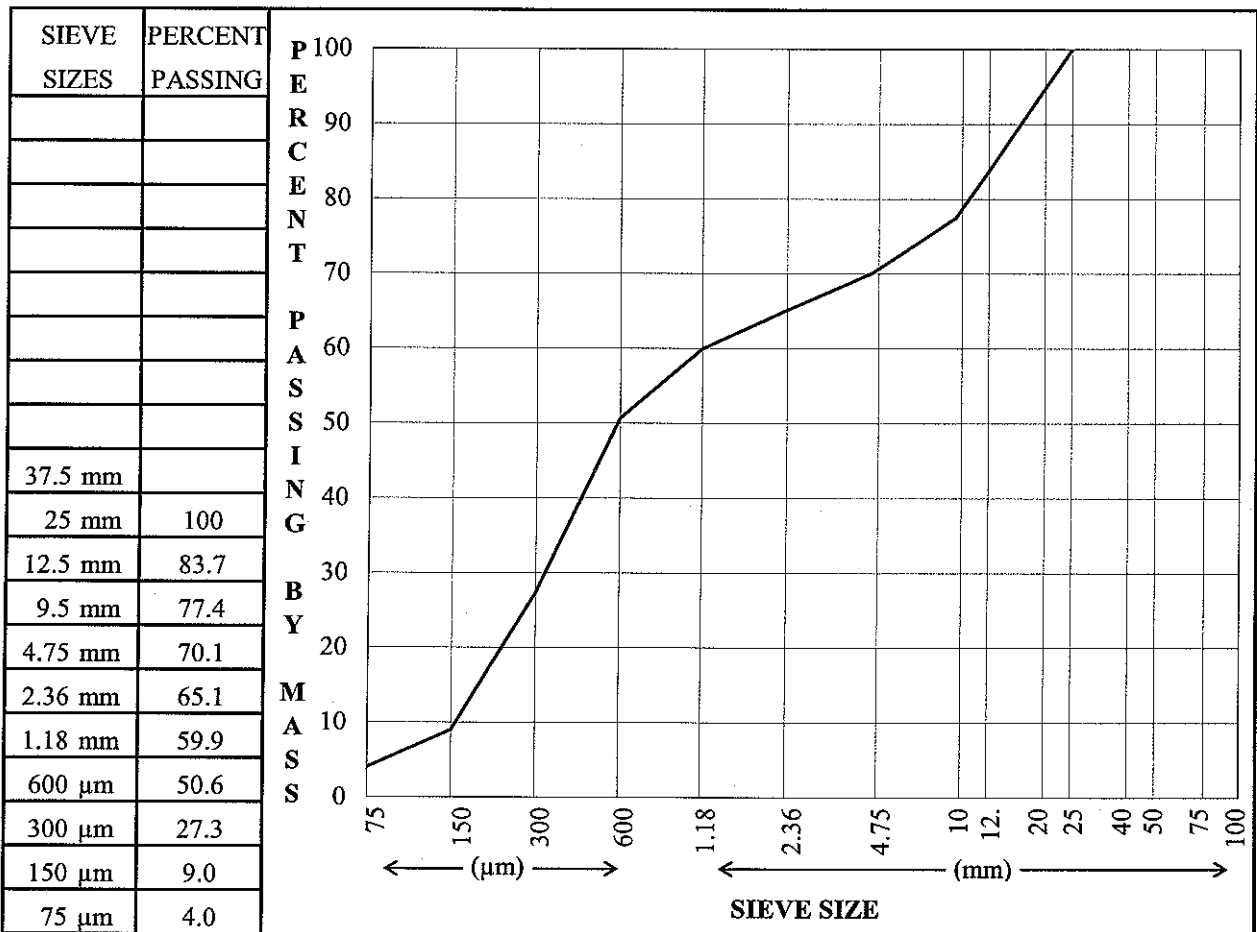
APPENDIX

APPENDIX B GRAIN SIZE ANALYSIS

EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 19mm Sandy Gravel, trace Silt
SOURCE: BH-01, SA02, 0.6 - 1.2 m
TEST DATE: 12/12/2006
SAMPLE NO.: 1587



Moisture Content= 6.8%

REVIEWED BY: _____

P.Eng.

Data presented hereon is for the sole use of the stipulated client. EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of EBA.

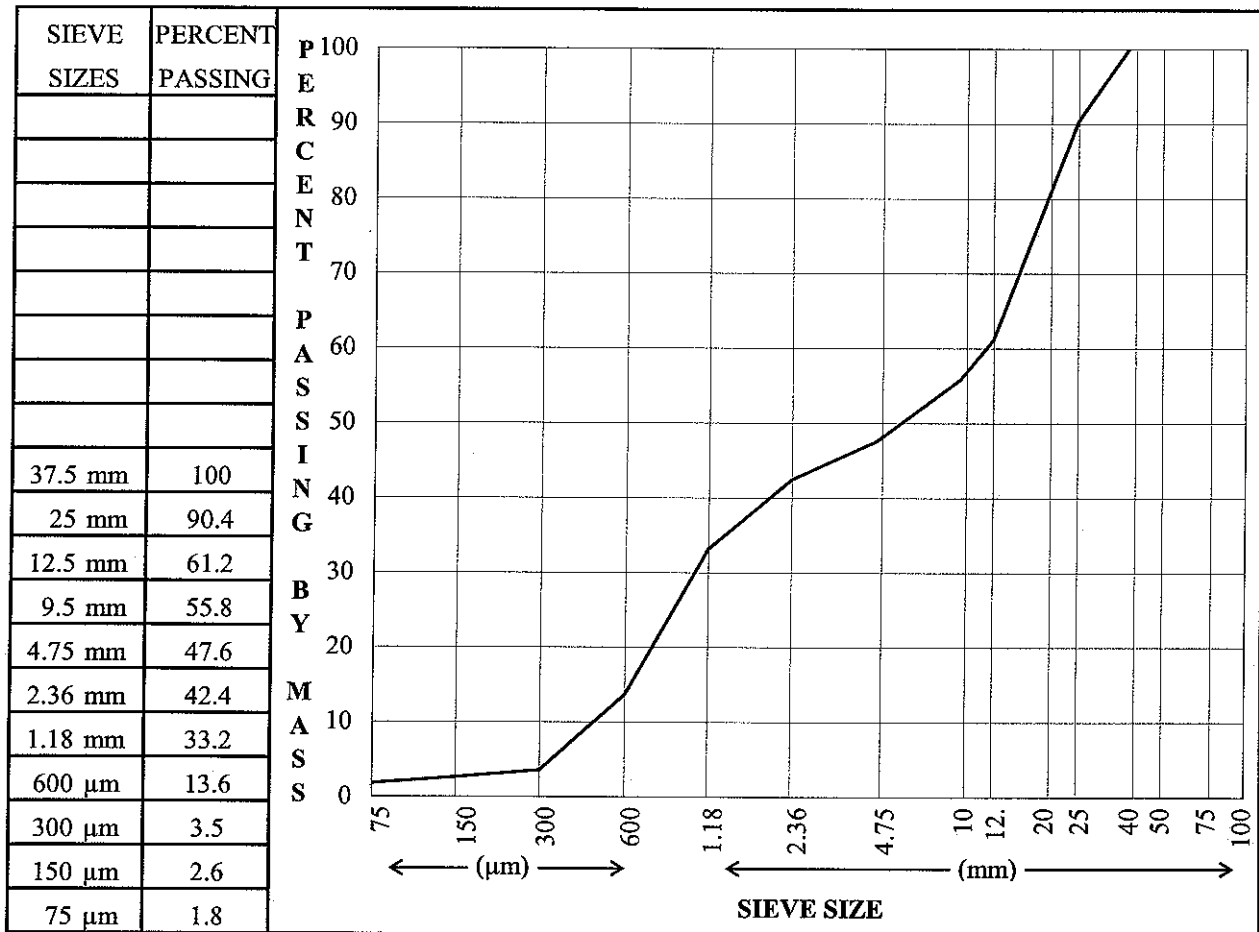
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: **Highway 19A Geotechnical Investigation**
 CLIENT: City of Campbell River
 PROJECT NO.: N13100011
 DESCRIPTION: Minus 37.5mm Gravel and Sand, trace Silt
 SOURCE: BH-03, SA02, 0.9 - 1.2 m
 TEST DATE: 12/12/2006
 SAMPLE NO.: 1588



Moisture Content= 5.2%

REVIEWED BY: *[Signature]*

P.Eng.

