

TO: All Tenderers

FROM: McElhanney Ltd.

DATE: July 21, 2023

PROJECT: **Cowichan Secondary Watermain Extension – Canada Avenue to Duncan Street - Tender**

FILE NO: 2233-02091-00

1. PRECEDENCE

1. This Addendum shall form an integral part of the Work. This Addendum shall take precedence over all requirements of the Tender Documents with which it may prove to be at variance unless otherwise qualified by McElhanney.

2. PURPOSE

1. This addendum extends the Tender Closing Date to **2:00PM on August 2nd, 2023**.
2. This addendum is in response to questions that were asked by tenderers.
3. This addendum provides additional information and instructions to the tenderers.
4. The questions below are in no particular order.

3. INSTRUCTIONS

1. **Revision to Invitation to Tenderers (all changes in red text)**
 - a. Tender Closing Date extended to **2:00PM on August 2nd, 2023**
2. **Revision to Instruction to Tenderers – Part I (all changes in red text)**
 - a. 3.1 - Tender Closing Date extended to **2:00PM on August 2nd, 2023**
 - b. 4.9 – The Last Addendum will be posted by end of the day **Friday July 28th, 2023**
3. **Correction to Form of Tender – Appendix 1 – Schedule of Quantities and Prices (all changes in red text)**
 - a. 32.06 –Added. Cash allowance for existing irrigation system adjustments, to be completed on a Force Account Basis
4. **Revisions to Contract Drawings – “Issued For Addendum #1”, July 20, 2023 (all revisions clouded)**

- a. Drawing C01
 - i. VIHA Water Supply Construction Permit Number added
- b. Drawing C02
 - i. Note added specifying requirement for pipe joints to be restrained within casing pipe
 - ii. Note added specifying requirement for Contractor to locate and confirm existence of potentially nearby storm main prior to watermain installation
 - iii. Note added specifying tee requirement at blow-off assembly
 - iv. Note amended to increase size of carbon steel casing pipe
- c. Drawing C03
 - i. Detail B - Note amended to increase size of carbon steel casing pipe
 - ii. Detail B – Minimum dimensions of trench revised

5. Questions

- a. Could you please clarify who bears the cost for railway flagging for this project? Note 14 on Dwg. C01 specifies the City of Duncan is responsible for all SVI costs.
 - i. **As noted in the Contract Drawings, the City of Duncan will be responsible for SVI costs associated with the Project, including flagging.**
- b. What is the expected award/start date to achieve substantial completion by November 1, 2023?
 - i. **Subject to all terms and conditions in the tender documents, the City of Duncan would aim to award the contract in mid-late August.**
- c. If the watermain was changed from PVC to Ductile Iron, would that eliminate the need for the steel casing?
 - i. **Separate steel encasement is a requirement of the Island Corridor Foundation and Southern Vancouver Island Railway for maintenance/replacement purposes.**
- d. Will the tie-ins be completed as a work with City of Duncan Public Works?
 - i. **The watermain tie-ins are to be completed by the Contractor and supervised by City of Duncan Public Works and McElhanney. A minimum of 72 hours' notice is to be provided prior to the works being undertaken. The City will be responsible for any existing valve/system operations required for the works.**



Addendum #1

- e. Note 3 under watermain mentions joint restraints; is that for all joints or just at bends? We are also wondering if the joints within the steel casing need to be restrained? If so, the C900 pipe with restraints may be too tight to fit within the 12" steel casing.
 - i. **Joint restraints will be required within the casing pipe and at bends and hub fittings. See revised Contract Drawings with updated material specifications.**
- f. Is there any information on existing asphalt thickness? If not, can we assume it to be 80mm thick?
 - i. **Please assume an existing asphalt thickness of 75mm.**
- g. Typical Rail Crossing detail B on drawing C03, the specified bottom trench width is not possible when pulling a cage/trench shield.
 - i. **Please assume a widened trench width as required for the construction methodology, meeting the minimum dimensions provided in the detail. See revised Contract Drawings appended to this addendum.**
- h. Please confirm if a crossing agreement has been obtained by Telus for crossing the fibre optic lines? If so, please provide the details of the agreement identifying any guidelines that will need to be followed to expose/support/bury the fibre line.
 - i. **There is typically not a requirement for the City of Duncan to execute a crossing agreement for this type of work. It is expected that the Contractor abide by typical best practices for 3rd party utility crossings, and information provided during the BC One Call process.**
- i. Please provide a connection detail for the blow off valve. Drawings show a Blow off valve per MMCD W8, but this detail is for a blow off valve at the end of a line.
 - i. **See revised Contract Drawings appended to this addendum, with clarification regarding the required tee assembly.**
- j. Per item 32.02 – Permanent painted pavement markings; Please confirm if this item is for Thermoplastic or Paint
 - i. **Painted pavement markings**
- k. Please consider adding a cash allowance to deal with any alterations required to relocate the existing irrigation pipe/valves/meter box. Not knowing how the irrigation was installed, makes it hard to price out what will be needed to relocate.
 - i. **Please see revised Form of Tender – Appendix 1 – Schedule of Quantities and Prices appended to this addendum. This will be a cash allowance with work to be completed on a Force Account basis.**



Addendum #1

- l. Regarding the casing pipe, our suppliers have informed us that the casing size is not large enough to allow room for the casing spacers around the 200mm C-900 pipe. Suppliers recommend 16" O.D. for the casing pipe. Please confirm the size of casing pipe to price.
 - i. **The encasement pipe sizing has been increased in the revised Contract Drawings appended to this addendum.**
- m. Please confirm that the contractor will not be responsible for the removal and re-installation of the railway tracks including ballast rock.
 - i. **As per Contract Drawings, Sheet C03 Detail B, track removal and reinstatement, and ballast rock reinstatement will be completed by SVI at the City's cost. Existing ballast and rail tie removal and disposal to be completed by Contractor.**
- n. Please confirm if the water pipe running through the proposed casing needs to be a self-restraining pipe (i.e. certa-lock pipe) or standard C-900 DR18 pipe?
 - i. **The pipe is to be restrained C-900 DR18 pipe within the casing pipe.**
- o. Please confirm if analytical testing & reporting on the soils environmental composition will be provided by The City of Duncan.
 - i. **See Instructions to Tenderers – Part I, Section 4.15**
- p. Can you please confirm the hydroseed mix to be used?
 - i. **Please assume the use of BC Ministry of Transportation & Infrastructure Island/Coast Mix at an application rate of 75 kg/ha**
- q. Under ITT 4.14, can you please confirm any and all costs from Island Corridor Foundation Coordination will be paid for by the City?
 - i. **Correct. See Questions a and m**
- r. Under ITT 4.15, can you confirm if soils testing results will be provided prior to tender?
 - i. **It is anticipated that preliminary soil testing results will be provided to tenderers prior to the new Tender Closing Date.**

4. ATTACHMENTS

Invitation to Tenderers – Issued for Addendum #1

Instructions to Tenderers – Part I – Issued for Addendum #1

Form of Tender – Appendix 1 – Schedule of Quantities and Prices - Issued for Addendum #1

Contract Drawings – “Issued For Addendum #1” dated July 20, 2023

VIHA Water Supply Construction Permit “W-S-2627”

Owner: City of Duncan
(NAME OF OWNER)

Contract: Cowichan Secondary Watermain Extension – Canada Avenue to Duncan Street
(TITLE OF CONTRACT)

Reference No.: 2233-02091-00
(OWNER'S CONTRACT REFERENCE NO.)

The Owner invites tenders for: Watermain construction near University Way between Canada Avenue and
Duncan Street. Works generally include removals, waterworks, restoration
and landscaping.

(BRIEF DESCRIPTION OF THE WORK)

Digital (PDF) copies of the
Contract Documents are available
for no charge:

Through BC Bid website.

Tenders are scheduled to close: **Tender Closing Time:** 2: 00, P m local time
Tender Closing Date: August 2nd, 20 23

Address: 200 Craig Street
Duncan, BC V9L 1W3
Documents to be dropped off at front desk
(ADDRESS WHERE TENDERS MUST BE SUBMITTED)

Name of Owner's Representative: Brian Murphy
250-746-6126
(PHONE)

1.0 Introduction.....IT - 1

2.0 Tender DocumentsIT - 1

3.0 Submission of TendersIT - 2

4.0 Supplemental Instructions to Tenderers.....IT - 3

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

(TO BE READ WITH “INSTRUCTIONS TO TENDERERS - PART II”
CONTAINED IN THE EDITION OF THE PUBLICATION
“MASTER MUNICIPAL CONSTRUCTION DOCUMENTS” SPECIFIED IN ARTICLE 2.2 BELOW)

Owner: City of Duncan
(NAME OF OWNER)

Contract: Cowichan Secondary Watermain Extension – Canada Avenue to Duncan Street
(TITLE OF CONTRACT)

Reference No.: 2233-02091-00
(OWNER'S CONTRACT REFERENCE NO.)

1.0 Introduction

1.1 These Instructions apply to and govern the preparation of tenders for this *Contract*. The *Contract* is generally for the following work:
Watermain construction near University Way between Canada Avenue
and Duncan Street. Works generally include removals, waterworks,
restoration and landscaping.

