CITY OF FORT ST. JOHN
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW

2405, 2021

Adopted June 14, 2021

CONSOLIDATED VERSION
FOR CONVENIENCE ONLY

Includes Amendment Bylaw:

2565, 2021
Adopted January 10, 2022

2759, 2023
Adopted April 24, 2023

City of Fort St. John Subdivision and Development Servicing Bylaw No. 2405, 2021

This Consolidated Version includes the following amending bylaws:

Bylaw Number	Type of Amendment	Date Amending Bylaw was adopted
2565, 2021	Changes to Preliminary Subdivision Approval - Section 4.03	January 10, 2022
2759, 2023	Changes to text, Schedules and Appendices	April 24, 2023

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BEING A BYLAW OF THE CITY OF FORT ST. JOHN TO ESTABLISH
SUBDIVISION AND DEVELOPMENT SERVICING STANDARDS AND CONTROLS
WITHIN THE CITY OF FORT ST. JOHN.

WHEREAS the City of Fort St. John wishes to revise the provisions of the present Subdivision and Development Servicing Bylaw No. 2262, 2015

AND WHEREAS the City of Fort St. John has existing Parcels of land with undeveloped access and services, registered in the Land Title Office;

AND WHEREAS pursuant to the *Local Government Act*, the City of Fort St. John may regulate and require the provision of Works and Services in respect of the Subdivision or Development of land;

NOW THEREFORE, the Council of the City of Fort St. John, in open meeting assembled, enacts as follows:

1.0 TITLE

This bylaw may be cited as the “Subdivision and Development Servicing Bylaw No. 2405, 2021"

2.0 APPLICATION AND ADMINISTRATION

2.01 Purpose

The Purpose of this bylaw is to establish the standard for which lands within the City are Subdivided, Developed and serviced with municipal infrastructure. Through the adoption of the City’s Official Community Plan (OCP), Council has placed a focus on improving the quality of life for Fort St. John residents and this Bylaw sets the foundation for consistent land development implementing the vision found in the OCP.

2.02 Prohibition

No person shall undertake a Subdivision or Develop land or commence construction of Works and Services required by this bylaw, except in compliance with the provisions of this bylaw.

2.03 Application

This bylaw shall apply to all lands within the boundaries of the City of Fort St. John.

2.04 Administration

.1 This bylaw shall be administered by the Director.

.2 This bylaw will be applied on its own or in conjunction the provisions found in all other City bylaws governing the Development of land including but not limited to the Zoning and Building bylaws.

.3 Where the Director exercise discretion in relation to a requirement in the schedules, they will consider: site conditions, transportation, access, user needs and other local government matters in reaching their decision.

2.05 Authorization of Entry

.1 The Director, Building Inspector or their designate, or any other officer appointed by Council, are hereby authorized to enter at all reasonable times upon any property or premises to inspect it in connection with their duties under this bylaw and to ascertain whether the provisions of this bylaw are being complied with.

.2 Pursuant to section 16 of the *Community Charter*, a Bylaw Enforcement Officer may enter into or upon any premise or premises within the Municipality at any reasonable time, including for the following purposes:

2.0 APPLICATION AND ADMINISTRATION (continued)

2.05 Authorization of Entry (continued)

.1 to inspect and determine whether all regulations, prohibitions and requirements imposed under or pursuant to this bylaw are being met;

.2 to take action on default of an order under this bylaw; and

.3 to request anything to be produced to assist with an inspection, enforcement or action on default performed for the purpose of this bylaw.

.3 A Bylaw Enforcement Officer shall display or produce identification upon the request of an occupant of premise or premises that are the subject of an inspection or work performed by the Municipality under this bylaw.

.4 A person must not obstruct an Inspector in the performance of the Bylaw Enforcement Officer's duties

2.06 Severability

If any section, subsection, sentence, clause or phrase of this bylaw is for any reason held to be invalid by the decision of any court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remaining portions of this Bylaw.

If any portion of this bylaw is held to be inconsistent with the *Local Government Act*, *Land Title Act*, or any other Provincial enactment, the applicable Provincial enactment will apply to the extent of that inconsistency.

3.0 DEFINITIONS & INTERPRETATION

3.01 DEFINITIONS

This section was amended by Bylaw No. 2759, 2023

In this bylaw, unless the context indicates otherwise:

"Adjacent Property Owner" means the Owner of any private property adjacent to the Parcel being Subdivided or Developed on which construction is required within or across by means of a Right-of-Way, easement or other agreement, or which could benefit from services under a local area service under section 31 of the *Local Government Act*.

"Approval" means approval in writing from the authority having jurisdiction.

"**Approved Design"** means the final plans and specification for the Works and Services prepared in accordance with the specifications of this bylaw and MMCD documents and have been given written approval from the Director.

3.0 DEFINITIONS & INTERPRETATION (continued)

"Approved Products List" means the City of Fort St. John Subdivision Servicing Bylaw Approved Products List Administrative Procedure No. 23.

"Approving Officer" means the person appointed by the City as the approving officer, pursuant under the Land Title Act.

"Boulevard" means that portion of a highway between the curb or edge of a constructed roadway and the adjacent property boundary.

"Building Bylaw" means the City of Fort St. John *Building Bylaw No. 2248, 2015*, as amended or replaced from time to time.

"Building Inspector" means the person appointed as Building Inspector as per the Building Bylaw.

"**Building Permit**" means a permit authorizing construction, reconstruction, repair or alternation/renovation of a building or structure as per the Building Bylaw.

"Business Day" means a day which is not a Saturday, Sunday, or statutory holiday recognized by the City or any other day that the City's offices are closed for business.

"**Certificate of Substantial Completion for All Works"** means the written document issued by the Owner's Engineer certifying that the Works and Services are Substantially Complete, the form of which is prescribed in Appendix 2 attached to this Bylaw.

"Certificate of Substantial Completion for Deep Utilities" means the written document issued by the Owner's Engineer certifying that the Works and Services, comprising only the Deep Utilities, are Substantially Complete, the form of which is prescribed in Appendix 2 attached to this Bylaw.

"Certificate of Final Acceptance for Landscaping Works" means the written document issued by the Landscape Professional certifying that the Landscaping works have been fully installed, constructed, completed, and any defects in the works remedied, in accordance with Approved Design and this bylaw, the form of which is prescribed in Appendix 2 attached to this Bylaw.

"**Certificate of Final Acceptance for Non-Landscaping Works"** means the written document issued by the Owner's Engineer certifying that the Works and Services, except for Landscaping works, have been fully installed, constructed and completed, and any defects in the Works and Services remedied, in accordance with the Approved Design and this bylaw, the form of which is prescribed in Appendix 2 attached to this Bylaw.

"Certified Landscape Designer" means a person whose major professional occupation and training is in landscape design and planting design who is certified with the Canadian Nursery Landscape Association.

3.0 DEFINITIONS & INTERPRETATION (continued)

"City" means the City of Fort St. John, or the lands lying within the corporate boundaries of the City of Fort St. John, as the context may require.

"Community Drainage System" means the Drainage System located within City Lands and which is owned, operated and maintained by the City.

"Community Sewer System" means a sanitary sewer system of sewage disposal works which is owned, operated and maintained by the City.

"Community Water System" means a water supply system within the meaning of the *Drinking Water Protection Act* which is owned, operated and maintained by the City or an Improvement District under the *Local Government Act*.

"**Construction Security**" means security for the performance of the Owner's obligations to design, construct, install and complete the Works in accordance with the Subdivision and Development Servicing agreement in the form of a cash deposit, certified cheque, bank draft, or in the form of a letter of credit meeting the terms and conditions set out in the Subdivision and Development Servicing agreement, and otherwise to be issued to the City in the amount of 100% of the estimated costs;

"Council" means the Council of the City.

"CSA" means the Canadian Standards Association.

"Cul-de-sac" means a length of local highway made for vehicular use, the end of which is permanently closed either by Subdivision design or by a natural feature such as inaccessible terrain.

"Deep Utilities" means those portions of the Works and Services comprising the water, sanitary sewer and drainage facility and their related appurtenances.

"Developer" means the Owner or person who has the written authority to act on behalf of the Owner, to make application for Subdivision or Development and carry out Works and Services under this Bylaw.

"Develop" or "Development" means any improvement to residential, commercial, industrial, institutional or municipal lands, highways and Right-of-Way areas, including the construction, reconstruction, repair or alteration/renovation of a building or structure, pursuant to a Building Permit.

"Director" means the Director of Planning and Engineering of the City or their delegate.

3.0 DEFINITIONS & INTERPRETATION (continued)

"Drainage System" means a system of works designed and constructed to control the flow of storm water, groundwater or both.

"Driveway Access" means a way or means of approach for vehicles from a highway unto private property.

"**Excess or Extended Services**" has the meaning prescribed by the *Local Government Act*.

"**Final Subdivision Approval"** means that approval granted by the Approving Officer when all relevant requirements of this Bylaw, the *Local Government Act*, the *Land Title Act* and any other relevant bylaws and legislation have been fulfilled.

"GIS Attribute Tables" means the City of Fort St. John Subdivision and Development Servicing Bylaw GIS Attribute Tables Administrative Procedure No. 45.
"Hard Surface" means an area covered by asphalt, concrete or interlocking brick or block.

"Highway, Arterial" means a street which carries large volumes of all types of traffic between the principal areas of traffic generation to Collector highways or other Arterial Highways.

"Highway, Collector" means a street which carries traffic from local Highway to one or more Arterial Highways and includes the principal entrance Streets for circulation of traffic within a subdivision.

"Highway, Local" means a street used primarily for travel and access to and from the Parcels of land contiguous thereto.

"Landscape Architect" means a person who is a member of good standing registered in the British Columbia Society of Landscape Architects.

"Landscape Professional" means a Certified Landscape Designer or Landscape Architect.

"Landscaping Works" means all landscaping including without limitation, the lawns, trees, shrubs, bushes, flowers and other flora to be provided, installed and constructed by the Owner as required by the Director, by this Bylaw and other bylaws of the City, and by the terms of the Subdivision and Development Servicing Agreement or Maintenance Agreement, as applicable, and as otherwise required under statutory authority.

"Lane" means a highway less than 10m in width, which may afford access to a Parcel, at the side or rear of the Parcel.

3.0 DEFINITIONS & INTERPRETATION (continued)

"**Maintenance Agreement**" means the Agreement between the Owner and the City regarding approval to construct within public lands, maintenance periods and Maintenance Security for Works and Services performed prior to Subdivision Approval or Building Permit issuance, in the form generally attached as Appendix 4.p

"Maintenance Security" means security for the performance of the Owner's obligations to maintain the Works and Services in accordance with the terms of a Maintenance Agreement or Subdivision and Development Servicing Agreement in the form of a cash deposit, certified cheque, bank draft or a letter of credit on terms satisfactory to the Director, in the amount of 10% of the estimated cost of constructing the Works and Services.

This section was amended by Bylaw No. 2759, 2023

"MMCD" or **"Master Municipal Construction Document"** means the 2019 Edition of the Master Municipal Construction Document, including supplementary updates, prepared by the Master Municipal Construction Documents Association, but not including "Instructions to Tenderers" and "General Conditions" in volume II or "Measurement and Payment" sections.

"Neighbourhood Stormwater Facility" means a system designed, constructed, operated and maintained by the City to accept and treat stormwater from multiple parcels and projects within the drainage area served by the neighbourhood facility, where the term "drainage area" refers to the land or development that is served by or contributes stormwater to the facility.

"Non-Landscaping Works" means all Works and Services to be provided, performed and constructed by the Owner as required by the Director, by this bylaw, and by the terms of the Subdivision and Development Servicing Agreement or Maintenance Agreement, as applicable, and as otherwise required under statutory authority, except Landscaping Works.

"Owner" means, in respect of real property, the registered owner, and verified by the City through either a Land Title Office search or BC Assessment Roll search, or their agent authorized in writing.

"Owner's Engineer" means the Professional Engineer responsible for the design and/or construction supervision and certification of all Works and Services on behalf of the Owner.

This section was amended by Bylaw No. 2759, 2023

"Parcel" means a lot, block, or other area in which land is held or into which land is subdivided.

"Person" includes an individual owner, occupier, corporation and the heirs, executors, administrators or other legal representatives of a parcel.

"**Preliminary Subdivision Approval**" means provisional Approval of a Subdivision application, issued by the Approving Officer through a preliminary letter of approval setting out the requirements for achieving Final Subdivision Approval.

3.0 DEFINITIONS & INTERPRETATION (continued)

"Professional Engineer" means a person who is registered or duly licensed as such under the provisions of the *Professional Governance Act* of British Columbia.

"**Record Drawings**" means the approved "for construction" drawings accurately revised to reflect actual construction changes in the field, sealed by the Owner's Engineer as per requirements set out in this bylaw.

"Right-of-Way" includes land or any interest in land acquired for any public purpose, including, but not limited to:

a) public rights of passage with or without vehicles;
b) constructing, maintaining, or operating any railway;
c) erecting and maintaining any pole-line;
d) laying, placing, and maintaining drains, ditches, pipes, transmission lines or wires for the conveyance, transmission or transportation of water, electric power, communication, or for the disposal of sewage; and
e) the operation and maintenance of road for vehicular traffic and registered as a public right-of-way.

"Service Level" means the standard of municipal services required for Subdivisions or Developments under the provisions of this Bylaw.

"**Standard Drawings"** means specifications referenced in Appendix 6 of this bylaw.

"Subdivision" means the division of land into two or more Parcels, whether by plan or otherwise, except that the words **"subdivision plan"** shall also include a plan consolidating two or more Parcels into a single Parcel, as well as the creation of strata lots.

"Subdivision and Development Servicing Agreement" means the Agreement between the Owner and the City regarding the construction of the Works and Services by a date specified in the agreement and maintenance periods for those Works and Services, all to be performed after Final Subdivision Approval or Building Permit issuance, in the form generally attached as Appendix 3.

"Substantial Completion", "Substantially Complete" or other similar form of any such phrase means the stage of construction completion when all Works and Services as certified by the Owner's Engineer, are capable of completion or correction and are ready for use or being used for the purpose intended.

"Trail" means a highway or portion of a highway intended to carry pedestrian and non-motorized traffic.

3.0 DEFINITIONS & INTERPRETATION (continued)

"Utilities" means the use of land whereby water, sanitary sewer, drainage facilities, similar public services are provided and maintained.

"Works and Services" includes: highways, Trails, boulevards, boulevard crossings, transit bays, curbs, gutters, street lighting, trail lighting, street trees, boulevard plantings, underground wiring, electrical distribution systems, water distribution systems, fire hydrant systems, sewage collection and disposal systems, drainage collection and disposal systems, access to highways, and such other infrastructure or systems required by this Bylaw in connection with the Subdivision or Development of land.

"Zoning Bylaw" means the City of Fort St. John *Zoning Bylaw No. 2470, 2019*, as amended or replaced from time to time.

All other words, terms and expressions in this Bylaw shall be interpreted in accordance with their definitions in the *Community Charter*, the *Land Title Act*, the *Local Government Act,* the *Interpretation Act* and relevant City bylaws.

3.02 REFERENCE

A reference in this Bylaw to any other bylaw of the City is a reference to that bylaw as amended from time to time and any future bylaws relating to the same subject matter.

3.03 UNITS

Metric units are used for all measurements in this Bylaw.

3.04 HEADINGS

Headings for each section of this Bylaw are intended to organize the content and are to be used for reference purposes only.

4.0 GENERAL PROVISIONS & PROCEDURES

4.01 No person shall subdivide one or more Parcels in the City unless:

.1 the person has entered into a Maintenance Agreement, and provided to the City Maintenance Security and Landscaping Maintenance Security as defined in Appendix 4 having regard to the cost of maintaining the Works and Services during the Maintenance Period, and the Works and Services required by this Bylaw have been provided by the Owner to the satisfaction of the Director, or

.2 the Owner has entered into a Subdivision and Development Servicing Agreement, and provided to the City Construction Security as defined in Appendix 3 having regard to the cost of installing and paying for the Works and Services.

4.02 No person shall construct a building or structure in the City for which a Building Permit is required unless:

.1 the person has entered into a Maintenance Agreement, and provided to the City Maintenance Security and Landscaping Maintenance Security as defined in Appendix 4 having regard to the cost of maintaining the Works and Services during the Maintenance Period, and the Works and Services required by this Bylaw have been provided by the Owner to the satisfaction of the Director, or

.2 the Owner has entered into a Subdivision and Development Servicing Agreement, and provided to the City Construction Security as defined in Appendix 3 having regard to the cost of installing and paying for the Works and Services.

4.03 PRELIMINARY SUBDIVISION APPROVAL:

This section was repealed and replaced in its entirety by Bylaw No. 2565, 2021

.1 If an Owner proposes to Subdivide a Parcel or several adjacent Parcels, the Owner shall apply for Preliminary Subdivision Approval by submitting a Subdivision application. This application shall be accompanied by the fee set in the current City Fees and Charges for Various Municipal Services Bylaw.

.2 Preliminary Subdivision Approval of any proposed Subdivision shall be valid for one year within which time the Owner shall submit all documents required to meet the conditions outlined in the preliminary letter of approval to the Approving Officer for Final Subdivision approval. If the documents are not submitted and approved within the time limit, a complete new Subdivision application will be required unless an extension of the said 180 calendar days is granted by the Approving Officer in their discretion.

4.04 FINAL SUBDIVISION APPROVAL

Prior to Final Subdivision Approval, the Owner shall provide all of the following, as applicable:

.1 Payment to the City of all the costs for connection of all Utilities to serve the proposed Subdivision;

4.0 GENERAL PROVISIONS & PROCEDURES (continued)

4.04 FINAL SUBDIVISION APPROVAL (continued)

.2 Payment to the City of all costs for upgrading the existing Works and Services or installing new Works and Services that will be undertaken by the City;

.3 Payment to the City of all applicable Development Cost Charges required as prescribed in the City's Development Cost Charges Bylaw;

.4 Payment to the City of all applicable Latecomer Fees applicable;

.5 Taxes to be Paid: the Owner shall ensure all taxes on the Parcel to be Subdivided are paid in full; and

.6 Three copies of all duly executed covenants, Rights-of-Way and all other relevant agreements.

4.05 SUBDIVISIONS AND DEVELOPMENTS WHERE SERVICING REQUIREMENTS MAY BE WAIVED

.1 At the discretion of the Director requirements to provide Works and Services under section 4.01 and section 4.02 may be waived where the Parcel created is to be used solely for the unattended equipment necessary for the operation of:

.1 a community water system;

.2 a community sewer system;

.3 a community Drainage System;

.4 a community gas distribution system;

.5 a community radio or television receiving antennas;

.6 a radio or television broadcasting antenna;

.7 a telecommunications relay station;

.8 an automatic telephone exchange;

.9 an air or marine navigational aid;

.10 electrical substations or generating stations; or

.11 any other similar public service or quasi-public service facility or Utility.

.2 If a proposed Subdivision or Building Permit is in an area of the City in which off-site Works and Services of the types prescribed by this Bylaw have already been installed and which conform to the standards of this Bylaw, the Director may authorize the Approval of a Subdivision or the issuance of a Building Permit and sections 4.01 and 4.02 of this Bylaw shall not apply.

4.0 GENERAL PROVISIONS & PROCEDURES (continued)

4.05 SUBDIVISIONS AND DEVELOPMENTS WHERE SERVICING REQUIREMENTS MAY BE WAIVED (continued)

.3 If a proposed Subdivision or Development is in an area of the City in which Works and Services of the types prescribed by this Bylaw have already been installed, and the existing Works and Services do not conform to the standards in this Bylaw, the Director may authorize the Approval of a Subdivision or the issuance of a Building Permit without the Works and Services being improved to the standards prescribed by this Bylaw and sections 4.01 and 4.02 of this Bylaw shall not apply if the level of service already provided to the Subdivision or Development and to adjacent areas is, in the opinion of the Director adequate and in accordance with standards generally accepted as good engineering practice in existing developed areas.

4.06 OTHER JURISDICTIONS

Where applicable, the Owner shall obtain Approvals, pay for Utility designs and construction and execute the work required by other jurisdictions in accordance with the requirements of each respective jurisdiction. Such jurisdictions include, but are not limited to:

.1 Relevant Province of British Columbia Ministries

.2 Utility companies such as gas, power, and telecommunications

.3 CN Rail

.4 Peace River Regional District

.5 Northern Health Authority;

.6 School District #60 (Peace River North); and

.7 Agricultural Land Commission

The Owner shall determine, co-ordinate and submit to the City, engineering designs from utility companies or other agencies when providing electrical, telecommunication, gas and mail delivery services to Parcels.

4.07 QUALITY OF CONSTRUCTION MATERIALS

All construction materials used for Works and Services shall be CSA approved and be listed in the Approved Products List, as amended from time to time by the City, unless otherwise approved by the Director.

4.0 GENERAL PROVISIONS & PROCEDURES (continued)

4.08 NOTICE OF CONSTRUCTION STAGE

During the course of construction, the Owner shall provide advance written notice to the City so that the Director may be in attendance at various stages of construction, including:

CONSTRUCTION STAGE	MINIMUM NOTICE
Sub-grade proof rolling	3 business days
Prior to placement of curb and gutter and walkway	3 business days
Prior to paving	3 business days
Water system pressure/leakage tests	3 business days
Sanitary sewer system leakage tests	3 business days
Tie – in to City infrastructure	3 business days
Tree planting	3 business days
Start-up of Pump Stations, Reservoirs, etc.	3 business days
Substantial Completion Inspection	3 business days
Final Acceptance Inspection – Non Landscaping Works	3 business days
Final Acceptance Inspection – Landscaping Works	3 business days

4.09 MATERIALS STORAGE

.1 All construction materials/debris shall be contained on-site and no storage shall be allowed on any highway.

.2 Construction material/debris shall be removed as soon as construction is complete or construction has ceased for a period of 6 months or more.

.3 Any temporary storage structures, shipping containers, and portable offices for construction purposes must conform to the Zoning Bylaw.

4.0 GENERAL PROVISIONS & PROCEDURES (continued)

4.10 RIGHT-OF-WAY AGREEMENT

Where the Director considers the alignment of proposed Utility infrastructure requires a Right-of-Way over private land, the Owner shall enter into an agreement with the City for each Right-of-Way. The Owner is responsible for all costs relating to registry of each Right-of-Way on each respective land title. At time of Subdivision any Right-of-Way that is identified as a requirement of the Director shall be registered concurrently with the Subdivision Plan individually against each applicable Parcel title. Unregistered Rights-of-Way will be considered a deficiency against the completion of the Works and Services.

5.0 SERVICING REQUIREMENTS

5.01 LEVEL OF SERVICE

As a condition of Final Subdivision Approval or issuance of a Building Permit, the Owner shall provide Works and Services as follows:

.1 Highways, Lanes and Trails in accordance with the Service Level set out in Schedule A and standards set out in Schedules A and B of this Bylaw;

.2 Curbs and Gutters in accordance with the Service Level set out in Schedule A and standards set out in Schedule C of this Bylaw;

.3 Water systems in accordance with the Service Level set out in Schedule A and standards set out in Schedule D of this Bylaw;

.4 Sanitary sewer systems in accordance with the Service Level set out in Schedule A and standards set out in Schedule E of this bylaw;

.5 Drainage Systems in accordance with the Service Level set out in Schedule A and standards set out in Schedule F of this Bylaw;

.6 Landscaping in accordance with Service Level set out in Schedule A and standards set out in Schedule G of this Bylaw;

.7 Temporary construction erosion and sediment control in accordance with the Service Level set out in Schedule A and standards set out in Schedule H of this Bylaw;

.8 Street and trail lighting in accordance with the Service Level set out in Schedule A and standards set out in Schedule I of this Bylaw;

.9 Electrical, telecommunication and gas distribution in accordance with the Service Level set out in Schedule A and standards set out in Schedule J of this Bylaw;

.10 Preparation of drawings and submissions in accordance with Schedule K of this Bylaw;

.11 Specifications and standards for construction of Works and Services set out in Schedule L of this Bylaw; and

.12 In accordance with the standards and specifications set out in MMCD.

5.02 MINIMUM STANDARDS

The standards and specifications that are set out in Schedules B through L are the minimum standards and all Approved Designs shall conform to the Platinum Edition of the MMCD. The Owner's Engineer shall provide supplemental design drawings and specifications to a level of detail to assure required quality in circumstances that warrant it. Alternate standards may be considered by the Director if supported by sound engineering design that demonstrate an equal or greater level of service to the prescribed standard.

5.0 SERVICING REQUIREMENTS (continued)

5.03 COST OF SERVICES

All Works and Services required to be constructed and installed by this bylaw shall be engineered, supplied constructed and installed at the expense of the Owner of the land being Subdivided or Developed.

5.04 EXCESS CAPACITY OF WORKS AND SERVICES

The design of any highway, water, sanitary sewer or Drainage System shall be adequate to serve the land being subdivided or Developed, as well as any other Parcel that is a tributary to the system or to which the system will provide service.

Council delegates to the Director the power under section 507 and 508 of the *Local Government Act to*:

.1 require Excess or Extended Services in accordance with section 507 of the *Local Government Act;*

.2 determine whether the cost to the City of an Excess or Extended Service is excessive such that the Owner of the Parcel being subdivided or Developed shall pay such costs;

.3 determine the proportion of the cost of providing the Works and Services that constitute an Excess or Extended Service;

.4 determine which part of the Excess or Extended Service will benefit each of the Parcels that will be served by an Excess or Extended Service; and

.5 enter into an agreement with the Owner of the Parcel being Subdivided or Developed to establish the period during which charges may be collected in accordance with section 508 (5) of the *Local Government Act*.

Where the Works and Services include Excess or Extended Services, the Director may require the Owner's engineer to provide an itemized estimate of the proportion of the cost that is attributable to the Excess or Extended Services, the benefiting properties, and the allocation of costs among them, although such information is not to be binding on the City in its determination under section 507 or 508 of the *Local Government Act*.

6.0 ENGINEERS AND CONSULTANTS

6.01 COMMITMENT REQUIRED BY OWNER

Prior to review of any Subdivision or Building Permit application by the City, where a Subdivision and Development Servicing Agreement or a Maintenance Agreement is required, the Owner shall enter into an agreement with the City to confirm the relationship between the Owner, the Consulting Engineer, and the City. Appendix 1 of this Bylaw contains the "Confirmation of Commitment by Owner".

This letter is to be typed on the Owner's letterhead and submitted to the City at time of Subdivision application.

6.02 SUBDIVISION AND DEVELOPMENT ENGINEERING REQUIRED

Prior to review of any Subdivision or Development by the City, where a Subdivision and Development Servicing Agreement or a Maintenance Agreement is required, the Owner's Consulting Engineer, Landscape Professional and Geotechnical Engineer shall each confirm their engagement with the Owner such that they will be providing professional services to the Owner to ensure that the Subdivision or Development and the Works and Services are designed and constructed in accordance with this Bylaw, the Approved Design and good practice. Appendix 1 contains the "Confirmation of Professional Assurance" letters to be typed onto each Consulting Professional's letterhead and submitted to the City before or with the submission for Preliminary Approval.

7.0 OFFENCES AND PENALTIES

7.01 Every person who violates any of the provisions of this bylaw, or who suffers or permits any act or thing to be done in contravention of this bylaw, or who refuses, omits, or neglects to fulfill, observe, carry out, or perform any duty or obligation imposed by this Bylaw shall be guilty of an offence punishable on summary conviction and shall be liable to a fine of not less than the sum of One Hundred Dollars ($100.00) but not exceeding the sum of Ten Thousand Dollars ($10,000) or to imprisonment for not more than six months, or to both.

7.02 Any person designated as a Bylaw Enforcement Officer pursuant to the City of Fort St. John *Bylaw Notice Enforcement Bylaw No. 2428, 2018*, as amended or replaced from time to time, or the City of Fort St. John *Municipal Ticket Information System Bylaw No. 2429, 2018*, as amended or replaced from time to time, is hereby authorized and empowered to enforce the provisions of this Bylaw by the provisions of the *Bylaw Notice Enforcement Bylaw No. 2428, 2018*, as amended or replaced from time to time, or the *Municipal Ticket Information System Bylaw No. 2429, 2018*, as amended or replaced from time to time.

7.03 The penalty for a contravention dealt with in accordance with the *Bylaw Notice Enforcement Bylaw No. 2428, 2018*, as amended or replaced from time to time, shall be as follows:

.1 The penalty amount set out in Column A3 of Table M.1 in Schedule M is payable for the corresponding contravention except when subsection .2 or .3, below, apply;

.2 The early payment penalty set out in Column A4 of Table M.1 in Schedule M is payable if payment is received by the City within 14 days of the person receiving or being presumed to have received the bylaw notice; and

.3 The late payment penalty set out in Column A5 of Table M.1 in Schedule M is payable if payment is received more than 31 days after the person received or is presumed to have received the bylaw notice.

.4 The penalty and corresponding contravention may be available for a Compliance Agreement and 50% penalty reduction with the City as set out in Column A6 of Table M.1 in Schedule M.