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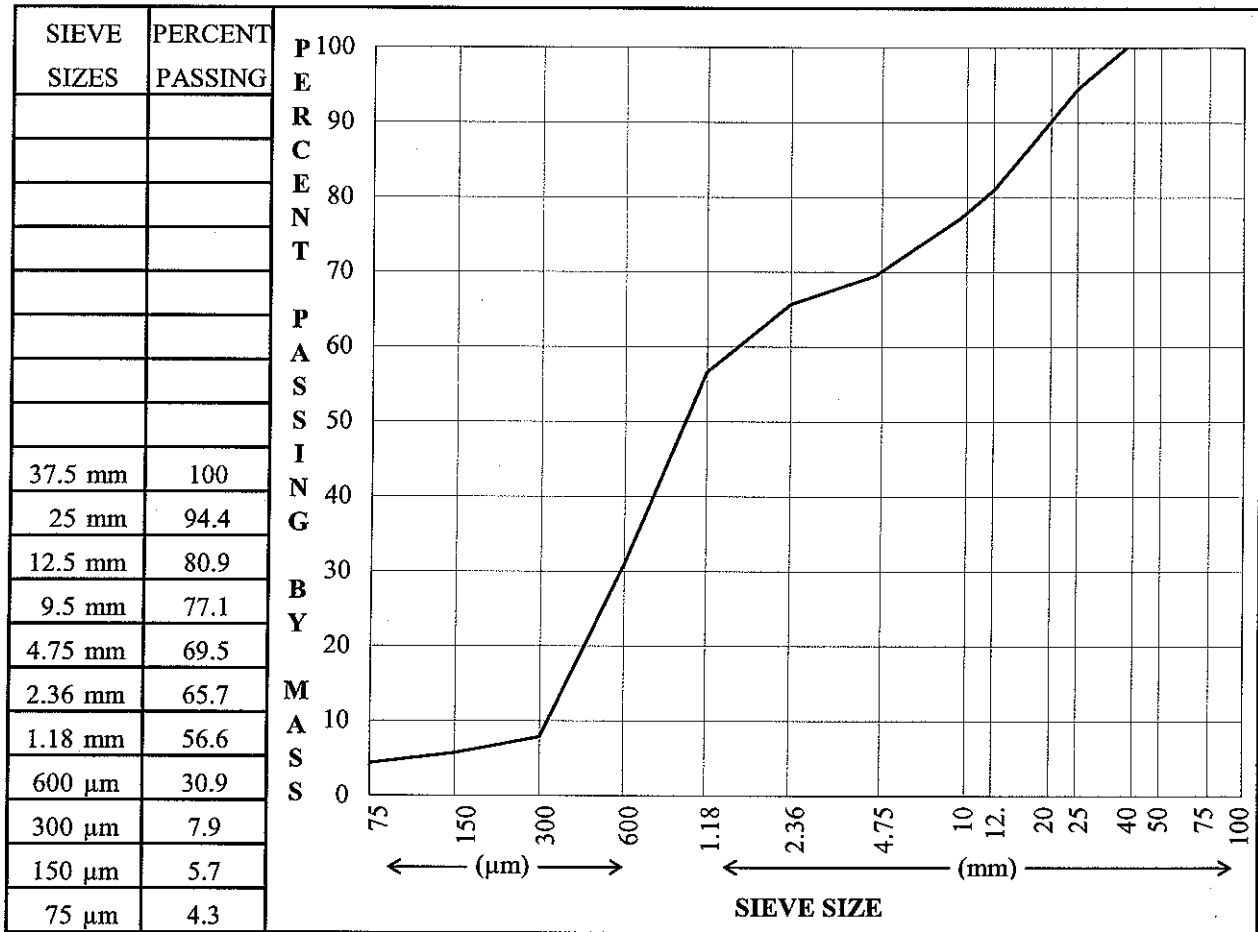
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: **Highway 19A Geotechnical Investigation**
 CLIENT: City of Campbell River
 PROJECT NO.: N13100011
 DESCRIPTION: Minus 37.5mm Gravel and Sand, trace Silt
 SOURCE: BH-05, SA02, 0.6 - 0.9 m
 TEST DATE: 12/12/2006
 SAMPLE NO.: 1589



Moisture Content= 5.4%

REVIEWED BY: *[Signature]*

P.Eng.

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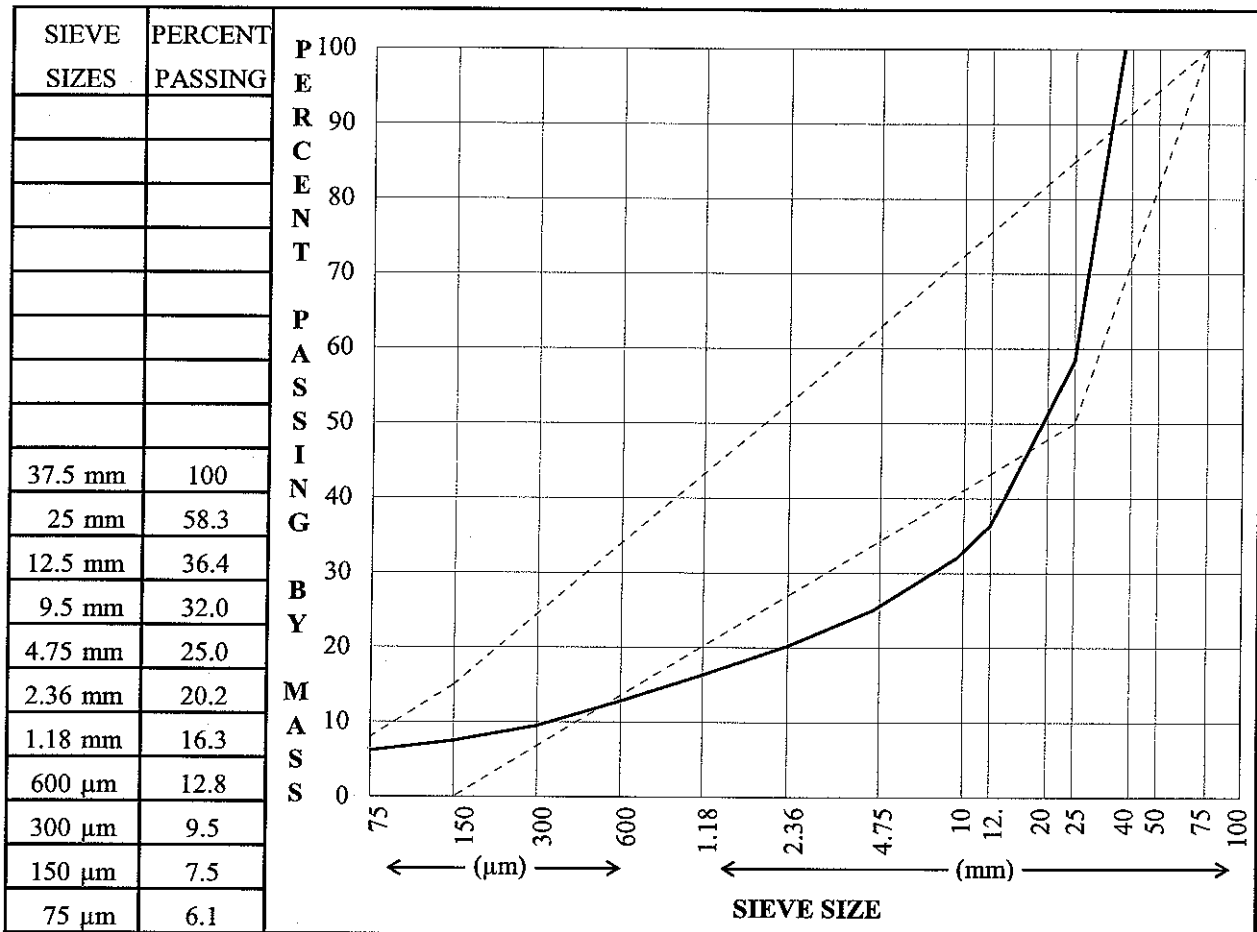
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 37.5mm Gravel, some Sand, trace Silt
SOURCE: BH-07, SA01, 0.3 - 0.6 m
TEST DATE: 12/12/2006
SAMPLE NO.: 1590