(BRIEF DESCRIPTION OF THE WORK)

1.2 Direct all inquiries regarding the *Contract*, to:
McElhanney Ltd.

Jon Irving, P.Eng., Engineering Division Manager

(NAME AND POSITION OF INDIVIDUAL WHO WILL ANSWER INQUIRIES)

Address: 107-225 Canada Ave
Duncan, BC
V9L 1T6

Phone: 250 - 748 - 3335

Email: jirving@mcelhanney.com

2.0 Tender Documents

2.1 The tender documents which a tenderer should review to prepare a tender consist of all of the *Contract Documents* listed in Schedule 1 entitled “Schedule of Contract Documents”. Schedule 1 is attached to the Agreement which is included as part of the tender package. The *Contract Documents* include the drawings listed in Schedule 2 to the Agreement, entitled “List of *Contract Drawings*”.

2.2 A portion of the *Contract Documents* are included by reference. Copies of

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

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

3.0 Submission of Tenders

3.1 Tenders must be submitted in a sealed envelope, marked on the outside with the above *Contract* Title and Reference No., and must be received by the office of:

Brian Murphy, Director of Public Works and Engineering

(TITLE OF POSITION)

on or before:

Tender Closing Time: _____ 2: 00 _____, _____ P_m local time
Tender Closing Date: August 2nd _____, 20 23

at City of Duncan

Address: 200 Craig Street
Duncan, BC V9L 1W3
Documents to be dropped off at front desk

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

- 4.0 Supplemental Instructions to Tenderers
- 4.1 **Freedom of Information:** The City 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 City cannot guarantee that any information provided to the City can be held in confidence.
- 4.2 **Funding:** Proceeding with an award of this tender may be subject to available funding.
- 4.3 **Award:** The intent is to award the lowest bid price or bid prices but the lowest or any bid price will not necessarily be accepted. If the City elects to reject all bids, the City will not be liable to any bidder for any claims whether for costs incurred by any bidder in preparing the bid, damages, loss of anticipated profit in connection with the work, or any other matter whatsoever.
- 4.4 **Notice of Project:** Submit to WorkSafe BC a completed Notice of Project, providing a copy to the City.
- 4.5 **Construction Traffic Management Plan:** Submit to the Contract Administrator, prior to construction, a construction traffic management plan for review by the Contract Administrator and the Owner.
- 4.6 **Facsimile:** Faxed amendments or revocations will not be accepted.
- 4.7 **Inquiries:** All questions should be received at least 5 business days prior to the closing time and date.
- 4.8 **Working Hours:** The Contractor is required to abide by the following working hours set out in the City of Duncan Good Neighbour Bylaw No. 3156, 2017.
- 4.9 **Important Dates:**
- .1 The Last Addendum will be posted by the end of the day Friday July 28th, 2023
- 4.10 **Superintendent:** The *Owner* reserves the right to object to the *Superintendent* listed in the tender. If the *Owner* objects to the *Superintendent* then the *Owner* will permit a tenderer to, within 5 days, propose a substitute *Superintendent* acceptable to the *Owner* provided that there is no resulting adjustment in the *Tender Price* or the completion date set out in paragraph 2.2 of the Form of Tender. A tenderer will not be required to make such a substitution and, if the *Owner* objects to a listed *Superintendent*, the tenderer may, rather than propose a substitute *Superintendent*, consider its tender rejected by the *Owner* and by written notice withdraw its tender. The *Owner* shall, in that event, return the tenderer's bid security.
- 4.11 **Schedule:** See critical dates in Appendix 2 of the Form of Tender
- 4.12 **Permitting:** The City has applied for permits with Island Health and Island Corridor Foundation. The Island Corridor Foundation approval in principle has been received and it is expected that the Island Health permit will be received prior to the Tender Closing Time and provided to bidders through an addendum.
- 4.13 **Asphalt Paving Coordination:** Asphalt Paving restoration work will be completed by Duncan Paving in direct contract with the Owner. The successful Contractor will be responsible for coordinating and facilitating

paving work including traffic control.

- 4.14 **Island Corridor Foundation Coordination:** It will be the successful Contractor's responsibility to coordinate rail track removals and necessary inspections with the Island Corridor Foundation as required throughout construction.
- 4.15 **Soil Contamination Testing:** The City is undertaking onsite soil contamination testing and reporting in compliance with Protocol 19 For Contaminated Sites issued by Ministry of Environment and Climate Change during the tender period. Depending on timing of receipt of results, information will either be shared with bidders through an addendum or with the successful contractor following the Tender Closing Date. In the event of the latter and if contaminants are found, additional costs associated with proper disposal (trucking and dump fees) shall be tracked on a Force Account basis and submitted to the Contract Administrator for review and approval.
- 4.16 **Fuel Consumption:** The successful Contractor shall provide a summary of all fuel usage quantities throughout the duration of the Project to Owner upon Project completion.

FORM OF TENDER

APPENDIX 1 – SCHEDULE OF QUANTITIES AND PRICES

Form of Tender - Appendix 1

SCHEDULE OF QUANTITIES AND PRICES
(See paragraph 5.3.1 of the Instructions to Tenderers - Part II)

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

Any work called for in these Contract Documents, shown on the plans, or which is necessary for the completion of the Work called for in these Contract Documents and which is not specifically listed as a separate payment item in this Appendix shall be deemed incidental to the performance of the Work and to the general purpose of the Contract; no separate payment will be made on account of any such Work, but the costs of any such incidental Work shall be included in the Unit and Lump Sum Prices.

Summary Sheet

Division 01:	General Requirements	\$ _____
Division 03:	Concrete	\$ _____
Division 32:	Roads and Site Improvements	\$ _____
Division 33:	Utilities	\$ _____

TOTAL TENDER PRICE \$ _____

GST (5%) \$ _____

TENDER PRICE plus GST \$ _____

Tenderer's Initials _____

DIV 01		GENERAL REQUIREMENTS				
Item No.	Section	Specification Title	Unit	Quantity	Unit Price	Amount
	01 10 00SS	Quality Control Testing				
1.01	1.1	Quality Control Testing	Lump Sum	1		
	01 10 00SS	Survey				
1.02	1.2	Layout Survey, Quantity Survey, Volume Calculations, and Record Survey	Lump Sum	1		
	01 33 01	Project Record Documents				
1.03	1.8.1	Project Record Documents	Lump Sum	1		
	01 52 01	Temporary Structures				
1.04	1.6.2ss	Mobilization & Demobilization	Lump Sum	1		
	01 55 00	Traffic Control, Vehicle Access and Parking				
1.05	1.5.1, 1.4.15ss	Traffic Management Plan (TMP), Traffic Control, Vehicle Access and Parking	Lump Sum	1		
	01 57 01	Environmental Protection				
1.06	1.6.1, 1.6.2ss	Environmental Protection Plan	Lump Sum	1		
Sub-Total					\$	

DIV 03		CONCRETE				
Item No.	Section	Specification Title	Unit	Quantity	Unit Price	Amount
	03 30 20	Concrete Walks, Curb And Gutter				
3.01	1.4.3	Curb & Gutter Non-mountable Curb	Lineal Metre	3		
Sub-Total					\$	

DIV 32		ROADS AND SITE IMPROVEMENTS				
Item No.	Section	Specification Title	Unit	Quantity	Unit Price	Amount
	32 12 16	Hot-Mix Asphalt Concrete Paving				
32.01	N/A	Facilitate Asphalt Paving (Duncan Paving Contracted by Owner)	Lump Sum	1		
	32 17 23	Painted Pavement Markings				
32.02	1.5.2	Permanent Painted Pavement Markings	Lump Sum	1		
	32 91 21	Topsoil and Finish Grading				
32.03	1.4.1	Topsoil - 100mm depth	Square Metres	175		

Tenderer's Initials _____

	32 92 19	Hydraulic Seeding				
32.04	1.8.1	Hydraulic Seeding	Square Metres	175		
	32 93 01	Planting of Trees, Shrubs and Ground Covers				
32.05	1.9.1	Restoration and Replanting of shrub beds (Canada Avenue)	Square Metres	6		
32.06	N/A	Existing Irrigation System Adjustments To be completed on a Force Account basis	Cash Allowance	1	\$5,000.00	\$5,000.00
Sub-Total					\$	

DIV 33		UTILITIES				
Item No.	Section	Specification Title	Unit	Quantity	Unit Price	Amount
	33 11 01	Waterworks				
33.01	1.8.1, 1.8.2, 1.8.3	Watermain - PVC DR18 200mm diameter, 0-4m depth, imported backfill, including all fittings and appurtenances	Lineal Metres	56		
33.02	1.8.10	Watermain Encasement	Lineal Metres	31		
33.03	1.8.5	Blow-Off Assembly	Each	1		
33.04	1.8.13	Watermain Tie-In	Each	3		
Sub-Total					\$	

Tenderer's Initials _____

DATE: 2023-07-20, 09:07 FILE: T:\Projects\22302091-00-City of Duncan - Third Street Renewal (10.0.0) - Drawings - Addendum #1 - Addendum #1 - Sheet\02091-00-UNIVERSITY WAY WATERMAIN.dwg McElhanney Cover D - 2023-10-08

CITY OF DUNCAN

CLIENT

ADDRESS / CONTACT INFO.