7.04 The penalty for a contravention dealt with in accordance with the *Municipal Ticket Information System Bylaw No. 2429, 2018*, as amended or replaced from time to time, shall be as follows:

.1 The words and expressions in Column 1 of Table N.1 in Schedule N shall designate the offence committed under the section number of this Bylaw appearing in Column 2 of Schedule N opposite the respective words or expressions; and

.2 The dollar amounts appearing in Column 3 of Table N.1 in Schedule N of this Bylaw establish the fines in respect of the corresponding offence designated in Column 1.

7.0 OFFENCES AND PENALTIES (continued)

7.05 Where an offence of this bylaw is a continuing offence, each day that the offence is continued shall constitute a separate offence.

7.06 Any penalty imposed pursuant to this bylaw shall be in addition to, and not in substitute for, any other penalty or remedy imposed pursuant to any other applicable statue, law, or legislation.

8.0 SCHEDULES AND APPENDICES

8.01 LIST OF SCHEDULES

The following is a list of schedules attached hereto and forming part of this Bylaw:

.1	SCHEDULE A	Service Levels;
.2	SCHEDULE B	Highways, Lanes and Trails - Regulations, Standards and Specifications for Design;
.3	SCHEDULE C	Curbs and Gutters, and Boulevards - Regulations, Standards and Specifications for Design;
.4	SCHEDULE D	Water Systems - Regulations, Standards and Specifications for Design;
.5	SCHEDULE E	Sanitary Sewers - Regulations, Standards and Specifications for Design;
.6	SCHEDULE F	Drainage Systems - Regulations, Standards and Specifications for Design;
.7	SCHEDULE G	Landscaping - Regulations, Standards and Specifications for Design;
.8	SCHEDULE H	Temporary Construction Erosion and Sediment Control Plan – Regulations, Standards and Specifications for Design;
.9	SCHEDULE I	Street and Trail Lighting - Regulations, Standards and Specifications for Design;
.10	SCHEDULE J	Electrical, Telecommunications, and Gas Distribution System - Regulations, Standards and Specifications for Installation;
.11	SCHEDULE K	Drawing and Submission Standards;
.12	SCHEDULE L	Specifications and Standards for the Construction of Works and Infrastructure Designed Under Schedules B through J;
.13	SCHEDULE M	Bylaw Notice Enforcement Offences;
.14	SCHEDULE N	Municipal Ticket Information Offences;
.15	SCHEDULE O	Designated Bylaw Enforcement Officers

8.0 SCHEDULES AND APPENDICES (continued)

8.02 STANDARD LETTERS

The following is a list of standard letters contained in **Appendix 1** to be submitted by the Owner and the Consulting Professional's on their letterhead to the City, and are included for convenience only and do not form part of this bylaw:

.1 Confirmation of Commitment by Owner;

.2 Confirmation of Professional Assurance by Owner's Engineer;

.3 Confirmation of Professional Assurance by Geotechnical Engineer; and

.4 Confirmation of Professional Assurance by Landscape Professional.

8.03 LIST OF CERTIFICATES

The following lists of Certificates are contained in **Appendix 2**.

.1 Certificate of Substantial Completion for Deep Utilities;

.2 Certificate of Substantial Completion for All Works;

.3 Certificate of Final Acceptance for Non-Landscaping Works; and

.4 Certificate of Final Acceptance for Landscaping Works.

8.04 SUBDIVISION SERVICING AGREEMENT

The sample Subdivision and Development Servicing Agreement is contained in **Appendix 3**. It is included for convenience only and does not form part of this bylaw.

8.05 MAINTENANCE AGREEMENT

The sample Maintenance Agreement is contained in **Appendix 4.** It is included for convenience only and does not form part of this bylaw.

8.06 SERVICE CARD

The sample Service Card is contained in **Appendix 5.** It is included for convenience only and does not form part of this bylaw.

8.07 STANDARD DRAWINGS

The Standard Drawings are contained in **Appendix 6.**

9.0 ENACTMENT

9.01 REPEAL OF PREVIOUS BYLAW

The Subdivision & Development Servicing Bylaw No. 2120, 2013 and all amendments thereto, are hereby repealed.

Introduced and Read a FIRST, SECOND, and THIRD time this 25th day of May, 2021

RECONSIDERED AND ADOPTED this 14th day of June 2021

_____
Lori Ackerman, Mayor

_____
Bonnie McCue, Corporate Officer

SCHEDULE A

SERVICE LEVELS

A - 1.0 GENERAL

.1 All Subdivision and Developments throughout the City of Fort St. John shall be constructed in accordance with the development standards outlines in this Schedule conforming to the following:

.1 Roadways, lanes and trails in accordance with Schedule B;

.2 Curb and gutters, sidewalks and boulevards in accordance with Schedule C;

.3 Water distribution system and connection to Community Water System in accordance with Schedule D;

.4 Sanitary sewer collection system and connection to Community Sanitary Sewer system in accordance with Schedule E;

.5 Drainage systems and connection to Community Drainage System plans in accordance with Schedule F;

.6 Landscaping in accordance with Schedule G;

.7 Temporary construction erosion and sediment control plans in accordance with Schedule H

.8 Street and trail lighting in accordance with Schedule I;

.9 Electrical, telecommunications and gas distribution in accordance with Schedule J;

.10 Drawing and submission standards in accordance with Schedule K; and

.11 Specification and standard drawings in accordance with Schedule L.

TABLE A.1

DEVELOPMENT STANDARDS BY HIGHWAY CLASSIFICATION

Highway Classification	Right-of-Way Width	Asphalt Width [1]	Lane Widths	Curb Type	Minimum Sidewalk Width [2]	Street Trees
2 Lane Collector	22.0m	12.0m	3.5m	Barrier	2.0m separated 3.0m separated asphalt path	Both sides
Industrial Collector	20.0m	11.0m	3.5m	Barrier	2.0m one side separated	Both Sides
Local - with density less than or equal to 20 units/ha	20.0m	9.0m	4.5m (Travel and Parking)	Rollover	2.0m one side	Both Sides
Local - with density greater than 20 units/ha	20.0m	11.0m	5.5m (Travel and Parking)	Rollover	2.0m one side	Both sides
Local - Industrial	20.0m	11.0m	5.5m (Travel and Parking)	Barrier	2.0m one side[3]	Not required
Local - Med-High Density Residential & Commercial	20.0m	11.0m	5.5m (Travel and Parking)	Barrier	2.0m separate both sides	Both sides
Cul-de-sac - entrance	20.0m	9.0m	3.5m	Barrier	2.0m one side	Both sides
Cul-de-sac - terminus	20.0m radius	14.5m radius	-	Barrier	2.0m halfway	not applicable
Lanes	6.0m	6.0m	3.0m	Not required	not applicable	not applicable

ALTERNATE ROAD STRUCTURES MAY BE APPROVED AT THE DISCRETION OF THE DIRECTOR.

[1] Asphalt width is defined as the width between the curb gutter lines (face of curb) on each side of the road.

[2] The width of sidewalk is measured from the back of curb.

[3] In Industrial areas only, a sidewalk may not be required, as determined by the Director.

A - 2.0 LEVELS OF WORKS AND SERVICES

.1 The level of works and services to be provided in subdivision and development shall conform to the following:

.1 Water System must be connected to the Municipal System;

.2 Sanitary Sewer System must be connected to the Municipal System;

.3 Enclosed Channel (Minor) Storm Sewer System must be connected to the Municipal System. Major Storm System consisting of overland flow must be established from the subdivision or development to an acceptable outfall;

.4 Street and trail lighting must be provided;

.5 Sidewalks must be provided as outlined in Table A.1;

.6 Highways must be provided as outlined in Table A.1;

.7 Street trees must be provided as outlined in Table A.1;

.8 Landscaping must be provided as per Schedule G;

.9 Temporary erosion and sediment control plan must be provided as per Schedule H; and

.10 Non-municipal services such as electrical, natural gas and telecommunications must be provided as per Schedule J.

SCHEDULE B

HIGHWAYS, LANES AND TRAILS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

B - 1.0 GENERAL

.1 Where the provisions of this Bylaw or a Subdivision and Development Servicing Agreement or Maintenance Agreement made under this Bylaw require the construction of roads, the Owner shall construct such roads in accordance with the regulations, standards and specifications set out in this Schedule.

.2 All specifications for the construction of Works and Services shall be the most recent version of the Master Municipal Construction Document unless referred to otherwise in this Schedule or the Standard Drawings.

.3 If a Parcel requires road access along any property boundary adjacent to a highway, the Owner shall meet the following requirements:

.1 Paved Highway

.1 Driveway Access is limited to provisions set out in this Bylaw.

.2 Construction consists of complete pavement standard, sidewalks, streetlights and Utilities.

.2 Lanes

.1 If a Lane is undeveloped, the Owner shall construct to a paved standard.

.3 Culverts

.1 If a Parcel needs Driveway Access where ditch drainage exists, the Owner shall make application for a culvert installation.

.4 Highways, Lanes and Trails shall be as per Table A.1 and the applicable Standard Drawings as per Appendix 6.

B - 1.01 Classification of Highways

.1 Prior to design of the road system, the Director shall approve the classification of each road proposed within the Subdivision.

B - 1.02 Geotechnical Evaluation

.1 In addition to the geotechnical overview undertaken during the initial phases of the project, the Owner shall engage the services of a qualified Geotechnical Engineer to investigate surface and sub-surface conditions with respect to roadworks within the proposed Subdivision.

.2 The Geotechnical Engineer shall prepare a report outlining their findings and shall provide clear, definitive recommendations on the:

.1 geometry and placement of fill sections;

.2 compaction requirements over and above those stipulated in this Bylaw;

.3 cut slope geometry;

.4 pavement structures for roads; and

B - 1.0 GENERAL

B - 1.02 Geotechnical Evaluation (continued)

.5 any other geotechnical issues affecting road construction within the proposed Subdivision.

.3 A copy of the Geotechnical evaluation shall be submitted to the Director at the time the engineering drawings are submitted for Approval.

B - 2.0 DESIGN CRITERIA

B - 2.01 General Design Requirements

.1 In the preparation of engineering design for highways, the Owner's Engineer shall take into account the following general design considerations:

.1 Continuation of Existing Highways:

The design and arrangement of highways within a Subdivision shall provide for the continuation or projection of existing highways in the surrounding area. In no case shall the arrangement of highways within a proposed Subdivision make impractical the Subdivision of adjoining Parcels.

.2 Topography:

.1 The design and arrangement of highways shall be suited to the topography of the land proposed to be subdivided.

.2 Minimum grade across Boulevard shall be 2.0%.

B - 2.02 Highway Right-Of-Way Requirements

.1 Highway Rights-of-Way widths shall be at least the minimum width specified in Table A.1 of Schedule A.

.2 The tops of road cuts and the toes of road fills that are outside the highway Right-of-Way shall be identified and protected by a wider Right-of-Way.

B - 2.03 Local Highways

Local highways within a proposed Subdivision shall be arranged so that their use by through traffic will be discouraged.

B - 2.04 Cul-de-Sacs

.1 Cul-de-sacs are only permitted with the Approval of the Director.

.2 Cul-de-sacs shall not exceed 150 metres in length measured from the centreline of intersection to the centre of the Cul-de-sac in accordance with the applicable Standard Drawings.

B - 2.0 DESIGN CRITERIA

B - 2.05 Lanes

Lanes, meeting the standards set out in this bylaw, shall be provided where the Director deems them to be necessary.

B - 2.06 Intersections

.1 Unless indicated elsewhere herein, all intersection design standards shall conform to those outlined in the latest edition of "Geometric Design Standards for Canadian Roads and Streets" as published by the Transportation Association of Canada (TAC).

.2 Intersections shall be designed as follows:

.1 Intersecting highways shall meet substantially at right angles (between 70 degrees and 110 degrees)

.2 Jogs in highway alignment at intersections shall be avoided except where the distance between centrelines is sufficient to ensure traffic safety.

.3 The minimum spacing between the intersections along a highway shall be 40.0 metres for T- intersections and 60.0 metres for all others.

.4 The maximum spacing between intersections shall be 405 meters.

.5 Intersections having more than four intersecting legs will not be permitted.

.3 Approach grades for a crest curve of minor highway at intersections to major highways shall not exceed 75% of the maximum grade allowed for that highway classification. The minor highway shall be designed to intersect the major highway with a vertical curve of minimum length required for that highway classification listed in Table B.1.

.4 Providing the minor intersecting highway is marked with a stop sign, the following may be used for the minor highway. The minor highway may be designed to intersect the major highway with a vertical curve of minimum length required for that highway classification listed in Table B.4. The vertical curve shall terminate at the projected curb line of the major highway meeting the cross fall of the major highway. In extreme cases, with the Approval of the Director, sag curves may terminate at the curb line of the major highway at a 0% slope.

B - 2.0 DESIGN CRITERIA

TABLE B.1

MINIMUM K VALUES FOR VERTICAL CURVES AT INTERSECTIONS

Intersecting Highway	Minimum K Value (in metres)		
	Crest Curve	Sag Curve	
		With Lighting	Without Lighting
Arterial	MoTI/TAC		
4 Lane Collector	17	17	17
2 Lane Collector	7	7	10
Local	4	4	6

2.07 Driveway Access

.1 General

This section was amended by Bylaw No. 2759, 2023

.1 Minimum distance from property line to start of Driveway Access on corner lots shall be (See Figure B.1):

.1 9.0 meters on local highway; and

.2 30.0 meters on all other road classifications.

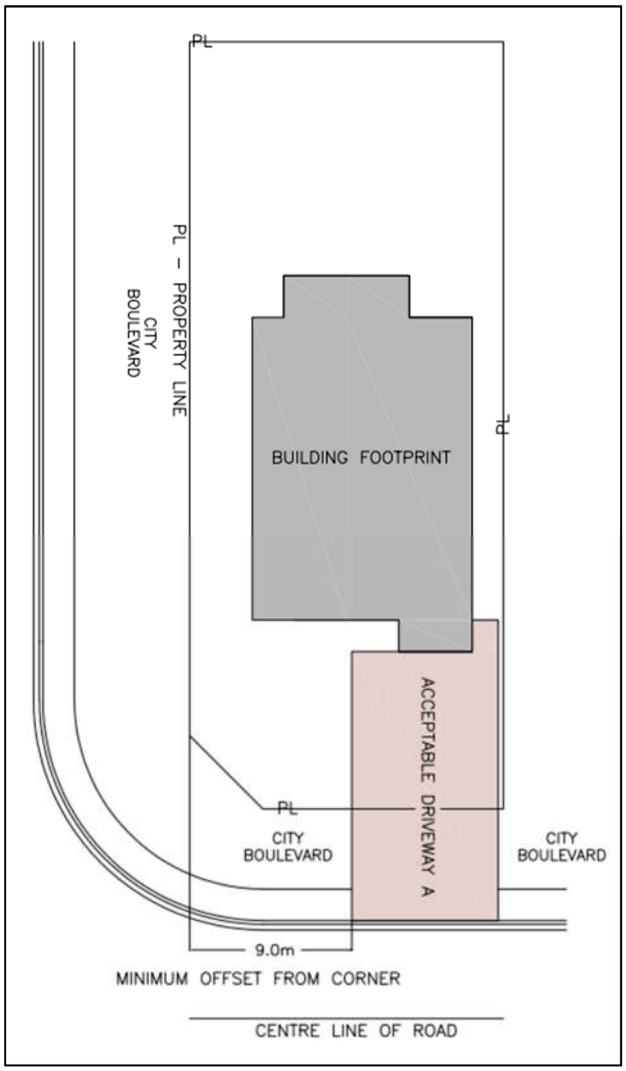
Or as otherwise approved by the Director.

.2 All Driveway Accesses shall be constructed to provide minimum clearance of 1.5m from any structure including hydrants, streetlights, service pedestals and transformers.

B - 2.0 DESIGN CRITERIA

2.07 Driveway Access (continued)

FIGURE B.1
DRIVEWAY OFFSET FROM CORNER LOT
ON LOCAL ROAD ONLY



.2 Single Detached, Semi-Attached and Duplex:

.1 Minimum Driveway Access width shall be 3.0 metres;

.2 Maximum Driveway Access width shall be 9.0 metres, except in the case of:

.1 small Parcel zones where maximum Driveway Access width is 6.0m; and

B - 2.0 DESIGN CRITERIA

2.07 Driveway Access (continued)

.2 semi-attached or duplex dwellings where combination of Driveway Accesses shall not exceed 12.0m.

.3 Minimum front yard open space requirements, as per the Zoning Bylaw, shall not be exceeded;

.4 Driveway Access widths in excess of those listed in section 2.07.2.2 must be approved in writing by the Director;

.5 One on street parking space a minimum of 6m in length shall be provided for every lot in the Subdivision, except for lots located on a heel or Cul-de-sac bulb. Unless otherwise approved by the Director. See Figure B.2;

.6 Driveway Access roads must have a minimum of 9.0 meter centre line radius on all curves and corners along the road;

.7 In connection with the construction of any building, all parking areas and Driveway Accesses connecting to paved public roads must have a Hard Surface and be connected to the curb line.

.8 Construction of a building that is accessing onto a gravel road, does not need to Hard Surface the parking area or driveway unless the road it is accessing onto is indicated to be upgraded in the 5-year capital projects listing.

.9 Maximum Driveway Access grade across Boulevard shall be 8%;

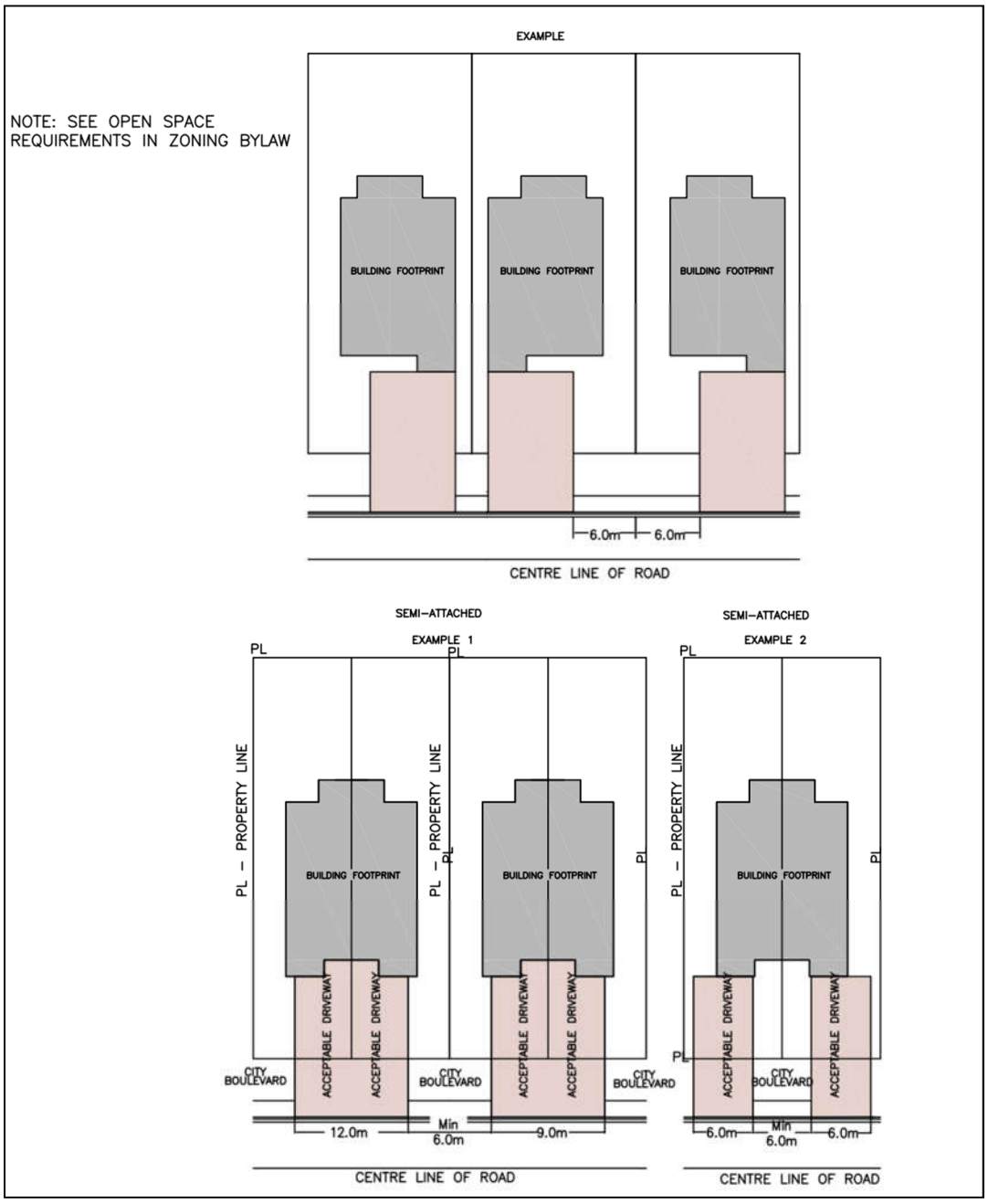
.10 Turn around facilities are to be provided for any dead-end access driveway fronting an arterial roadway; and

.11 Unless otherwise approved in writing by the Director, only one driveway will be permitted into each lot.

B - 2.0 DESIGN CRITERIA

2.07 Driveway Access (continued)

FIGURE B.2
EXAMPLES OF DRIVEWAY SPACING FOR ON STREET PARKING



.3 Common Access Driveways for Three (3) or more Single Family Residences, Multi-Family, Commercial, Industrial and Institutional Developments:

.1 Minimum Driveway Access widths shall be 6.0 metres.

B - 2.0 DESIGN CRITERIA

2.07 Driveway Access (continued)

.2 Maximum Driveway Access with shall be 9.0 metres.

.3 Driveway Access widths in excess of 9.0 metres must be approved in writing by the Director of Planning and Engineering.

.4 In connection with the construction of any building, all parking areas and Driveway Accesses connecting to paved public roads must have a Hard Surface and be connected to the curb line.

.5 Construction of a building that is accessing onto a gravel road, does not need to Hard Surface the parking area or driveway unless the road it is accessing onto is indicated to be upgraded in the 5-year capital projects listing.

.6 Curb and gutter shall be installed as required.

.7 Surface water from Driveway Accesses and parking lots on private property must be contained on-site, unless otherwise approved in writing by the Director. A connection to the City Drainage System may be permitted but at a controlled rate of discharge.

.8 Driveway Access grades shall meet BC Building code requirements.

.9 Driveway Accesses shall conform to BC Building Code fire access requirements on all curves and corners along the road.

.10 Driveway Accesses shall be designed to accommodate current City fire apparatus. Current apparatus specifications will be provided by the City.

.11 Turn around facilities are to be provided for any dead-end access driveway for emergency vehicle egress.

.12 Unless otherwise approved in writing by the Director, a maximum of two Driveway Accesses will be permitted into a Development.

B - 2.08 Trails

.1 Trails shall be provided where the Director deems them to be necessary to provide access through a Subdivision to schools, parks, playgrounds, commercial areas or other community facilities, to other existing or proposed Trails, or for the safe and efficient circulation of pedestrian traffic.

.2 Trails for pedestrian access to transit, shopping and school sites shall be constructed.

.3 Trails shall be graded to the full width between property lines to provide proper access and drainage.

.4 Trail widths and surfacing shall be as per Table B.2.

B - 2.0 DESIGN CRITERIA

B - 2.08 Trails (continued)

TABLE B.2
TRAIL TYPES

Trail Type	Surfacing	Minimum Trail Width	Location
Shared Trail	Asphalt	3m	4-season multi-use trail providing City-wide circulation and along Community Park perimeters.
Primary Park Trail	Asphalt	2.5m	4-Season trail providing access to and circulation within parks.
Secondary Park Trail	Variable	1.8m – 2.5m	3-season trail providing access to and circulation within a park. May be a winter snow trail.
Connector Trail	Asphalt	2m	Access through neighbourhoods, between residential homes (street to street and street to neighbourhood parks)
Nature Trail	Crushed gravel (3/4" – 1 ½ ")	2m	Natural Areas

Note: Type to be approved by the Director.

.5 Maximum Trail cross slope shall be 2%.

.6 Where conditions allow, maximum Trail slope shall be 5%. If this does not meet existing site conditions, maximum length and rest interval requirements shall be as per Table B.3.

B - 2.0 DESIGN CRITERIA

B - 2.08 Trails (continued)

TABLE B.3
TRAIL REST INTERVAL LENGTH

Trail Type	Percent slope	Maximum Length before Rest Interval
Nature Trails	0%-5%	No restriction
	5.1% - 8.33%	61m
	8.34% - 10%	9m
	10.1% - 12%	3m
All Other Trails	0%-5%	No restriction
	5.1% - 8.33%	15m
	8.34% - 10%	9m

Note: Trails with slopes greater than 30% require stairs and signage at trailhead if there is no other continuing route available at less than or equal to 12%

.7 Resting space shall have:

.1 A minimum length of 1.5m;

.2 Width matching width of abutting Trail;

.3 A maximum slope of 3% on Trails that are not nature Trails; and

.4 A maximum slope of 5% on nature Trails.

.8 Boardwalks or bridge sections of Trail cannot have surface openings larger than 0.0127m wide. Elongated openings to be orientated perpendicular or diagonal to direction of travel, unless the opening is less than 0.0064m in length.

.9 A clear zone 1.0m, that parallels either side of the Trail, and is at the same cross slope as the Trail shall be provided for maintenance purposes.

B - 2.09 Design Speeds

The design speeds used for design of Highways shall be as per Table B.4.

B - 2.0 DESIGN CRITERIA

TABLE B.4
DESIGN SPEED

Road Type	Design Speed
Arterial	50-70 km/h
Collector	50 km/h
Local	50 km/h

B - 2.10 Road Crown

The road crown shall be 3%. Cross falls may be permitted through areas of adverse topography, only with written permission of the Director. 2% inverted crowns may be used in Lanes.

B - 2.11 Road Grades

.1 Maximum road centreline grades shall be 8%. Minimum road centreline grades shall be 0.5%.

.2 Maximum grades are to be reduced by 1% for each (or part of each) 30 meters that the centreline radius is less than 150 m.

B - 2.12 Vertical Alignment

.1 The vertical alignment of a road shall be set so the grades of the driveway to adjacent properties shall be in accordance with Section B-2.07.

.2 The minimum longitudinal gradient at the gutter line shall be 0.50% for all classifications of highways.

B - 2.13 Vertical Curves

.1 Vertical curves shall be provided at all grade changes greater than 1.0%.

.2 Vertical curves shall be designed to provide safe stopping sight distances. Minimum stopping sight distance is the least distance required to bring the vehicle to a stop under prevailing vehicle and climatic conditions.

.3 Vertical curve length is calculated by the equation L = KA where:

L is the length of the vertical curve in metres*
K is a constant related to lines and geometry of a parabolic curve**
A is the algebraic difference of grades in percent

*L shall not be less than the design speed in kilometres per hour
**Minimum K values for vertical curve design shall be as described in Table B.5.

B - 2.0 DESIGN CRITERIA

TABLE B.5
MINIMUM K VALUES FOR VERTICAL CURVE DESIGN

Road Classification	Crest Curve	Sag Curve	
	Minimum	Lighting	No Lighting
Arterial	MoTI/TAC		
4 Lane Collector	22	15	25
2 Lane Collector	15	10	20
Local	7	6	11

B - 2.14 Horizontal Alignment

.1 Centre Line Radii

.1 The minimum required centreline radius for various super elevation rates for each classification of roadways is as per Table B.6.

.2 Spiral curves shall be designed on 4 Lane Collector Highways.

TABLE B.6
MINIMUM CENTRELINE RADIUS

Road Classification	Design Speed	Horizontal Curve Radii (m)			
		None	0.02	0.04	0.06
Arterial	50-70 km/h	N/A	1500	500	190
4 Lane Collector	50 km/h	N/A	230	200	190
2 Lane Collector	50 km/h	120	110	100	N/A
Local	50 km/h	70	N/A	N/A	N/A

Note: Radius may be reduced at the discretion of the Director.

B - 2.15 Reverse Curves

.1 If reverse curves are required in a highway alignment the Director may require that they be separated by means of tangents of sufficient length to allow super elevation rotation.

B - 2.16 Curb Return Radii

.1 Curb return radii shall conform as below and be based on the lesser classified highway.

B - 2.0 DESIGN CRITERIA

TABLE B.7
CURB RETURN RADII

Road Classification	Curb Return Radii (m)
4 Lane Collector	9.0
2 Lane Collector	9.0
Industrial	9.0
Local	9.0
Cul-de-Sac Entrance	7.0
Cul-de-Sac Terminus	12.0

B - 2.17 Pavement Structure

.1 The pavement structure shall be designed in accordance with AASHTO Guide of Design of Pavement Structure 1993 Manual and 1998 Supplement in conjunction with the current Asphalt Manual Series No. 1 (MS-1).

.2 The pavement structure shall be designed for a thirty (30) year design life. Staged construction may be considered by the Director when a road is planned to be widened at a later date.

.3 Roads shall be classified as shown in Table B.8 for purposes of structural design of the total pavement structure; design traffic values are designated as per the Transportation Master Plan.