MMCD Select Granular Sub-base Section 02226

Moisture Content= 3.2%

REVIEWED BY: 

P.Eng.

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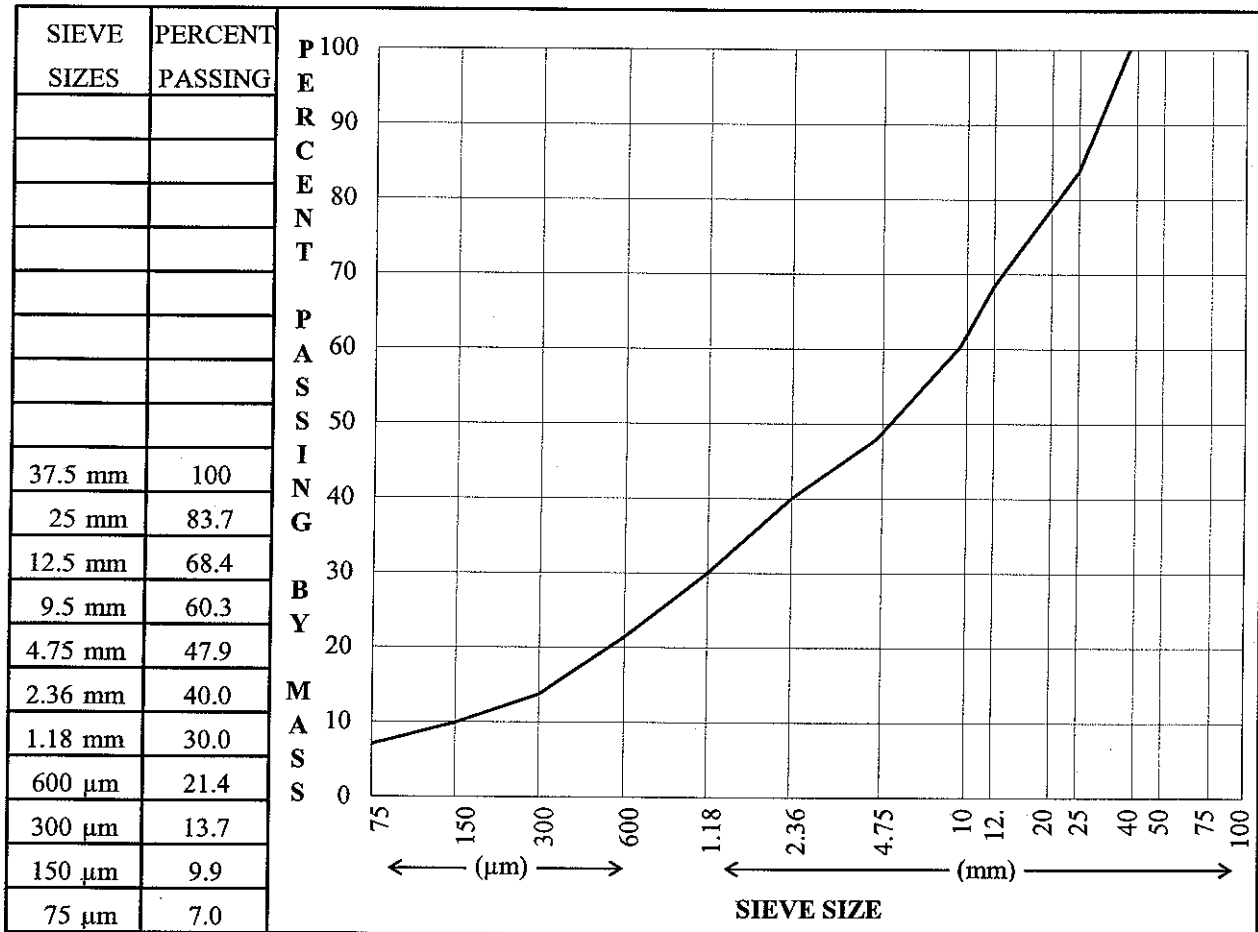
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 37.5mm Gravel, some Sand, trace Silt
SOURCE: BH-07, SA02, 1.2 - 1.5 m
TEST DATE: 12/12/2006
SAMPLE NO.: 1591



REVIEWED BY: *JAP* P.Eng.