200 CRAIG STREET, DUNCAN BC V9L 3Y2

PROJECT NAME

**COWICHAN SECONDARY WATER MAIN EXTENSION
CANADA AVE TO DUNCAN STREET**

DESCRIPTION

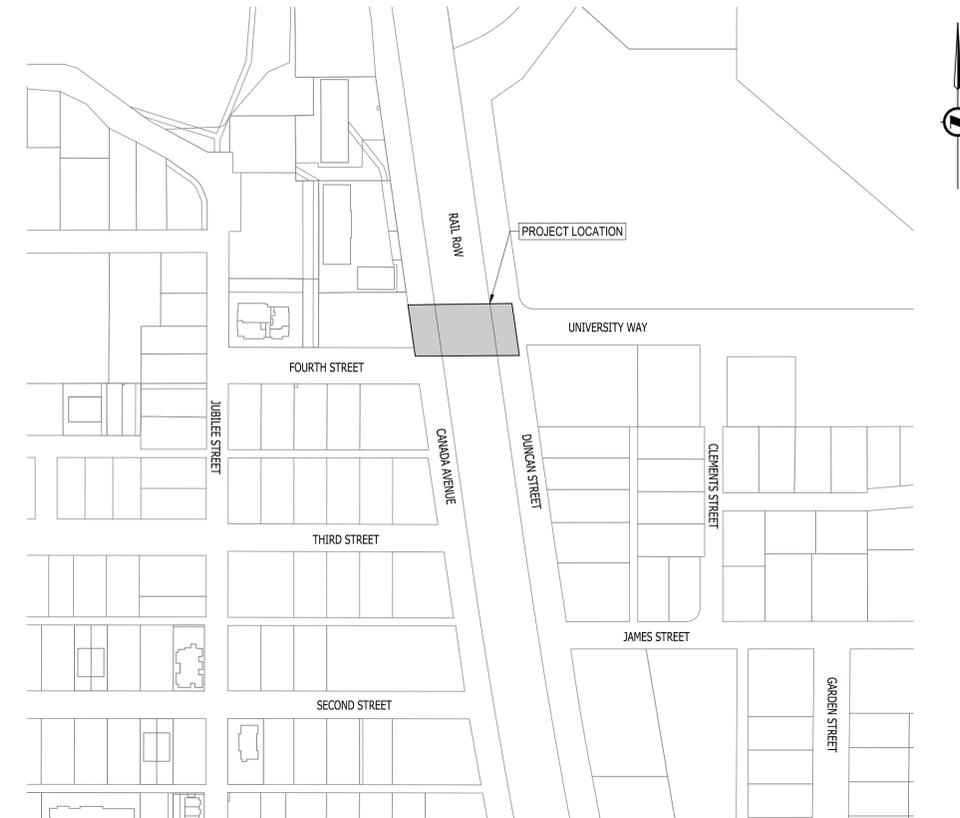
CIVIL ENGINEERING DESIGN

McELHANNEY PROJECT

2233-02091-00

STATUS

ISSUED FOR ADDENDUM #1



PROJECT LOCATION

SCALE: 1:2000



Suite 107
225 Canada Avenue
Duncan BC
Canada V9L 1T6
T 250 748 3335



PERMIT TO PRACTICE
McElhanney Ltd.
PERMIT NUMBER: 1003299
Engineers and Geoscientists of BC

DRAWING LIST		REVISIONS						
SHEET #	SHEET TITLE	PA	PB	PC	0	1	2	3
		C00	COVER	X	X	X		
C01	NOTES, SPECIFICATIONS & LEGEND	X	X	X				
C02	SITE PLAN	X	X	X				
C03	PROFILES, SECTIONS & DETAILS	X	X	X				

GENERAL NOTES

- 1. ALL WATER SYSTEM CONSTRUCTION AND MATERIALS TO BE IN ACCORDANCE WITH THE CITY OF DUNCAN (CoD) STANDARDS UNLESS OTHERWISE NOTED.
2. ALL CONSTRUCTION AND MATERIALS TO BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND DRAWINGS INCLUDED IN THE LATEST REVISION OF THE CITY OF DUNCAN - WORKS AND SERVICES BYLAW No. 3158, ENGINEERING SPECIFICATIONS AND STANDARD DRAWINGS, AND THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD PLATINUM EDITION) AND AMENDMENTS TO THE MMCD FOR WORK ON MUNICIPAL ROW OR SROW.
3. IF A CONFLICT BETWEEN THE SPECIFICATIONS ARISES, THE MOST STRINGENT SPECIFICATION SHALL APPLY.
4. CONTRACTOR TO ENSURE MINIMAL DISRUPTION TO LOCAL TRAFFIC IN ACCORDANCE WITH CITY OF DUNCAN (CoD) REQUIREMENTS. CONTRACTOR TO PROVIDE TRAFFIC MANAGEMENT PLAN (TMP). TMP REQUIRED TO BE SUBMITTED AND APPROVED BY CoD PRIOR TO WORKS.
5. CONTRACTOR TO OBTAIN AND PAY FOR A PERMIT TO CONSTRUCT WORKS ON A MUNICIPAL RIGHT OF WAY FROM THE CITY OF CoD 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.
6. CONTRACTOR TO MAINTAIN AN UP-TO-DATE SET OF REDLINE DRAWINGS FOR THE PREPARATION OF AS-CONSTRUCTED DRAWINGS. THE REDLINES ARE TO BE DELIVERED TO THE ENGINEER PRIOR TO SUBSTANTIAL PERFORMANCE. ALL DATA REQUIRED MUST BE ACCEPTABLE TO THE ENGINEER TO PREPARE THE AS-CONSTRUCTED DRAWINGS. MISSING OR INADEQUATE DATA TO BE PROVIDED BY THE CONTRACTOR OR BY AN INDEPENDENT SURVEYOR AT THE CONTRACTOR'S EXPENSE.
7. CONTRACTOR TO ENSURE EXISTING MONUMENTS AND IRON PINS ARE NOT DISTURBED DURING CONSTRUCTION. ANY MONUMENTS OR IRON PINS IN DANGER OF DISTURBANCE ARE TO BE REFERENCED AND, IF DISTURBED, BE REPLACED BY A BCLS AT THE CONTRACTORS EXPENSE.
8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION LAYOUT, MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR CO-ORDINATING THE VARIOUS PARTS OF THE WORK IN THESE DRAWINGS. McELHANNEY LTD. WILL PROVIDE DIGITAL FILES FOR LAYOUT PURPOSES UPON REQUEST.
9. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE WRITTEN CONFIRMATION TO THE OWNER AND McELHANNEY LTD. THAT THEY WILL ASSUME THE RESPONSIBILITIES OF THE PRIME CONTRACTOR AS OUTLINED IN THE WORKERS COMPENSATION ACT FOR THE DURATION OF THE PROJECT.
10. NO CONSTRUCTION TO TAKE PLACE UNLESS DRAWINGS ARE ISSUED FOR CONSTRUCTION AND ALL APPROVALS ARE IN PLACE. CONTRACTOR TO CONFIRM WITH ENGINEER.

TRENCHING, EXCAVATING AND BACKFILLING

- 1. CONTRACTOR TO SUBMIT A DEWATERING PLAN & PROCEDURE FOR APPROVAL BY THE AUTHORITY HAVING JURISDICTION PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO EXCAVATE TO CONFIRM LOCATION AND ELEVATION OF EXISTING UTILITIES AT ALL CROSSINGS AND CONNECTION POINTS AND CONFIRM ELEVATIONS WITH THE ENGINEER PRIOR TO CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND ARE REQUIRED TO BE CONFIRMED IN THE FIELD. ANY DAMAGE OR REPAIR TO EXISTING UTILITIES SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR.
3. DO NOT START ANY BACKFILL OPERATION DURING CONSTRUCTION PRIOR TO THE ENGINEER'S INSPECTION.
4. WHERE EXISTING ABANDONED WATERMAIN IS ENCOUNTERED DURING EXCAVATION, CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING ABANDONED WATERMAIN INCLUDING ASBESTOS CEMENT AS NECESSARY IN ACCORDANCE WITH THE REGULATORY AGENCIES.
5. AFTER CONSTRUCTION, RESTORE WORK AREAS AND ALL EXISTING FEATURES TO THEIR ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE CITY OF DUNCAN AND/OR PRIVATE PROPERTY OWNER.
6. ADJUST ALL PROPOSED AND EXISTING APPURTENANCES TO MEET THE FINAL GRADES.
7. ALL UTILITY TRENCHING TO BE IN ACCORDANCE WITH CoD STD. T1 AND MMCD SECTION 31 23 01 - EXCAVATING, TRENCHING & BACKFILLING.
8. WHERE A TRENCH IS UNDER OR WITHIN 1.0m FROM THE EDGE OF A ROAD OR DRIVEWAY, USE PIT RUN GRAVEL BACKFILL FROM THE TOP OF THE PIPE BEDDING TO THE TOP OF THE ROAD, PARKING OR DRIVEWAY SUBGRADE AS PER CoD STD. DWG. T1
9. ALL EXCAVATION TO BE AS PER WCB REQUIREMENTS UNLESS OTHERWISE APPROVED IN WRITING BY A GEOTECHNICAL ENGINEER.
10. CONTRACTOR SHALL RETAIN AND PAY FOR THE SERVICES OF A QUALIFIED INDEPENDENT GEOTECHNICAL TESTING ENGINEER TO PROVIDE QUALITY CONTROL SERVICES DURING CONSTRUCTION AND SHALL PROVIDE THE FOLLOWING AT A MINIMUM UNLESS APPROVED IN WRITING BY A GEOTECHNICAL ENGINEER:
10.1. SIEVE ANALYSIS OF SANDS AND AGGREGATES SUPPLIED TO THE WORK.
10.2. STANDARD PROCTOR DENSITY CURVES FOR BACKFILL MATERIALS.
10.3. STANDARD PROCTOR DENSITY CURVES FOR APPROVED BORROW MATERIALS.
10.4. TRENCH BEDDING DENSITY TEST (MAINLINE) - ONE FOR EVERY 75m OF TRENCH. MINIMUM ONE BETWEEN ANY TWO MANHOLES.
10.5. TRENCH BACKFILL DENSITY TEST (MAINLINE) - ONE FOR EVERY 75m OF TRENCH AT EACH 1.0m FILL DEPTH. MINIMUM ONE BETWEEN ANY TWO MANHOLES (INCLUDING ONE AT SURFACE LEVEL).
10.6. TRENCH BACKFILL DENSITY TEST (SERVICE) - ONLY SURFACE LEVEL DENSITY TEST
11. THE CITY OF DUNCAN RESERVES THE RIGHT TO MODIFY/ALTER ANY MMCD SPECIFICATION TO SUIT THE CITY OF DUNCAN.
12. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REINSTATE ANY SURFACE WORKS OR UNDERGROUND UTILITIES INCLUDING IRRIGATION LINES AND TRAFFIC CONTROL LOOPS TO EXISTING OR BETTER CONDITION IF DAMAGED BY THE CONTRACTOR OR SUBCONTRACTOR DUE TO CONSTRUCTION.
13. THE LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN COMPILED FROM DIFFERENT SOURCES AND ARE APPROXIMATE ONLY. EXACT LOCATION IS UNKNOWN AND MUST BE CONFIRMED PRIOR TO CONSTRUCTION. THE CITY ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SHOWN.
14. CONTRACTOR TO COMPLY WITH ALL ENVIRONMENTAL, FISHERIES, LEGISLATION, REGULATIONS AND CITY OF DUNCAN BY-LAWS DURING CONSTRUCTION.
15. NOT ALL, IF ANY, EXISTING STRUCTURES OR LANDSCAPING ARE SHOWN. CONTRACTOR TO IDENTIFY ANY DESIGN CONFLICTS WITH STRUCTURES AND/OR LANDSCAPING PRIOR TO INSTALLATION. IF ANY DESIGN CONFLICTS ARE FOUND THE CONTRACTOR IS TO CONTACT THE CITY OF DUNCAN PROJECT MANAGER IMMEDIATELY.
16. ANY MATERIALS, INCLUDING BUT NOT LIMITED TO SOIL, ORGANIC WASTE, PARTS, CONCRETE, ETC. TO BE REMOVED AS A PART OF CONSTRUCTION IS TO BE DISPOSED OF OFF SITE AT THE CONTRACTOR'S EXPENSE.
17. CONTRACTOR IS RESPONSIBLE FOR RECORDING ALL ACTUAL SITE CONDITIONS.
18. ANY NON-EMERGENCY ASSISTANCE FROM THE CITY OF DUNCAN'S PUBLIC WORKS CREW REQUIRES 2 WEEKS NOTICE.
12. PROOF ROLL TRENCH MATERIAL AS PER MMCD SPECIFICATIONS, HOWEVER A SINGLE AXLE DUMP TRUCK IS TO BE USED. THE DUMP TRUCK IS TO HAVE A REAR AXLE LOAD OF 8000kg AND A TIRE PRESSURE OF 550 kpa.