.4 Soils used to construct the roadway subgrade shall be evaluated in accordance with MS-1 (see Chapter V) to determine the load bearing capacity of the subgrade. For this purpose, the California Bearing Ratio (CBR) test value shall be obtained using soil moulded to a minimum specified compaction level. The design CBR values shall be determine in the soaked condition in accordance with ASTM D1883 - Standard Test Method for California Bearing Ratio (CBR) of Laboratory Compacted Soils. This value shall be used for structural design purposes.

.5 If the soaked CBR value of the subgrade soil is less than 3%, subgrade enhancement shall be provided to create a soaked CBR of 3%, and the pavement structure shall be designed using a soaked CBR of 3%. Subgrade enhancement may be provided by placement of an initial layer of granular sub-base in combination with geosynthetic reinforcement which has been calculated to provide the necessary structure improvement to the subgrade. Subgrade enhancement shall be determined by a qualified pavement engineer and approved by the Director.

.6 A minimum pavement structure for roads shall be provided, notwithstanding the structural character of the subgrade. Minimum pavement structures are specified in Table B.8 and will be considered structurally adequate when the subgrade soil exhibits a California Bearing Ratio (CBR) of 3.0% or greater.

B - 2.0 DESIGN CRITERIA

B - 2.17 Pavement Structure (continued)

TABLE B.8

MINIMUM PAVEMENT STRUCTURE

Road Classification	Design Traffic (ESAL)	Granular Sub-base (mm)	Granular Base (mm)	Hot Mix Asphalt (mm)
Arterial	1.5×10^6	650	150	100
Collector - Residential	9.0×10^5	600	150	75
Collector- Commercial/Industrial	1.5×10^6	650	150	100
Local - Residential	4.5×10^5	450	150	75
Local - Commercial	6.0×10^5	525	150	75
Local - Industrial	9.0×10^5	600	150	75
Lane	Not Applicable	450	150	75
Asphalt Trail	Not Applicable	Not Applicable	300	75

Notes:
1. Where sidewalk is adjacent to curb, road base and sub-base shall extend under sidewalk as shown on standard details.
2. Minimum asphalt concrete pavement (ACP) thickness in excess of 75mm to be in laid in two separate lifts.
3. The standard pavement material is hot mixed, machine laid, asphaltic concrete in accordance with MMCD specifications.

.7 Table B.8 is a minimum for reference purposes. The structural design of pavements for roads shall be performed by a qualified pavement engineer. Structural designs of pavements shall be submitted to the Director in an acceptable report format.

.8 Other pavement evaluation systems may be considered upon consultation with the Director.

B - 2.18 Geotechnical Requirements within Highway

.1 Minimum compaction within the highway shall be as follows:

.1 Road Subbase - 98% standard proctor;

.2 Road Base - 100% standard proctor; and

.3 Boulevards - 98% standard proctor.

B - 2.0 DESIGN CRITERIA

B - 2.19 Traffic Calming

.1 All traffic calming measures directed towards newly constructed neighbourhoods to enhance the street environment designated by the Director will follow the *Canadian Guide to Neighbourhood Traffic Calming (Transportation Association of Canada/Association des Transports du Canada – December 1998).*

B - 2.20 Street Names, Traffic Signs and Road Markings

.1 Street name signs and traffic signs required as a result of constructing or improving highways shall be installed and provided at the expense of the Owner.

This section was amended by Bylaw No. 2759, 2023

.2 Sign type, size and location shall be as per Manual of Uniform Traffic Control Devices for Canada (MUTCD) manual and British Columbia Ministry of Transportation and Infrastructure (BC MoTI) guidelines.

.3 Street names shall be assigned by the City of Fort St. John.

.4 Location of traffic signs and road marking to be designed in consultation with the City.

B - 2.21 Appurtenances

.1 The Owner's Engineer shall detail on the design drawings the location of all proposed traffic islands, retaining walls, guardrails, and permanent barricades. These structures shall be designed in accordance with good engineering practices.

.2 The design shall show the location of all traffic signs, street signs, and other traffic control devices required to be placed in the highway

.3 Where applicable, the drawings shall show all utility poles and indicate the poles to be relocated to accommodate the proposed Subdivision or Development design. Design drawings for underground hydro and telecommunication system shall show the location of underground conduits, and appurtenances including the connections to properties.

B - 2.22 Mail Boxes

.1 Where required by Canada Post, the Owner shall construct a base for mailboxes in the location specified by Canada Post and approved by the Director. The Owner shall obtain location and design guidelines for mailboxes from Canada Post. The Director may require construction of a pull out at the mailbox location depending on traffic volumes and number of residences serviced from the location. The Owner's Engineer shall provide copies of correspondence with Canada Post confirming no requirement for mailboxes or the desired location if mailboxes are required prior to issuance of the Construction Permit.

SCHEDULE C

CURBS AND GUTTERS, SIDEWALKS AND BOULEVARDS REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

C - 2.0 GENERAL

.1 Where the provision of this Bylaw or a Subdivision and Development Servicing Agreement or Maintenance Agreement made under this Bylaw require the provisions of curbs, gutters, sidewalks and Boulevards, the Owner shall construct such services in accordance with the regulations, standards and specification set out in this Schedule.

.2 All specifications for the construction of Works and Services shall be the most recent version of the Master Municipal Construction Document unless referred to otherwise in this Schedule or the Standard Drawing.

C - 3.0 DESIGN CRITERIA

C - 3.01 Design Gradient

.1 The design gradient shall be as specified for roads in Schedule B of this Bylaw.

C - 3.02 Curb Returns

.1 The minimum curb return radius shall be as set out in this Bylaw. Elevations shall be shown on the engineering drawings for the beginning and end of the curb return, as well as at any changes in grades in between. Engineering drawings shall provide all horizontal and vertical geometric details for curb returns.

C - 3.03 Sidewalks

.1 Additional sidewalk shall be installed in areas deemed necessary by the Director. Such cases shall include areas with multi-family, institutional and commercial Development and proposed bus routes.

.2 Where a walkway exists on a Cul-de-sac, sidewalk shall be extended to the walkway entrance.

.3 Where sidewalk is to be installed on only one side of the highway, it shall be placed on the north or east side, unless otherwise approved by the Director.

.4 Sidewalks shall at all times drain towards the gutter with a cross slope of 2%.

.5 Wheelchair ramps shall be installed at all intersections and at cross-walks.

.6 Where barrier curbing is used, access to properties and to Lanes shall be in the form of sidewalk crossings and shall conform to municipal standards. Widths for crossings may vary as approved by the Director.

.7 Where rollover curbing is used, sidewalk crossings will not be required and access shall be directly over the sidewalk. Transition from rollover to barrier curbing shall in all cases be made at the beginning or end of the curb return.

C - 2.0 DESIGN CRITERIA

C - 2.04 Grading of Boulevards

.1 Upon completion of road, curb and gutter and sidewalk construction, Boulevards shall be shaped and graded as shown on the Standard Drawings. Native material shall be placed flush with the top of curb, and shaped to conform to general lot grading. Unless otherwise approved, Boulevards shall be graded to drain to the curb at a minimum slope of 2% and a maximum slope of 10% between the back of curb or sidewalk to the property line. All Boulevard areas must be compacted at 98% of Proctor Standard.

C - 2.05 Granular Sub-Base and Base Gravel Depths

.1 Granular sub-base and base gravel depths for curb and gutters, sidewalks, driveways and commercial crossovers shall conform to the depths of sub-base and base gravels specified for the road as noted in Schedule B.

SCHEDULE D

WATER SYSTEMS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

D - 1.0 GENERAL

D - 1.01 General Requirements

.1 Where the provisions of this Bylaw or a Subdivision and Development Servicing Agreement or Maintenance Agreement made under this Bylaw require the construction of a water distribution system, the Owner shall construct the water distribution system in accordance with the regulations, standards and specifications set out in this Schedule.

.2 All specifications for the construction of Works and Services shall be the most recent version of the Master Municipal Construction Document and current Northern Health Authority standards, unless referred to otherwise in this Schedule and the Standard Drawings. All standards not specifically described shall be in accordance with appropriate American Water Works Association (AWWA) standards.

.3 Northern Health Permit shall be issued prior to construction.

D - 2.0 DESIGN CRITERIA

D - 2.01 Domestic Demand Criteria

.1 For residential areas, the daily domestic demand criteria for purposes of designing water distribution systems shall be assumed to be:

Average day: 600 litres/day/capita*

Maximum Day: 1100 litres/day/capita*

Peak Hour Domestic Flow: 1600 l/day/capita*

* For population calculations use an average of 2.5 people per household or most recent average household result provided by Statistics Canada profile for Fort St. John.

.2 For all other areas, the demand criteria shall be selected to suit the particular circumstances subject to the Approval of the Director.

D - 2.02 Fire Flow Requirements

.1 Water distribution systems shall also be designed to ensure that fire flows, as required by the Fire Underwriters' Survey, are available for required duration. The amount and duration of design fire flows shall be provided to the Director for Approval prior to final design of the water distribution system.

.2 Fire flows shall be determined in accordance with the requirements of the current edition of "Water Supply for Public Fire Protection – A Guide to Recommended Practice", published by Fire Underwriters Survey.

.3 Fire flows are also subject to the minimum requirements in Table D.1.

D – 2.0 DESIGN CRITERIA

TABLE D.1
FIRE FLOW REQUIREMENTS

Development Type (Without Sprinklers)	Minimum Fire Flow Requirements*
Single Family	60 L/s
Semi-Detached Dwelling	90 L/s
Medium and High Density Housing	150 L/s
Commercial	150 L/s
Institutional	150 L/s
Industrial	225 L/s

*The flow requirements in Table D.1 are design minimums. The City does not guarantee that these flows are available within the prescribed zones.

D - 2.03 Design Pressures

.1 Water systems shall be designed for pressures in the range of 245 KPa (35 PSI) to 630 KPa, (91 PSI) with 245 KPa (35 PSI) measured under peak hourly conditions and 630 KPa (91 PSI) measured under static conditions. The minimum pressure shall be measured or calculated at the main floor elevation of the highest proposed building and an allowance made for pressure loss in the service line to the building wall. Minimum residual pressure at any hydrant shall not be less than 150 KPa (21.7 PSI) under:

.1 maximum day domestic consumption plus fire conditions; or

.2 peak hour demand

whichever is greater.

.2 Reservoir level shall be assumed at midpoint for calculation of minimum pressures and full for calculation of maximum static pressures.

D - 2.04 Capacity and Sizing of Water Mains

.1 Water distribution systems shall be designed to deliver water in adequate quantities at adequate pressures for both domestic use under peak consumption conditions and fire flows.

.2 Mains shall be sized to carry the peak hourly flow rate or the maximum daily flow rate plus the fire flow rate, whichever is the greater. Mains shall be sized using the Hazen-William formula with "C" equal to 120 and maximum flow velocity for peak hourly demand rate of 2.0 m per second. For fire flow, plus the maximum day rate, the flow velocity shall not exceed 3.0 meters per second.

.3 The minimum pipe diameter size shall be as per Table D.2.

D – 2.0 DESIGN CRITERIA

TABLE D.2
MINIMUM PIPE DIAMETER

Land Use	Minimum Pipe Diameter (mm)
Residential	200
Commercial	250
Institutional	250
Industrial	300

D - 2.05 Location and Grade of Water Mains

.1 Water mains shall be located in the road Right-of-Way as shown on the applicable Standard Drawings unless otherwise approved by the Director. Where the location of the watermain within the road Right-of-Way is not practical due to topography or other factors, the watermain shall be located in a utility Right-of-Way with a minimum width of 6.0m registered in favour of the City.

.2 All pipes will be installed with no deflection; deflections shall be accomplished with fittings.

.3 Vertical and horizontal clearances from sewer systems shall be as per Northern Health requirements.

.4 Water mains shall be normally designed to follow a straight alignment between intersections, at grades parallel to the road centreline.

.5 Water mains shall be designed with a rising grade wherever possible to minimize high points in the main. Where a high point is unavoidable, a fire hydrant shall be installed.

.6 Water mains must be looped wherever possible. A dead-end point must be authorized in writing by the Director.

.7 Where the water main network only provides marginal fire flows, installation of supplementary mains connected to existing mains may be required at the discretion of the Director and may necessitate the provision of Right-of-Way in favour of the City.

.8 No gas main, electric, telecommunication duct or other utility line shall be installed in the same trench with water mains.

.9 Where it is necessary for the water main to cross other underground services, the crossing shall be made at an angle greater than 20 degrees.

.10 The drawings shall indicate whether the water main passes over or under other underground services which it is crossing and the vertical clearance of the crossing.

D – 2.0 DESIGN CRITERIA

D - 2.06 Fire Hydrants

.1 Fire hydrants shall be located, in general, at intersections and at maximum spacing of 150 metres in R-1 or R-2 zones and 90 metres in all other zones as indicated in the Zoning Bylaw.

.2 Additional hydrants may be required by the Director at schools, major multiple family developments, commercial buildings or other major Developments consistent with the current fire flow requirements Fire Underwriters' Survey – Water Supply for Public Fire Protection, 1999 or most recent publication.

.3 Where hydrants are located other than at intersections, they should be located on the projection of the property line dividing two lots. In selecting the location of a hydrant, the probable route of the fire engine shall be considered.

.4 A hydrant shall not be located within 3 meters of a utility pole, pad mounted transformer or light standard, or within 1.5 meters horizontally of underground service pipes, open ditches, or edge of driveways.

D - 2.07 Line Valves

.1 Line valves shall be located at a maximum spacing of 200 meters in a continuous line and shall generally be located so that not more than 2 hydrants or 50 dwelling units will be without adequate pressure in the event of any one water break.

.2 Each tee shall have a minimum of two line valves

.3 Each cross shall have a minimum of three line valves.

.4 Each line valve shall be the same diameter as the pipe on each downstream branch of the tee or cross.

.5 At the discretion of the Director, line valves may be required on all branches of a main intersection.

.6 All valves at watermain intersections shall be installed with hub fittings.

.7 A line valve may be required on a new pipeline near each point of connection to existing mains.

.8 All valve risers to be C900 PVC pipe.

.9 All valve stems to have a chip taken from the rock guard to allow access to thaw if required.

D - 2.08 Blow Offs

.1 Permanent blow offs are not permitted. In the event of a permanent dead-end, a fire hydrant must be installed.

D – 2.0 DESIGN CRITERIA

D - 2.08 Blow Offs (continued)

.2 Temporary blow offs may be installed to facilitate chlorination and flushing of any part of the system. After flushing, the temporary blow off shall be removed.

D - 2.09 Service Connections

.1 The diameter of water services shall be determined by the Owner's Engineer and is subject to Approval of the Director.

.2 Minimum diameter for water service connection is 25mm.

.3 A water service shall be installed to provide a connection to each lot created by the Subdivision and to any other existing or possible future lot which can be serviced from mains installed by or for the Subdivision. Two water services must be installed on a lot zoned R-2 or R-4 as per the Zoning Bylaw.

.4 The curb stop at the end of each service pipe shall be located 0.3 meter in front of the highway/property boundary line and in accordance with the Standard Drawings.

.5 A 50 x 100mm marker stake shall be set with the bottom of the stake at the level of the service line and the top projecting 1.0m above the ground surface. Marker stakes shall be painted blue. The stake shall be stenciled with the type and depth of service pipe.

.6 Water services shall be located at least 1.0m from other infrastructure and located to avoid driveways where possible.

D - 2.10 Depth of Cover

.1 The depth of the water main shall be sufficient to provide all services with a minimum cover depth of 2.7 meters to the top of the service anywhere within the Right-of-Way. A minimum cover depth of 2.7 meters shall be provided over the crown of the main.

.2 Where minimum cover is not met, insulation shall be provided as per Standard Drawings.

.3 Water service connections installed on private property shall have a minimum depth of cover of 2.7m.

D - 2.11 Tie-ins to Existing Water Mains

.1 The Owner shall complete the work and pay for the supply of all materials, equipment and labour required to construct the tie-in.

.2 This portion of the work, including details of materials required, shall be clearly indicated on the design drawings.

.3 Only the City may operate valves on the existing water mains. The Owner must provide the City with minimum 72 hours' notice of each tie to the City's system so that the City may supervise the works.

D – 2.0 DESIGN CRITERIA

D - 2.11 Tie-ins to Existing Water Mains (continued)

.4 Connection of a new service to an existing water main generally shall be done by wet tap (hot tap) unless the existing main has an acceptable provision for a direct extension.

D - 2.12 Thrust Blocks

.1 Concrete thrust blocking shall be provided at fittings and hydrants as shown in Standard Drawings. Concrete shall be placed between undisturbed ground and the fitting and are to be anchored such that the pipe and the fitting joints are accessible for repair. Bolts on flanged fittings shall be left free. The area of thrust block bearing on pipe and on ground shall be no less than that shown on Standard Drawings.

.2 Temporary blocking or support of valves and fittings shall be with concrete, fabricated steel, durable rock, sand or gravel and in no case shall temporary or permanent wood blocking be used.

D - 2.13 Unidirectional Flushing Requirements

.1 Unidirectional flushing of new mains is to be completed immediately after connection to existing system. Maximum turbidity after flushing shall be 1 NTU.

.2 A unidirectional flushing plan shall be submitted for review and Approval prior to Approval for construction. Plan should include:

.1 Customers that could be affected;

.2 Order of connection to existing system to complete the flushing;

.3 Identification of open and closed valves;

.4 Discharge management plan; and

.5 Required flushing velocity.

D - 2.14 Testing

.1 Pressure and leakage testing for polyvinyl chloride (PVC) piping shall be tested as per AWWA M23 and AWWA C605 standards except that a pressure of 1034 kPa (150 PSI) shall be applied to the system. Provided this pressure does not exceed design parameters of pipe.

.2 Pressure and leakage tests for other materials to follow MMCD guidelines.

.3 All water mains to be disinfected and bacteriologically tested in accordance with AWWA C651.

D – 2.0 DESIGN CRITERIA

D - 2.15 Reservoirs

.1 Reservoirs, where required, shall be designed in consultation with the Director to suit the particular circumstances. In general, reservoir capacity shall not be less than:

Total Storage Requirement = A + B + C
where:
A = Fire Storage (as per Section D- 2.02 of this Schedule)
B = Equalization Storage (25% of maximum day demand)
C = Emergency Storage (25% of A + B)

.2 A Geotechnical Investigation shall be undertaken prior to site Approval being given.

.3 Reservoir design, at a minimum, shall incorporate the following features:

.1 sufficient geotechnical data to prove the site suitable for reservoir construction;

.2 structures to be below ground and covered, unless specifically approved otherwise;

.3 material - reinforced concrete;

.4 2 cells, each containing one-half of total required volume and capable of being drained and filled independently;

.5 lockable access opening in roof for cleaning and maintenance - minimum dimension 1 m x 1 m to be located between overflow pipe and wall;

.6 ventilation pipes or openings;

.7 slope floor to sump;

.8 sub-drain under floor to collect and drain any leakage (connect to overflow pipe in a manhole);

.9 interior wall ship ladder from roof access to floor (no exterior ladder required);

.10 inlet and outlet pipes to be perforated and designed to disperse water throughout the reservoir;

.11 overflow drain to be provided and sized to transmit the maximum pump discharge. The overflow drain shall be connected to an acceptable point of discharge;

.12 access roads; and

.13 telemetry control and alarm system, to match, and be connected to, the City's existing system, at the Owner's expense.

.4 Reservoir valve chamber design shall incorporate:

.1 sump in valve chamber floor, connected to overflow pipe;

D – 2.0 DESIGN CRITERIA

D - 2.15 Reservoirs (continued)

.2 50 mm valved outlet off supply line within valve chamber for water supply for cleaning reservoir; and

.3 valves shall have open/closed indicators.

D - 2.16 Pump Stations

.1 Pump stations, where required, shall be designed in consultation with the Director to suit the particular circumstances.

.2 In general, pump stations shall be designed to meet maximum daily demands with the largest pump out of service with balanced storage on line.

.3 If equalization storage is not on line, pump station capacity must meet peak hour demand with the largest pump out of service.

.4 A Geotechnical Investigation shall be undertaken prior to site Approval being given.

.5 Pump station design, at minimum, shall incorporate the following features:

.1 reinforced concrete, block work or brick construction, aesthetically pleasing;

.2 lockable access doorways sized so that the largest piece of equipment may be safely removed and replaced. Lifting hooks or rails with pulley blocks as required;

.3 pumps to start and stop individually. Start and stop to be based on water levels in control reservoir. Automatic alternation of pump sequence;

.4 power failure protection with manual reset;

.5 high water override start plus alarm;

.6 high pressure (discharge) override start;

.7 low pressure (discharge) override start plus alarm;

.8 low pressure/no flow (suction) override start;

.9 alarms to be audible and visible;

.10 control valves to minimize starting and stopping surges;

.11 duplicate control cables (without splices) between pump stations and reservoirs;

.12 power factor correction as required by Power Authority;

.13 hour meters and amp meters on each pump;

.14 recording flow meter at each pump station;

.15 recording suction and discharge pressure gauges at each pump station;

.16 automatic heating, ventilating and dehumidifying systems;

D – 2.0 DESIGN CRITERIA

D - 2.16 Pump Stations (continued)

.17 in-station lighting;

.18 floor drainage;

.19 interconnection with the City's alarm telemetry system;

.20 standby power supply;

.21 standby power receptacle - Female 3 phase, 3 wire, 400 amp, 600 volt, pin and sleeve type c/w back box and cover;

.22 electrical phase loss protection;

.23 All parts and equipment to be approved based on compatibility with the City's existing system;

.24 electrical drawing schematics for control panels;

.25 access roads; and

.26 pump manuals.

.6 For each design submission to the City, an extra set of drawings pertaining to the design of the pump station, key plan, and a location plan shall be provided for the maintenance department to review.

D - 2.17 Pressure Reducing Stations

.1 Pressure reducing stations, where required, shall be designed to suit the particular circumstances. In general, each pressure reducing station shall have a separate; pressure reducing valve and appurtenances for maximum daily demand and a separate pressure reducing valve and appurtenances for fire flows.

.2 Pressure reducing station design, at minimum, shall incorporate the following features:

.27 access road to chamber;

.28 precast or cast in place concrete chamber suitable for H20 Highway loading;

.29 insulated with 50mm of rigid Styrofoam insulation to a depth of 2.0 meters,

.30 lockable, insulated access hatch (914mm x 914mm minimum);

.31 aluminium ship ladders and safety port;

.32 free draining sump or sump with sump pump assembly;

.33 lighting, heating, venting and one electrical outlet;

.34 pressure reducing valves with downstream surge control;

.35 wye strainers;

.36 isolating gate valves with open and closed indicators;

D – 2.0 DESIGN CRITERIA

D - 2.17 Pressure Reducing Stations (continued)

.37 victaulic couplings;

.38 pressure gauges;

.39 one 20mm hose bib connection;

.40 pipe stands;

.41 ceiling and wall of chamber to be painted with two coats of latex white paint; and

.42 All parts and equipment to be approved based on compatibility with the City's existing system.

.3 For each design submission to the City, two sets of hard copy drawings and one digital copy pertaining to the design of the pressure reducing station, key plan and a location plan shall be submitted.

D - 2.18 Access

.1 Vehicular access shall be provided to all reservoirs, pump stations and pressure reducing stations. The minimum standard shall be as for a paved Lane as shown on Standard Drawings with curbing and drainage provisions as may be required by the Director.

SCHEDULE E

SANITARY SEWERS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

E - 1.0 GENERAL

.1 Where the provisions of this Bylaw or a Subdivision and Development Servicing Agreement or Maintenance Agreement made under this Bylaw require the provision for a sanitary sewage collection system the Owner shall construct such services in accordance with the regulations, standards and specifications set out in this Schedule.

.2 All specifications for the construction of Works and Services shall be the most recent version of the Master Municipal Construction Document unless referred to otherwise in this Schedule.

E - 2.0 DESIGN CRITERIA

E - 2.01 Pipe Capacity

.1 Sanitary sewer facilities constructed in a Subdivision shall be designed to provide sufficient capacity to carry the required quantity of sewage flow from the fully developed upstream contributing area, as defined by the Director.

.2 Sewage design flows shall be based on Table E.1

TABLE E.1
AVERAGE FLOW

Land Use	Average Flow
Residential	300 l/d/capita
Commercial	30,000 l/d/ha
Light Industrial	15,000 l/d/ha
Heavy Industrial	Based On Proposed Use
Institutional	Based On Proposed Use

Notes: 1. For population calculations use an average of 2.5 people per household or most recent average household data provided by Statistics Canada census profile for Fort St. John.
2. Unit Density for residential zones shall be as per the Zoning Bylaw.

.3 Design Criteria:

.1 Average Flow per Person See Table E.1

.2 Infiltration and Inflow Allowance = 0.17L/s/Ha

.3 Peaking Factor – Use Harmon Peak Factor

.4 A peaking factor calculated using the Harmon Peak Factor curve shall be applied to the average flow as follows

$$\text{Peak Factor} = 1 + \frac{14}{(4 + P^{1/2})}$$

Where P = equivalent contributing population in thousands.

E – DESIGN CRITERIA

E - 2.01 Pipe Capacity (continued)

.5 Pipe sizes shall be selected so that sewers flow 3/4 full at peak hour design flow.

E - 2.02 Minimum Velocity and Design Grade

.1 Minimum velocity for pipe flowing full or half full is 0.6 m/s.

.2 Minimum velocity for force mains is 0.75m/s.

.3 Maximum velocity is 3.0 m/s.

.4 Minimum grades are as identified in Table E.2.

TABLE E.2
MINIMUM PIPE SLOPES

Pipe Diameter (mm)	Minimum Grade
100	2.0%
150	1.0%
200	0.40%
250	0.28%
300	0.22%
375	0.15%
450	0.12%
525	0.095%
600	0.08%

.5 Assume a pipe roughness coefficient "n" of 0.013 for concrete and 0.011 for PVC.

.6 There shall be no change in the grades of pipe between manholes.

.7 Capacities of gravity sewer mains shall be determined using Manning's formula:

$$Q = {}^{1}/_{n}\, AR^{2/3} S^{1/2}$$

Where: Q is measured in m^3 per second
A is measured in m^2
R is measured in metres
S is measured in m/m

E – DESIGN CRITERIA

E - 2.02 Minimum Velocity and Design Grade (continued)

.8 Capacities of force main shall be calculated using Hazen-Williams equation:

$$Q = 0.278CD^{2.63}S^{0.54}$$

Where: Q is measured in m3 per second C is 120 all pipe
D is measured in mm
S is measured in m/m

E - 2.03 Sizing of Sewer Mains

.1 The minimum pipe size for all sewer mains shall be 250 mm. Through areas where five or fewer services are connected and where future extension of the sewer main is not possible, the minimum size may be reduced to 200 mm, upon Approval of the Director.

.2 No reduction of pipe size shall be made downstream, irrespective of pipe grade.

E - 2.04 Depth of Cover

.1 The depth of the main shall be sufficient to provide all service connection piping with a minimum cover of 2.4 meters to top of the service piping anywhere within the finished sewer system.

.2 Minimum cover of 2.4m shall be provided over the crown of gravity mains.

.3 Sanitary mains shall be designed such that gravity drainage is possible from the full basement level of all Parcels.

.4 A minimum cover of 2.7 meters shall be provided over the crown of force mains.

.5 Where sewer has less than minimum cover, insulation shall be provided as per standard details.

E - 2.05 Manhole Spacing

.1 Manholes shall be installed at a maximum spacing of 120 meters and in the following locations:

.1 at the end of each line;

.2 at all changes in grade and/or alignment (for non-curvilinear sewers);

.3 at all changes in pipe size;

.4 at all pipe junctions; and

.5 downstream end of curvilinear sewers

.2 The relative elevations of sanitary sewers entering and leaving a manhole are to be such as to ensure that the manhole does not substantially reduce the hydraulic capacity of the system.

E – DESIGN CRITERIA

E - 2.05 Manhole Spacing (continued)

.3 Minimum fall through the manhole shall be 20 mm.

.4 Sewer main grades between manholes shall be designed to keep manhole inlet and outlet elevations to less than 100 mm difference.

.5 Where particular circumstances preclude the use of normal manholes and where invert elevations differ by more than 600 mm only inside drop manholes on sanitary sewers may be allowed.

E - 2.06 Cleanouts

Main line cleanouts rather than manholes are permitted only on Developments where works are not maintained by the City.

E - 2.07 Service Connections

.1 The diameter of sewer services shall be determined by the Owner's Engineer, subject to the Approval of the Director.

.2 Minimum diameter for sewer service connection is:

.1 100mm for residential; and

.2 150mm otherwise.

.3 A sewer service shall be installed to provide a connection to each lot created by Subdivision and to any other existing or possible future lot which can be serviced from mains installed by or for the Subdivision. Two sanitary services must be installed on a lot that is zoned R-2 or R-4, as per the current Zoning Bylaw.

.4 Sanitary sewer services are to be installed to avoid driveways where possible.