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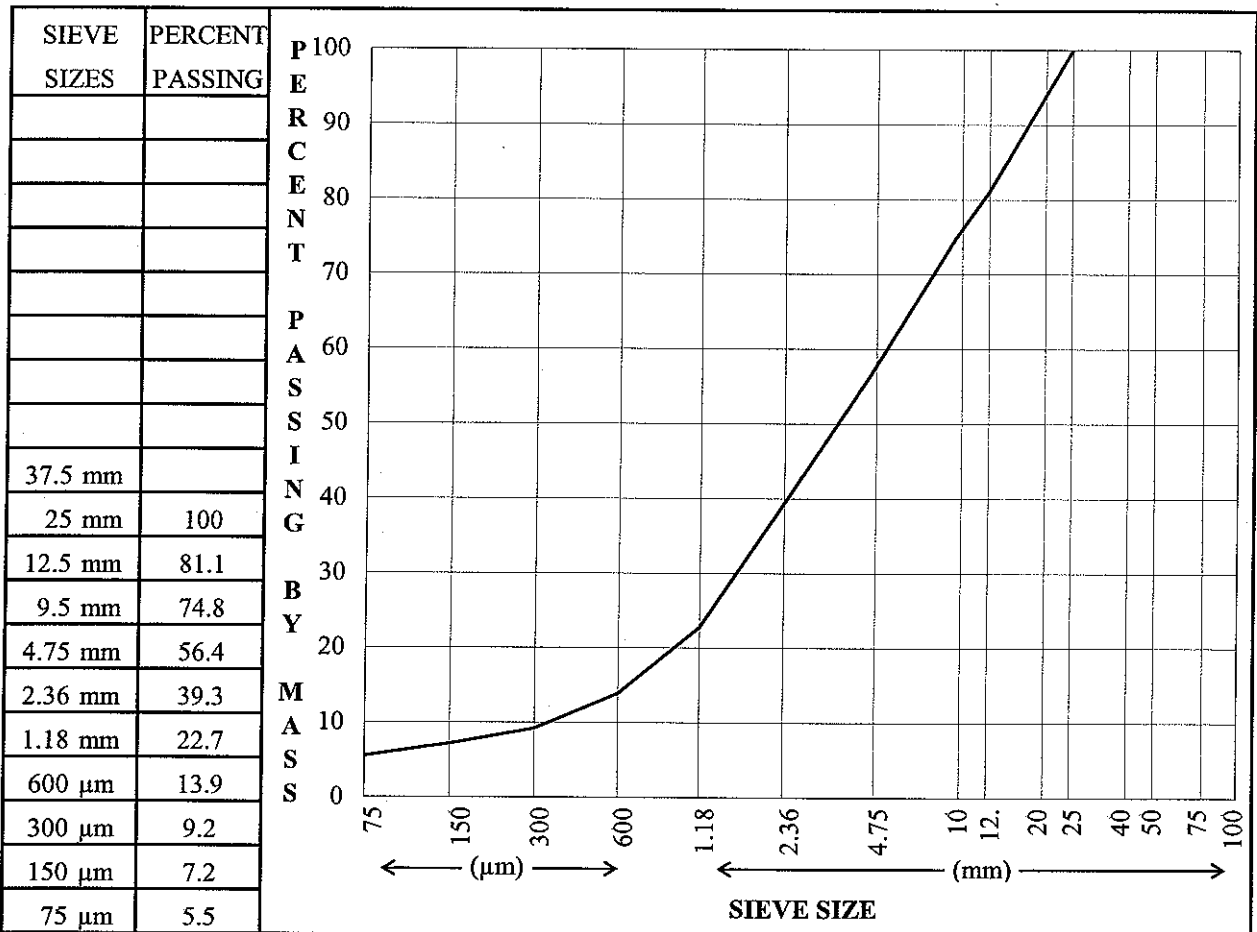
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
 CLIENT: City of Campbell River
 PROJECT NO.: N13100011
 DESCRIPTION: Minus 25mm Gravel and Sand, trace Silt
 SOURCE: BH-08, SA02, 1.5 - 1.8 m
 TEST DATE: 12/12/2006
 SAMPLE NO.: 1592



Moisture Content= 2.8%

REVIEWED BY: *[Signature]*

P.Eng.

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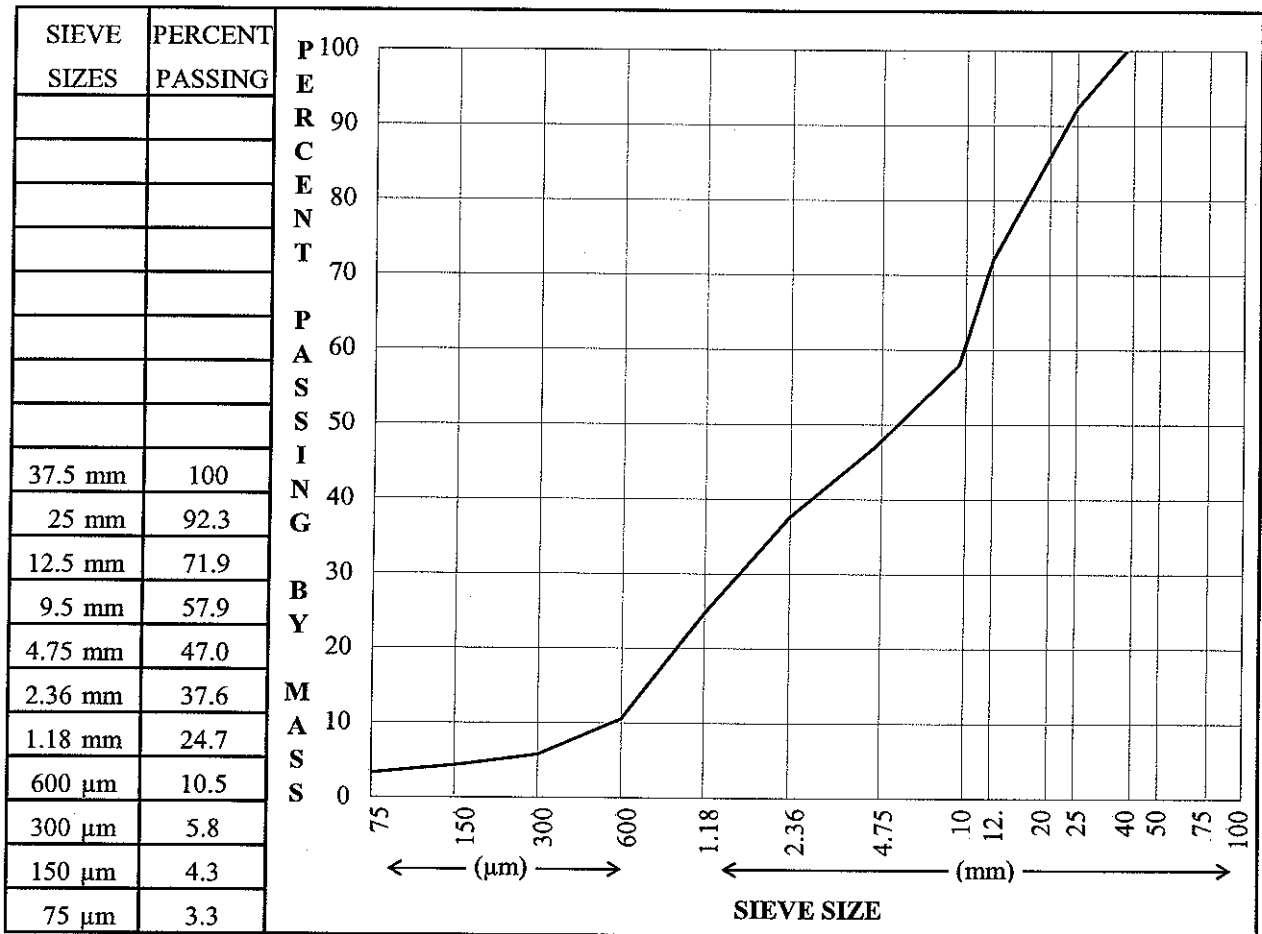
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 37.5 mm Gravel and Sand, trace Silt
SOURCE: BH-10, SA02, 2.1 - 2.4 m
TEST DATE: 12/12/2006
SAMPLE NO.: 1593



Moisture Content= 1.9%

REVIEWED BY: 

P.Eng.

Data presented hereon is for the sole use of the stipulated client. EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of EBA.