ROADWORKS

- 1. CONSTRUCT ALL ROADWAYS AS SHOWN ON THE TYPICAL SECTIONS AND DETAIL DRAWINGS.
2. ALL PAVING TO BE IN ACCORDANCE WITH MMCD SECTION 32 12 16 - HOT-MIX ASPHALT CONCRETE PAVING. MIX DESIGN TO BE APPROVED BY GEOTECHNICAL ENGINEER.
3. ALL GRANULAR BASE AND GRANULAR SUB-BASE TO BE IN ACCORDANCE WITH MMCD SECTION 31 05 17 - AGGREGATES & GRANULAR MATERIALS.
4. CONTRACTOR SHALL RETAIN AND PAY FOR THE SERVICES OF A QUALIFIED INDEPENDENT GEOTECHNICAL TESTING ENGINEER TO PROVIDE QUALITY CONTROL SERVICES DURING CONSTRUCTION AND SHALL PROVIDE THE FOLLOWING AT A MINIMUM UNLESS APPROVED IN WRITING BY A GEOTECHNICAL ENGINEER:
4.1. SIEVE ANALYSIS OF SANDS AND AGGREGATES SUPPLIED TO THE WORK.
4.2. STANDARD PROCTOR DENSITY CURVES FOR BACKFILL MATERIALS.
4.3. STANDARD PROCTOR DENSITY CURVES FOR APPROVED BORROW MATERIALS.
4.4. COMPACTION CONTROL TESTS FOR BACKFILL AND EMBANKMENT MATERIAL INCLUDING:
4.4.1. GRANULAR BASE (CURBS) - ONCE PER 50 LINEAL METRES PLUS PROOF ROLL TEST, FULL LENGTH.
4.4.2. GRANULAR BASE (ROADS) - ONCE PER 50 LINEAL METRES PLUS PROOF ROLL TEST, FULL LENGTH.
4.4.3. GRANULAR BASE (WALKWAYS) - ONCE PER 50 LINEAL METRES PLUS PROOF ROLL TEST, FULL LENGTH.
4.5. CONCRETE MIX DESIGN AND TESTING
4.6. CONCRETE STRENGTH TESTS (MINIMUM THREE SPECIMEN CYLINDERS IN ACCORDANCE WITH CSA A23.1) FOR THE FOLLOWING:
4.6.1. CURB AND GUTTER - ONCE PER 150 LINEAL METRES (MINIMUM ONE PER DAY DURING CONCRETE PLACING)
4.6.2. CONCRETE SIDEWALKS AND DRIVEWAYS - ONCE PER 50 SQUARE METRES MINIMUM ONCE PER DAY DURING CONCRETE PLACING
4.7. ASPHALT MIX DESIGN AND TESTING
4.8. ASPHALT TESTS FOR THE FOLLOWING:
4.8.1. AGGREGATE GRADATION TESTS - ONE PER 300 TONNES OF PRODUCTION (MINIMUM ONE PER DAY DURING ASPHALT PLACEMENT).
4.8.2. MARSHALL TEST - THREE BRQUJETTETS FOR EVERY 300 TONNES OF PRODUCTION (MINIMUM ONE PER DAY DURING ASPHALT PLACEMENT).
4.8.3. COMPACTION - ONE CORE FOR EVERY 500sq.m PLACED.
5. RESTORE ALL LANDSCAPED AREAS WITH TOPSOIL AND SOD. NEW LANDSCAPED AREAS TO BE COMPLETE WITH MINIMUM 200mm TOPSOIL AND SOD AS PER MMCD.
6. SUBGRADE TO BE APPROVED BY GEOTECHNICAL ENGINEER. ANY FAILURE OF THE SUBGRADE AFTER APPROVAL IS THE RESPONSIBILITY OF THE CONTRACTOR. ANY MITIGATION PROCEDURES REQUIRED TO PROTECT THE SUBGRADE IS THE RESPONSIBILITY OF AND AT THE EXPENSE OF THE CONTRACTOR.

HYDRO, TELEPHONE, STREETLIGHTING, CABLE & GAS

- 1. CONTACT "BC ONE CALL" AT 1-800-474-6886 A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION. CONTRACTOR TO REVIEW INFORMATION PRIOR TO START OF ANY EXCAVATION.
2. CONTACT "DIGSHAW" AT 1-866-DIGSHAW (344-7429) A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION. CONTRACTOR TO REVIEW INFORMATION PRIOR TO START OF ANY EXCAVATION.
3. CONTACT BC HYDRO, TELUS, SHAW CABLE AND FORTIS BC 48 HOURS PRIOR TO THE START OF ANY EXCAVATION.
4. CONNECTION TO, OR ALTERATION OF, EXISTING BC HYDRO, TELUS, SHAW CABLE, FORTISBC, CoD OR OTHER UTILITIES WILL BE UNDERTAKEN BY THE APPROPRIATE UTILITY ONLY. CONTRACTOR TO PROVIDE SITE ACCESS TO ALL UTILITIES AS REQUIRED.
5. ANY BC HYDRO, TELUS, SHAW CABLE OR FORTIS BC FACILITIES SHOWN ON THE ENGINEERING DRAWINGS ARE SCHEMATIC ONLY. CONSTRUCT UNDERGROUND HYDRO, TELEPHONE AND CABLE AS SPECIFIED AND IN ACCORDANCE WITH BC HYDRO, TELUS AND SHAW CABLE STANDARD SPECIFICATIONS AND DRAWINGS.