.5 Service connections shall be made with an approved branch wye and be installed in a straight line and at a uniform grade from the terminus at the property line to the 45 degree long radius bend at the main. An approved saddle may only be used to connect a 100 mm diameter service to an existing main. The minimum pipe grade for sewer service pipes shall be:

2% for 100 mm service pipe

1% for 150 mm service pipe

.6 In areas where the depth of the service pipe at the main is less than that of the sewer main, service risers shall be constructed.

.7 For services 250 mm and larger, a manhole shall be installed at the intersection of the main and the service.

.8 Temporary cleanouts are to be installed on the service connections at property line for the purposes of video inspection after maintenance period.

E – DESIGN CRITERIA

E - 2.08 Location of Sewer Mains

.1 Sanitary sewer mains shall, wherever possible be located in the road Right-of-Way as shown on the Standard Drawings.

.2 Where the location of the sewer main within the road Right-of-Way is not practical due to topography or other factors, the sewer main shall be located in a utility Right-of-Way registered in favour of the City and having a width of not less than 6.0 meters. The Director may require a utility Right-of-Way wider than 6.0 m in the case where services in addition to sanitary sewer will be placed in the same Right-of-Way or where the depth of the sewer main requires a wider Right-of-Way. The entire length and width of each Right-of-Way shall be graded to provide access for maintenance vehicles.

E - 2.09 Alignment of Sewer Mains

.1 Minimum vertical and horizontal separation between the watermain and the sewermain shall be as per Northern Health Authority standards.

.2 There shall be a minimum clear lateral distance between the outside walls of sanitary sewers and storm sewers of 300 mm.

.3 Mains shall be designed to follow a straight alignment between manholes.

.4 Curved alignments within Rights-of-Way shall be subject to the Approval of the Director and provided that the pipe is set at a grade greater than the specified minimum and pipe alignment is at a parallel offset with an established boundary. In these cases, the radius of curvature shall be not less than twice the minimum radius recommended by the pipe manufacturer.

E - 2.10 Pipe Class and Bedding Class

.1 The quality of pipe and bedding shall be so selected such that the installation will adequately support the loads to be placed on it during construction and in operation.

.2 For PVC pipe, the calculations shall follow the methods outlined in the Uni-Bell Plastic Pipe Association publication *Handbook of PVC Pipe - Design and Construction*, latest edition.

.3 Pipe class and bedding class must be identified on all engineering drawings. Pipe shall have at least Class B bedding.

E - 2.11 Force Mains

.1 At the lowest pump delivery rate anticipated to occur at least once per day, a cleansing velocity of at least 0.75 meters per second (m/s) should be maintained. Maximum velocity should not exceed 3.0 meters per second.

.2 An automatic air relief valve shall be placed at high points in the force main to prevent air locking.

E – DESIGN CRITERIA

E - 2.11 Force Mains (continued)

.3 Force mains should enter the gravity sewer system at a point not more than 600 mm above the flow line of the gravity sewer.

.4 The size for force mains discharging raw sewage shall be a minimum 100 mm diameter. Under special circumstances size may be reduced if approved by the Director.

.5 The materials selected for force mains shall meet City standards and shall adapt to local conditions, such as character of industrial wastes, soil characteristics, exceptionally heavy external loads, abrasion and similar problems.

.6 A tracing wire shall be installed for the purpose of locating the force main.

.7 All force mains shall be designed to prevent damage from superimposed loads, or from water hammer or column separation phenomena.

E - 2.12 Testing

.1 All piping shall be pressure tested as per MMCD.

.2 All piping shall be video inspected as per MMCD.

.3 Sewer service connections are to be video inspected at end of Maintenance period prior to Final Acceptance.

E - 2.13 Tie-ins to Existing Sewer Mains

.1 The Owner shall complete work and pay for the supply of all materials, equipment and labour required to complete the connection of a new pipe to an existing sewer main.

.2 This portion of the work, including details of materials required, shall be clearly indicated on the design drawings.

.3 The Owner must provide the City with minimum 72 hours notice of each tie to the City's system so that the City may witness the works.

E - 2.14 Sanitary Lift Station - Pre-design Requirements

.1 The objective of the City of Fort St. John is to minimize the number of sewage lift stations required and thoroughly consider other options to avoid lift stations wherever practical. The Owner's Engineer shall obtain Approval from the Director as to the location of the lift station.

.2 Prior to commencing detailed design of a lift station, the Owner's Engineer shall submit a pre-design report that addresses the design considerations of the station to the Director. Approval of the pre-design concepts must be obtained prior to the Owner's Engineer commencing detailed design.

.3 Larger capacity sewage lift stations or lift stations with special design or location requirements may require additional assessment and review of criteria.

E – DESIGN CRITERIA

E - 2.14 Sanitary Lift Station - Pre-design Requirements (continued)

.4 The location and layout of a lift station shall include, at minimum, an assessment of the following basic design considerations:

.1 Shall be designed to handle the flows of the designated catchment area;

.2 Type of station and impact on neighbours;

.4 Construction dewatering requirements;

Driveway Access for construction and maintenance complete with asphalt driveway or approved equivalent of sufficient strength to handle heavy trucks and with enough space to accommodate turning;

.5 Aesthetics, noise control, odour control, and landscaping requirements;

.6 Security against vandalism and theft;

.7 Flood elevations. Station uplift design shall be based on 100 year flood level;

.8 Proximity of receiving sewers, watermains, and adequate power supply;

.9 Minimizing energy requirements;

.10 Standby power and its requirements and compatibility;

.11 Geotechnical investigation shall be undertaken prior to site Approval being given;

.12 Convenience of operation and maintenance;

.13 Safety of operators and the public; and

.14 Capital costs and operation and maintenance costs.

E - 2.15 Sanitary Lift Station - Design Requirements

.1 All sewage lift stations shall meet the following design requirements:

.1 Pumps shall meet maximum flow condition with one pump in failure mode. The pump shall handle the maximum flow with the smallest impeller for that pump size to allow for any future expansion. Pump specifications shall be approved by the Director.

.2 Pumps shall operate alternately. However, a further safety feature shall allow for both pumps to operate at the same time during extreme flows;

.3 Pumps shall have non-clog impellers that will pass a 75 mm minimum spherical solid;

.4 Sloping bottom and filleted corners in wet well to direct the flow to the pump suction inlet and prevent solids deposition;

.5 Minimum 38 mm stand pipe water supply within 10 meters of the station for wash down complete with a pressure reducer and a ball shutoff valve. Water supply to be installed minimum 2.7 meters deep, in an accessible chamber. Back flow preventers must be installed;

E – DESIGN CRITERIA

E - 2.15 Sanitary Lift Station - Design Requirements (continued)

.6 Liquid level sensing system EHN-10 float switches as provided by Flygt Canada Ltd. or an equivalent acceptable to the Director;

.7 Compatible telemetering system connected to the City's alarm/monitoring system;

.8 Emergency pump-out arrangement approved by the Director;

.9 Sufficient access to remove components for repair;

.10 Minimum 150 mm diameter pipe vent with vandal proof insect screen on outlet for the ventilation of the wet well. Explosion-proof exhaust fan which has sufficient capacity to exchange the total volume of air inside the well with fresh air within 3 minutes;

.11 Check valve and isolating valve for each pump must be provided. Where possible, locate valves in a horizontal position. Where surge pressures for the check valve would be excessive, an electric activated slow closing resilient seated eccentric plug valve, with battery standby, shall be used;

.12 A Workers' Compensation Board approved aluminum ladder for access to wet well and dry well;

.13 Sump pump for the interior of the dry well discharging above the Top Water Level (TWL) in the wet well;

.14 Minimum 30 minute storage between the high level alarm and the start of overflow to be provided within the wet well and influent pipes at peak wet weather flow;

.15 The wet well shall be sized to allow a minimum of 3 minutes to elapse between successive pump starts at peak flow conditions to prevent pump burn-out;

.16 Emergency overflow should prevent flooding of buildings connected to the sewer system and prevent damage of components in the lift station. Overflow should be to a confined storage area;

.17 An explosion proof light with protective cover activated by a switch inside the kiosk shall be provided;

.18 Gate valve on the pressure line from the pump station is required;

.19 Bell mouth on pump intake required on all dry well pumps;

.20 Inside deck plates to be light weight fibre glass or aluminum complete with stainless steel hinges. Open grate deck plates preferred;

.21 Special flex joints shall be used at the inlet pipe such as Flex-Tend by EBAA Iron Inc. or an approved equivalent;

.22 All equipment must be CSA approved;

.23 All parts and equipment to be approved based on compatibility with the City's existing system;

E – DESIGN CRITERIA

E - 2.15 Sanitary Lift Station - Design Requirements (continued)

.24 The outlet pipe and all other connections to the station shall be brought to within 2.45 meters of the expected ground line around the pump station by the use of risers either on the inside of the station or attached to the outside of the station; and

.25 Particular criteria for submersible and for dry well stations are to be reviewed with the Director.

.2 For each design submission to the City, an extra set of drawings pertaining to the design of the pump station, the sanitary mains and force mains, key plan and a location plan shall be provided for the maintenance department to review.

.3 Before commencement of construction, the Owner's Engineer shall provide two sealed sets of mechanical shop drawings and two sealed sets of electrical line diagrams as well as design in digital format for review by the Director. Two sealed copies of design calculations shall be provided for documentation.

E - 2.16 Driveway Access

.1 Vehicular access shall be provided to sewage lift stations. The minimum standard shall be as for a paved Lane as shown on the Standard Drawings, with curbing and drainage provisions as may be required by the Director.

SCHEDULE F

DRAINAGE SYSTEMS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

F - 1.0 GENERAL

F - 1.01 General Provisions

.1 Where the provisions this Bylaw or a Subdivision and Development Servicing Agreement or Maintenance Agreement made under this Bylaw require the construction of a storm Drainage System the Owner shall provide:

.1 A storm Drainage System including sewer mains, manholes, service connections, and all related appurtenances consistent with the standards and specifications contained in this Schedule.

.2 All specifications for the construction of Works and Services shall be the most recent version of the Master Municipal Construction Document unless referred to otherwise in this Schedule or the Standard Drawings.

F - 1.02 Where Storm Drainage Collection System Not Required

.1 Where storm drainage facilities are not required at the time of Development, the City may require Rights-of-way to be provided by the Owner to allow for the eventual installation of these facilities. Such Rights-of-way shall be registered in favour of the City at the Owner's expense.

.2 In this instance, the Owner will be required to provide for surface drainage as required by the Director, with all catch basins and other appurtenances designed to facilitate connection to the future storm sewer system.

F - 1.03 Storm Water Management

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

.1 All Drainage Systems in the City shall be designed considering the overall management of storm water to mitigate the hydrological impacts of land development or land use changes. The primary purpose will be to limit the effect of peak flows and volumes of runoff on properties, receiving streams and water courses.

.2 All lots located in medium and high density residential, commercial, industrial and institutional areas and factory-built house park Parcels must have on-site catch basins to collect the on-site runoff. A storm water management plan to collect and store onsite run-off is required, unless neighbourhood storage requirements have been designed to accommodate these lots or unless otherwise approved by the Director.

.3 Neighbourhood Stormwater Control Facilities are preferred over small facilities on individual lots. In neighbourhood developments where there are multiple lots being created, every attempt should be made to create a Neighbourhood Stormwater Control Facility.

.4 Private, onsite catch basins with oil separation capacity are required to be installed before the connection to the City storm system.

.5 Mitigation measures include but are not limited to the following:

.1 Appropriate sizing and routing of pipes and channels;

.2 Major flow path routing;

F - 1.0 GENERAL

F - 1.03 Storm Water Management (continued)

.3 Detention storage;

.4 Sediment removal;

.5 Biofiltration;

.6 Landscaping;

.7 Source Control;

.8 Erosion protection;

.9 Groundwater infiltration;

.10 Subsurface disposal;

.11 Absorbent Landscaping;

.12 Increases in topsoil thickness in pervious areas;

.13 Bioretention;

.14 Rainwater reuse; and

.15 Lot grading.

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

F - 1.04 Minor and Major Drainage Systems

.1 Urban areas shall have two separate and distinct Drainage Systems; the minor system and the major system.

.2 The minor system includes street gutters, catch basins, underground pipes, manholes, and facilities associated with the collection and conveyance of runoff from frequently occurring rainfall events.

.3 The major system includes overland flood flow routes, roadways, stormwater detention ponds, emergency spillways and other such works that come into operation when the capacity of the minor system is exceeded. It shall be designed for infrequent and extreme rainfall events, and shall serve to protect public safety and property from damage.

.4 Specific criteria to be used in the design of the major and minor systems are identified in this bylaw.

F - 1.05 Adequate Drainage

.1 All Subdivisions shall be adequately drained throughout the year. Where the whole or part of any proposed Subdivision is wet or subject to intermittent or periodic flooding, Approval of the Subdivision will be withheld until the Director is satisfied that appropriate steps have been taken to drain the land or otherwise remedy such wet or flooding conditions. Design must attempt to maintain zero increase in peak flows over the pre-development flows using flow detention methods.

F - 1.0 GENERAL

F - 1.05 Adequate Drainage (continued)

.2 Site grading and drainage works shall be designed to:

.1 accommodate drainage through the site;

.2 accommodate drainage generated on-site;

.3 mitigate sub-surface drainage/groundwater problems;

.4 mitigate soil erosion potential; and

.5 mitigate siltation of adjacent or receiving City storm and sanitary mains or ditches and receiving streams and watercourses.

.3 The Owner's Engineer shall prepare the appropriate drawings to explicitly show the works required to accommodate site drainage.

F - 1.06 Existing and Natural Watercourses

.1 Where a Subdivision is traversed by a watercourse, drainage way or stream, a Right-of-Way shall be provided along such watercourse or its planned re-alignment of a width deemed necessary by the Director for construction, maintenance, conservation, and beautification purposes.

.2 No natural drainage course shall be altered or diverted unless such alteration or diversion has been approved by the City, the Ministry of Environment and Fisheries and Oceans Canada if draining into a fish bearing stream

.3 Storm water shall only be discharged from a Subdivision to a drain or ditch that as in the opinion of the Director is adequate to receive the discharge therefrom, or which has been declared a part of the City's Drainage System.

.4 Storm water discharged into a watercourse, stream or other waterway draining into a fish bearing stream requires Approval of the Ministry of Environment and Fisheries and Oceans Canada.

F - 1.07 Drainage Systems Through Private Property

.1 Where it is necessary to construct a Drainage System through privately-owned land, the Owner shall obtain or grant a Right-of-Way in favour of the City to guarantee the right of access, in perpetuity, to the drainage facility. In general, all Drainage Systems through private property shall be piped systems, unless otherwise approved by the Director.

F - 1.08 Geotechnical Evaluation

.1 In addition to the geotechnical overview undertaken during the initial phases of the project, the Owner shall engage the services of a qualified Geotechnical Engineer to investigate surface and sub-surface conditions with respect to site grading within the proposed Subdivisions.

.2 The Geotechnical Engineer shall prepare a report outlining his findings and shall provide clear, definitive recommendations:

F - 1.0 GENERAL

F - 1.08 Geotechnical Evaluation (continued)

.1 on the geometry and placement of fill sections;

.2 compaction requirements for structural and non-structural fills;

.3 cut and fill slope geometry; and

.4 any other geotechnical issues affecting site grading construction within the proposed Subdivision.

.3 A copy of the geotechnical evaluation shall be submitted to the Director, at the time the engineering drawings are submitted for Approval.

F - 1.09 Detailed Site Survey

.1 Detailed site surveys are required throughout the site to ensure grading in accordance with the requirements of this Bylaw with respect to assuring the competence of non-structural and structural fills and to accommodate site drainage during and after construction of the Subdivision or Development. Survey data should extend a minimum of ten meters outside perimeter of project.

F - 2.0 GENERAL DESIGN CRITERIA

F - 2.01 Discharge Rates and Quality

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

.1 Drainage Systems should include runoff controls to limit post-development peak discharge to the pre-development rates for 2-year return period storms.

.2 Runoff quality treatment must be considered. Quality treatment facilities include but are not limited to, oil/grit separator, silt traps, retention ponds, grassed swales, bio-swales and constructed wetlands.

F - 2.02 Runoff Analysis

.1 Storm drainage design should be completed as per the most recent version of the MMCD Design Guidelines. Calculations are to be submitted with design drawings.

.2 Climate change factors must be applied to all design storms during analysis.

F - 2.03 Rational Method

.1 The Rational Method may be used to calculate peak flows for use as indicated in section F – 2.02 as an alternative option to computer modelling, in areas less than 10ha.

Rational Method:

$Q = KCIA$

Where: Q = Flow in m3/s
K = Constant to establish units of compatibility (.00278)
C = Dimensionless runoff coefficient
I = Rainfall intensity (mm/hr)
A = Runoff area (ha)

F - 2.0 GENERAL DESIGN CRITERIA

F - 2.03 Rational Method (continued)

.2 Dimensionless Runoff Coefficient

.1 For developed areas, the weighted average of pervious and impervious area runoff coefficients shall be estimated, as per Character of Surface from Table F.1.

.2 For planning new areas, runoff coefficients may be calculated for site-specific conditions where details of ultimate site development are known. Otherwise the values of the runoff coefficient are to be selected on the basis of zoning or general land use from Table F.1.

.3 Runoff coefficients other than those specified in Table F.1 section shall be used only with the express written consent of the Director.

TABLE F.1
RUNOFF COEFFICIENT (C)

Type of Development	Runoff Coefficient (C)
Commercial	0.85
Industrial	0.85
Institutional	0.80
Low Density Residential	0.55
Medium Density Residential	0.65
High Density Residential	0.75
Parks, Cemeteries	0.30
Playgrounds	0.30
Undeveloped areas	0.15
Character of Surface	**Runoff Coefficient (C)**
Asphalt	0.95
Concrete	0.95
Brick	0.85
Gravel	0.50
Roofs	1.0
Grass	0.15

F - 2.0 GENERAL DESIGN CRITERIA

F - 2.03 Rational Method (continued)

.3 Rainfall Design Intensity

.1 The design rainfall intensity, I, is selected from the appropriate Intensity Duration Frequency (IDF) curve, with a duration chosen to coincide with the Time of Concentration (Tc).

.2 For convenience, the Environment Canada IDF curve can be found in Appendix 8. The below table identifies the formulas that define the IDF curve developed by Environment Canada for Fort St. John. Note this table is provided for convenience only and most recent version from Environment Canada must be used.

This section was amended by Bylaw No. 2759, 2023

.3 Drawings F-2, F-3 and F-4 in Appendix 8 have been provided for historical (pre-development) analysis only. IDF curves and design storms must be adjusted for climate change for proposed conditions and post-development flows.

TABLE F.2
INTERPOLATION EQUATION OF FORT ST. JOHN IDF CURVE

Statistics	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
Coefficient (A)	12.1	16.6	19.5	23.3	26.0	28.8
Exponent (B)	-.658	-0.676	-0.684	-0.691	-0.695	-0.698

Interpolation Equation:

R = A*T^B

Where: R = Interpolated Rainfall rate (mm/h)
RR = Rainfall rate (mm/h)
T = Rainfall duration (h)

.4 Time of Concentration

Time of concentration shall be calculated as per the most recent version of the MMCD design guidelines.

.5 Design Summary Sheet

Summary of Rational Method design calculations and results, design summary sheet, shall be presented in tabular form similar as per MMCD design guidelines.

F - 2.0 GENERAL DESIGN CRITERIA

F - 2.04 Design Flows for areas greater than or equal to 10 ha and Stormwater Management facilities

.1 Computational methods shall be used to determine design flows and the sizing of the systems which contain non-pipe stormwater management facilities (ie: detention ponds) or systems that include an area of land 10 hectares or larger

.2 The selection of an appropriate computer model shall be based on the understanding of the principles, assumption and limitation in relation to the system being designed. The City encourages the use of computer programs as per MMCD Design Guideline Model Selection list.

.3 Modelling Procedures and submission of modelling results shall follow the most recent version of the MMCD design guidelines.

F - 3.0 MINOR SYSTEM DESIGN CRITERIA

F - 3.01 Level of Service

.1 The minor Drainage System consists of pipes and appurtenances sized to convey peak 5-year return period storm runoff by gravity (non-surcharged) flow.

F - 3.02 Pipe and Channel Capacity

.1 Manning's formula:

$$Q = AR^{0.667}S^{0.5}/n$$

Where: Q = Design flow in m3/s
A = Cross Sectional area in m2
R = Hydraulic radius (area/wetter perimeter) in m
S = Slope of hydraulic grade line in m/m
N = Roughness coefficient:

.2 Roughness coefficients for use with the Manning's formula shall be as specified in Table F.3.

F - 3.0 MINOR SYSTEM DESIGN CRITERIA

F - 3.02 Pipe and Channel Capacity (continued)

F - 2.0 TABLE F.3

F - 3.0 ROUGHNESS COEFFICIENTS (n)

Channel Material	Roughness Coefficients (n)
PVC Pipe	0.011
HDPE Pipe	0.012
Concrete Pipe	0.013
Corrugated Steel Pipe (CSP)*	0.024
Surface Channel	**Roughness Coefficients (n)**
Paved Roadway	0.018
Unpaved Roadway	0.030
Grassed Boulevards and Swales	0.030
Packed Clay and Excavated Ditches	0.030
Packed Gravel	0.030
Cobble Stones	0.040
Natural Channels	0.050
Light Turf	0.200
Dense Turf	0.350
Dense Shrubbery	0.400

*CSP for culverts only, not accepted on mains.

F - 3.03 Flow Velocities:

.1 Minimum velocity of 0.6 m/s shall be maintained for pipes flowing ¾ full or half full.

.2 Pipes shall be designed to carry the required quantity when flowing at ¾ of total flow capacity.

.3 Designer shall ensure that supercritical flow does not occur. Where grades exceed 15%, scour protection may be needed and anchor blocks will be required. These criteria may be modified by the Director to meet local conditions.

F - 3.0 MINOR SYSTEM DESIGN CRITERIA

F - 3.04 Minimum Pipe Size

.1 Minimum pipe size shall be as per Table F.4.

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

TABLE F.4
MINIMUM PIPE SIZE

Type	Pipe Diameter (mm)
Mains	300
Catch Basin Leads	250
Service Connections	
• Low Density Residential	100
• Medium Density Residential	100
• High Density Residential	250
• Commercial	250
• Industrial	250
• Institutional	250

.2 The minimum pipe size for mains accepting flows from open ditches shall be 450 mm.

F - 3.05 Location of Storm Mains

.1 Storm sewer mains shall be located in the road Right-of-Way as shown on the Standard Drawings unless otherwise approved by the Director.

.2 Storm sewer mains shall be designed to follow a straight alignment between manholes. Curved alignments within Rights-of-way shall be subject to the Approval of the Director provided that the pipe is set at a grade greater than the specified minimum and pipe alignment is at a parallel offset with an established boundary. In these cases, the radius of curvature shall be twice the minimum radius recommended by the pipe manufacture

.3 Where the location of the sewer main within the road Right-of-Way is not practical due to topography or other factors, the sewer main shall be located in a utility Right-of-Way registered in favour of the City and having a width of not less than 6.0 m. The Director may require a utility Right-of-Way wider than 6.0 m in the case where services in addition to storm sewer will be placed in the same Right-of-Way or where the depth of the sewer main requires a wider easement.

.4 The entire length and width of each utility Right-of-Way is to be graded and have a finished surface to allow maintenance vehicle access.

.5 There shall be a minimum clear lateral distance between the outside walls of storm sewers and sanitary sewers of 300 mm.

F - 3.0 MINOR SYSTEM DESIGN CRITERIA

F - 3.06 Depth of Cover

.1 A minimum cover of 2.7 meters shall be provided over the crown of storm mains.

.2 The depth of main shall be sufficient to provide all service connection piping with a minimum cover of 2.7 meters to the top of servicing piping anywhere within the finished Right-of-Way.

.3 Where connecting to an existing Drainage System that does not meet this minimum requirement, every attempt should be made to reach a 2.7 meter depth via gravity flow as soon as possible, unless otherwise approved by the Director.

.4 Where storm main has less than minimum cover, insulation may be required at the discretion of the Director.

F - 3.07 Manholes

.1 Manholes shall be installed at a maximum spacing of 120 meters and in the following locations:

.1 All changes in grade;

.2 All changes in alignment, including non-curvilinear sewers;

.3 All changes in pipe size;

.4 All pipe junctions;

.5 All intersections; and

.6 Downstream end of curvilinear sections.

.2 Manholes on curved sewers shall be installed at a maximum spacing of 90 meters along the curve. Manholes shall be located at the beginning and end of curve.

.3 The relative elevations of storm sewers entering and leaving a manhole are to be such as to ensure that the manhole does not substantially reduce the hydraulic capacity of the system.

.4 Minimum fall through the manhole shall be 20 mm.

.5 Drop manhole and ramp structures should be avoided where possible by steepening inlet sewers. Where necessary, a drop structure is required as per MMCD Design Guideline.

F - 3.08 Culverts

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

.1 Where an open ditch system is required to cross a road, highway or driveway, the ditch shall be enclosed by means of a culvert. All culverts shall be of sufficient size to properly drain all of the area naturally draining into the channel or ditch feeding into the culvert with a 1:100-year level of service, unless otherwise approved by the Director. Allowance shall be made for future flows as a result of full development of the upstream tributary area.

.2 Minimum culvert diameter shall be 450mm diameter.

F - 3.0 MINOR SYSTEM DESIGN CRITERIA

F - 3.08 Culverts (continued)

.3 Headwalls and safety grillage are required for culverts 600mm diameter and larger. Safety grillage is to be hinged with vertical bars on the inlet and horizontal bars on the outlet.

F - 3.09 Catch Basins

.1 Catch basin shall be spaced to provide sufficient inlet capacity to collect the entire minor flow or major flow, if required, into the pipe system. In all cases an analysis of catch basin capacity shall be provided with the design.

.2 The depth of flow in gutters should not exceed the top of curb at any point.

.3 Drainage should not pass through intersections, but rather, sufficient inlet capacity is to be provided to intercept all flow at the uphill side and at the upstream of the curb ramps at sag locations.

.4 The depth of ponding at roadway sag locations and depressions is not to exceed 150mm.

.5 The following shall be considered when choosing locations for sewer inlets:

.1 Minimum spacing between catch basins is 75m;

.2 Catch basins shall be located at intervals such that surface drainage does not exceed gutter or flow channel capacities, to prevent overflow to driveways, Boulevards, sidewalks, or private property;

.3 Inlets required at sags and/or intersections should be located at the end of curve or beginning of curve for the curb return;

.4 Where there is a continuous grade through the curb return at an intersection, storm water catch basins and catch basin manholes shall be located at the uphill side of the curb return (BC);

.5 Design locations for catch basins on residential or other roadways shall be chosen to avoid conflict with driveway crossings wherever possible;

.6 Lawn basins are required on Boulevards and private properties where necessary to prevent ponding or over flowing of water over sidewalks, Boulevards, driveways, buildings and yards; and

.7 Catch basins in gravel surfaces are not acceptable, if necessary, provide bioswales to surface drain towards the catch basin.

.6 Maximum design capacities are shown in Table F.5.

F - 3.0 MINOR SYSTEM DESIGN CRITERIA

TABLE F.5
CATCH BASIN CAPACITIES

CATCH BASIN TYPE	ROAD GRADE	CAPACITIES
Type 1 Catch Basin	≥ 3%	20 l/s
	< 3%	30 l/s
	At Low Point	50 l/s

F - 3.10 Catch Basin Leads

.1 Catch basin leads should discharge into a manhole and not directly into the storm sewer pipe wherever possible.

.2 When connection into the main is allowed by the Director, the use of a wye fitting is required for new construction, or approved saddle to tie-into existing mains.

.3 Catch basin leads shall be minimum 250 mm PVC, 300 mm PVC for double catch basins and not to exceed 30m in length.

F - 3.11 Service Connections

.1 Storm sewer service connections shall be provided to all lots where storm main meets minimum cover of 2.7m. Where minimum cover of 2.7m is not met, services shall be provided to all lots except lots zoned R-1, R-2 and R-4 as per the Zoning Bylaw.

.2 Storm sewer service connections shall only be used for foundation perimeter drains and storm water management systems.

.3 The diameter of storm sewer service connections shall be determined by the Design Engineer. Minimum size as per Table F.4.

.4 Service connections shall be made with an approved branch wye for new connections, or approved saddle to tie-into existing mains

.5 Connections shall be installed in a straight line and at a uniform grade from the terminus at the property line to the 45-degree long radius bend at the main.

.6 The minimum pipe grade for sewer service pipes shall be

.1 2.0% for 100mm diameters, or

.2 1.0% for service connections greater than 100mm

.7 For services larger than 250 mm, a manhole shall be installed at the intersection of the main and service.

.8 Service shall have a minimum depth of 2.7m if connecting to a main that is at a depth of 2.7m

F - 3.0 MINOR SYSTEM DESIGN CRITERIA

F - 3.12 Pipe Class and Bedding Class

.1 The quality of pipe and bedding shall be so selected such that the installation will adequately support the loads to be placed on it during construction and in operation. Pipe class and bedding class must be identified on all engineering drawings. Pipe shall have at least Class B bedding, as defined by the Standard Drawings.