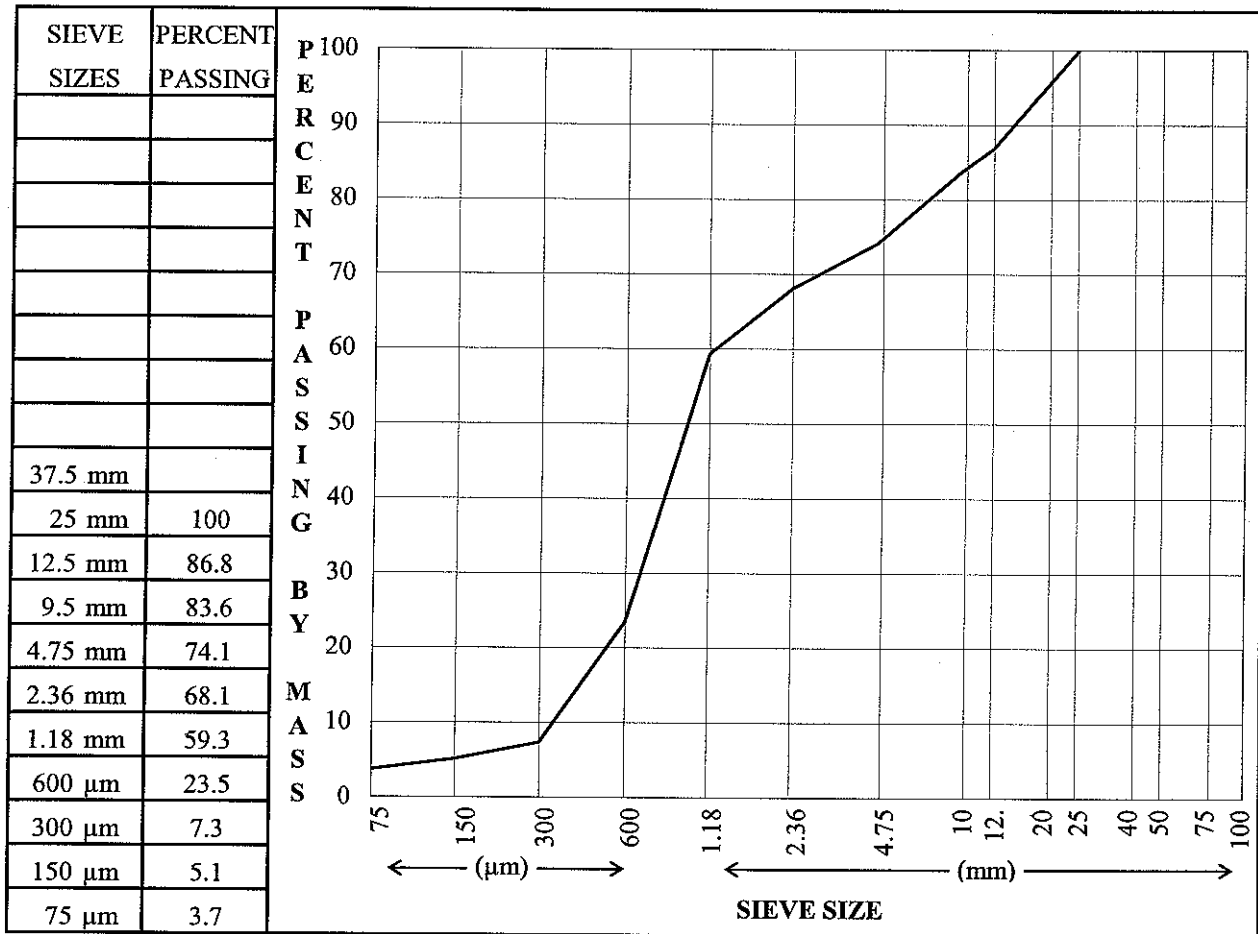
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 25 mm Sand, some Gravel, trace Silt
SOURCE: BH-11, SA02, 0.9 - 1.2 m
TEST DATE: 12/12/2006
SAMPLE NO.: 1594



Moisture Content=0.4%

REVIEWED BY: *[Signature]*

P.Eng.

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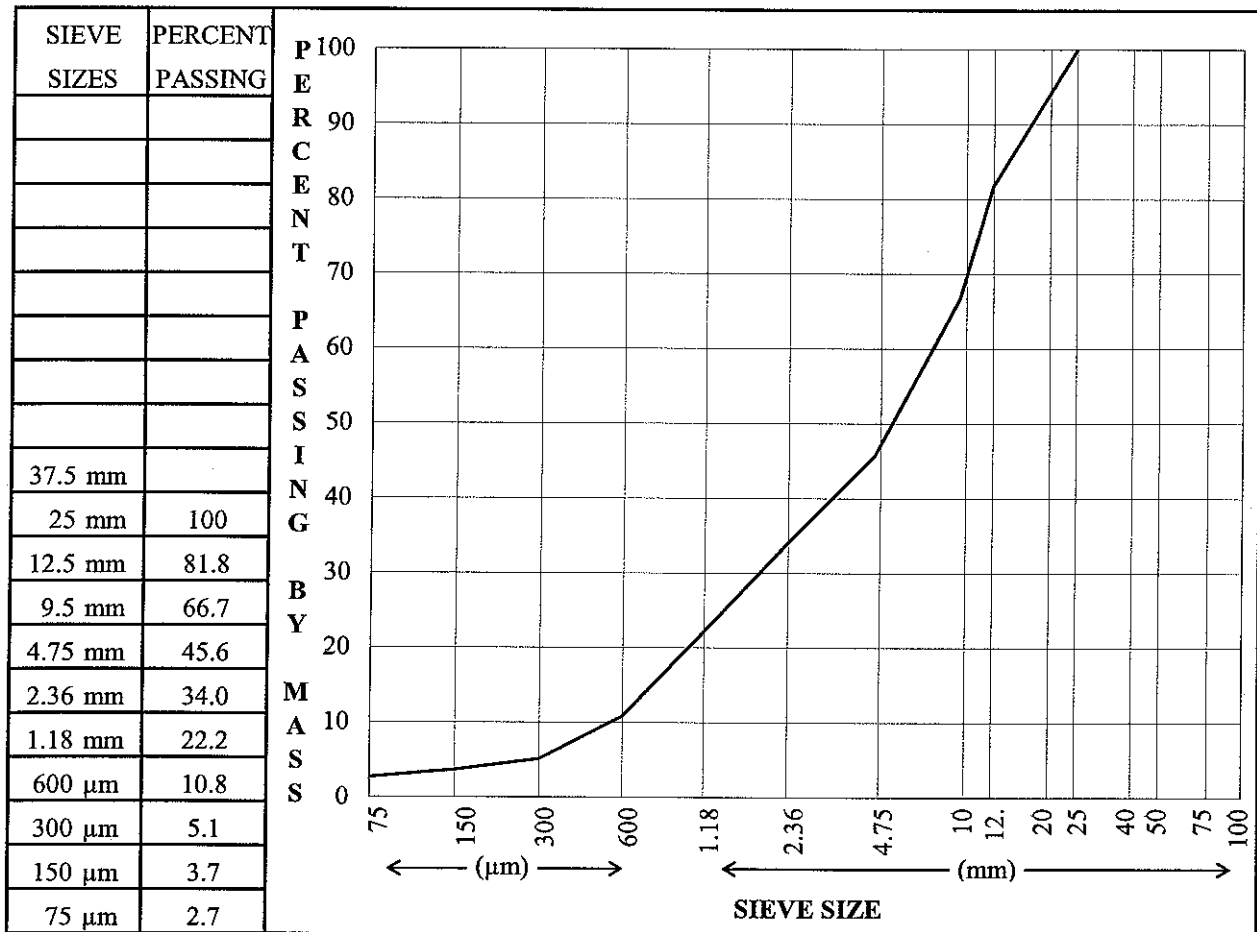
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
 CLIENT: City of Campbell River
 PROJECT NO.: N13100011
 DESCRIPTION: Minus 25 mm Sandy Gravel, trace Silt
 SOURCE: BH-11, SA03, 2.1 - 2.4 m
 TEST DATE: 12/12/2006
 SAMPLE NO.: 1595



Moisture Content= 6.3%

REVIEWED BY: *[Signature]*

P.Eng.