WATER

- 1. VANCOUVER ISLAND HEALTH AUTHORITY WATER SUPPLY CONSTRUCTION PERMIT NO. "WS-2627". THE CONTRACTOR SHALL MEET THE CONDITIONS EXPRESSED IN THE WATER SUPPLY CONSTRUCTION PERMIT ISSUED BY THE VANCOUVER ISLAND HEALTH AUTHORITY AND SHALL NOT COMMENCE CONSTRUCTION WITHOUT A COPY OF THE PERMIT. ANY CHANGES OR ALTERATIONS ARE TO BE PRE-APPROVED BY THE VIHA PUBLIC HEALTH ENGINEERS VIA THE PROJECT ENGINEER.
2. ALL WATERWORKS CONSTRUCTION SHALL BE IN ACCORDANCE WITH MMCD SPECIFICATIONS AND STANDARD DRAWINGS. ONLY CoD STAFF CAN OPERATE VALVES OR INTERRUPT SERVICE TO RESIDENTS
3. WATER MAINS SHALL BE PVC DR18 TO AWWA C900 c/w THRUST BLOCKS & JOINT RESTRAINTS, UNLESS OTHERWISE NOTED.
4. PROVIDE MINIMUM 1.2m COVER FOR WATER MAINS, UNLESS OTHERWISE NOTED.
5. MARK WATER MAINS BELOW GRADE USING TRACER WIRE SET ABOVE THE PIPE.
6. MAINTAIN A MINIMUM OF 3m HORIZONTAL AND 450mm CLEAR VERTICAL SEPARATION BETWEEN WATER SERVICES AND SEWER SERVICES, SANITARY OR STORM/DRAIN. IN SPECIAL CIRCUMSTANCES, WHERE A SANITARY OR STORM DRAIN SERVICE IS LOWER THAN A WATER SERVICE BY MORE THAN 450 mm IN ELEVATION THE HORIZONTAL OFFSET MAY BE REDUCED TO NO LESS THAN 1.0 METRES EXCEPT WHERE NOTED AND APPROVED BY CoD. VIHA APPROVAL IS REQUIRED FOR ANY REDUCTION IN THE SEPARATION.
7. FOR CROSSING OF EXISTING SEWERS, WHERE THE WATER MAIN DOES NOT HAVE THE REQUIRED 450mm VERTICAL SEPARATION, WRAP WATER MAIN JOINTS WITH PETROLATUM TAPE 3m EITHER SIDE OF THE SEWER. WHERE A VERTICAL SEPARATION OF 150mm CANNOT BE ACHIEVED, SPECIAL MITIGATIVE MEASURES SHALL BE APPROVED BY THE ENGINEER.
8. WHERE NEW CATCHBASIN (CB) LEADS DO NOT HAVE A 450mm VERTICAL SEPARATION, WRAP CB LEAD JOINTS WITH DENSO TAPE.
9. MAINTAIN A MINIMUM OF 1.5m HORIZONTAL CENTER TO CENTER AND 150mm CLEAR VERTICAL SEPARATION BETWEEN WATERMAINS AND ELECTRICAL CONDUITS, GAS MAINS AND TELEPHONE CONDUITS EXCEPT WHERE NOTED IN ENGINEERING DRAWINGS.
10. MAINTAIN A MINIMUM OF 1.0m HORIZONTAL CENTER TO CENTER AND 300mm CLEAR VERTICAL SEPARATION BETWEEN WATER SERVICES AND ELECTRICAL CONDUITS, GAS MAINS AND TELEPHONE CONDUITS EXCEPT WHERE NOTED BY MMCD.
11. CONTRACTOR SHALL FLUSH AND DISINFECT WATER MAINS IN ACCORDANCE WITH AWWA STANDARDS, MMCD AND AS APPROVED BY McELHANNEY LTD AND CoD, AND IN THE PRESENCE OF CoD AND McELHANNEY LTD. WATER SAMPLES FOR HEALTH TESTS TO BE COLLECTED AND PROCESSED BY McELHANNEY LTD. PROVIDE 24 HOURS NOTICE TO McELHANNEY LTD.
12. NEUTRALIZE CHLORINE SOLUTIONS IN ACCORDANCE WITH MINISTRY OF ENVIRONMENT AND FISHERIES AND OCEANS CANADA REGULATIONS PRIOR TO DISCHARGE TO ANY DRAINAGE COURSE.
13. CONTRACTOR SHALL PROVIDE 24 HOUR NOTICE TO CoD PRIOR TO PROCEEDING WITH ANY WATERWORKS.
14. CONTRACTOR SHALL CONDUCT PRESSURE TESTING IN ACCORDANCE WITH MMCD SECTION 33 11 01 (WATERWORKS) AND IN THE PRESENCE OF THE CIVIL ENGINEER AND CoD. TEST PRESSURE TO BE 200psi. CONTRACTOR TO PROVIDE A PRESSURE TESTING AND FLUSHING PLAN PRIOR TO ANY PRESSURE TESTING.

STORM SEWER

- 1. STORM MANHOLE TO BE 1800mm UNLESS OTHERWISE NOTED AND TO BE AS PER MMCD STD. DWG S1. MANHOLE LID TO BE SET SLIGHTLY BELOW FINISHED GRADE TO AVOID OBSTRUCTION.
2. CONTRACTOR TO PROVIDE ENGINEER WITH CCTV VIDEO OF STORM SEWER SYSTEM AS PER CoD SPECIFICATIONS INCLUDING FLUSH & CCTV VIDEO AND ANY DEFICIENCIES REPAIRED PRIOR TO PAVING CONSTRUCTION.
3. ALL ABANDONED STORM MANHOLES TO BE REMOVED & ABANDONED MAINS PLUGGED FOLLOWING TIE IN AND ACTIVATION OF NEW STORM MAINS

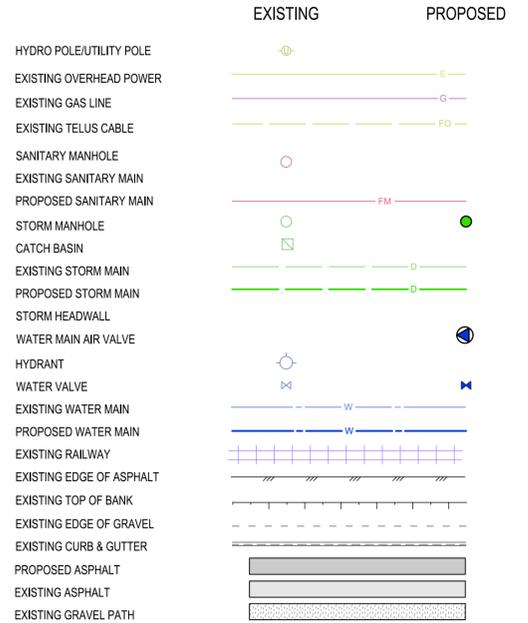
ENVIRONMENTAL AND TREE PROTECTION

- 1. CONTRACTOR TO PROVIDE AN ENVIRONMENTAL PROTECTION & MANAGEMENT PLAN (TO BE APPROVED BY CoD) PREPARED BY A QUALIFIED ENVIRONMENTAL CONSULTANT A MINIMUM OF 48 HOURS BEFORE COMMENCING CONSTRUCTION, WHICH WILL PROVIDE DETAILS AND PROCEDURES, AT A MINIMUM, OF THE FOLLOWING:
1.1. DISPOSAL OF WASTES.
1.2. DISCHARGING OF TRENCH WATER.
1.3. EROSION AND SEDIMENT CONTROL.
1.4. FUEL SPILL CONTROL, INCLUDING SIZE AND TYPE OF SPILL KITS.
1.5. DRAINAGE, TREATMENT AND DISPOSAL OF DEWATERING, IN ACCORDANCE WITH REGULATORY AGENCY REQUIREMENTS.
2. CONTRACTOR TO OBTAIN PERMISSION FROM CoD PRIOR TO REMOVAL OF ANY TREES ON PRIVATE OR PUBLIC PROPERTY. TREES AND TREE ROOTS ARE TO BE PROTECTED DURING CONSTRUCTION. HAND DIG WHERE ROOTS OVER 50mm ARE ENCOUNTERED. CERTIFIED ARBORIST TO BE ENGAGED BY THE CONTRACTOR.