.2 For concrete pipe, the calculations shall follow the method shown in the latest edition of the Water Pollution Control Federation Manual of Practice No. 9. A safety factor of 1.5 shall be used for concrete pipe and the bedding classifications shall be as identified on the Standard Drawing.

.3 For HDPE pipe, the calculations shall follow the method outlined in the latest edition of AWWA M55 PE Pipe – Design and Installation.

.4 For PVC pipe, the calculations shall follow the method outlined in the latest edition of the Uni-Bell PVC Pipe Association Publication Handbook of PVC Pipe - Design and Construction

.5 For Corrugated Steel Pipe (CSP) pipe, the calculations shall follow the method outlined in the latest edition of the American Iron and Steel Institute publication Handbook of Steel Drainage & Road Construction Products. CSP shall be used only for Culverts, not for main line piping.

F - 3.13 Testing

.1 All piping shall be video inspected as per MMCD.

F - 4.0 MAJOR SYSTEM DESIGN

F - 4.01 Level of Service

.1 Provide protection against surface flooding and property damage for 1 in 100 year return frequency design storm.

F - 4.02 Surface Flow Routing

.1 All overland flows in excess of 0.05 m3/sec shall have specifically designed flow routes.

.2 The Owner's Engineer shall provide the Director with the depth of flow along the major flow route and shall show on the design drawings the hydraulic grade line. Sufficient design shall be carried out to provide assurance to the Director that no serious property damage or endangering of public safety will occur under major flow conditions.

.3 The major flow routing shall normally be provided along roads and in natural watercourses. In some cases, the major flow may also be carried alongside the road in grassed swales, across country in Rights-of-way and along public Trails. In these cases, the flow paths shall be protected by restrictive covenants or Rights-of-way.

.4 Hydraulic grade line (HGL) is to be at least 600mm below the minimum basement elevation (MBE) of adjacent buildings.

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

F - 4.02 Surface Flow Routing (continued)

.5 Maximum flow depth on roadways is 300mm.

.6 Intersecting driveway profiles will need to be set such that roadway surface flows are contained within the public Right-of-Way.

.7 Where the roadway is used for major flows intersect, care shall be taken to lower the intersection to allow flows to pass over the cross street. Where major flow routes turn at intersections, similar care in the road grading design is required.

.8 Overflow routes are required at all sags and low points in roadways and other surface flow routes

.9 Major flood routes are required to exit down-slope in Cul-de-sacs.

.10 The discharge point from the Development for the major flow route shall be coordinated with the downstream routing to outfall as determined by the City. Where major flow outfalls to a receiving watercourse, the velocity shall not exceed 1.5 m/s, or energy dissipaters shall be provided to minimize erosion.

.11 Flooding is not permitted on private property except in flow channels in municipal Rights-of-ways.

.12 The use of catch basin inlet control devices to separate major and minor hydraulic grade lines may be allowed, subject to the satisfaction of the Director regarding the suitability of such control devices. Where catch basin inlet control devices are used, building elevations may be controlled by the hydraulic grade line occurring in the minor system.

F - 4.03 Lot Grading (See figures F.1, F.2 and F.3)

.1 The Owner's Engineer shall provide lot grading plans for each lot in the Subdivision.

.2 Lot Grading plans shall indicate the minimum foundation elevation (MFE) and the minimum basement elevation (MBE) based on sanitary and storm service grades and hydraulic grade line.

.3 Lots shall be graded towards roadways, and in no case shall lots be permitted to drain onto an adjacent lot.

.4 Through areas where site topography prohibits drainage to roadways, lots may be graded to lot lines with drainage swales graded out to the roadways. Drainage swales shall be protected by registration of a covenant and a statutory 6.0 meters Right-of-Way on the lot title.

.5 Split drainage or front to back drainage is only permitted with the Approval of the Director.

.6 Overall site drainage to provide:

.1 conveyance of off-site runoff onto and through the site;

.2 conveyance of on-site runoff into existing watercourses or new drainage infrastructure;

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

F - 4.03 Lot Grading (See figures F.1, F.2 and F.3) (continued)

.3 abatement of drainage from one lot to another; and

.4 abatement of sub-surface groundwater problems.

.7 Build-able lots are created that provide:

.3 access from fronting roadways;

.4 drainage from each lot and into drainage infrastructure;

.5 structural competence of undisturbed and embanked soils to support building loads; and

.6 Provide slopes, grades, and depths of underground services.

.8 Where lot grading is undertaken:

.3 maximum lot grades shall be 15%

.4 minimum lot grades shall be 2%

.5 minimum 5% away from house for 2m

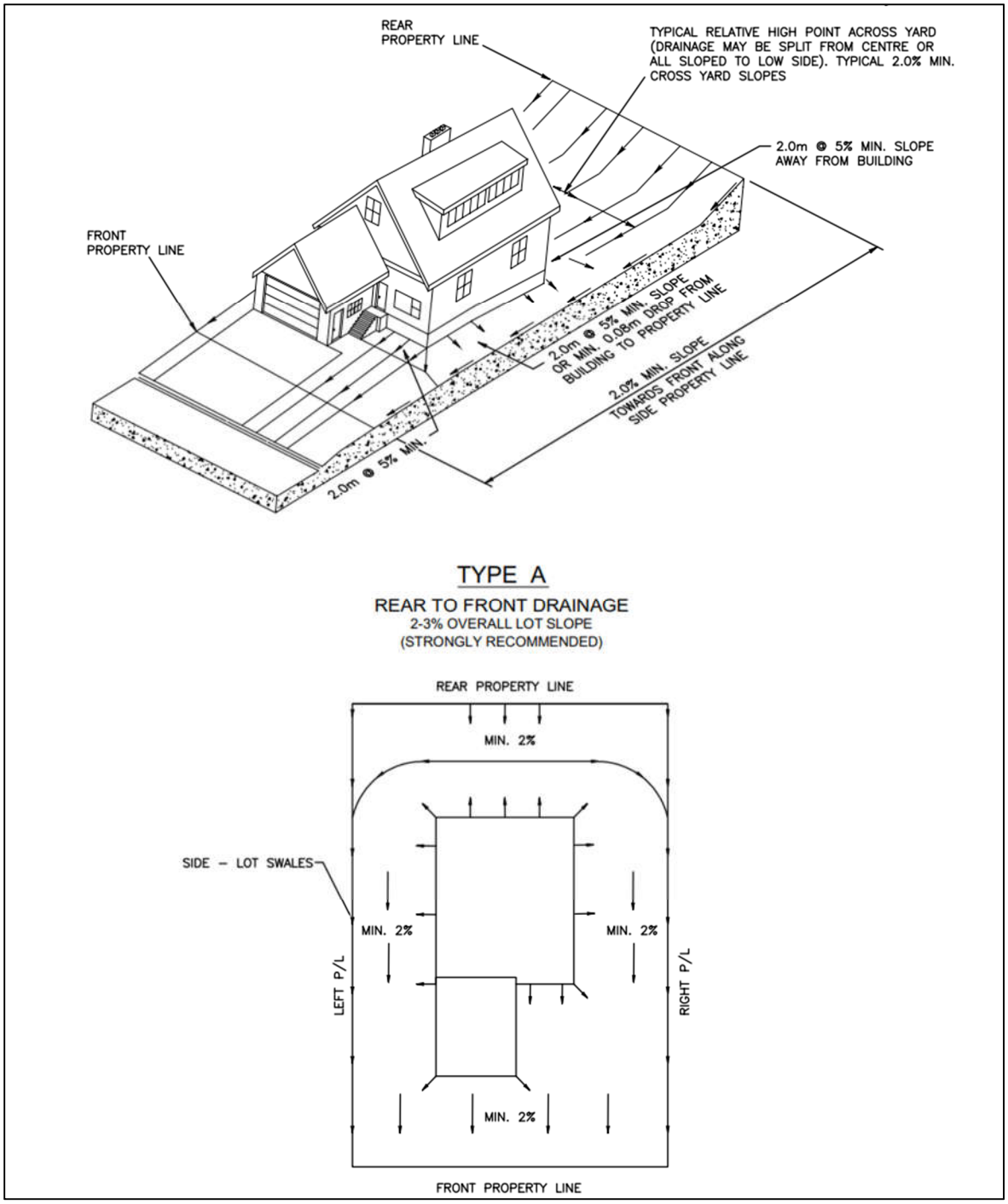
.6 maximum driveway grades shall be 8%

.9 As-built lot grading plan to be completed only after all rough grading has been completed. All backfill to foundation must be finished and no piles of waste material may be left onsite

.10 If an applicant wants to change the lot grading from that given to them at time of permit they must provide the City with an amended grading plan sealed by a registered land surveyor, a Professional Engineer or a registered architect. The person stamping the grading plan must be in good standing in the province of BC. The grading plan supplied to the City must conform to the City's bylaws and work with the existing grading plan for the Subdivision.

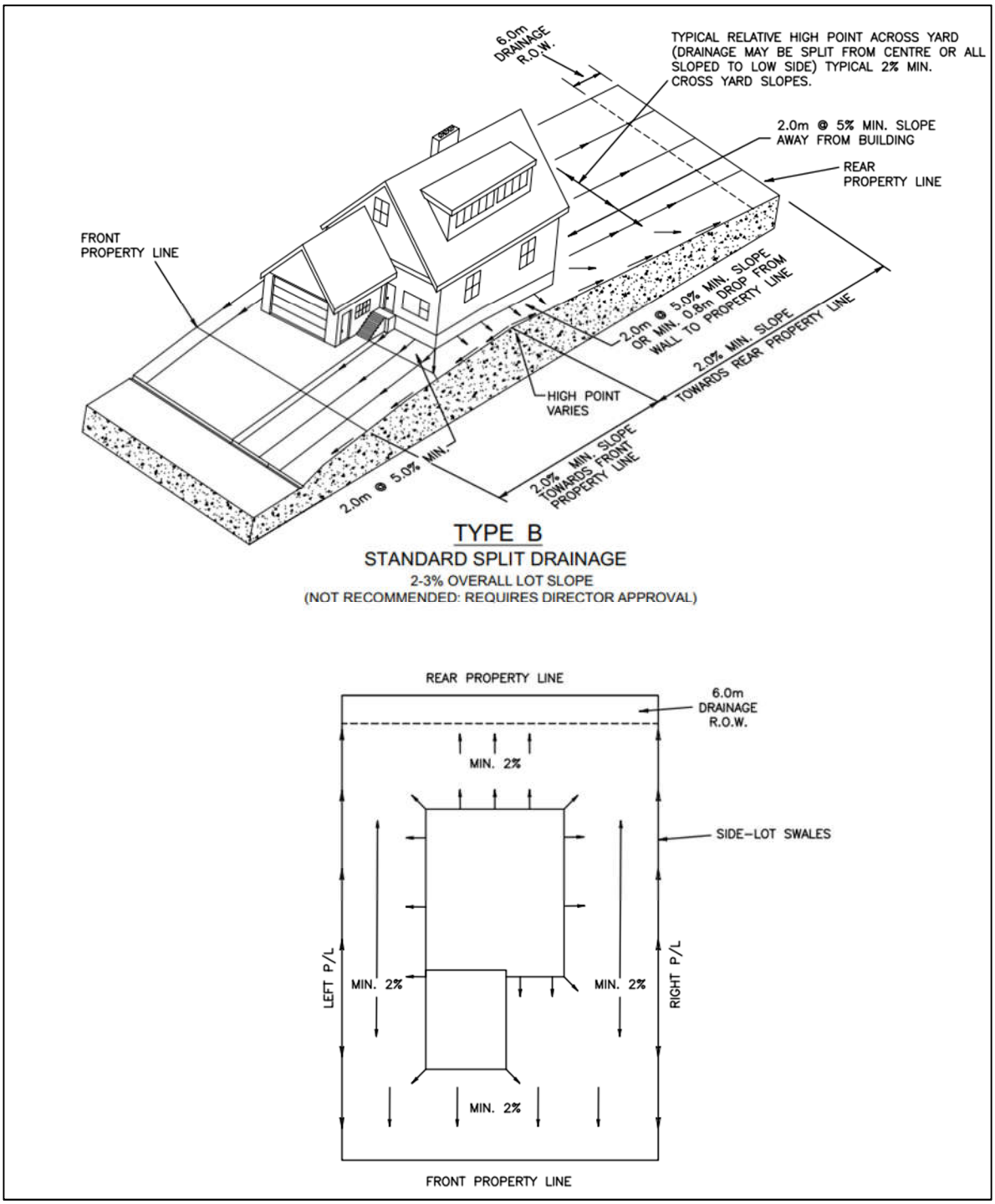
F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

FIGURE F.1
LOT GRADING TYPICAL DETAIL
REAR TO FRONT DRAINAGE



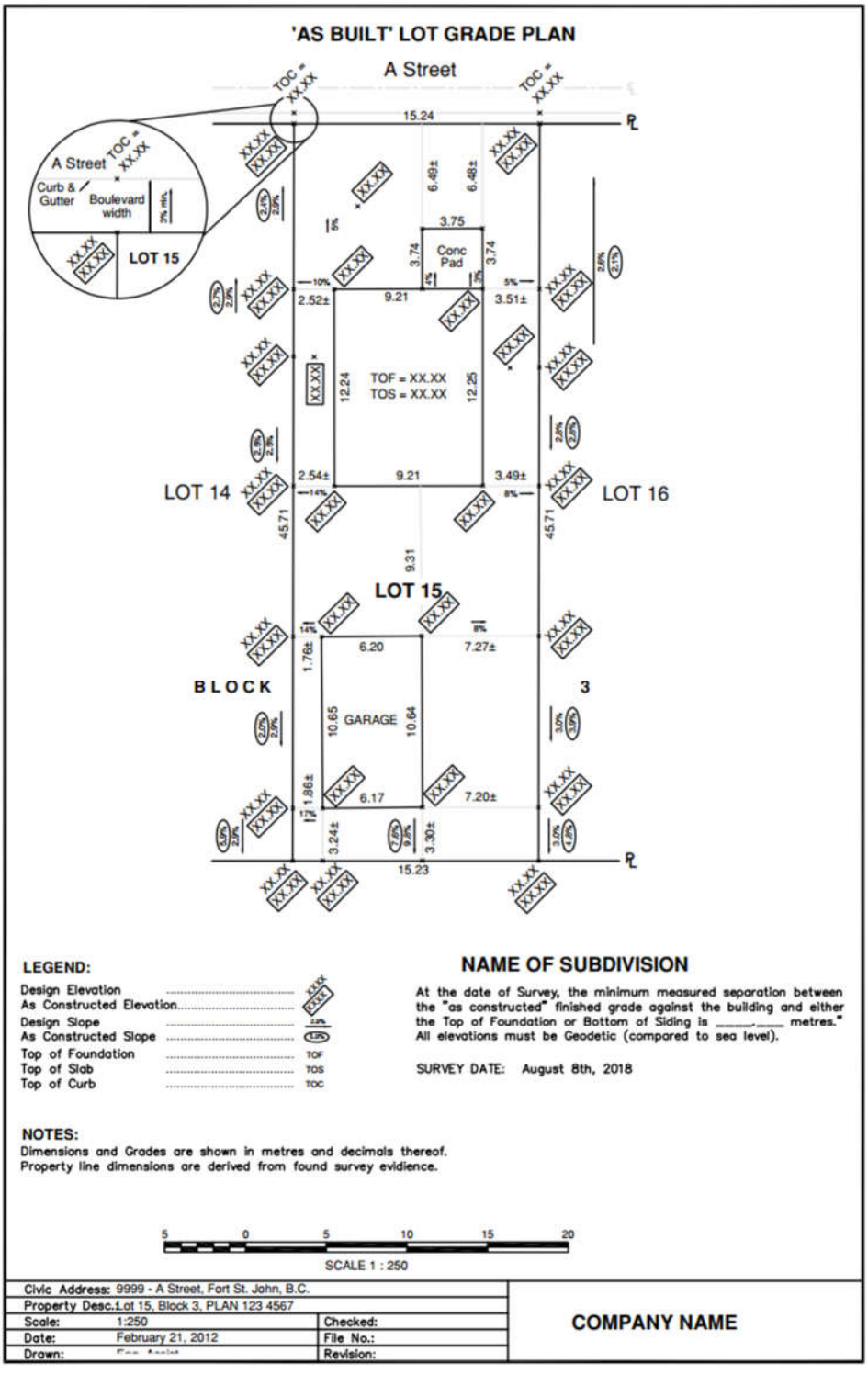
F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

FIGURE F.2
LOT GRADING TYPICAL DETAIL
STANDARD SPLIT DRAINAGE



F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

FIGURE F.3
'AS-BUILT' LOT GRADING PLAN SAMPLE



F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

F - 4.04 Surface Flow Capacity

.1 Flow capacity of road surfaces and swales can be calculated using the Manning's formula as indicated in section F-3.02

.2 Design detail is to include consideration of flow velocities and the potential requirement for erosion control measures.

F - 4.05 Piped System

.1 In special circumstances where surface major flow routes cannot be provided, a pipe system may be designed to accommodate the required major flow, and sufficient inlet capacity will be provided to accommodate introduction of the major flow into a piped system. System details should be indicated on the Storm Water Management Plan.

.2 Design considerations include:

.1 Provisions of adequate inlets to accommodate major flows,

.2 The requirement for surface overflow routes at potential surface ponding locations, and

.3 Design in accordance with minor Drainage System guidelines.

F - 4.06 Runoff Controls

.1 Runoff Controls are required to meet the objectives as indicated in this bylaw.

.2 Location and maintenance options for control facilities include:

.1 On-site, i.e., on multi-family or non-residential Development sites. Registered covenants are required to ensure appropriate maintenance by the property owners, and

.2 Off-site, i.e., dedicated public Right-of-Way. Maintenance is to be carried out by the local authority.

.3 Control of discharge rates is commonly done through detention storage. Detention storage options include the following:

.1 Parking Lot Storage;

.2 Underground Storage;

.3 Dry Detention Ponds;

.4 Wet Detention Ponds; and

.5 Subsurface Disposal.

.4 The design details for runoff controls including storage capacity, outlet restrictions, bypass and drawdown rates and other basic design parameters such as elevations and design water levels are required to be defined and documented in the preliminary submission.

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

F - 4.07 Stormwater Management Facility/Detention Design Requirements

.1 On-site stormwater detention peak discharge rate from the site shall be controlled to the pre-development level in accordance with the following design criteria, Table F.6.

.2 On-site storm water detention requirement may be varied by the Director if there is no existing storm system near the Parcel to connect to.

TABLE F.6
DETENTION POND DESIGN CRITERIA

Design Element	Design Criteria
Design Rainfall Hyetograph	1:100 year storm event
Design Discharge Rate	Pre-development 1:2 year storm event
Overflow Spill Capacity	Post-development 1:100 year storm event
Emergency Spillway Capacity	Post-development 1:100 year storm event
Duration of Storm for peak flow analysis	1 hour
Duration of storm for storage volume analysis	Maximum results between 1 hour to 24 hours

.3 Stormwater Management Facility/Detention options and design guidelines:

.1 Parking Lot Storage

.1 Requires detailed lot grading design to ensure proper drainage, pedestrian safety and convenience, and major flow path for storm exceeding the design frequency. Ponding is to be located in remote areas of parking lot, or in grass medians.

.2 Maximum ponding depth: 150 mm within vehicle stalls and pedestrian walk ways. 300mm outside of these areas with consideration to frequency and impact to users.

.2 Underground Storage

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

.1 Facilities include tanks and oversized pipes, with outlet controls

.2 Adequate inlet capacity must be provided to direct flows to the underground storage system in the 1:100 year storm event.

.3 Tanks may be on-line or off-line

.4 Cross sections and inlet and outlet locations should be designed to minimize maintenance requirements

.5 Structural design to accommodate traffic loads and groundwater pressure

.6 Maintenance access provisions required

.3 Dry Stormwater Detention Ponds

.1 Intended to provide storage only during severe storm events

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

F - 4.07 Stormwater Management Facility/Detention Design Requirements (continued)

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

.2 Must be off-line

.3 Shall be designed to achieve the requirements specified in this section. Designers of stormwater management facilities shall give consideration to safety, protection of property, and operational convenience and efficiency.

.4 Shall be designed to achieve the basic parameters presented in Table F.7 unless otherwise approved by the Director.

.5 Criteria not explicitly listed in this bylaw shall be as per Fisheries and Oceans Canada Land Development Guidelines for the Protection of Aquatic Habitat.

TABLE F.7
DRY DETENTION POND PARAMETERS

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

Design Element	Design Objective	Minimum Criteria	Recommended Criteria
Level of Service, Volumetric Sizing	Provision of approximate level of protection and adequate volume	1:100 year post-development design storm event	
Peak Discharge Rate Under Normal Operation	Protect downstream watercourses from excessive peak flow rates	2 year return period, pre-development flow rate for 1 hour and 24 hour duration event.	
Emergency Overflow Spillway Capacity	Protect detention pond embankment from overtopping during extreme conditions	100 year return period, post-development flow rate for 1 hour duration event, plus appropriate freeboard	Overflow elevation to be coordinated with Minimum Basement Elevation.
Pond Area	Maximize pond area to limit number of ponds		
Length to Width Ratio	Maximum flow path, minimize short circuiting	Minimum 3:1	Prefer 4:1 or 5:1 Inlet and Outlet should be physically separated around the perimeter.
Pond Depth	Safety	Maximum 2.0m plus 0.6 freeboard minimum	

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

Side Slopes	Safety	No steeper than 5:1 for internal slopes No steeper than 3:1 for outward facing slopes All surfaces to be vegetated	
Bottom Grading and Drainage	Drain completely after operation	1.0% from inlet to outlet 2.0% from lateral slopes	
Outlet Orifice	Avoid clogging/plugging	Screening installed on outlet	
Oil and Grit Separation	Reduce maintenance of ponds.	Forebay or Oil & Grit Separator at inlet	
Gate Valve/ Emergency Release	Bypass, maintenance, emergency conditions	Minimum 300 mm diameter	
Vehicle Access	Access for maintenance equipment	3.0 m wide Hard Surface 8.0 m turning radius Access gate at main entrance	
Signage	Safety	Warning signs*	

*City to provide template for warning signs at time of construction

F - 4.07 Stormwater Management Facility/Detention Design Requirements (continued)

.4 Wet Stormwater Retention Ponds

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

.1 Intended to provide on-line detention storage and maintain a permanent minimum water level

.2 Shall be designed to achieve the requirements specified in this section. Designers of stormwater management facilities shall give consideration to safety, protection of property, and operational convenience and efficiency.

.3 Catchment area must be large enough to provide sufficient baseflow to ensure wet storage is sustained without becoming stagnant.

.4 Basic wet detention pond configuration is shown on Figure F.4, and shall be designed to achieve the basic parameters presented in Table F.8 unless otherwise approved by the Director.

.5 Criteria not explicitly listed in this bylaw shall be as per Fisheries and Oceans Canada Land Development Guidelines for the Protection of Aquatic Habitat.

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

FIGURE F.4
WET RETENTION POND SCHEMATIC

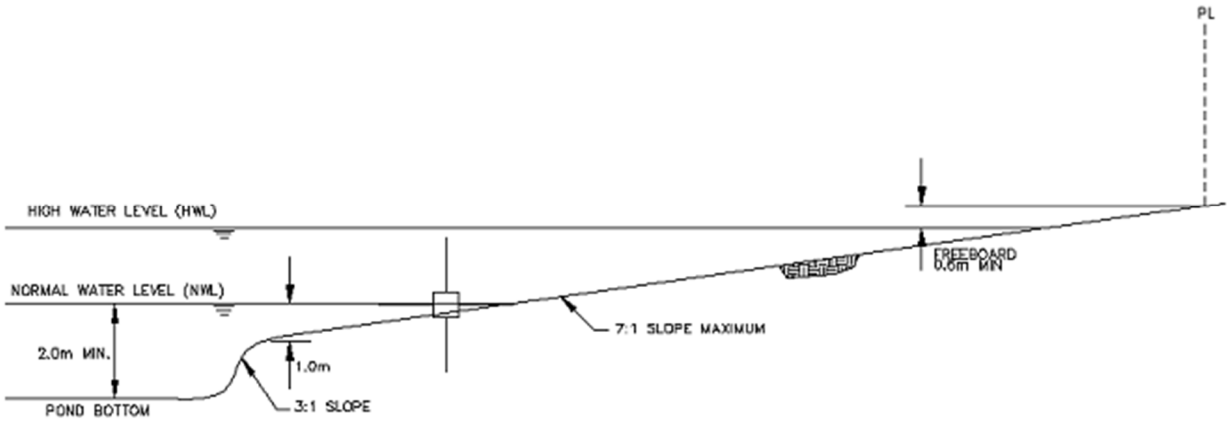


TABLE F.8
WET RETENTION POND PARAMETERS

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

Design Element	Design Objective	Minimum Criteria	Recommended Criteria
Level of Service, Volumetric Sizing	Provision of approximate level of protection and adequate volume	1:100 year post-development design storm event	
Peak Discharge Rate Under Normal Operation	Protect downstream watercourses from excessive peak flow rates	2 year return period, pre-development flow rate for 1 hour duration event	
Emergency Overflow Spillway Capacity	Protect detention pond embankment from overtopping during extreme conditions	100 year return period, post-development flow rate for 1 hour duration event, plus appropriate freeboard	Overflow elevation needs to be coordinated with Minimum Basement Elevation.
Pond Area	Maximize pond area to limit number of ponds		
Pretreatment	Treatment of grit, oil and sedimentation.	Remove sediments, grit and oil from runoff.	Forebay or Oil and Grit Separator

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

Active Storage Detention Time	Suspended solids settling	Minimum 24 hours	
Length to Width Ratio	Maximum flow path, minimize short circuiting	Minimum 3:1	4:1 or 5:1
Dead Storage Depth	Safety	2.0 - 3.0m	Large enough storage so water can be sustained without becoming stagnant.
Active Storage Depth		Maximum 2.0	
Side Slopes	Safety	No steeper than 3:1 for permanently submerged slopes and unsubmerged slopes above active storage zone. No steeper than 7:1 for temporarily submerged internal slopes. No steeper than 3:1 for outward facing slopes. All surfaces to be vegetated	
Inlets and Outlets	Avoid clogging/plugging	Inlets and outlets are to be fully submerged with crown of pipe at least 1.0m below NWL. Minimum 100mm above pond bottom.	

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

Gate Valve/Emergency Release	Bypass, maintenance, emergency conditions	Minimum 300 mm diameter	
Vehicle Access	Access for maintenance equipment	3.0 m wide 8.0 m turning radius Access gate at main entrance Road structure to accommodate design vehicle Top of berm must allow for vehicle passage and stable work area.	
Edge Treatment	Protection and function	Meet requirements of safety, low maintenance, and ease of access. Cover ground surfaces exposed by wet pond level decrease to 0.3m below NWL and covered by pond level increase to 0.3m above NWL. Prevent erosion of wet pond edge due to wave action.	
Signage	Safety	Warning signs*	

This section was repealed and replaced in its entirety by Bylaw No. 2759, 2023

*City to provide template for warning signs at time of construction.

F - 4.07 Stormwater Management Facility/Detention Design Requirements (continued)

.5 Outlet Control Structure Requirements

.1 Outlet control structures shall be designed to control stormwater releases under normal operation, but shall also allow for draining detention ponds under emergency conditions, and for regular maintenance.

.2 Provide spill control outlet structure to improve capture of floatable contaminants.

.3 Discharge riser should be designed to exclude debris and large objects.

F- 4.0 MAJOR SYSTEM DESIGN CRITERIA

F - 4.07 Stormwater Management Facility/Detention Design Requirements (continued)

.4 Discharge and conveyance of pond flows must not cause erosion of natural Drainage Systems.

.5 Design of inlet and outlet structures is to include consideration of energy dissipation and erosion control. Safety grates are required over all inlet and outlet openings. Safety grates shall be hinged with vertical bars on the inlet and horizontal bars on the outlet.

.6 Sediment Removal Provisions

.1 The facility design shall incorporate the ability for sediment capture and efficient removal for the control of solids which may be washed into the facility.

.7 Landscaping

.1 Landscaping plans for areas bounding the runoff control facility shall be submitted as part of the detailed design drawings.

.2 Landscaping of all proposed public lands included for purposes of the facility and of all proposed Rights-of-Ways on proposed private property up to the design high water level, is to be part of facility requirements and be depended on the location of context of this facility.

.3 The requirement for landscaping is to be constructed to the satisfaction of the Director per the landscaping requirements outlined in Schedule G of this bylaw.

SCHEDULE G

LANDSCAPING
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

G - 1.0 GENERAL

.1 Where the provisions of Schedule A of this Bylaw require the installation of Landscaping, the Owner shall provide landscaping consistent with the standards and specifications contained in this Schedule.

.2 All specifications for the design and construction of Landscaping Works and Services shall meet the most recent version of the Canadian Landscape Standard, unless otherwise referred to in this Schedule or Schedule K or this bylaw.

.3 Design for projects with a cost estimate over $75,000 shall be completed by a Landscape Architect.

.4 Design for projects with a cost estimate under $75,000 shall be completed by a Landscape Architect or a Certified Landscape Designer.