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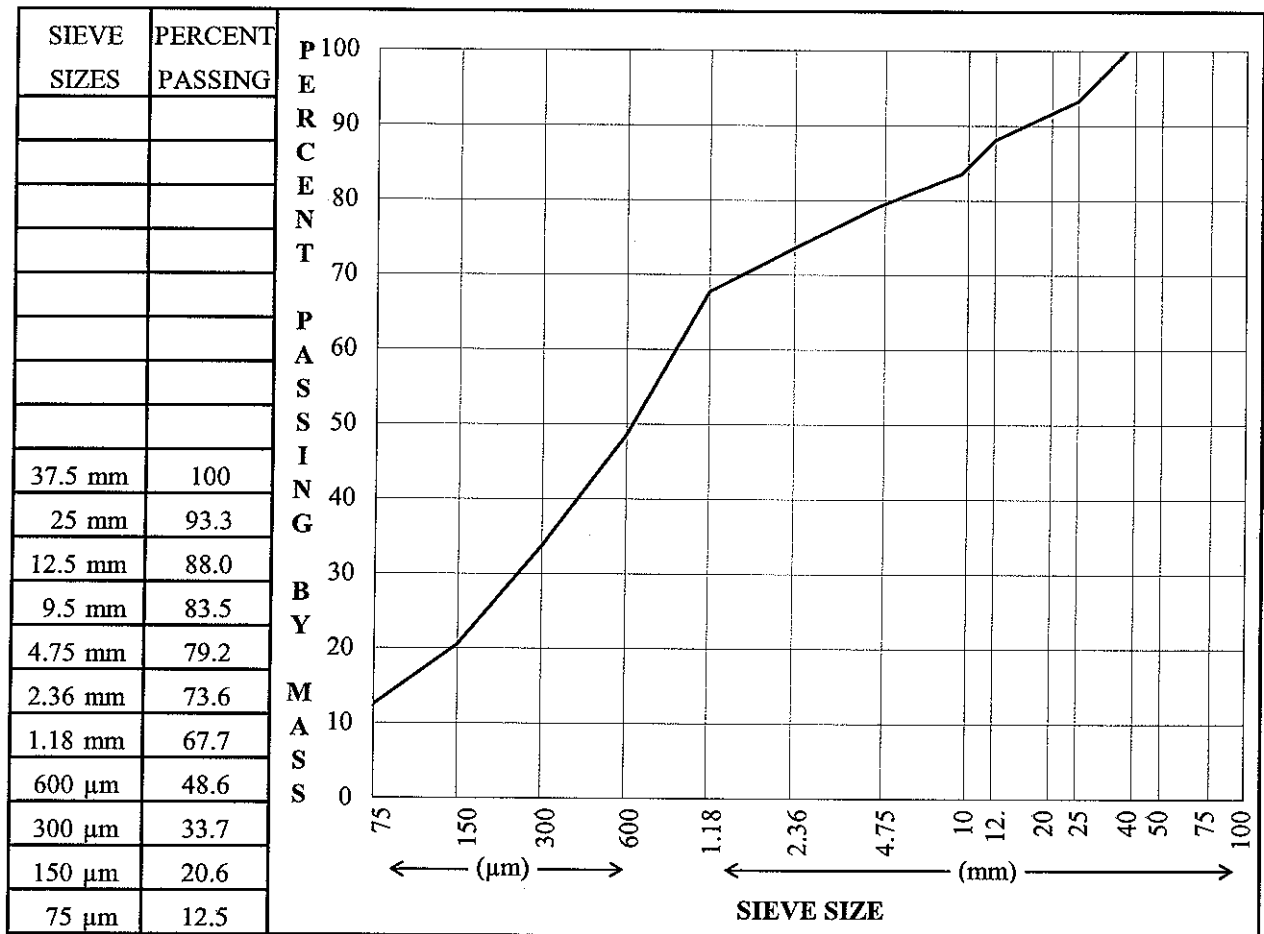
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 37.5 mm Sand, some Gravel, some Silt
SOURCE: BH-13, SA02, 0.9 - 1.2 m
TEST DATE: 12/12/2006
SAMPLE NO.: 1596



Moisture Content= 21.2%

REVIEWED BY: 

P.Eng.

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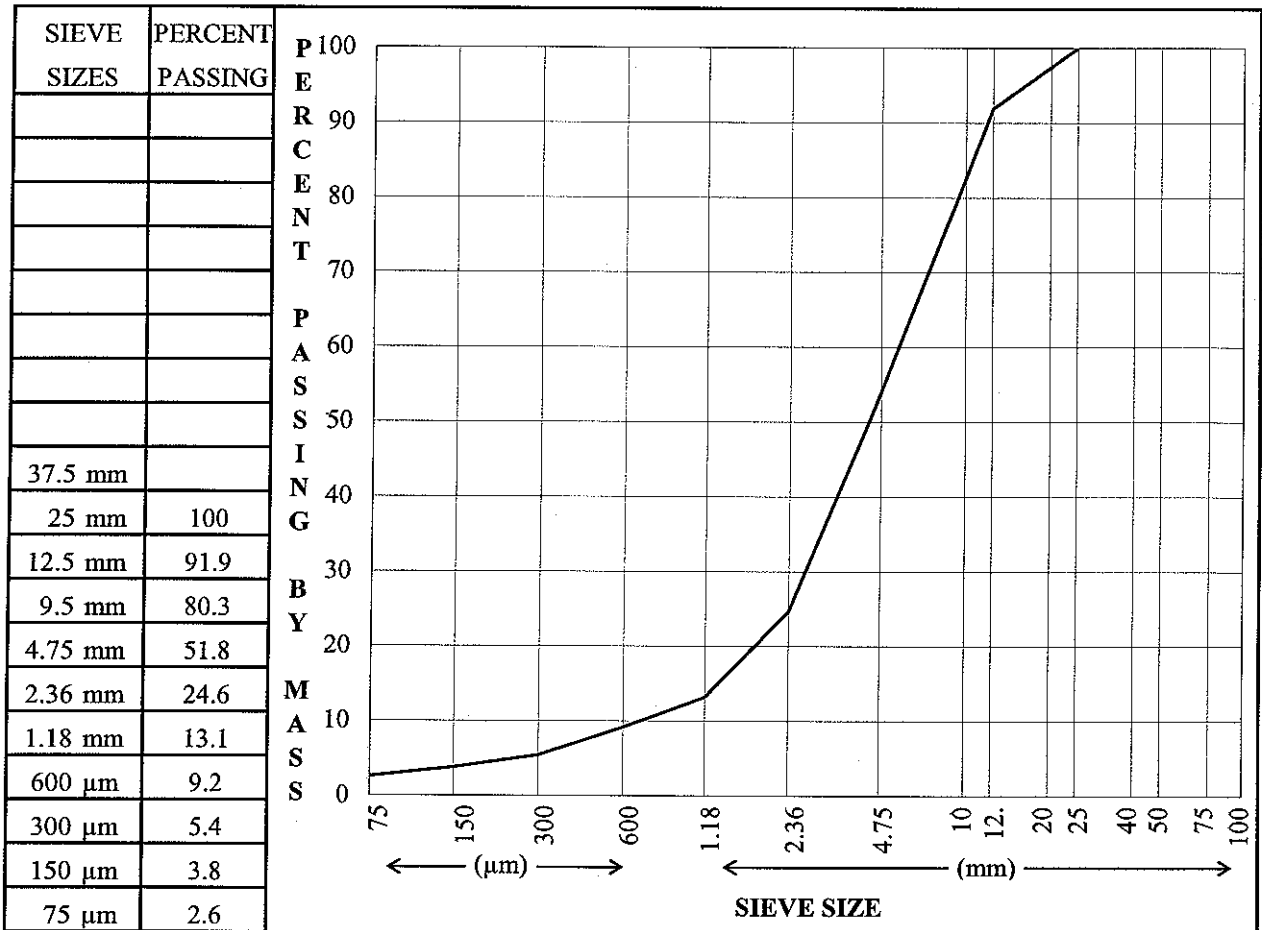
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 19 mm Sand and Gravel, trace Silt
SOURCE: BH-13, SA03, 1.8 - 2.1 m
TEST DATE: 12/12/2006
SAMPLE NO.: 1597