SOUTHERN VANCOUVER ISLAND RAILWAY NOTES

- 1. RAILWAY FLAG PROTECTION MUST BE PROVIDED FOR ALL WORK INVOLVING MATERIALS, EQUIPMENT, AND/OR PERSONNEL AT ALL TIMES WHEN LOCATED WITHIN 9.1m OF ANY TRACK CENTERLINE. RAILWAY FLAG PROTECTION MUST BE PROVIDED BY A QUALIFIED RAILWAY FLAG PERSON AND TRACK INSPECTOR. THE RAILWAY FLAG PERSON MUST BE AN EMPLOYEE OF THE OPERATING RAILWAY OR A QUALIFIED PERSON APPROVED BY THE RAILWAY. THE RAILWAY FLAG PERSON IS REQUIRED TO PROVIDE FOR THE SAFETY OF THE RAILWAY, PUBLIC, AND PERSONS PERFORMING WORK ON, UNDER, AND/OR AROUND THE RAILWAY. TRACK PROTECTION INCLUDES OBTAINING THE CREWS, COORDINATING THE WORK WITH RAIL TRAFFIC ON THE LINE, AND LOOKING OUT FOR THE GENERAL INTEREST OF THE RAILWAY RELATING TO SAFETY. THE SAFETY PROCEDURE IS A REGULATORY REQUIREMENT OF THE PROVINCIAL GOVERNMENT, REPRESENTED BY THE C.V. SAFETY AUTHORITY.
2. DEPENDING ON THE EXTENT OF THE WORK, ADDITIONAL PERSONNEL COULD BE REQUIRED. AS A GENERAL RULE ONE FLAG PERSON CAN FULFILL THESE REQUIREMENTS FOR WORK ACTIVITY THAT DOES NOT EXTEND BEYOND A SPECIFIC GEOGRAPHIC AREA (EG. 1-2 MILES).
3. NOTIFICATION OF THE WORK TO BE PERFORMED WITHIN 30 FEET OF ANY TRACK CENTERLINE MUST BE MADE TO THE RAILWAY 48 HOURS IN ADVANCE OF THE WORK OR BY MEANS OF COMMUNICATION ON SITE FOR WORK THAT IS ONGOING IN PROGRESS. NOTIFICATION CAN BE MADE BY CONTACTING SVI ROADMASTER, AL KUTAJ AT 250-755-5604, OR BYRON REED AT 250-755-6459. THE SVI GENERAL OFFICE PHONE NUMBER IS 250-754-9222.
4. FOR WORK REQUIRED ON THE RAIL RIGHT-OF-WAY WHERE ALL MATERIALS, EQUIPMENT, AND PERSONNEL ARE AT NO TIME LOCATED WITHIN A DISTANCE OF 30 FEET OF ANY TRACK CENTERLINE, FLAG PROTECTION MAY NOT BE REQUIRED HOWEVER THE RAILWAY MUST BE NOTIFIED OF THE DETAILS OF THE WORK AND THE SCHEDULE USING THE NOTIFICATION PROCEDURE AND CONTACT NUMBERS ABOVE.
5. NO CONSTRUCTION WORK TO OCCUR WITHIN 9.1m OF RAILWAY TRACKS WITHOUT NOTIFICATION AND PERMISSION BY SVI.
6. CONTRACTOR TO PROVIDE A TWO WEEK NOTICE OF WORK PRIOR TO CONSTRUCTION TO PROVIDE SVI ADEQUATE TIME TO COORDINATE MATERIALS AND FOR SCHEDULING OF RESOURCES.
7. CONTRACTOR TO CONTACT AL KUTAJ AT (250) 755-5604 EVERY MORNING PRIOR TO CONSTRUCTION.
8. CONTRACTOR TO PROVIDE PROOF OF INSURANCE WITH A 2 MILLION DOLLAR LIABILITY AND TO HAVE SVI AND ICF NAMED ON THE CERTIFICATE.
9. SVI CAN REMOVE A SET OF RAILS IF REQUIRED WITH TWO WEEKS NOTICE
10. THE NAMED CONTRACTOR WILL BE THE PRIME CONTRACTOR ON SITE. ALL SAFETY AND RELATED PPE AS PER THE CONTRACTORS SAFETY PLAN AND WORK SAFE BC REGULATIONS DURING CONSTRUCTION.
11. ALL OPEN TRENCHES OVER NIGHT TO BE THE RESPONSIBILITY OF THE CONTRACTOR AND TO BE FENCED OFF FOR THE SAFETY OF THE PUBLIC.
12. CONTRACTOR TO ENSURE THE TRENCH BACKFILL IS TO 75mm BELOW THE BOTTOM OF THE RAIL TIES AND NOTIFY SVI OF THIS COMPLETION. THE LENGTH OF THE TRENCH IS TO BE COMPLETED TO AT LEAST 5.0m FROM THE NEAREST RAIL. SVI TO COMPLETE THE RESTORATION OF THE RAILWAY FROM THIS POINT UPON INSPECTION.
13. SVI TO SUPPLY AND INSTALL TOP BASE BALLAST GRAVELS AND REPLACE AND INSTALL NEW RAIL TIES AS REQUIRED.
14. THE CITY OF DUNCAN TO BE RESPONSIBLE FOR ALL SVI COSTS INVOLVED IN ASSISTING ON THIS PROJECT.
15. NO SUB-SURFACE INVESTIGATION OR GEOTECHNICAL ASSESSMENT HAS BEEN UNDERTAKEN.

LEGEND



CHANGES TO DESIGN BUBBLED IN RED

Table with 5 columns: Rev, Date, Description, Drawn, Design, App'd. Contains revision history for the drawing.

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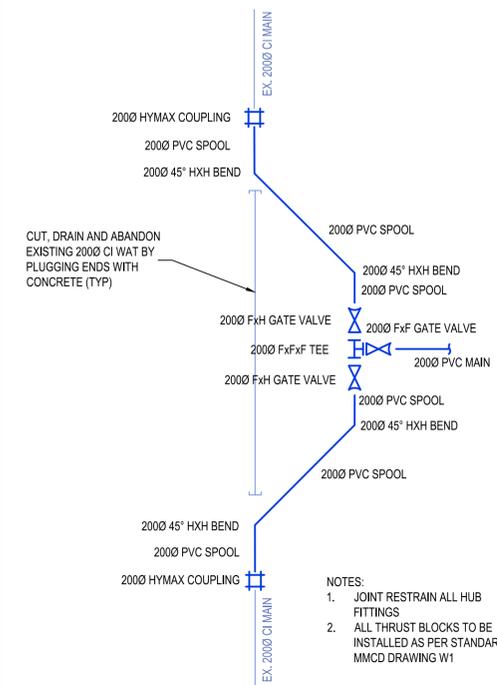
McElhanney logo and contact information. Includes 'PERMIT TO PRACTICE' stamp for McElhanney Ltd. with permit number 1003299.

PRELIMINARY NOT FOR CONSTRUCTION

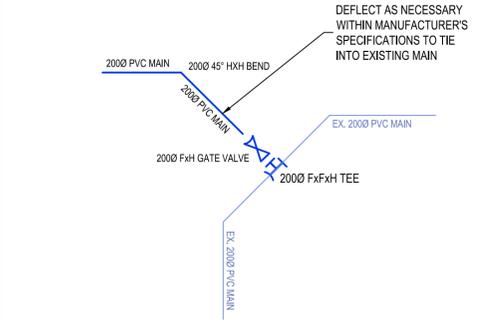
CITY OF DUNCAN logo and project title: COWICHAN SECONDARY WATER MAIN EXTENSION CANADA AVE TO DUNCAN STREET NOTES, SPECIFICATIONS & LEGEND

Table with 2 columns: Drawing No., Project Number, Rev. Drawing No. is C01, Project Number is 2233-02091-00, Rev. is PC.

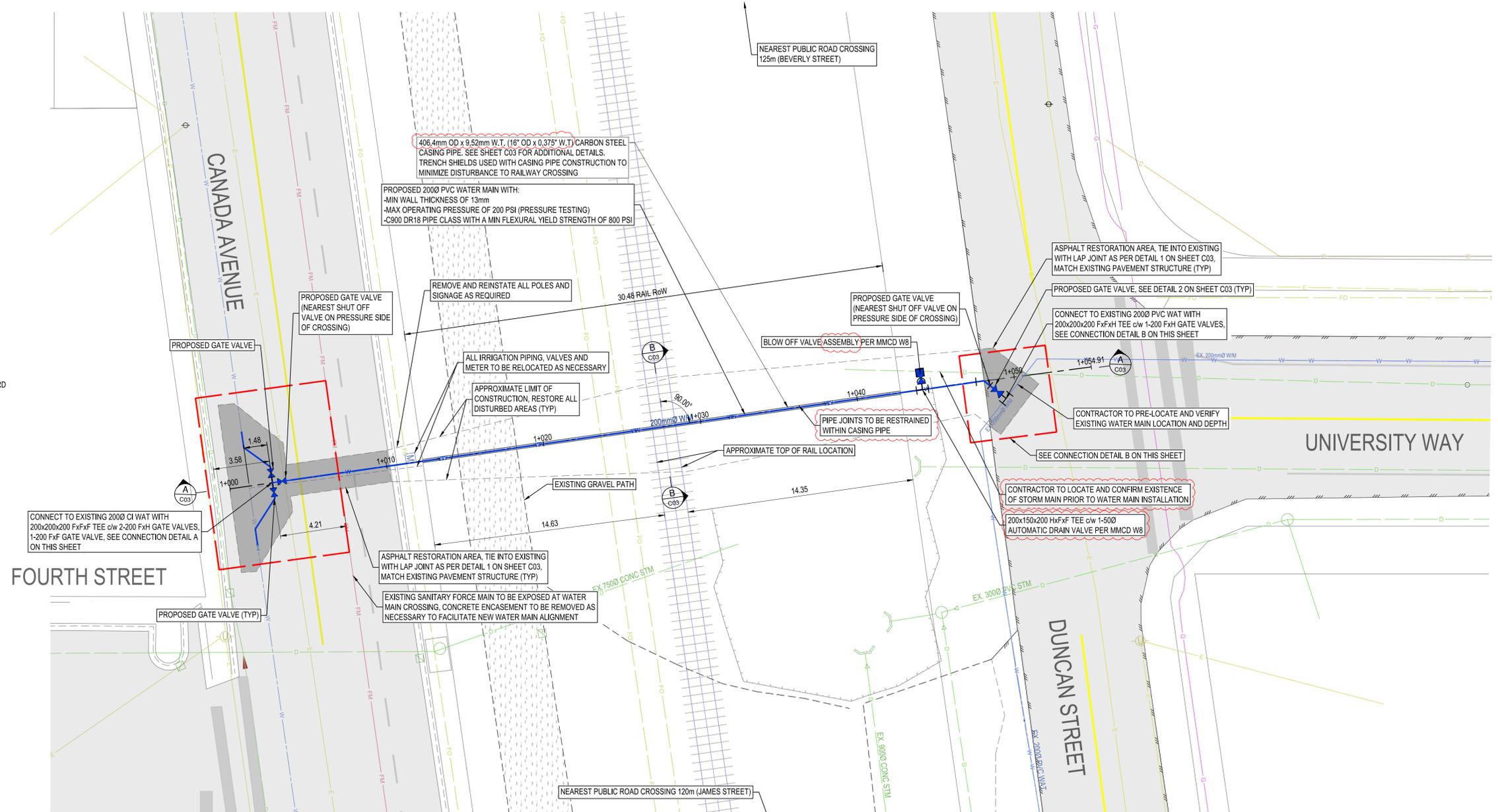
DATE: 2023-07-20 09:09 FILE: I:\Projects\230302091-00-City of Duncan - Third Street Renewal (10 - Drainage) - Active\10_1_1_Sheet\02091-00-COWICHAN SECONDARY WATER MAIN.dwg



CONNECTION DETAIL A
SCALE: NTS



CONNECTION DETAIL B
SCALE: NTS



- NOTES:**
1. JOINT RESTRAIN ALL HUB FITTINGS
 2. ALL THRUST BLOCKS TO BE INSTALLED AS PER STANDARD MMCD DRAWING W1

- NOTES:**
- THE WATER MAIN CROSSING WILL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE BRITISH COLUMBIA RAILWAY SAFETY CODE PART 3 CONSTRUCTION AND MAINTENANCE.
 - THE WATER MAIN CROSSING IS DESIGNED FOR COOPER'S E-80 TRAIN LOADING WITH IMPACT FOR LOCAL CONDITIONS.
 - THE PROPOSED METHOD OF INSTALLATION IS VIA AN OPEN TRENCH.
 - ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
 - ALL INFRASTRUCTURE DEPTHS AND GRADES COMPILED FROM GIS AND OTHER SOURCES. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.