G - 2.0 DESIGN CRITERIA

G - 2.01 Site Preparation

.1 Existing trees to remain wherever possible.

.1 Protection measures are to be shown on the Demolition Plan and shall follow Canadian Landscape Standards (CLS) minimum protection radius distance per caliper size or to drip line of canopy, whichever is greater.

G - 2.02 Street Trees

.1 Street trees shall be spaced appropriately with respect to their mature canopy size.

.2 Recommended tree species are found in Approved Products List.

.3 Species shall be selected so there is a minimum of 3 varieties of trees along a street and a minimum of one species must be of the conifer species.

.4 Trees located within 4m of sidewalk or roadways shall not be of the conifer species, notwithstanding 2.02.3.

.5 Trees are not to be located within the site triangle, as defined in the Zoning Bylaw, at corners and intersections.

.6 Street trees shall have a minimum distance from other structures as indicated in Table G.1.

G – 2.0 DESIGN CRITERIA

TABLE G.1
MINIMUM DISTANCE OF TREE FROM OTHER STRUCTURES

Description of Structure	Distance (m)
Lamp Standard	3.0
Hydro Pole	As per provider recommendations
Driveways	1.5
Catch Basins	1.5
Manholes	2.0
Hydrants	2.0
Buildings	2.6
Sidewalk	1.0

G - 2.03 Trail Landscaping

.1 On all dedicated Trails bound on either side by private property, all surfaces not finished with Trail shall be finished with:

.1 Native seed mixes;

.2 Naturalization seed mixes;

.3 Low-mow grass varieties; or

.4 Low maintenance lawn alternatives, such as microclover.

.2 Vegetation shall be to a Level 5 standard as per Canadian Landscaping standards.

.3 Viewing areas require:

.1 A minimum maneuvering space of 1.5m x 1.5m; or

.2 A T-shaped space of at least 0.9m wide and 1.5m long on each leg; and

.3 Viewing opportunities that accommodate unrestricted views between 0.8 and 1.3m; and

.4 Any descriptive signage to have raised lettering and Braille.

G - 2.04 Grass Areas

.1 Turfgrass areas shall be sodded or hydroseeded for areas greater than 100m^2. Seed may be applied manually for smaller areas and areas where risk of erosion is minimal.

G – 2.0 DESIGN CRITERIA

G - 2.04 Grass Areas (continued)

.2 Turfgrass is not to be used as a landscape treatment for ditches at more than a 3:1 slope as it will not be mowed regularly; naturalization in these areas is preferred.

.3 If using native grasses for an area, a mix of plugs and seed may be used.

G - 2.05 Planting Beds

.1 All planting beds shall include landscape edging to separate planting bed from sod areas.

.2 Edging may include:

.1 A concrete border;

.2 A paving stone border;

.3 A timber border;

.4 Aluminum or steel edging;

.5 Composite edging boards; or

.6 Natural edge (cutting with 'V' channel with a half-moon edger between sod and planting bed; this requires ongoing upkeep).

.3 Planting beds that are topdressed with standard bark mulch shall not have a weed barrier installed between the mulch and the soil; course bark mulch shall have a 5 ounce woven polypropylene fabric with one felt side (to the mulch) installed between mulch and soil.

.4 Where decorative rock is to be used, a 5 ounce woven polypropylene fabric is to be used to separate rock from soil.

.5 Where bark mulch is used, the depth shall be:

.1 10 cm around trees;

.2 7.6 cm around shrubs; and

.3 5 cm for perennials.

.4 10 cm for areas of new planting beds where plants have not yet been filled in.

.6 Mulch is not be against the trunks of trees or stems of shrubs or perennials. A minimum radius of 10 cm shall be kept free of mulch around tree trunks and shrub stems.

G - 2.06 Fencing

.1 Solid wood fencing shall be provided along Trails that are bound on either side by residential private property.

.2 Fence heights shall be as per the current Zoning Bylaw.

G – 2.0 DESIGN CRITERIA

G - 2.07 Furnishings

.1 Site furnishing are to be installed on a pad that has no more than a 2.0% slope in any direction.

.2 Bench pads will have a clear space of 0.8m x 1.2m at one end of all benches along Trails for accessible access.

.3 Benches are to be a minimum 1m from back of walkway.

.4 Trash and recycling receptacles shall have a minimum clear space of 0.8m x 1.2m for accessible use.

.5 Benches shall be placed approximately every 200m on all Trails, except ones designated as nature Trails.

.6 Benches shall be placed approximately every 500m on nature Trails.

.7 50% of resting spaces along Trails with slopes at greater than 5%, will include a bench.

SCHEDULE H

TEMPORARY CONSTRUCTION EROSION AND SEDIMENT CONTROL PLANS REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

H – 1.0 GENERAL

H - 1.01 General Provisions

.1 Where the provisions of this Bylaw or a Subdivision and Development Servicing Agreement or Maintenance Agreement made under this Bylaw require the construction of a Temporary Construction Erosion and Sediment Control Plan (ESC) the Owner shall provide an ESC with all related appurtenance consistent with the standards and specifications contained in this schedule.

.2 All temporary erosion and sediment control systems in the City shall be designed to limit the amount of sediment and debris entering the City's storm system and surrounding streams and water courses.

H - 1.02 Where Temporary Erosion and Sediment Control Plan is NOT Required

.1 Building Permits touching only the structure of an existing building with no ground disturbance required.

.2 Ground disturbance with a volume of less than 15 cubic meters.

H - 1.03 Minimum Conditions on all Sites

.1 All soils, stock piles of materials or waste must be contained on-site.

.2 All debris must be cleaned off roadway at end of day by mechanical method (no flushing – sweeping or shovel only)

.3 Install approved sediment control device in all catch basins adjacent to the site and in all catch basins downstream from site for 200m.

.4 Silt fence/barriers must be installed as per manufacturer's recommended method on all major drainage channels.

.5 A sketch showing control and mitigation measures proposed must be submitted with permit. (See figure H.1 for sample).

.6 ESC measures must be inspected daily and after major rain events.

.7 The Director may require additional ESC measures due to site topography or special circumstances.

H - 1.04 Development Area Greater than 2000 square meters

.1 A drawing sealed by a Professional Engineer showing control and mitigation measures must be submitted with development application.

H – 1.0 GENERAL

H - 1.05 Existing and Natural Watercourses

.1 Where a Subdivision is traversed by a watercourse, drainage way or stream, a Right-of-Way shall be provided along such watercourse or its planned re-alignment of a width deemed necessary by the Director for construction, maintenance, conservation, and beautification purposes.

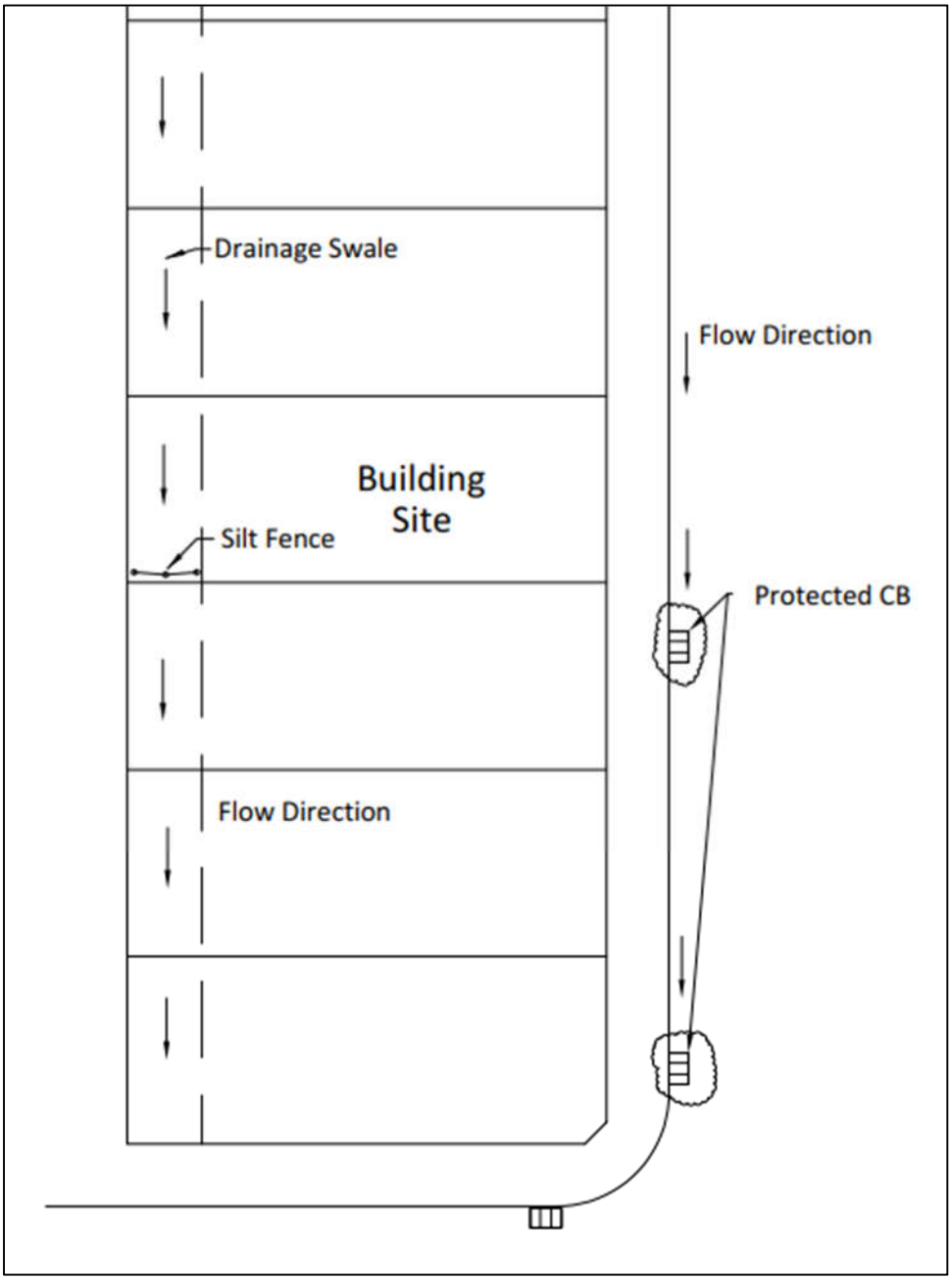
.2 No natural drainage course shall be altered or diverted unless such alteration or diversion has been approved by the City of Fort St. John, the Ministry of Environment and Fisheries and Oceans Canada if draining into a fish bearing stream.

.3 Storm water shall only be discharged from a subdivision to a drain or ditch that, as in the opinion of the Director, is adequate to receive the discharge therefrom, or which has been declared a part of the City Drainage System.

.4 Storm water discharged into a watercourse, stream or other waterway draining into a fish bearing stream requires approval of the Ministry of Environment and Fisheries and Oceans Canada.

H – 1.0 GENERAL

FIGURE H.1
SAMPLE EROSION AND SEDIMENT CONTROL SKETCH
PARCELS LESS THAN 2000m²



SCHEDULE I

STREET LIGHTING
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

I - 1.0 GENERAL

I - 1.01 GENERAL REQUIREMENTS

.1 Where the provisions of this Bylaw or a Subdivision and Development Servicing Agreement or Maintenance Agreement made under this Bylaw require the provision for a sanitary sewage collection system the Owner shall construct such services in accordance with the regulations, standards and specifications set out in this Schedule.

.2 The owner shall provide street lighting including all:

.1 conduits;

.2 service wiring;

.3 bases;

.4 poles;

.5 luminaries;

.6 lamps;

.7 photo cells;

.8 control equipment; and

.9 all other related appurtenances.

.3 All specifications for the construction of Works and Infrastructure shall be the most recent version of the Master Municipal Construction Document, unless referred to otherwise in this Schedule, or Schedule L of this Bylaw.

I - 1.02 Permit Fees Will Be Paid by the Owner

.1 The Owner will be responsible for obtaining all required electrical permits, arranging for all electrical inspections covering his work and pay all fees for such permits.

.2 Copies of permits are to be submitted to the Director prior to commencement of construction.

.3 The Owner will be responsible for paying all utility service connection fees and charges.

I - 1.03 Rules and Regulations

.1 All street and trail lighting systems will be designed in accordance with the most recent version of the *Transportation Association of Canada (TAC) Guide for Design of Roadway Lighting*, excluding the section on warrants.

.2 Scheduling with B.C. Hydro and Power Authority will be the Owner's responsibility. Systems will be compatible with power services available. Where costs are incurred with B.C. Hydro and Power Authority in installing the light system, these will be considered as part of the cost of the system.

.3 The Owner will give all necessary notices to authorities having jurisdiction, and will be responsible for keeping all applicable public ordinances.

I - 2.0 DESIGN CRITERIA

I - 2.01 Lamp Standards

.1 LED luminaries, and only LED luminaries, are to be used for all outdoor lighting applications in the City of Fort St. John.

.2 LED luminaries must meet the minimum requirements of the City's Approved Products list.

I - 2.02 Pole Locations

.1 In general, streetlight poles will be installed as follows:

TABLE I.1
STREETLIGHT POLE LOCATIONS

Road Classification	Pole Location/Spacing	Pole Type	Lamp Standard Height
4 Lane Collector Roads	Opposite or Staggered	Davit	9.1 m
2 Lane Collector Roads	Spaced on One Side	Davit	9.1 m
Local Roads	Spaced on One Side	Davit	9.1 m
Trails	Space on One Side	Post	Maximum 7.6 m

.2 Poles will be located within 0.6 m of the property corners and shall be checked for conflict with driveways, underground services and fire hydrants.

I - 2.03 Traffic Signals

.1 If required, Owner's Engineer shall coordinate design with the Director to determine acceptable equipment.

.2 The Director shall approve final design.

I - 2.04 Pedestrian Controlled Crosswalks

.1 If required, Owner's Engineer shall coordinate design with the Director to determine acceptable equipment.

.2 The Director shall approve final design.

SCHEDULE J

ELECTRICAL, TELECOMMUNICATIONS AND GAS DISTRIBUTION SYSTEM REGULATIONS, STANDARDS AND SPECIFICATIONS FOR INSTALLATION

J - 1.0 GENERAL

J - 1.01 Standards and Specifications to Apply to All Electrical, Telecommunications and Natural Gas

.1 Electrical, telecommunications and natural gas distribution systems shall be provided to serve each parcel within the Subdivision consistent with the standards and specifications set out in this Schedule and Schedule A, unless approved otherwise by the Director.

.2 Design and construction shall be in accordance with the Specifications set out in Schedule K of this Bylaw.

J - 1.02 Construction in Accordance With Electrical, Telecommunications, Cablevision, and Gas Requirements

.1 Electrical, telecommunications and natural gas services shall be installed in accordance with the requirements of the utility communications utility company licensed by the C.R.T.C., and the Inspector of Electrical Energy of the Province of British Columbia. Natural gas distribution works shall be installed in accordance with the requirements of applicable Provincial codes.

J - 1.03 Underground Electrical Systems

.1 Underground systems shall include the supply and installation of all necessary conduits, wiring, transformers, service runs and connections for a complete and fully operative underground electrical system as laid out by the B.C. Hydro and Power Authority and approved by the Director and the Inspector of Electrical Energy of the Province of British Columbia.

J - 1.04 Underground Telecommunications

.1 Underground telecommunication shall include the supply and installation of the necessary conduits, wiring, service runs and connections for a complete and fully operative underground telephone system as laid out by licensed communications utility company and approved by the Director.

J - 1.05 Natural Gas Distribution System

.1 Underground systems shall include the supply and installation of all necessary systems for complete and fully operative underground gas transmission services as laid out by licensed natural gas distribution company.

J - 2.0 DESIGN CRITERIA

J -2.01 Horizontal Location

.1 Horizontal location of underground ducting and gas main piping shall be as shown on the applicable Standard Drawings. Systems shall be laid out with due regard for other Utilities, and shall have the approval of the Director as well as the utility company involved.

J -2.02 Vertical Location

.1 All conduit and gas main piping to have a minimum of 750 mm cover or to the depths specified by the utility company, whichever is greater.

J -2.03 Detailed Design

.1 Details of design such as vertical and horizontal location of service boxes, size and type of conduits and gas mains, kiosk dimensions and ducting and all wiring details shall be as per specifications and drawings provided by B.C. Hydro and Power Authority, licensed communications utility company, and licensed Natural Gas distribution company.

SCHEDULE K

DRAWING AND SUBMISSION STANDARDS

K - 1.0 GENERAL REQUIREMENTS

K - 1.01 General

.1 These requirements pertain to the preparation of drawings and document submission for: all Works and Services constructed or installed within City Property, City Rights-of-Way or to be maintained by the City.

.2 This Schedule shall be read in conjunction with Schedules B through J.

.3 Where no standard is defined or referenced in this schedule for the preparation of a drawing to portray a particular service, structure, or other items, instructions and requirements shall be obtained from the Director.

K - 2.0 DOCUMENT AND DRAWING SUBMISSIONS

.1 The Owner's Engineer shall submit Design, For Construction and Record Drawings and Post Construction documentation as specified in this schedule to the Director for Approval.

.2 All drawings and reports, except for the landscape plans, must be sealed by a Professional Engineer registered in the Province of British Columbia.

.3 The landscape plans for projects with a cost estimate equal to or over $75,000 shall be sealed by a Landscape Architect.

.4 The landscape plans for projects with a cost estimate under $75,000 shall be completed by a Landscape Architect or a Certified Landscape Designer through the Canada Nursery Landscape Association.

K - 2.01 Design Submissions

.1 First Design submission shall include, but is not limited to:

.1 Design drawing set – two full size paper copies and one digital copy in PDF format;

.2 Applicable Geotechnical report;

.3 Applicable design calculations;

.2 Revision submission shall include, but is not limited to:

.1 Complete drawing set – two full size paper copies and one digital copy in PDF format;

.2 Construction cost estimate;

.3 Unidirectional Flushing Plan for any community water systems to be installed;

.4 Landscape Maintenance plan for any landscaping works to be installed within current or future City Right-of-way;

.5 All changes are to be highlighted; and

.6 All redline items addressed.

K - 2.0 DOCUMENT AND DRAWING SUBMISSIONS

K - 2.02 For Construction Submission

.1 For Construction documentation to be submitted after Approval by the City.

.2 The For Construction submission shall include, but is not limited to:

.1 For Construction drawing set – two full size paper copies, two half size paper copies, one digital copy in PDF format, and one digital copy in AutoCAD format;

.2 Unidirectional Flushing Plan; and

.3 Northern Health Permit.

K - 2.03 Post Construction Documentation

.1 Prior to acceptance of a Certificate of Substantial Completion by the Director, the Owner's Engineer shall submit the following:

.1 Material testing reports, including all concrete, asphalt, compaction and gradation results on original copies signed by the testing firm;

.2 A geotechnical report under seal of a Professional Engineer, documenting site inspections, concrete testing, compaction testing, soils testing and certification of the foundation soils of any structures constructed;

.3 A structural report under seal of a Professional Engineer documenting site inspections, testing and certification of any structures constructed;

.4 Water leakage test reports for water mains and reservoirs;

.5 Sewer leakage test reports for mains;

.6 Video inspection of gravity mains submitted in digital format;

.7 Bacteriological test reports for all water mains and reservoirs; and

.8 Three hard copies and a digital copy of Operating and Maintenance Manuals for all Pump Stations, Pressure Reducing Stations, Lift Stations and Storm water Management Facilities. Maintenance Manuals should be bound documents with the name of facility on the cover. Manuals shall be organized in a logical manner and sections clearly labelled. The details of manual submission can be found in section K-3.0.

K - 2.04 Record Submission

.1 Prior to acceptance of a Certificate of Final Acceptance by the Director, the Owner's Engineer shall submit one (1) bound copy of Record Documentation. Record documentation shall fully indicate the as constructed aspects of each system as well as all required operation and maintenance information.

.2 All submitted record documentation remains the property of the City after its acceptance.

K - 2.0 DOCUMENT AND DRAWING SUBMISSIONS

K - 2.04 Record Submission (continued)

.3 As a minimum, the record submission shall include the following:

.1 Complete set of Record Drawings at the same scale and in the same format as the construction drawings with data attributed for GIS as per section K-3.03 in this schedule;

.2 A list of contractors and major subcontractors by work item;

.3 All shop drawings;

.4 Operation and Maintenance manuals, as required; and

.5 A completed City of Fort St. John – Service card for all new lots created or serviced by the works (a sample sheet is included in Appendix 6 of this bylaw).

.4 The Record Drawings submitted to the City will show the date of construction completion and the designation “Record Drawings” in the revision box.

.1 Check Copy – one set of full size paper prints, one digital copy in PDF format and one digital copy in AutoCAD format.

.2 Final Submissions – one set of full size paper prints, one digital copy in PDF format and one digital copy in AutoCAD format.

K - 3.0 PREPARATION OF DRAWING

K - 3.01 General

.3 The following standards apply to both design and Record Drawings.

K - 3.02 Drawing Standards

.1 The City will supply to the Owner’s Engineer an electronic template of the City’s drafting standards for use with AutoCAD.

.2 Standard drawing size for hardcopy submissions is ARCH D (24” x 36”).

K - 3.03 Features

.1 For all projects submitted; the features shall be attributed with the drawing labels, abbreviations and attributes as set out in the GIS Attribute Tables. All data entry is case sensitive

K - 3.04 Control and Baselines

.1 All utility and property information is to be related to world coordinates

.1 Horizontal datum: UTM NAD83 Zone 10 North

K - 3.0 PREPARATION OF DRAWING

K - 3.04 Control and Baselines (continued)

.2 Vertical datum: CGVD 1928 - BC

.2 All baselines are to be tied to property corners (stationing for all IP's found) and shown on the drawings.

.3 Offsets are to be shown to both sides of the road allowance or to one side with the road right of way width annotated.

.4 All reference features in design drawing must be surveyed.

.5 All design features as constructed must be surveyed.

.6 Underground features must be surveyed prior to burial.

K - 3.05 General Notes

.1 The title block is to be on all drawings and shall include: the Owner's Engineer's or Landscape Professional's, as applicable, name, address and phone number, signatures, revision number, CAD technician, and drawing date.

.2 The following information shall be shown on all plans when applicable:

.1 Lot and plan number, title block and north arrow

.2 Existing and proposed rights-of-way and easements

.3 Lot lines as shown on the approved preliminary layout plan

.4 Show distances and location dimensions in metres and to three (3) decimal places.

.3 All construction or alternations shown on drawings are to be distinguished from the existing items with different line weights.

.4 All notes pertaining to the construction or alterations are to be shown on the drawing.

.5 All stationing, elevations, coordinates are to be in metres and indicated to the nearest 0.001 metres. The dimensions and offsets for service connections, fittings etc., are to be shown to the nearest 0.1 metres.

.6 All information will be audited to ensure accuracy, completeness and compliance with these specifications.

.7 Stations will be at 20 metre (maximum) intervals or less when higher level of detail is required (e.g. road rehabilitation, special construction).

K - 3.06 Scales

.1 Use metric scales:

Horizontal Scale	1:500
Vertical Scale	1:50

.2 Other drawing scales must be approved by the Director

K - 3.0 PREPARATION OF DRAWING

K - 3.07 Plan View

.1 Must be on the upper half of the sheet

.2 Show utility and utility access right of ways.

.3 Show control station monuments with identification number.

.4 The plan views should not be fragmented or broken due to slight curves in the road right-of-way.

.5 The names of streets are to be indicated outside of the road boundaries. Road widths are to be annotated. Temporary names (e.g. A, B, C) will not be accepted, except for new Subdivisions where the City has not yet named the streets.

.6 Show existing dwellings, fences, trees, unusual ground features and driveways.

K - 3.08 Profile

.1 The profile and related data are shown on the bottom half of the sheet. Establish 0+00 station on an accented vertical grid line.

.2 The original ground (centreline) and related data prior to construction should be shown, along with date surveyed.

.3 Elevations are placed at the right- and left-hand side of the profile and repeated when there is a break in the profile.

.4 Elevations are to be shown at every even metre graduation and placed on the heavy accented line.

K - 3.09 Required Drawings

.1 A complete set of engineering design drawings shall at a minimum include the drawings listed in Table K.1.

.1 Construction drawings may combine various services on one plan, but must be clear and legible.

.2 For site specific works where water, sanitary, storm and road works are not being installed, those sheets relative to works not being installed may be omitted.

.3 For smaller projects, individual sheet requirements can be combined provided required information is clear and legible.

K - 3.0 PREPARATION OF DRAWING

K - 3.09 Required Drawings (continued)

Table K.1
Required Drawings

Required Sheet	For Design	For Record
Cover Sheet	Y	Y
Topographic and Existing Structure Plan	Y	N
Demolition Plan	Y	N
Composite Layout and Site Servicing Plan	Y	Y
Road Drawings	Y	Y
Curb Return Drawings	Y	N
Water Main Drawings (may be combined with Road Drawings)	Y	Y
Sanitary and Storm Sewer Main Drawings (may be combined with Road Drawings)	Y	Y
Composite Lot Grading Plan	Y	Y
Storm Water Management Plan	Y	Y
Landscape Plan	Y	Y
Planting Plan (may be combined with Landscape Plan)	Y	Y
Lighting Plan	Y	Y
Composite Shallow Utility Plan	Y	N
Erosion and Sediment Control Plans	Y	N
Construction Details	Y	N
Road Cross Section Drawings	Y	N
Individual Lot Grading Plans	Y	N
Service Record Card	N	Y

.2 Cover Sheet

.1 The cover sheet shall note the consultant's name and phone number, legal description of the lands involved, civic address (where applicable), a site location plan and a design drawing index.

.2 Key features and major roads must be indicated on this plan.

.3 Topographic and Existing Structure Plan

.1 The topographic and existing structures plan shall show:

.1 Location of all buildings and structures to be retained;

.2 All natural boundaries such as steep banks, watercourses, and areas of unstable soil on and adjacent to the Subdivision.

.3 Existing ground grades shall be shown in contours with 0.5m spacing or less.

K - 3.0 PREPARATION OF DRAWING

K - 3.09 Required Drawings (continued)

.4 Demolition Plan

.1 Indicate existing features or elements that are to be retained, altered, or removed as part of the final design.

.2 Show location and type of protection measures for existing trees and/or other vegetation to be retained.

.5 Composite Layout and Site Servicing

.1 Shall be scaled to show all existing and proposed work sand services for the entire site. Multiple sheets are permitted for larger sites to provide clarity at an acceptable scale.

.6 Road Drawings (Plan/Profile)

.1 Plans and profiles shall be shown for all proposed roadways, walkways, and emergency access routes and utility rights of way.

.2 Road Plan view shall, at a minimum, show:

.1 All road, walkway, emergency access and utility rights of way widths and their offset from property lines;

.2 Centerline curve data in a table format for each curve. Each curve to be labelled at EC and BC of the curb and on the top of the data table. The table must include the BC and EC chainage, radius, tangent length and design speed;

.3 Existing curbs, gutters, manholes, valves, catch-basins, vaults, sidewalks, let downs, drop curbs, streetlights and other surface features;

.4 Existing Utilities within area of road construction;

.5 Details of intersections with spot pavement and gutter elevations at all critical points;

.6 Curb returns and Cul-de-sac bulbs, complete with spot gutter elevations;

.7 Locations of catch basins and catch basin rim elevations;

.8 Typical cross section;

.9 Locations of street name signs and traffic control signs; and

.10 Locations of traffic islands, retaining walls, guard rails and barricades.

.3 Road Profile view shall, at a minimum, show:

.1 All grade changes are to show stationing or ties to lot corners. Coordinates and geodetic elevations are to be shown for grade changes;

.2 The profile shall be shown at true centreline length and projected above to the plan view in as close a relationship as possible;

K - 3.0 PREPARATION OF DRAWING

K - 3.09 Required Drawings (continued)

.3 Percent grade to two decimal places;

.4 The station and elevations of BVC, EVC, and PVI;

.5 The algebraic difference of grades in percent (A);

.6 The curve rate constant (K);

.7 The length of vertical curve (L);

.8 The chainage and elevation of the low spot of sag curves or high point of crest curves;

.9 The percent cross fall, transition length and crown should be noted on super elevated curves and cross fall sections; and

.10 Existing Utilities in area of road construction.

.7 Curb Return Drawings

.1 Required for all intersection and Cul-de-sac curb returns.

.2 Low and high points along the gutter and centerline of the road shall be included.

.3 Plan and profile for each curb return shall be provided and note the proposed gutter elevations.

.4 Catch-basin grate elevations must be included.

.8 Water Main Drawings (Plan/profile)

.1 May be combined with road drawings.

.2 The Water Plan view shall, at a minimum, show:

.1 Location and size of existing and proposed main centreline;

.2 Pipe size, type and class;

.3 Location and detail of all fittings, valves, thrust blocks and hydrants;

.4 Hydrant coverage; and

.5 Location of all service connections.

.3 The Water Profile view shall, at a minimum, show:

.1 Profile line of existing and finished grade above the pipe;

.2 The profile of the crown and invert of the pipe;

.3 Pipe deflections and bends;

.4 Length, size, type, material of pipe and grade;

.5 Other Utilities crossing the water main complete with outer wall separation; and

.6 Profile of any existing or proposed storm or sanitary sewers.