Moisture Content= 10.5%

REVIEWED BY: 

P.Eng.

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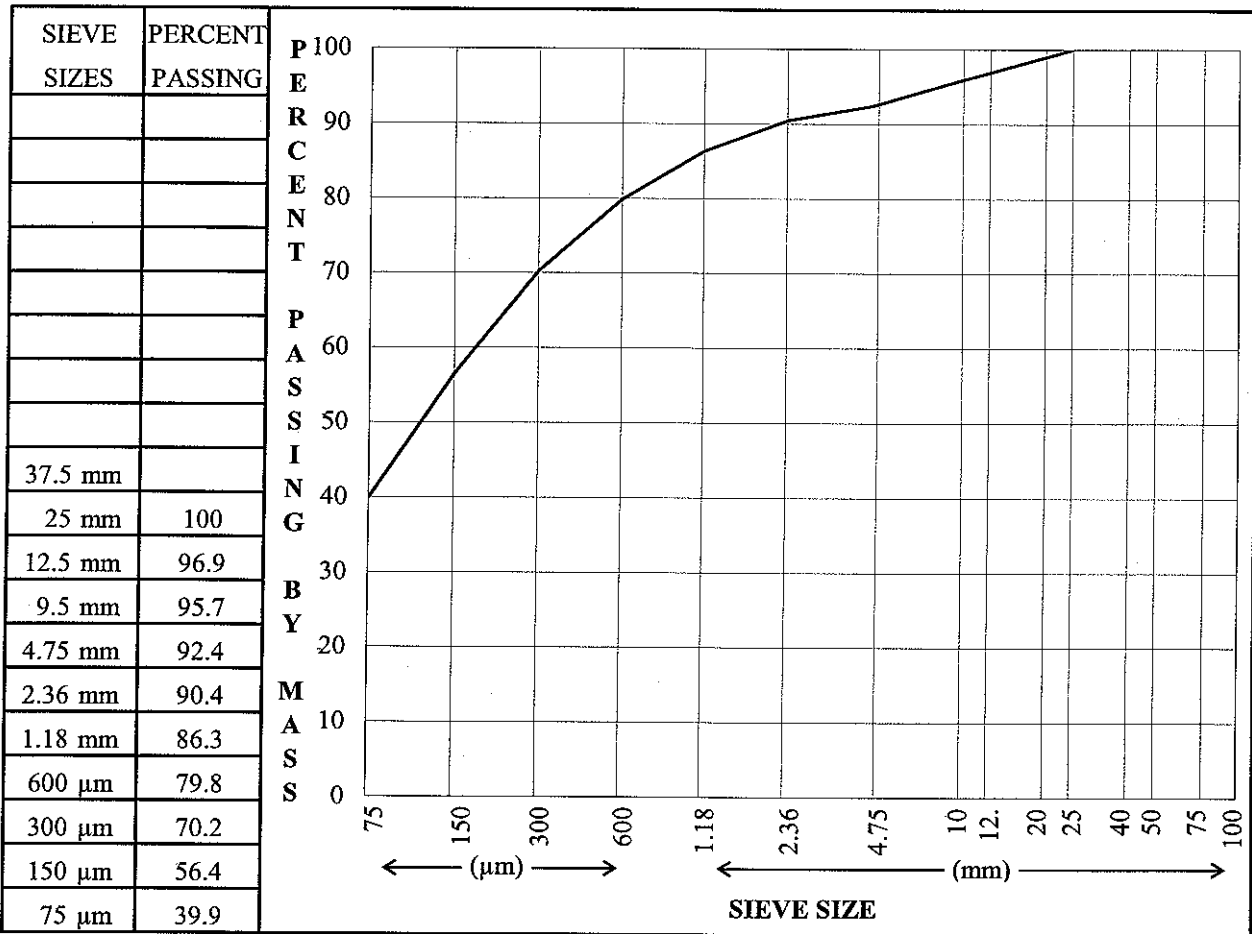
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 37.5mm Gravel, some Sand, trace Silt
SOURCE: BH-14, SA02, 1.2 - 1.5 m.
TEST DATE: 12/12/2006
SAMPLE NO.: 1598



Moisture Content=15.1%

REVIEWED BY: 

P.Eng.

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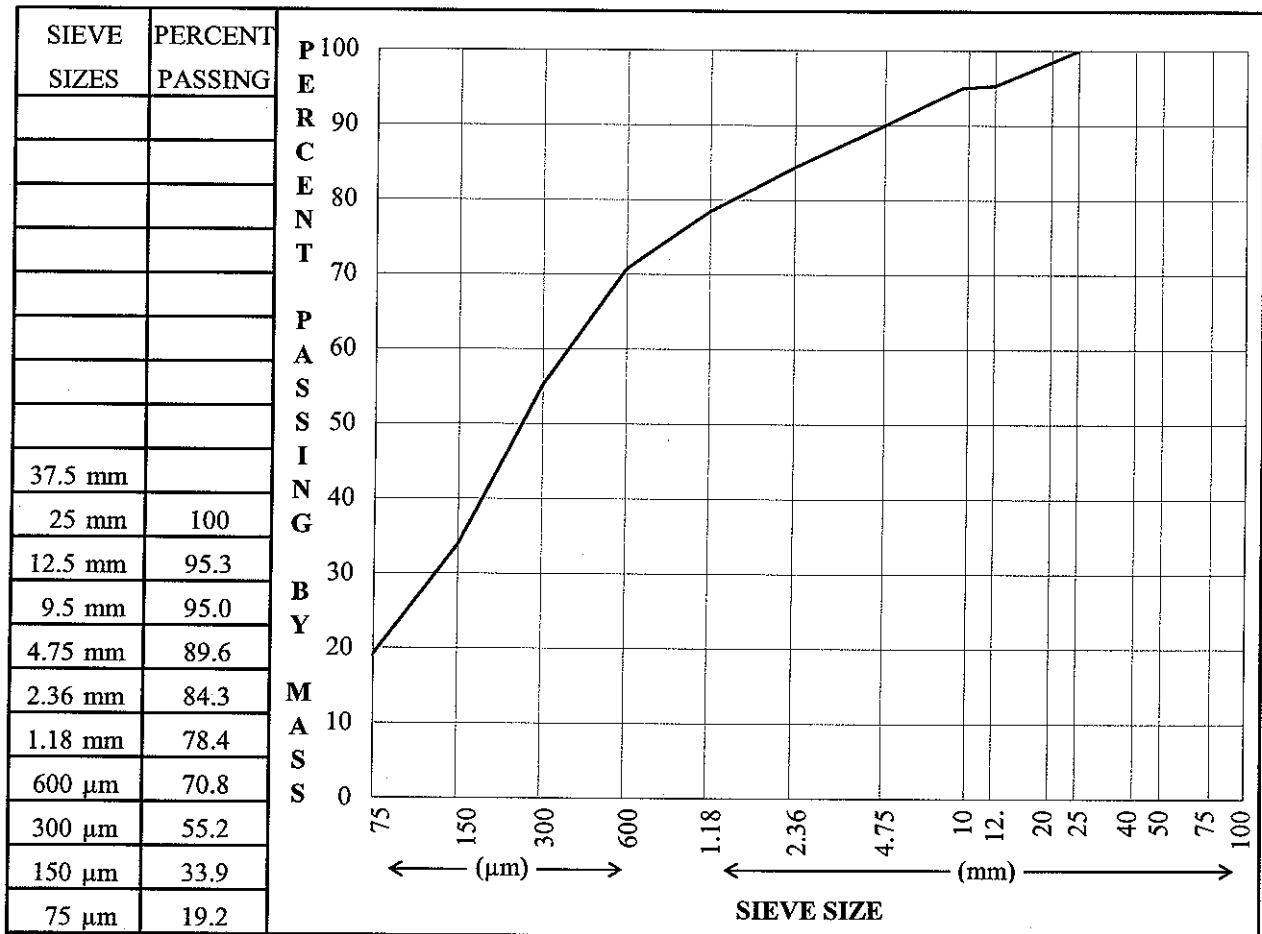
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: Highway 19A Geotechnical Investigation
CLIENT: City of Campbell River
PROJECT NO.: N13100011
DESCRIPTION: Minus 25 mm Sand, some Gravel, some Silt
SOURCE: BH-15, SA01, 0.9 - 1.2 m
TEST DATE: 12/12/2006
SAMPLE NO.: 1599