CHANGES TO DESIGN
BUBBLED IN RED

Rev	Date	Description	Drawn	Design	App'd
PC	2023-07-20	ISSUED FOR ADDENDUM #1	MR	MR	JJ
PB	2023-06-05	ISSUED FOR TENDER	MR	MR	JJ
PB	2023-06-05	ISSUED FOR PERMITTING	MR	MR	JJ
PA	2023-02-06	ISSUED FOR PERMITTING	MR	MR	JJ

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ORIGINAL DWG SIZE: ANSI D (22" x 34")



McElhanney

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McElhanney Ltd.
PERMIT NUMBER: 1003299
Engineers and Geoscientists of BC

DUNCAN

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225 Canada Avenue
Duncan BC
Canada V9L 1T6
T 250 748 3335

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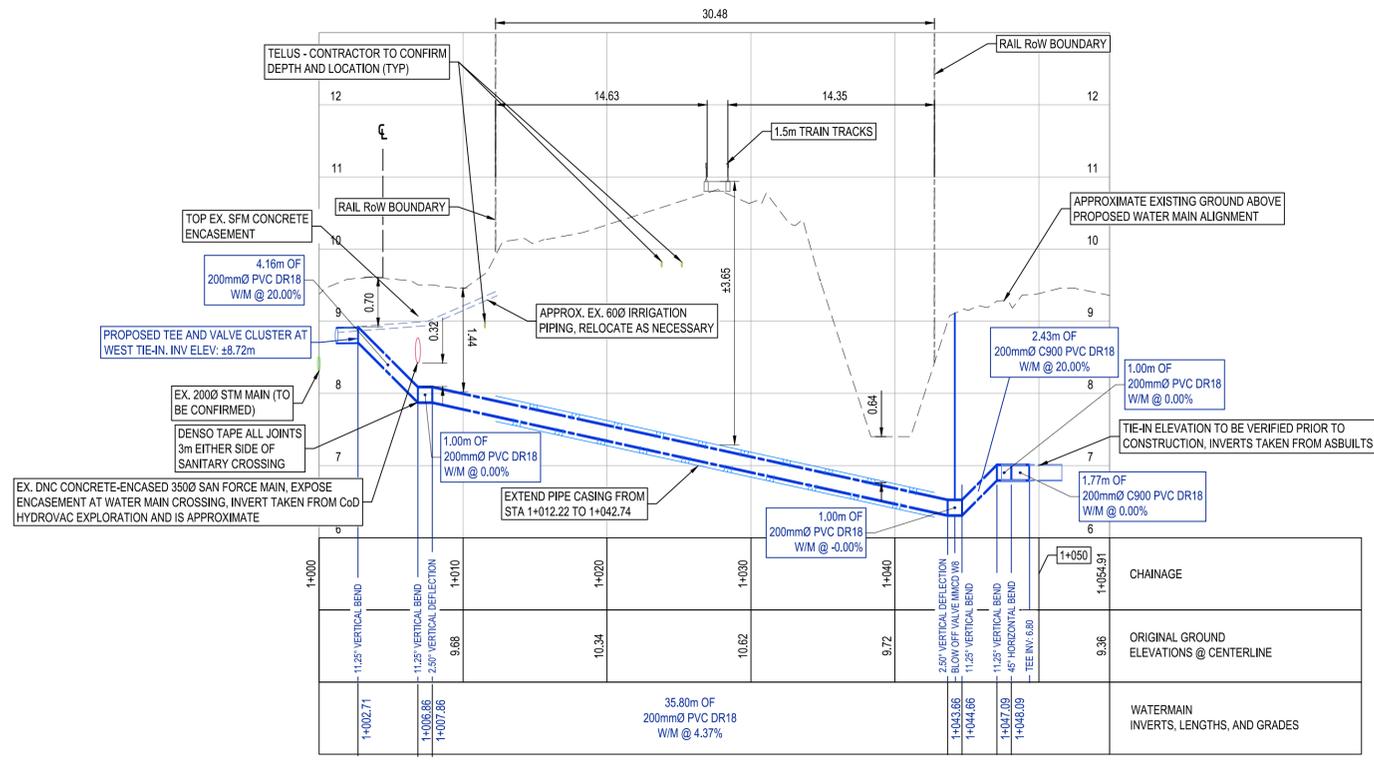
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AND MAY CONTAIN ERRORS AND OMISSIONS

CITY OF DUNCAN
200 CRAIG STREET, DUNCAN BC V9L 3Y2

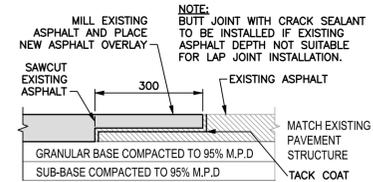
**COWICHAN SECONDARY WATER MAIN EXTENSION
CANADA AVE TO DUNCAN STREET
WATER MAIN PLAN**

Drawing No.	
C02	
Project Number	Rev.
2233-02091-00	PC

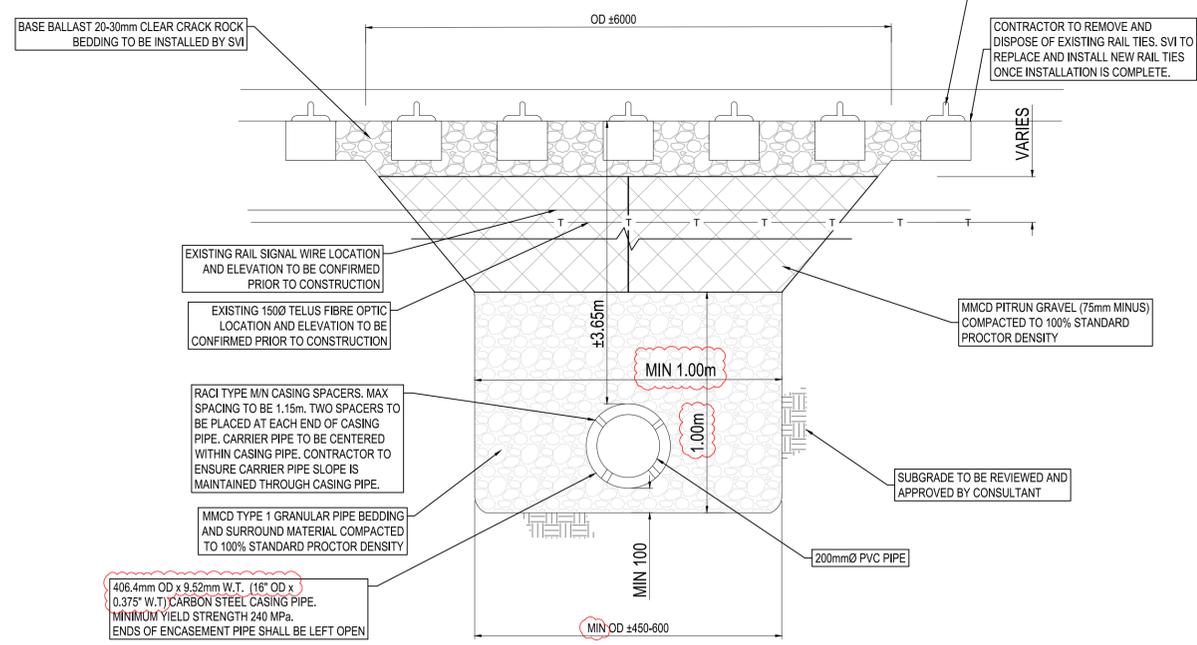
DESTROY ALL PRINTS BEARING PREVIOUS REVISION



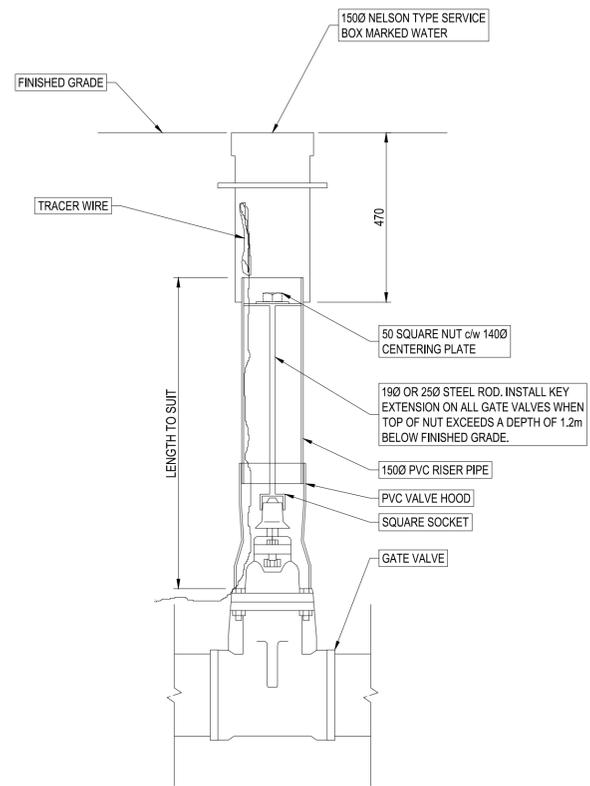
A
C02
SITE SECTION
SCALE: H 1:250
V 1:50



1
C02
LAP JOINT DETAIL
SCALE: H:NTS



B
C02
TYPICAL RAIL CROSSING
SCALE: H:NTS
V:NTS



2
C02
GATE VALVE INSTALLATION
SCALE: H:NTS

- NOTES:
- THE WATER MAIN CROSSING WILL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE BRITISH COLUMBIA RAILWAY SAFETY CODE PART 3 CONSTRUCTION AND MAINTENANCE.
 - THE WATER MAIN CROSSING IS DESIGNED FOR COOPER'S E-80 TRAIN LOADING WITH IMPACT FOR LOCAL CONDITIONS.
 - THE PROPOSED METHOD OF INSTALLATION IS VIA AN OPEN TRENCH.
 - ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
 - ALL INFRASTRUCTURE DEPTHS AND GRADES COMPILED FROM GIS AND OTHER SOURCES. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.