K - 3.0 PREPARATION OF DRAWING

K - 3.09 Required Drawings (continued)

.9 Sanitary and Storm Sewer Main Drawings (Plan/Profile)

.1 May be combined with road and water drawings.

.2 The sewer plans shall show the tie-in to existing systems and provision for future extensions where appropriate.

.3 Sanitary and Storm Sewer Main Plan drawings shall, at a minimum, show:

.1 Location of proposed and existing main centreline, manholes, cleanouts, catch basins, and other appurtenances;

.2 Dimensions of rights of ways;

.3 Location all service connections;

.4 Flow direction arrows at manholes;

.5 For surface drainage, locations of ditch lines, culverts and ditch inverts when they are retained; and

.6 For surface drainage, culvert diameter and invert elevations, details of intake and outlet structures.

.4 Sanitary and Storm Sewer Main Profile drawings shall, at a minimum, show:

.1 Profile line of existing and finished grade above the pipe;

.2 The profile of the crown and invert of the pipe;

.3 Length, size, type, material of pipe and grade;

.4 Invert elevations at both inlet and outlet of manholes;

.5 Percent grades to two decimal places;

.6 Manhole rim elevation (at center of lid) of proposed or adjusted manholes;

.7 The hydraulic grade line (HGL) of the system;

.8 For services, invert elevation at property line;

.9 Lot grading profile (proposed finished ground) at the front yard setback; and

.10 Other underground Utilities crossing the sewer.

.10 Composite Lot Grading Plan

.1 The drawing shall show current and proposed lot grading design for all lots in the Subdivision. It shall, at a minimum, include:

.1 The minimum basement elevation (MBE) and the proposed main floor elevation (MFE);

.2 Directional arrows showing the percent grade of the lots two decimal places;

K - 3.0 PREPARATION OF DRAWING

K - 3.09 Required Drawings (continued)

.3 The minor (5 year event) storm sewer system with the flows noted per section and the accumulated flows from all upstream sections;

.4 The major (100 year event) system, showing the routing and flows for the 1:100 year return storm;

.5 Proposed contours at 0.25m minimum spacing;

.6 Pre-development contour lines at 0.25m spacing extending a minimum 10.0m outside the development site; and

.7 All swales and other features indicated in the storm water management plans.

.11 Storm Water Management Plan

.1 Plan shall show the whole of the drainage catchment area to the point of discharge to a trunk storm sewer or natural watercourse.

.2 It shall also show:

.1 Contours of existing ground at contours of 0.25m intervals;

.2 Major flood routing (1:100 year); shown as arrows and indicate if it an open or piped system;

.3 Detention or retention facility details;

.4 Area of Development and the total area of the large catchment below and above;

.5 Directional arrows of flow within the site and on surrounding areas;

.6 Sub-catchment boundaries, coefficients and area;

.7 Pipe system including size, grade, and minor and major flows; and

.8 Storm water detention calculations.

.12 Landscape Plan

.1 The landscape plan shall include, but is not limited to, the following:

.1 Existing vegetation and natural features;

.2 Existing hard landscape elements;

.3 Any building or other built structure footprint at grade with over hangs included;

.4 All proposed plant material, planting beds, and lawn areas (include all seeded and sodded areas);

.5 Height, material and location of all fences, screen walls, retaining walls, etc.;

.6 Storm water management landscape features, as applicable;

.7 Above and below ground Utilities including light standards;

K - 3.0 PREPARATION OF DRAWING

K - 3.09 Required Drawings (continued)

.8 Culturally sensitive or historical landscape areas or items; and

.9 Any other landscape element that contributes to site Development.

.13 Planting Plan

.1 The planting plan may be combined with the landscape plan provided that the plan remains legible.

.2 The planting plan shall include, but is not limited to, the following:

.1 Location and types of proposed plant material in the project as noted in the plant schedule.

.2 All plans shall contain notes detailing all relevant planting setback requirements.

.3 The plant schedule shall include:

- Common and botanical names;
- Plant size – height (for coniferous trees), caliper (for deciduous trees), container size (for shrubs and perennials);
- Condition (or Root Treatment) – container, balled and burlapped (field dug), or tree spade;
- Form (where applicable) – standard (single trunk), multi trunk, grafted, dwarf, weeping, or columnar;
- Quantities – total number of each plant type; and
- Notes or special requirements.

.4 Construction Details:

- Adequate information to construct the specific landscape product; and
- Hard and soft landscape elements.

.14 Lighting Plan

.1 The lighting plan shall include, but is not limited to:

.1 Street and trail light pole locations and type;

.2 Luminaire type and wattage;

.3 Effective coverage of the street light;

.4 Street and trail light conduit locations and offsets;

.5 Street and trail light service panel locations;

.6 Location of power source;

.7 Size of ducts, type and size of wire; and

K - 3.0 PREPARATION OF DRAWING

K - 3.09 Required Drawings (continued)

.8 Location of grounding points.

.15 Composite Shallow Utility Plan

.1 Must be based on the individual plans submitted by each utility for the proposed works and clearly indicate all potential conflicts with other major Utilities, services, driveways and appurtenance.

.2 Original utility company drawings shall also be submitted.

.16 Erosion and Sediment Control Plans

.1 This plan is to include methods to prevent or minimize soil transport onto adjacent properties or existing roads adjacent to the site. Preventative methods of soil displacement on the site are to be detailed. The drawing shall show, at a minimum, the following:

.1 Existing contours of the site at 0.25m intervals;

.2 Final drainage patterns/boundaries;

.3 Existing vegetation such as significant trees;

.4 Limits of clearing and grading;

.5 Erosion and sediment control measure including locations, names and details; and

.6 Storm Drainage Systems including drain inlets, outlets, pipes and other permanent drainage facilities (swales, waterways, etc.)

.2 This plan shall detail the methods used for controlling erosion and sedimentation including a description of the procedures for construction and maintenance of the control measures. A maintenance schedule of those works must also be included.

.17 Construction Details

.1 Design specific. Must include typical road cross sections, road and sidewalk structural sections and details which are not covered or specifically detailed in this bylaw or MMCD Standards or Specifications.

.18 Road Cross Section Drawings

.1 Cross sections are required at 20.0m intervals unless otherwise required to provide clarify and approved by the Director.

.2 Shall note existing and proposed ground elevations of the road centerline, curb and gutter, and property lines.

K - 3.0 PREPARATION OF DRAWING

K - 3.09 Required Drawings (continued)

.19 Individual Lot Grading Plans

.1 Shall be provided for each lot within the Subdivision scaled to fit on a 8.5" x 11" sheet.

.2 Lot grading plans shall include all information provided on the composite lot grading plan that is specific to the individual lot. This includes but is not limited to:

.1 Minimum Basement Elevation (MBE) and proposed main floor elevation (MFE);

.2 Proposed and existing elevation at property corners and change of grade; and

.3 Directional arrows showing the percent grade of the lots to two decimal places.

.20 Service Record Card

.1 A sample of required information and form is provided in Appendix 5.

K - 3.10 Record Drawings

.1 Record drawings shall show the works as actually constructed.

.2 Drawings shall be certified by the Owner's Engineer to be a true record of the installation and sealed by the Owner's Engineer.

K - 4.0 POST CONSTRUCTION DOCUMENT SUBMISSIONS

K - 4.01 Operation and Maintenance Manuals for Pump Stations and Pressure Stations

.1 Operation and Maintenance Manuals for Pump and Pressure Stations shall include but is not limited to the following:

.1 Cover page and table of contents;

.2 Record shop drawings;

.3 Equipment layout drawings;

.4 Electrical, control and alarm wiring diagrams;

.5 Operating instructions for all equipment;

.6 Maintenance instructions for all equipment, including frequency of maintenance;

.7 Equipment data sheets;

.8 Certified head/capacity curves for pumps;

.9 Equipment part lists;

.10 Safe Work Procedures; and

.11 Emergency operating procedures.

K - 4.0 POST CONSTRUCTION DOCUMENT SUBMISSIONS

K - 4.02 Operation and Maintenance Manuals for Lift Stations

.1 Operation and Maintenance Manuals of Lift Stations shall include but is not limited to the following:

.1 Cover page and table of contents;

.2 As constructed shop drawings;

.3 Equipment layout drawings;

.4 Electrical, control, and alarm wiring diagrams;

.5 Operating instructions for all equipment;

.6 Maintenance instructions for all equipment, including frequency of maintenance;

.7 Equipment data sheets;

.8 Certified head/capacity curves for pumps;

.9 Equipment part lists;

.10 Safe work procedures; and

.11 Emergency operating procedure.

K - 4.03 Operation and Maintenance Manuals for Storm Water Management Facilities

.1 Operation and Maintenance Manuals of Storm Water Management Facilities shall include, but is not limited to the following:

.1 A copy of the approved Engineering Drawings relating to the Stormwater Storage facility and appurtenance, updated to “Record”;

.2 Schematic diagrams of the inlet and outlet arrangement, connections to and arrangement of upstream and downstream systems, including all controls, shutoff valves, bypasses, overflows, and any other operation or control features;

.3 Location plans for all operating devices and controls, access points and routes, planned overflow routes, or likely point of overlapping in the case of exceedance of the design containment volume;

.4 Stage discharge curves with clear relationships of the stages relative to surrounding features;

.5 Plan for sedimentation removal;

.6 Outline of normally expected operation requirements for the City;

.7 Safe work procedures; and

.8 Outline emergency operation requirements under possible abnormal situations.

SCHEDULE L

SPECIFICATIONS AND STANDARDS FOR THE CONSTRUCTION OF WORKS AND INFRASTRUCTURE DESIGNED UNDER SCHEDULES B THROUGH J

L - 1.0 GENERAL

.1 All specifications for the construction of Works and Infrastructure shall be the most recent version of the Master Municipal Construction Documents (hereto referred to as MMCD), unless referred to otherwise in this section, Appendix 6, or the applicable Schedule for this bylaw.

L - 2.0 APPROVED PRODUCTS

.1 Acceptable materials are those listed in the Subdivision Serving Bylaw Approved Products List Administrative Procedure. Materials not listed will require permission by the Director.

L - 3.0 STANDARD DRAWINGS

.1 The drawings found in Appendix 6 take precedence over specifications and drawings found in the MMCD.

SCHEDULE M

BYLAW NOTICE ENFORCEMENT OFFENCES

M – 1.0 BYLAW NOTICE ENFORCEMENT

This section was amended by Bylaw No. 2759, 2023

TABLE M.1
BYLAW NOTICE ENFORCMENT CONTRAVENTIONS AND PENALTIES

A1 Section	A2 Description	A3 Penalty ($) (15-30 days)	A4 Early Payment ($) (1-14 Days)	A5 Late Payment ($) (31-60 Days) (Collections 60+)	A6 Compliance Agreement Available (50% of Penalty)
2.05.1	Refuse Entry	450.00	400.00	500.00	No
2.05.3	Obstruction of Bylaw Enforcement Officer	450.00	400.00	500.00	No
4.08	Failure to notify of Construction Stage	450.00	400.00	500.00	No
4.10	Unauthorized Material Storage	450.00	400.00	500.00	Yes
Schedule B – 2.07	Prohibited Driveway	450.00	400.00	500.00	Yes
Schedule H – 1.01	Contravention of ESC	450.00	400.00	500.00	Yes
Schedule F – 4.03.3	Drainage onto adjacent lot	450.00	400.00	500.00	Yes

SCHEDULE N

MUNICIPAL TICKET INFORMATION OFFENCES

N- 1.0 MUNICIPAL TICKET INFORMATION OFFENCES

TABLE N.1
MUNICIPAL TICKET INFORMATION OFFENCES

COLUMN 1 OFFENCE	COLUMN 2 SECTION	COLUMN 3 FINE
Construction start prior to Approval	**2.02**	$1000

SCHEDULE O

DESIGNATED BYLAW ENFORCEMENT OFFICERS

O - 1.0 DESIGNATED BYLAW ENFORCEMENT OFFICERS

Director of Planning and Engineering

Director of Public Works and Utilities

Engineering Manager

Bylaw Enforcement Officers

Building Inspectors

APPENDIX 1

Confirmation of Commitment by Owner

Confirmation of Professional Assurance by Owner's Engineer

Confirmation of Professional Assurance by Geotechnical Engineer

Confirmation of Professional Assurance by Landscape Professional

Note: To be submitted to the Director of Planning and Engineering prior to or with Preliminary Design Approval Documents on the Owner's letterhead

CONFIRMATION OF COMMITMENT BY OWNER

The City of Fort St. John
10631-100th Street
FORT ST. JOHN BC V1J 3Z5

Attention: Director of Planning and Engineering

Re:
(Legal Description and Address of Project)

Civil Design

We _____ propose to develop a _____ subdivision or development on the above referenced property. To assist with this project we have engaged Civil Engineering, Geotechnical Engineering and Landscaping Professionals as follows:

Civil Predesign and Design

We have retained _____, P. Eng., of the consulting firm, _____ to provide Professional Engineering Services as the Owner's Engineer on this project with respect to design of the works, liaison with the City on technical matters, and submissions to the Director for approval.

Geotechnical Predesign and Design

We have also retained _____, P. Eng., of the geotechnical consulting firm, _____ as our Geotechnical Engineer, to undertake required geotechnical investigations during the preliminary and detailed design phase of the project.

We understand that as site conditions may dictate we will engage specialist consultants as required to provide assistance with the mitigation of environmental, biological, or other peculiar situations that may result from our proposed project.

Landscaping Predesign and Design

We have retained _____ of the consulting firm, _____ as our Landscape Professional on this project with respect to design of the works, liaison with the City on technical matters, and submission to the Director of Planning and Engineering for approval.

Professional Assurance

Upon final approval of the engineering design drawings, and receipt of written authorization to proceed with construction, we have engaged _____, P. Eng., of the consulting firm,_____ _____ as the Owner's Engineer or their qualified designate to undertake field reviews and inspect construction of the work in accordance with his professional discretion, to assure that construction of the work is executed in compliance with the Subdivision and Development Servicing Bylaw, the approved drawings and good workmanship and practice.

_____ (Civil Consulting Firm) will prepare and submit to the Director of Planning and Engineering a weekly report and an inspection report on each site visit. Upon Substantial Completion of the Work, they will also inspect the work, confirm with the Landscape Professional that the landscaping works have been installed as per the approved design and in accordance with the Subdivision and Development Servicing bylaw, confirm with the Geotechnical and Material consultant that the materials have been place in accordance with the Subdivision and Development Servicing bylaw and prepare and deliver to the Director a Certificate of Substantial Completion.

_____ (Geotechnical Consulting Firm) have been engaged to provide Geotechnical and Materials Testing Services during the course of construction, to assure that construction materials are placed in accordance with the Subdivision and Development Servicing Bylaw. Testing reports will be submitted weekly to the Director. Other reports will be submitted as geotechnical matters are addressed.

_____ (Landscape Consulting Firm) will prepare and submit to the Director of Planning and Engineering a weekly report and an inspection report on each site visit. Upon Substantial Completion of the Work, they will also inspect the work, and confirm with the Owner's Engineer that the Landscaping works have been installed as per the approved design and Subdivision and Development Servicing bylaw

Unsatisfactory Construction Assurance

We understand that the City is very much concerned about the quality of construction work with respect to conformance to the Subdivision and Development Servicing Bylaw and good workmanship and practice. We commit to having our engineering and landscape professional consultants provide the appropriate level of inspections by a qualified on-site inspector approved by the Director submit weekly detailed construction works reports witnessed and inspected by the on-site inspector, and that if the City is not satisfied with the quality of construction or the level of inspection provided by our engineers, we will be given a minimum twenty four (24) hours advance notice, after which time, if the problem is not resolved to the City's satisfaction we will be issued a "stop work" order. We understand that before construction operations can resume the following must be provided:

- a written inspection program with regards to the non-landscaping works for the duration of the project by the Owner's Engineer to be submitted to, reviewed and approved in writing by the Director; and

- a written inspection program with regards to the landscaping works for the duration of the project by the Landscape Professional to be submitted to, reviewed and approved in writing by the Director.

Post Construction

Upon final completion of the work and after the specified maintenance period, the Owner's Engineer _____ P.Eng., will prepare record drawings in accordance with the standards set out in the Subdivision and Development Servicing Bylaw, prepare Operations and Maintenance Manuals, where required, conduct a final inspection of the work and prepare and submit a Certificate of Final Completion for Non-Landscaping Works.

Upon final completion of the work and after the specified maintenance period, the Landscape Professional _____, will submit the maintenance records for the work, conduct a final inspection of the work and prepare and submit a Certificate of Final Completion for Landscaping Works.

Termination of Consultant

Should for some reason the relationship with any of our consulting professionals be terminated, we will immediately provide written notice to the City. We understand that construction work will cease during the interim should we not have a smooth transition between when one consultant finishes and the next one starts.

Insurance and Security

We understand that prior to construction start-up that we will have to provide proof of Insurance Coverage and Construction Security, as per the requirements of the Subdivision and Development Servicing Agreement or the Maintenance Agreement, as the case may be, to, respectively, indemnify the City and assure general conformance to the Subdivision and Development Servicing Bylaw. The required Insurance and Construction Security that we will post with the City are:

Insurance Coverage

Insurance coverage will be provided in accordance with the City of Fort St. John's insurance requirements specified in Subdivision and Development Servicing Bylaw which generally specifies:

- Comprehensive General Bodily Injury and Property Damage $5,000,000
- Automobile Liability Insurance $3,000,000
- Course of Construction Builder's Risk Insurance Full Value of Work
- Property Insurance Full Value of Work

Security

The Owner shall post with the City of Fort St. John, Construction or Maintenance Security, pursuant to the requirements of the Subdivision and Development Servicing Agreement or the Maintenance Agreement as the case may be, to assure general conformance to the Subdivision and Development

Servicing Bylaw. The required Security amount shall be equal to 100% of the Estimated Costs of construction of the Works and may be reduced at the following milestones:

Release of Deficiency Schedule

MILESTONE	REDUCTION AMOUNT *	CIRCUMSTANCES	WHEN RELEASED
Substantial Completion for Deep Utilities	Release of 70% of Deep Utility Portion of Construction Security	All Deep Utilities are Substantially Complete and have been accepted by the City	Upon City Accepting Certificate of Substantial Completion for Deep Utilities
Substantial Completion for All Works	Balance of Construction Security returned except for: (i) 10% of the original security amount for maintenance (the "**Maintenance Security**"); (ii) 200% of the estimated cost on the Deficiency List for remedying deficiencies (the "**Deficiency Security**")	All Works are Substantially Complete. City retains Maintenance Security for maintenance purposes. City also retains Deficiency Security for remedying deficiencies.	Upon City Accepting Certificate of Substantial Completion for All Works

Certificate of Final Acceptance for Non-Landscaping Works	Maintenance Security (other than that part of it provided in respect of Landscaping Works) or remaining portion thereof. Deficiency Security (other than that part of it provided in respect of the Landscaping Works), or remaining portion thereof.	Owner has provided City with Record Drawings, manuals, and Final Inspection is complete and satisfactory. All deficiencies are remedied and specified Maintenance Period is complete.	Upon City Accepting Certificate of Final Acceptance for Non-Landscaping Works
Certificate of Final Acceptance for Landscaping Works	Maintenance Security held in respect of Landscaping Works or remaining portion thereof. Deficiency Security held in respect of Landscaping Works or remaining portion thereof.	Owner has provided City with Record Drawings and Final Inspection is complete and satisfactory. All deficiencies are remedied and specified Maintenance Period is complete.	Upon City Accepting Certificate of Final Acceptance for Landscaping Works

* Interest will not be paid on any security amounts deposited with, or held by, the City.

Name of Company

Mailing Address

Name of Owner

Signature of Owner

Name of Owner

Signature of Owner

Date

CONFIRMATION OF PROFESSIONAL ASSURANCE
BY OWNER'S ENGINEER

(To be typed onto the Engineering Consultant's letterhead)

The City of Fort St. John
10631-100th Street
FORT ST. JOHN, BC V1J 3Z5

Attention: Director of Planning and Engineering

Dear Sir/Madame:

RE: _____
(Name of Owner and Project Description and Address)

This letter is to advise that _____ (Consulting Firm) has been retained by _____ (Owner) to provide Professional Engineering Services as the Owner's Engineer on the above referenced project. I, _____ P. Eng., am a Professional Engineer licensed to practice in the Province of British Columbia. I understand and acknowledge that I am responsible for the integrity of the project with respect to the approved design and construction in accordance with the City of Fort St. John Subdivision and Development Servicing Bylaw, the approved design drawings prepared for the project, and good workmanship and practice.

I will be involved in all aspects of the project from Preliminary Design through to Final Acceptance. With respect to each phase of the project my responsibilities include but are not limited to:

Predesign Phase

- co-ordinate site survey and geotechnical investigations through the site.
- liaison with the City of Fort St. John with respect to project requirements.
- preparation of preliminary design drawings.
- preparation of a preliminary cost estimate.
- co-ordinate specialist consultants that may be involved in the project.

Design Phase

- design the work and prepare the appropriate drawings to explicitly define the work for approvals and construction.
- ensure design complies with intent of the Subdivision and Development Servicing Bylaw.
- undertake drawing amendments as required to meet City approvals.
- seal all design drawings or have specialist consultants sign and seal their respective drawings.
- submit design drawings and other supporting documentation to the Director for Approval.

Construction Phase

- undertake field reviews and inspections of the Contractor's work to assure compliance to the Subdivision and Development Servicing Bylaw, the approved drawings and good workmanship and practice.
- submit weekly inspection reports to the Director.
- co-ordinate materials testing of trench backfill soils, sub-grade, sub-base and base coarse soils, concrete and asphalt.
- resolve problems or anomalies that may develop during construction, in consultation with the Director.
- witness all water system, sanitary sewer system and drainage system pressure/leakage tests.
- witness all sub-grade proof rolling operations including full remediation.
- collect as-constructed data as the work progresses.
- advise the Director of events requiring City attendance or witnessing.
- upon Substantial Completion undertake an inspection of the work with the Director.
- confirm with the Landscape Professional that the landscaping works have been installed as per the approved design and Subdivision and Development Servicing bylaw.
- confirm with the Geotechnical Engineer that the materials have been placed in accordance with the Subdivision and Development Servicing bylaw.
- submit construction documentation such as pressure/leakage test, specialist consultant reports, video inspection reports etc.
- prepare and submit a Certificate of Substantial Completion for All Works

I understand that field reviews shall mean such reviews of the work at the project site and at fabrication locations where applicable as the Professional Engineer, in my professional discretion, considers to be necessary in order to ascertain that the work substantially conforms in all material aspects to the plans and drawings approved by the City of Fort St. John.

Post Construction

- inspect the project with the City to verify rectification of deficiencies set out in the Deficiency List attached to the Certificate of Substantial Completion for All Works and prepare and submit a Certificate of Final Acceptance for Non-Landscaping Works.
- inspect the project with the City to verify rectification of deficiencies set out in the Deficiency List attached to the Certificate of Substantial Completion for All Works.
- prepare record drawings in accordance with City standards.
- prepare Operation and Maintenance Manuals for lift stations, pump stations, reservoirs or other mechanical/electrical infrastructure.

_____ carries $ _____ / per occurrence

Name of Consulting Firm

Errors and Omissions Liability Insurance and a Proof of Insurance Certificate is attached and will be in force for three (3) years after the date of acceptance by the Approving Office of the Certificate of Final Acceptance.

_____
Name of Consulting Professional (Print)

_____
Signature of Professional (Design Engineer)

Professional Seal

Date: _____

_____
Mailing Address (Print)

CONFIRMATION OF PROFESSIONAL ASSURANCE
BY GEOTECHNICAL ENGINEER

(To be typed onto the Engineering Consultant's letterhead)

The City of Fort St. John
10631-100th Street
FORT ST. JOHN, BC V1J 3Z5

Attention: Director of Planning and Engineering

Dear Sir/Madame:

Re: _____
(Name of Owner and Project Description and Address)

This letter is to advise that _____ (consulting firm) has been retained by _____ (owner) to provide Professional Engineering Services on the above referenced project. I, _____ P. Eng., am a Professional Geotechnical Engineer licensed to practice in the Province of British Columbia. I understand and acknowledge that I am responsible for the geotechnical integrity of the project with respect to design and construction of works required under the Subdivision and Development Servicing Bylaw, the approved design drawings prepared for the project, and good workmanship and practice.

I will be involved in all aspects of the project from Preliminary Design through to Final Acceptance with respect to each phase of the project. My responsibilities include but are not limited to:

Predesign Phase

- general on-site and adjacent site soil conditions
- groundwater problems
- soil/site stability
- corrosive or sulphate soils

Prepare a report documenting items, investigation findings and recommendations concerning development of the site.

Design Phase

Undertake additional geotechnical investigations as required to determine site specific requirements with respect to:

- overall site stability
- site grading

- deep utilities
- road structure
- soil strength with respect to infrastructure appurtenances, such as pump stations, reservoirs, buildings
- groundwater mitigation
- frost protection
- building construction

Prepare a written report. It is understood that the following objectives are to be satisfied by this report:

- confirmation that the land is safe for the use intended;
- the development has been evaluated with consideration of the aquatic and steep slope setbacks, as outlined in the Zoning Bylaw, and Environmentally Sensitive and Hazardous Area (ESHA) designations of the Official Community Plan;
- mitigative prescriptions that will facilitate the safe development of the subject lands;
- suitable for the registration on title of the property to advise future owners of the conditions of development; and
- acknowledgement that the City may rely upon the recommendations stated in the report for the issuance of permits needed for the development of the lands.

Construction Phase

During construction I will provide materials testing services to ensure that soils, concrete and asphalt used to construct the proposed development are constructed in accordance with the design report recommendations, Subdivision and Development Servicing Bylaw, and good workmanship and practice.

I will also provide geotechnical advice during the course of the project on an as required basis to resolve any geotechnical problems or anomalies that may arise.

I will submit weekly testing reports with copies of test results.

Post Construction

Upon completion of construction I will ensure that all test reports are assembled, collated and submitted to the Director in a sealed report confirming construction has met the geotechnical requirements of the Subdivision and Development Servicing Bylaw.

_____ carries $ _____ / per occurrence
Name of Consulting Firm

Errors and Omissions Liability Insurance and a Proof of Insurance Certificate is attached and will be in force for three (3) years after the date of acceptance by the Approving Office of the Certificate of Final Acceptance.

Name of Professional Engineer (Print)

Signature of Professional

Professional Seal

Date: _____

Mailing Address (Print)

CONFIRMATION OF PROFESSIONAL ASSURANCE
BY LANDSCAPE PROFESSIONAL

(To be typed onto the Landscape Consultant's letterhead)

The City of Fort St. John
10631-100th Street
FORT ST. JOHN, BC V1J 3Z5

Attention: Director of Planning and Engineering

Dear Sir/Madame:

RE: _____
(Name of Owner and Project Description and Address)

This letter is to advise that _____ (Consulting Firm) has been retained by _____ (Owner) to provide Landscape Professional Services as the Landscape Professional on the above referenced project. I, _____, am a Landscape Architect licensed to practice in the Province of British Columbia or a Certified Landscape Designer accredited through the Canadian Nursery Landscape Association *(Choose one).* I understand and acknowledge that I am responsible for the integrity of the project with respect to design and installation of landscape works in accordance with the City of Fort St. John Subdivision and Development Servicing Bylaw, the approved landscape design drawings for the project, the Canadian Landscape Standards, and with good workmanship and practice.

I will be involved in all aspects of the project from Preliminary Design through to Final Acceptance. With respect to each phase of the project my responsibilities include but are not limited to:

Design Phase

- design the work and prepare the appropriate drawings to explicitly define the work for approvals and construction.
- ensure design complies with intent of the Subdivision and Development Servicing Bylaw.
- undertake drawing amendments, as required, to meet City approvals.
- seal all design drawings.
- submit design drawings and other supporting documentation to the Director for approval.
- Develop maintenance program and submit with drawings.

Installation Phase

- undertake field reviews and inspections of the Contractor's work to assure compliance to the Subdivision and Development Servicing Bylaw, the approved drawings, Canadian Landscape Standards, and good workmanship and practice.
- submit weekly inspection reports to the Director.

- resolve problems or anomalies that may develop during construction in consultation with the Director.
- advise the Director of events requiring City attendance or witnessing.
- Submit construction documentation such as soil and growing medium test results and seed analysis.
- upon Substantial Completion undertake an inspection of the work with the Director and Owner's Engineer.
- confirm with the Owner's Engineer that the Landscape works have been installed as per approved design and the Subdivision and Development Servicing bylaw prior to them issuing the Certificate of Substantial Completion for All Works.

I understand that field reviews shall mean such reviews of the work at the project site and at material storage locations where applicable, considered by my professional discretion, as the Landscape Professional, to be necessary in order to ascertain that the work substantially conforms in all material aspects to the plans and drawings approved by the City of Fort St. John.