Moisture Content= 9.9%

REVIEWED BY: *[Signature]*

P.Eng.



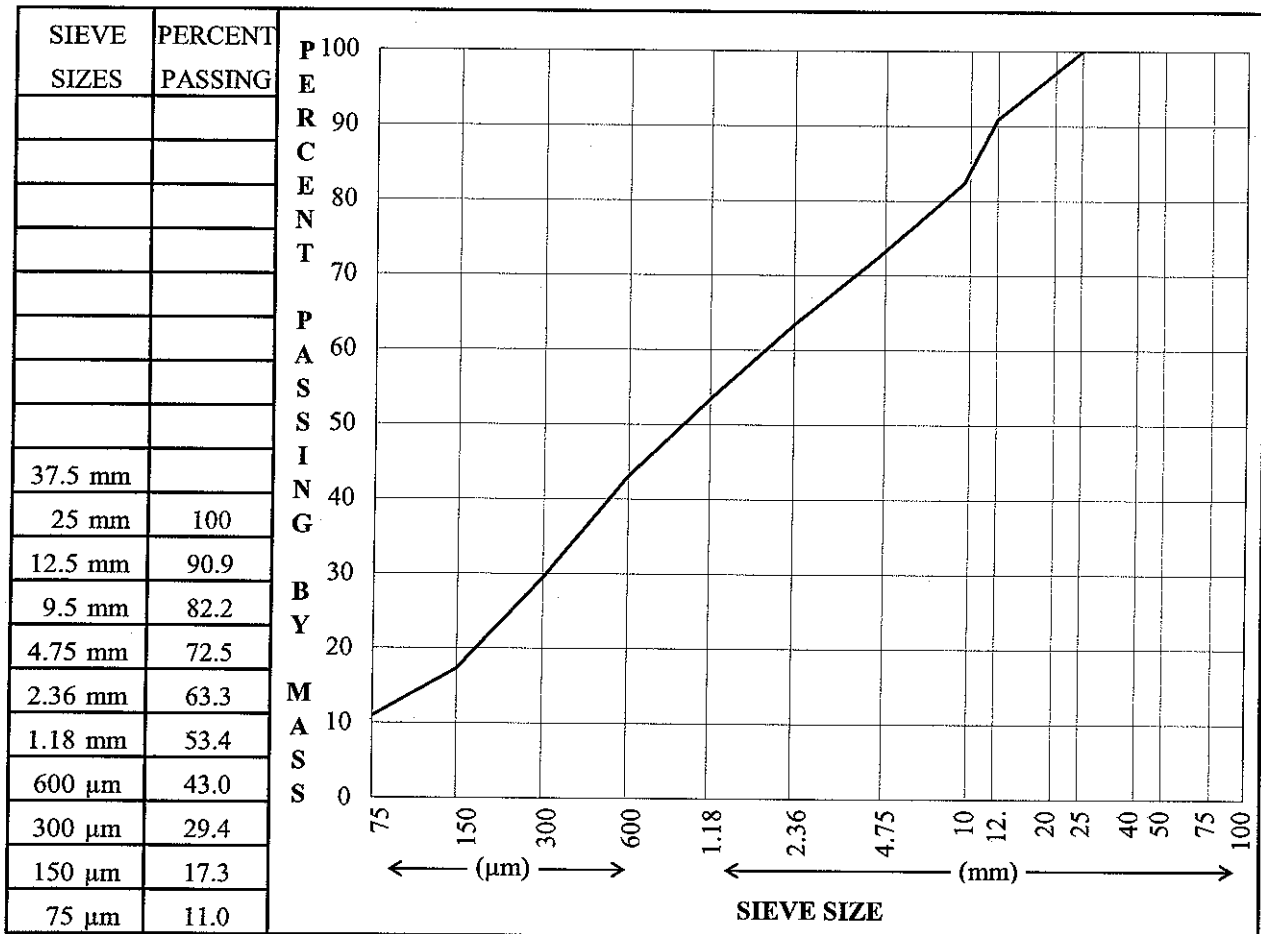
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EBA Engineering Consultants Ltd.

AGGREGATE ANALYSIS REPORT

PROJECT: **Highway 19A Geotechnical Investigation**
 CLIENT: City of Campbell River
 PROJECT NO.: N13100011
 DESCRIPTION: Minus 25 mm Sand, some Gravel, some Silt
 SOURCE: BH-15, SA02, 2.1 - 2.4 m
 TEST DATE: 12/12/2006
 SAMPLE NO.: 1600



Moisture Content= 5.4%

REVIEWED BY:  P.Eng.

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APPENDIX

APPENDIX C GEOTECHNICAL REPORT GENERAL CONDITIONS



GEOTECHNICAL REPORT – GENERAL CONDITIONS

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of EBA’s client. EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA’s client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

3.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

4.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

5.0 SURFACE WATER AND GROUNDWATER CONDITIONS

Surface and groundwater conditions mentioned in this report are those observed at the times recorded in the report. These conditions vary with geological detail between observation sites; annual, seasonal and special meteorologic conditions; and with development activity. Interpretation of water conditions from observations and records is judgmental and constitutes an evaluation of circumstances as influenced by geology, meteorology and development activity. Deviations from these observations may occur during the course of development activities.

6.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

7.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

8.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

9.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

10.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

11.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

12.0 SAMPLES

EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the client's expense upon written request, otherwise samples will be discarded.

13.0 STANDARD OF CARE

Services performed by EBA for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practising under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

14.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

15.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.