- NOTES:
- ONLY PRODUCTS APPROVED BY THE CITY ENGINEER WILL BE ACCEPTED FOR INSTALLATION.
 - VALVES LOCATED ON GRAVEL ROADS OR ROAD SHOULDERS REQUIRE A 1.5m X 1.5m ASPHALT APRON.
 - VALVES LOCATED IN UNTRAVELED AREAS REQUIRE A 1.2m X 1.2m CONCRETE APRON.
 - 1500 RISER PIPE SHALL BE DR-18 PVC IN TRAVELED AND UNTRAVELED AREAS.
 - TRACER WIRE TO ENTER RISER AT VALVE BODY AND EXCESS TO BE BUNDLED NEATLY AT WITHIN VALVE BOX IN SUCH A MANNER AS TO NOT INTERFERE WITH VALVE OPERATION OR PROPER LID CLOSURE.
 - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

CHANGES TO DESIGN
BUBBLED IN RED

Rev	Date	Description	Drawn	Design	App'd
PC	2023-07-20	ISSUED FOR ADDENDUM #1	MR	MR	JJ
PB	2023-06-05	ISSUED FOR TENDER	MR	MR	JJ
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ORIGINAL DWG SIZE: ANSD 0 (22" x 34")

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CITY OF DUNCAN
200 CRAIG STREET, DUNCAN BC V9L 3Y2

COWICHAN SECONDARY WATER MAIN EXTENSION
CANADA AVE TO DUNCAN STREET
PROFILES, SECTIONS & DETAILS

Drawing No.	C03
Project Number	2233-02091-00
Rev.	PC



July 13, 2023

File: W-Duncan, City of
McElhanney Project No.: 2233-02091-00

John Pite
Manager of Engineering
City of Duncan
200 Craig Street
Duncan, BC V9L 1W3

Dear John Pite:

Re: Water Supply System Construction Permit No. W-S-2627 – Cowichan Secondary Watermain Extension (Southern Vancouver Island Railway ROW)

Please find enclosed **Water Supply System Construction Permit No. W-S-2627**, issued under section 7 of the **Drinking Water Protection Act**, authorizing construction of the proposed watermain extension across the railway right-of-way extending from University Way between Canada Avenue and Duncan Street to support existing and future development in the City of Duncan.

This permit is valid for one year and is not transferable unless the transfer is approved by the Issuing Official or the Drinking Water Officer. This permit is subject to the following terms:

Design Amendments and Conditions: The submitted design must be amended to address the following item(s), or during construction the following item(s) must be attended to, as a condition of this permit:

1. Where the watermain crosses below the sanitary forcemain on Canada Avenue near Stn. 1+007 (Dwg. C03, Rev. PB), the watermain shall be protected as follows:
 - a. Maintain a vertical separation of at least 0.45m (from watermain crown to sanitary invert),
 - b. Provide a continuous hydraulic barrier (e.g. clay soil, geomembrane) in trench between water and sewer. The barrier must extend at least 0.3m beyond outer edge of water main on both sides,
 - c. Place sewer pipe in sleeve or casing pipe with watertight end seals. Casing pipe should be installed in accordance with best practices, including provisions for securing the pipe with spacers, skids or equivalent to protect pipe from movement and provide ease of removal for repair. Isolation valves should may be required by the design engineer, and
 - d. The crossover occurs on nominal pipe centres and all joints within 3.0 m of the crossings are protected with AWWA approved pipeline protection product, e.g. heat shrink wrap, petrolatum tape.

Public Health Engineering

4201 6th Avenue | Port Alberni, BC V9Y 4N1
Email: HPES.Engineering@islandhealth.ca

Tel: 250-731-1355 | Fax: 250-731-1356
www.islandhealth.ca

Excellent health and care, for everyone, everywhere, every time.

2. Where the watermain crosses under the storm ditch near Stn. 1+040 (Dwg. C03, Rev. PB), ensure that:
 - a. The watermain is provided with appropriate bedding and cover to reduce the potential risk of damage to the watermain during future ditch maintenance, and
 - b. The crossover occurs on the nominal pipe centre of the watermain, and all watermain joints within 3.0 metres of the crossing are protected with shrink-wrap, petrolatum tape or other equivalent pipeline protection products.

3. A vertical profile was not available for the storm drain shown running alongside the proposed watermain between approximately Stn. 1+040 and Stn. 1+050. Where there is reduced horizontal clearance, protect all watermain joints within 3 m on either side of the crossing with AWWA-approved pipeline protection product, e.g. heat shrink wrap, petrolatum tape. For existing sewers the distance for protective measures may be reduced to 1.5m to avoid excessive excavation. Additionally, if excavation during construction shows reduced vertical (<0.45m) separation distance between the proposed watermain and the storm sewer, the watermain shall be protected by **either**:
 - a. A continuous hydraulic barrier (clay soil, geomembrane or equivalent) in trench between water and respective sewer lines (sanitary and storm). The barrier must extend no less than 300 mm (1 foot) below the bottom of the trench on the sewer side, such that the trench height is protected, **or**
 - b. Place the watermain in a sleeve or casing pipe with watertight end seals that is the same or greater pressure rating as the water line and of a material that is approved for use as a watermain. Secure the pipe with spacers, skids, or equivalent to protect pipe from movement and provide ease of removal for repair.

Design Deviations: This permit applies exclusively to the works as approved. Any subsequent design modifications will require the submission of amended drawings to the Issuing Official or Drinking Water Officer and approval obtained before installation of the amended works.

Disinfection: It is the responsibility of the water system owner (City of Duncan) to ensure that, following the completion of construction, repair, or draining and refilling of any portion of the system affected, and prior to the delivery of water to customers served by these works, all waterworks affected by this permit are disinfected in accordance with the appropriate American Water Works Association (AWWA) standard or equivalent.

Chlorinated water used for disinfection of all waterworks shall not be directly discharged into the environment without the permission of the Ministry of Environment, and/or Fisheries and Oceans Canada.

The water system supplier (City of Duncan) shall maintain records of the completion date of the permitted work, and the results of the bacteriological testing conducted as part of the disinfection protocol. The water supplier shall notify Island Health if bacteriological tests are unacceptable. These records shall be made available for inspection by the public health engineer or Island Health personnel, if requested.

Sewers: It is the responsibility of the water system owner (City of Duncan) to ensure that mains under construction or repair are not contaminated by seepage or effluent from sewers or storm drains.

This document grants authorization under Section 7 of the **Drinking Water Protection Act** only, and does not constitute permission or consent under any other *Act* or authority.

Please contact the Public Health Engineering Department through Island Health in Nanaimo should there be any questions concerning the above.

Yours truly,

A handwritten signature in black ink, appearing to read 'Morgan Martin', with a long, sweeping horizontal flourish extending to the right.

Morgan Martin, P. Eng.
Public Health Engineer

cc: Alison Gardner, Environmental Health Office, HPES, Island Health, Duncan
Jon Irving, P.Eng., McElhanney, Duncan

W-Duncan, City of

Water Supply System Construction Permit

NO. W-S-2627

To: Duncan, City of

Cowichan Secondary (Southern Vancouver Island Railway ROW)

This is to certify that drawings numbered 2233-02091-00 Sheet C00 to C03, all Rev. PB, dated June 5, 2023, signed June 7, 2023, and submitted June 19, 2023 by J.R. Irving, P.Eng, of McElhanney, portraying a proposed *watermain replacement comprising of approximately 56metres of 200-mm diameter PC235 DR18 PVC pipe, and other related appurtenances* to serve existing and future development in the City of Duncan and submitted in accordance with Section 7 of the **Drinking Water Protection Act** have been reviewed and proposed construction, alteration or extension may be commenced in accordance with the approved plans and the terms and conditions contained in the letter of transmittal.

This document certifies that the plans and specifications for the proposed works have been reviewed pursuant to the current "Guidelines for the Approval of Water Supply Systems" issued by Island Health and that the plans and specifications meet the protection requirements outlined in the Guidelines.

*The standards of structural integrity and safety of the works have not been considered and are not the subject of this Permit. This document grants authorization under Section 7 of the **Drinking Water Protection Act** only, and does not constitute permission or consent under any other Act or authority.*

July 13, 2023

Date Issued



Morgan Martin, P. Eng.
Public Health Engineer

cc: Alison Gardner, Environmental Health Office, HPES, Island Health, Duncan
Jon Irving, P.Eng., McElhanney, Duncan