Post Installation

- Ensure maintenance program is followed throughout maintenance period as per approved maintenance plan.
- prepare record drawings in accordance with City standards.
- submit maintenance record for the installed works.
- inspect the project with the City to verify rectification of deficiencies set out in the Deficiency List attached to the Certificate of Substantial Completion for All Works and prepare and submit a Certificate of Final Acceptance for Landscaping Works.

_____ carries $ _____ / per occurrence
Name of Consulting Firm

Errors and Omissions Liability Insurance and a Proof of Insurance Certificate is attached and will be in force for three (3) years after the date of acceptance by the Approving Office of the Certificate of Final Acceptance.

_____
Name of Consulting Professional (Print)

_____
Signature of Professional (Landscape Professional)

Date: _____

_____
Mailing Address (Print)

Professional Seal

APPENDIX 2

Certificate of Substantial Completion for Deep Utilities

Certificate of Substantial Completion for All Works

Certificate of Final Acceptance for Non-Landscaping Works

Certificate of Final Acceptance for Landscaping Works

CITY OF FORT ST. JOHN

SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF SUBSTANTIAL COMPLETION FOR DEEP UTILITIES

Project Name: _____

City Project No.: _____

Owner's Engineer: _____ / Consulting Firm: _____

Owner: _____

Owner's Prime Contractor: _____

Date of Submission: _____

WHEREAS the City and the Owner entered into a Subdivision and Development Servicing Agreement dated the ___ day of _____, 20__; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision and Development Servicing Agreement;

I, the Owner's Engineer, hereby certify that to the best of my knowledge:

(i) All Works and Services required in respect of the Deep Utilities have been constructed in accordance with the Approved Engineering Drawings and the Subdivision Servicing Agreement;

(ii) All Works and Services required under the Subdivision and Development Servicing Agreement in respect of the Deep Utilities attained **Substantial Completion** as of the ___ day of _____, 20___; and

(iii) The inspection reports and test results upon which this certification is based are attached hereto.

I hereby request that the Deep Utilities be accepted as attaining Substantial Completion.

Certified by Owner's Engineer: _____ *Signature* Professional Seal	Date: _____

Accepted by the Director of Planning and Engineering (Choose one): _____ *Signature*	Date: _____

Attachment: Inspection reports and test results
cc: Owner

CITY OF FORT ST. JOHN

SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF SUBSTANTIAL COMPLETION FOR ALL WORKS

Project Name: _____

City Project No.: _____

Owner's Engineer: _____ / Consulting Firm: _____

Owner: _____

Owner's Prime Contractor: _____

Date of Submission: _____

WHEREAS the City and the Owner entered into a Subdivision and Development Servicing Agreement or Maintenance Agreement dated the ___ day of _____, 20__; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision and Development Servicing Agreement or;

I, the Owner's Engineer, hereby certify that to the best of my knowledge:

(i) All Works and Services have been constructed in accordance with the Approved Design and the Subdivision and Development Servicing Agreement;

(ii) The inspection reports and test results upon which this certification is based are attached here to;

(iii) All Works and Services required under the Subdivision and Development Servicing Agreement attained **Substantial Completion** as of the ____ day of _____, 20__;

(iv) The deficiencies listed on the attached Deficiency List are an accurate account of the Works that are outstanding and are to be completed prior to submission of a Certificate of Final Acceptance.

(v) The estimated value to remedy the items on the Deficiency List is **$**_____ and 200% of this estimated value should be retained by the City as security for the Owner's obligation to remedy the deficiencies.

(vi) Pursuant to the Subdivision and Development Servicing Agreement, the **Maintenance Period** for the Works shall commence on the Director's acceptance of this Certificate of Substantial Completion of All Works by applying their signature below and shall terminate after:

a. **One year** after the Commencement Date in respect of the **Non-Landscaping Works**; and

b. **Two years** after the Commencement Date in respect of the **Landscaping Works**.

I hereby request that the Works be accepted as attaining Substantial Completion.

Certified by the Owner's Engineer: Professional Seal _____ *Signature*	Date: _____

Accepted by the Director of Planning and Engineering: _____ *Signature*	Date: _____

Attachment: Deficiency List
cc: Owner

CITY OF FORT ST. JOHN

SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF FINAL ACCEPTANCE FOR NON - LANDSCAPING WORK

Project Name: _____

City Project No.: _____

Owner's Engineer: _____ / Consulting Firm: _____

Owner: _____

Contractor: _____

Date of Issue: _____

WHEREAS the City and the Owner entered into a Subdivision and Development Servicing Agreement or Maintenance Agreement dated the ___ day of _____, 20__; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision Servicing Agreement or Maintenance Agreement;

I, the Owner's Engineer, hereby certify that to the best of my knowledge:

(i) All Non-Landscaping works, in this subdivision or development are complete and built substantially in accordance with the Subdivision and Development Servicing Bylaw.
(ii) All Non-Landscaping deficiencies set out in the Deficiency List have been corrected and that there is no Non-Landscaping outstanding work remaining to be completed on this project.
(iii) All warranties, guarantees, maintenance manuals, record drawings, and relevant documentation for the work have been provided to the City.

I hereby request that Non - Landscaping Works be accepted as attaining **Final Completion.**

Certified by Owner's Engineer: _____ *Signature* Professional Seal	Date: _____

Accepted by Director of Planning and Engineering (Choose one): _____ *Signature*	Date: _____

cc: Owner

CITY OF FORT ST. JOHN

SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF FINAL COMPLETION FOR LANDSCAPING WORKS

Project Name: _____

City Project No.: _____

Landscape Professional: _____ / Consulting Firm:_____

Owner: _____

Contractor: _____

Date of Issue: _____

WHEREAS the City and the Owner entered into a Subdivision and Development Servicing Agreement or Maintenance Agreement dated the ___ day of _____, 20__; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision Servicing Agreement or Maintenance Agreement;

I, the Landscape Professional, hereby certify that to the best of my knowledge:

(i) All Landscaping Works in this subdivision or development are complete and built substantially in accordance with the Subdivision and Development Servicing Bylaw.
(ii) All Landscaping deficiencies set out in the Deficiency List have been corrected and that there is no outstanding work remaining to be completed on this project.
(iii) All warranties, guarantees, maintenance records, record drawings, and relevant documentation for the Landscaping Works have been provided to the City.

I hereby request that Works be accepted as attaining **Final Completion.**

Certified by Landscaping Professional: _____ *Signature* Professional Seal	Date: _____

Accepted by Director of Planning and Engineering: _____ *Signature*	Date: _____

cc: Owner

APPENDIX 3

Sample Subdivision and Development Servicing Agreement

SUBDIVISION and DEVELOPMENT SERVICING AGREEMENT

THIS AGREEMENT dated for reference the _____ day of _____, 20_____,

BETWEEN:

This appendix was repealed and replaced in its entirety by Bylaw No. 2759, 2023

CITY OF FORT ST. JOHN
10631 - 100th Street
Fort St. John BC V1J 3Z5

(the "City")

AND:

_____
[If a corporation add] (Inc. No. _____)
_____
_____
_____
(the "Owner")

WHEREAS:

A. The Owner is the registered owner of that land in Fort St. John, B.C. having a civic address of _____ and legally described as:

Parcel Identifier: _____
_____
_____

[Insert complete legal description, exactly as per land title search]

(the "Land");

[If more than one parcel of land is being subdivided, change Recital A accordingly and define as (together called the "Land")]

B. The Owner intends to subdivide the Land in the manner shown on the plan of proposed subdivision attached to this Agreement as Schedule "A" (the "**Subdivision Plan**");

C. Section 509 of the *Local Government Act* provides that all works and services required, pursuant to the Subdivision and Development Servicing Bylaw, to be constructed and installed at the expense of the owner of the land being subdivided or developed must be constructed and installed before the Approving Officer approves of the subdivision or the building inspector issues a building permit for the development unless the owner deposits security for those works and services and enters into an agreement with the City to construct and install the works and services by a specified date or forfeit the security;

D. The Owner has applied:

(i) to subdivide the Land in accordance with the Subdivision Plan;
(ii) to develop the Land; or
(iii) both

and has requested approval of the Subdivision Plan or issuance of the building permit prior to the construction and provision of the works and services which are required in relation to the proposed subdivision or development;

E. As outlined in this Agreement, the Owner has agreed to construct and provide certain works and services as required by the Director, and the Subdivision and Development Servicing Bylaw, in accordance with the drawings, standards and specifications referred to in this Agreement;

F. The Owner has also agreed to provide revegetation and landscaping work in accordance with the Approved Design drawings attached hereto in Schedule "C";

G. The Owner has also agreed, voluntarily, to provide other works and services beyond those required by Director and the City's bylaws, as referenced in Schedule "C" of this agreement; and

H. In accordance with the Subdivision and Development Servicing Bylaw, the Owner has provided $_____ in Construction Security, as that term is defined in this Agreement.

THEREFORE in consideration of the sum of $1.00 paid to the Owner by the City, the approval of the Subdivision Plan, and other good and valuable consideration, the receipt and sufficiency of which are hereby expressly acknowledged by the Owner, the Owner covenants and agrees with the City as follows:

Interpretation

1. In this Agreement:

   a. "**Agreement**" or "**this Agreement**" means this agreement and includes all recitals and schedules to this agreement, and all *Land Title Act* instruments and form comprising this agreement, if any;

   b. "**Approved Design**" means the final plans and specifications that have been prepared in accordance with specifications of the Subdivision and Development Servicing Bylaw and the MMCD and have received written approval from the City;

   c. "**Business Day**" means a day which is not a Saturday, Sunday, statutory holiday recognized by the City or any other day that the City's offices are closed for business;

   d. "**Certificate of Substantial Completion for All Works**" is defined in the Subdivision and Development Servicing Bylaw;

   e. "**Certificate of Substantial Completion for Deep Utilities**" is defined in the Subdivision and Development Servicing Bylaw;

   f. **"Certificate of Final Acceptance of Non-Landscaping Works"** is defined in the Subdivision and Development Servicing Bylaw;

   g. "**Certificate of Final Acceptance of Landscaping Works"** is defined in the Subdivision and Development Servicing Bylaw;

   h. "**City Lands**" means the lands identified in the Approved Design, which lands are registered in the name of the City or are lands dedicated as road, lane, street or park or are a portion of the Land that, in connection with the Works are, or will be, encumbered by a statutory right of way;

   i. "**City Representatives**" has the meaning given in section 53;

   j. "**Construction Security**" means security for the performance of the Owner's obligations to design, construct, install and complete the Works in accordance with this Agreement in the form of a cash deposit, certified cheque, bank draft or in the form of a letter of credit meeting the terms and conditions set out in Schedule "D", and otherwise to be issued to the City in the amount of 100% of the Estimated Costs;

   k. "**Consulting Professional"** means a professional person who is retained by the Owner for a purpose referred to in this Agreement and who is qualified and registered to practice in British Columbia for that purpose, and includes a professional engineer, architect and landscape architect;

   l. "Contaminants" means

      i. "waste" as that term is defined in the *Environmental Management Act* of British Columbia (including all regulations thereto); and

ii. any substance which is not "waste" but which exceeds or fails to comply with the most stringent applicable land, water or air use standards set-out in the *Environmental Management Act* of British Columbia (including all regulations thereto) or any and all other standards imposed by municipal, provincial, or federal laws, regulations or policies, as the case may be;

m. "**Deep Utilities**" means those portions of the Works comprising the water, sanitary sewer and drainage facilities and related services, as more particularly described in the Estimated Costs;

n. "**Deficiency List**" is a list prepared by the Owner's Engineer that specifies those portions of the Works which, in the opinion of the Owner's Engineer, are not completed to the required standards at the date of the Certificate of Substantial Completion for All Works;

o. "**Deficiency Security**" means the security for the performance of the Owner's obligations to correct the deficiencies set out in the Deficiency List in the amount of 200% of the estimated cost to rectify deficiencies set out in the Deficiency List;

p. "**Deficiency Time Limit**" means the time limit specified in the Deficiency List that has been approved by the City;

q. **"Director"** is defined in the Subdivision and Development Servicing Bylaw;

r. "**Estimated Costs**" means the estimated costs of the Works provided by the Owner to the City that are, as of the reference date of this Agreement, the costs set out in Schedule "E";

s. "**Event of Insolvency**" means the Owner makes a general assignment for the benefit of creditors, or the Owner institutes proceedings to have itself adjudicated as a bankrupt or insolvent, including, without limitation, any application or order under the *Companies Creditors Arrangement Act* (Canada), or the Owner becomes the subject of bankruptcy or insolvency proceedings, or a judgement or decree order is entered by a court of competent jurisdiction judging the Owner bankrupt or insolvent, or the Owner or its directors pass any resolution authorizing the dissolution or winding-up of the Owner;

t. "**Land**" has the meaning given in Schedule "A", and also refers to the Land after it is subdivided by the Subdivision Plan;

u. "***Land Title Act***" means the *Land Title Act* of British Columbia, RSBC 1996, Chapter 250;

v. "**Landscape Professional"** is defined in the Subdivision and Development Servicing Bylaw.

w. "**Landscaping Works**" means all landscaping including without limitation, the lawns, trees, shrubs, bushes, flowers and other flora to be provided, installed and constructed by the Owner as required by the Director, by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the landscaping works as shown in Schedule "C";

x. **"MMCD" or "Master Municipal Construction Document"** means the latest edition of the Master Municipal Construction Document prepared by the Master Municipal Construction

Documents Association, as amended from time to time, but not including "Instructions to Tenderers" and "General Conditions" in volume II or "Measurement and Payment" sections.

y. "**Maintenance Period**" means the period which expires:

i. one (1) year for the Non-Landscaping Works; and

ii. two (2) years for the Landscaping Works,

or such other period in the Director's discretion, after the date of issuance of the City's acceptance of the Certificate of Substantial Completion for All Works, EXCEPT THAT if the Maintenance Period expires on a date between November 1 and April 30, it shall be extended to May 1;

z. "**Maintenance Security**" means security for the performance of the Owner's obligations to maintain the Works in accordance with this Agreement in the form of a cash deposit, certified cheque, bank draft or in the form of a letter of credit meeting the terms and conditions set out in Schedule "D" in the amount set out in Schedule "E" to this Agreement;

aa. "**Non-Landscaping Works**" means all works and services to be provided, performed and constructed by the Owner as required by the Director by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the Works include all the construction shown or referred to in the Approved Design, utilities and connections to be constructed on and off the Land, environmental protection measures, and all other utilities and services, all as listed on Schedule "F", except the Landscaping Works;

bb. "**Notice of Default**" has the meaning given in section 64;

cc. "**On-Site Inspection Deadline**" means the date in each year that is the earlier of:

i. the first day of snowfall to occur after September 1 in the City of Fort St. John; and

ii. October 31,

provided that, if either date falls on a day that is not a Business Day, then the preceding Business Day;

dd. **"Owner's Engineer"** is defined in the Subdivision and Development Servicing Bylaw;

ee. "**Record Drawings**" means the approved "for construction" drawings accurately revised to reflect actual construction changes in the field, sealed by Owner's Engineer including digital copies as per the Subdivision and Development Servicing Bylaw.

ff. "**Security**" means one or more of the Construction Security, Deficiency Security, Landscape Security, and Maintenance Security, as the context requires;

gg. "**Subdivision and Development Servicing Bylaw**" means the *Subdivision and Development Servicing Bylaw No. 2405, 2021* as amended from time to time and in effect on the reference date of this Agreement;

hh. "**Subdivision Plan**" has the meaning given in Schedule "A";

ii. "**Substantial Completion**", "**Substantially Complete**", or other similar form of any such phrase means the stage of construction completion when all Works and Services as certified by the Owner's Engineer, are capable of completion or correction and are ready for use or being used for the purpose intended.

jj. "**Works and Services**" includes: highways, walkways, boulevards, boulevard crossings, transit bays, curbs, gutters, street lighting, underground wiring, electrical distribution systems, water distribution systems, fire hydrant systems, sewage collection and disposal systems, drainage collection and disposal systems, access to highways, and such other infrastructure or systems required under this Agreement and the Subdivision and Development Servicing Bylaw connection with the Subdivision or Development of the Land;

kk. "***Workers Compensation Act***" means the *Workers Compensation Act* of British Columbia, RSBC 1996, Chapter 492, as may be amended from time to time;

ll. "**Works Commencement Date**" means _____, or such other date agreed to in writing by the director;

mm. "**Works Completion Date**" means _____, or such other date agreed to in writing by the Director.

No Occupancy Until Completion

2. The Owner covenants and agrees that no building on the Land may be occupied unless and until the Director has issued a letter of acceptance of the Certificate of Substantial Completion for All Works and the Owner acknowledges and agrees that the City shall be entitled to withhold the issuance of an occupancy permit until such time.

Commencement of Construction

3. The Owner shall not commence construction of the Works until the Owner has:

a. submitted the Construction Security which has been accepted by the City and reflected in Schedule "D" of this Agreement;

b. an Approved Design;

c. provided to the City written confirmation, in a form and content acceptable to the Director that the Owner has obtained the insurance coverage as required;

d. provided to the City confirmation, in a form and content acceptable to the Director that all contractors, subcontractors, material suppliers and their respective personnel are

registered in accordance with the *Workers Compensation Act*. Without limiting the generality of the foregoing, if the workplace in which the installation, construction and completion of the Works is being performed constitutes a "multiple-employer workplace" (as defined in the *Workers Compensation Act*), the Owner hereby agrees that the Owner shall be the "prime contractor" (as defined in the *Workers Compensation Act*) and shall comply with all of the obligations and duties of the "prime contractor" set out in the *Workers Compensation Act*, together with all regulations thereto with respect to workplace health and safety;

e. provide to owners of all public and private utilities, if any, that may be affected by the construction and installation of the Works, notice of the same and obtained consent, where required, and provided copies to the City of all notices and consents in respect of the same;

f. if requested by the City, granted to the City, in a form and content acceptable to the Director such statutory rights of way, Section 219 covenants or such other instruments as are, in connection with this Agreement, required by the City in the City's sole discretion;

g. if requested by the City, provided to the Director in a form and containing content acceptable to that person:

   i. a traffic management plan;

   ii. a geotechnical report;

   iii. an environmental report of the Land; and

   iv. such other documents, plans, certificates and confirmations.

h. provided to the City notice of the Owner's intention to commence construction of the Works not less than 2 Business Days prior to such commencement;

i. submitted to the Director a construction schedule listing an approximate start date for each phase of construction;

j. received City's prior written authorization to proceed with installation and construction of the works.

4. At the latest, the Owner must begin installation and construction of the Works by the Works Commencement Date.

<u>Construction and Installation of Works</u>

5. The Owner covenants and agrees with the City that the Owner shall:

   a. diligently construct, install and complete the Works in accordance with this Agreement, the Approved Design, and the Subdivision and Development Servicing Bylaw;

   b. comply with any changes to the Approved Design required by the Director so as to satisfy the aforementioned that the Works will function and operate in a manner satisfactory to the City;

c. retain at all times an Owner's Engineer to provide competent survey, layout and onsite supervision to ensure that the Works strictly conform to the Approved Design and to record the details of any field design or construction changes to the Approved Design and to record all of the relevant information for preparation of the Record Drawings;

d. not damage any City works, City services, City property or other property; and

e. not deposit or permit to be deposited on City Lands any material or debris except to the extent expressly authorized by the City and, without limiting the generality of the foregoing, any deposit authorized by the City must be free and clear of all Contaminants.

Time for Completion

6. The Owner shall, at the Owner's cost, Substantially Complete the Works and obtain a Certificate of Substantial Completion for All Works by the Works Completion Date or such other date agreed to in writing by Director.

Construction Security

7. As security for the Owner's completion of the design, installation and construction of the Works and performance of all the other promises of the Owner in this Agreement, the Owner shall issue to the City, prior to approval of the Subdivision Plan or issuance of the building permit, as the case may be, the Construction Security.

8. The Owner acknowledges and agrees that the City has relied on the Estimated Costs prepared by the Consulting Professionals in establishing the amount of the Construction Security and the Owner confirms to the City that the Owner has so advised the Consulting Professionals prior to submission of those cost estimates to the City.

9. The Owner further acknowledges and agrees that the City's acceptance of the Estimated Costs shall not, in any way whatsoever, be construed as the City's agreement or acknowledgement that the Estimated Costs represent the actual costs of designing, constructing, installing and completing the Works.

10. As the Works proceed, the amount of the Construction Security may be reduced at any time in the City's discretion, with the written approval of the Director.

Use of Construction Security

11. The City may draw upon the Construction Security in the form of a letter of credit, or withdraw from the deposit of the certified cheque or bank draft, as the case may be, at any time and may hold or use the proceeds in accordance with this Agreement.

City May Complete Works and Remedy Defaults

12. If, in the opinion of the Director the Works have not been:

a. commenced by the Works Commencement Date;

b. designed, constructed, installed, repaired or maintained to the standards required by this Agreement; or

c. completed by the Works Completion Date,

the City may and is hereby authorized without notice, through its employees, agents, contractors and subcontractors, to undertake any or all of the design, installation construction, repair or maintenance of the Works on behalf of the Owner, at the cost of the Owner, and the Owner hereby acknowledges and agrees that:

d. the City shall be under no obligation to design, construct, install, repair or maintain any of the Works on behalf of the Owner;

e. the City may undertake to design, construct, install, repair or maintain the any of the Works in whole or in part;

f. notwithstanding any other provision of this Agreement, if the City designs, constructs, install or maintains any Works on behalf of the Owner, the City will not be bound by any timing, scheduling or deadline requirements contained in this Agreement for the design, construction, installation, repair or maintenance of such Works nor will the City be bound by any of the design, construction or maintenance obligations of the Owner in this Agreement;

g. if the City decides to undertake any of the Works pursuant to this section 12, the City may, without in any way limiting the City's remedies, draw upon and use the Security held by the City pursuant to this Agreement; and

h. if the amount of the Security held by the City is insufficient to cover the City's costs, then the Owner will reimburse the City upon receipt of the City's invoice for payment of the same, whether or not the City has completed or will complete the balance of the Works.

13. If the City undertakes all or part of the Works, the cost of the Works which is payable by the Owner shall include the City's actual costs of construction plus the costs of engineering, supervision, legal, contract administration, tendering, survey, other professional services, interest and all other costs required for completion of the Works, plus a 15% administration fee to reflect City staff time, and the City may use the Construction Security for this purpose

14. In exercising its rights pursuant to sections 12 to 13, above, the City, together with all City Representatives, may enter onto the Land and make use of so much of the Land as is, in the Director’s opinion, necessary to permit the City, without obligation to do so, to fulfil the

obligations of the Owner including, without limitation, the obligation to complete the Works on the terms and conditions set out in this Agreement.

Other Use of Security

15. If the City incurs any costs in correcting any breach of the Owner's obligations under this Agreement, other than non-completion of the Works, and those costs are not paid by the Owner within 30 days of receipt of the City's invoice, the City may recover those costs from the Security, and Section **Error! Reference source not found.** applies to the extent applicable.

16. In addition to and not in substitution of any of the City's other rights and remedies in this Agreement, the City may, without notice, immediately draw upon and use the Security if:

    a. at any time before the expiration of the applicable Maintenance Period, the balance of the term remaining on any letter of credit securing performance of the Owner's obligations under his Agreement is less than 30 days; and/or

    b. any Event of Insolvency occurs.

Return of Construction Security

17. Upon the City's acceptance of the Certificate of Substantial Completion for Deep Utilities, a reduction in the amount of security then held by the City shall be made in the amount equal to seventy percent (70%) of that portion of the Construction Security representing security for the construction, installation and completion of the Deep Utilities.

18. If the Owner completes the Works or if the City's costs of undertaking the Works are less than the amount of the Construction Security, then the Construction Security, or the unused portion thereof, shall be returned to the Owner by the City, without interest, after the City's acceptance of the Certificate of Substantial Completion for All Works.

19. Any return of Construction Security shall be made to the Owner, despite any change in the ownership of the Land. The City will, under no circumstances, be required to pay interest on any cash held due to the drawing of a Letter of Credit.

Compliance with Laws

20. In undertaking the Works, the Owner shall construct, install and complete the Works in accordance with this Agreement and all applicable laws, bylaws, permits, licenses, statutes, regulations, orders, codes (including the BC Building Code), and other applicable enactments.

Adherence to Approved Design

21. The Owner confirms to the City that the Works have been designed by a Consulting Professional.

22. In undertaking the Works, the Owner shall strictly adhere to the Approved Design and obtain the prior written approval of the Director for any changes to the Approved Design.

Standard of Work

23. Each component of the Works shall be provided and constructed to the satisfaction of the City and to all of the following standards:

    a. the standards of the Subdivision and Development Servicing Bylaw;

    b. a standard which is sufficient for its intended purposes; and

    c. generally accepted engineering practices.

Competent Contractors

24. The Owner shall not engage any employee or contractor in the construction of the Works who, in the reasonable opinion of the Director is unfit, incapable or unskilled.

On-Site Supervision

25. At all times during the construction and provision of the Works, the Owner shall retain one or more Consulting Professionals to oversee the completion of the Works and in addition, the Owner shall ensure that a competent superintendent is on site at all times during the construction and installation of the Works.

Essential Services

26. At all times after any construction has begun, the Owner shall ensure that all land where construction is underway is provided with:

    a. highway access which is sufficient for fire trucks and other emergency vehicles; and

    b. water service which is sufficient for fire-fighting purposes.

Notice of Work on City Lands

27. The Owner shall not begin the construction of any portion of the Works on City Lands without advising the Director at least five business days before beginning that portion of the Works, and the Owner must subsequently follow all instructions of the Director be as to traffic control, public safety and other matters.

Debris Removal

28. The Owner shall promptly remove any material or debris during the course of constructing the Works, but in the event that any material or debris is left upon any highway, park or other municipal property during or after the construction of the Works, the City may remove the material or debris at the expense of the Owner.

City Review and Entry on Land

29. The Owner authorizes the City, its agents and contractors to enter upon the Land and other work sites at all times as the City may consider necessary or convenient for the carrying out of this Agreement, including without limitation for the purpose of witnessing tests or inspections or undertaking the Works. If the Director is not satisfied with the quality of construction work or is not satisfied that the Consulting Professional is providing the appropriate level of inspection, he or she may, after twenty-four (24) hours written notice, engage an inspector to provide a satisfactory level of inspection over the duration of the project. Payment for this inspection will be taken from the Security.

City Witness of Field Conditions and Field Tests

30. During the course of construction, the Owner shall provide advance written notice to the City so that the Director may be in attendance at various stages of construction, including:

CONSTRUCTION STAGE	MINIMUM NOTICE
Sub-grade proof rolling	3 business days
Prior to placement of curb and gutter and walkway	3 business days
Prior to paving	3 business days
Water system pressure/leakage tests	3 business days
Sanitary sewer system leakage tests	3 business days
Tie – in to City infrastructure	3 business days
Tree planting	3 business days
Start-up of Pump Stations, Reservoirs, etc.	3 business days
Substantial Completion Inspection	3 business days
Final Acceptance Inspection – Non-Landscaping Works	3 business days
Final Acceptance Inspection – Landscaping Works	3 business days

City Directions

31. If the City considers at any time that the Works are in any way defective or do not operate in a satisfactory manner, the City may require the Works to be corrected and Owner shall, at its own expense, modify and reconstruct the Works immediately so that the Works are fully operative and function in accordance with the required standards.

32. Any explanations, orders, instructions, directions and requests given by the City to the Consulting Professional(s) shall be deemed to have been given to the Owner.

Certificate of Substantial Completion for Deep Utilities

33. Upon completion of the Deep Utilities to Substantial Completion, the Owner shall deliver to the City a Certificate of Substantial Completion for Deep Utilities issued, signed and sealed by the Owner's Engineer certifying that the Deep Utilities have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Certificate of Substantial Completion for All Works

34. Upon completion of the Works to Substantial Completion, the Owner shall cause its Consulting Professional(s) to conduct a Substantial Completion Inspection of the Works before the On-site

Inspection Deadline, which Substantial Completion Inspection may be observed by the Director or their designate, and the Owner, being satisfied with the completion of the Works, shall deliver to the City a Certificate of Substantial Completion for All Works issued, signed and sealed by the Owner's Engineer certifying that the Works have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Deficiencies

35. At the time the Owner delivers to the City the Certificate of Substantial Completion for All Works, the Owner shall also:

    a. deliver to the City the Deficiency List for the City's acceptance, setting out an estimate of the cost to rectify the deficiencies set out in the Deficiency List, and the date by which such deficiencies shall be remedied;

    b. deliver to the City the Deficiency Security.

Deficiency Time Limit

36. The Owner will correct the deficiencies set out in the Deficiency List to the satisfaction of the Director within the time limit (the "**Deficiency Time Limit**") specified in the Deficiency List approved by the City.

Use of Deficiency Security

37. If the Owner does not correct the Deficiencies, to the satisfaction of the City, within the Deficiency Time Limit, the City may use the Deficiency Security for the purpose of correcting the deficiencies set out in the Deficiency List.

City's Acceptance of Substantial Completion for All Works

38. Following delivery of the required Certificate(s) of Substantial Completion for All Works and the Deficiency List, the Director will then review the submission and if:

    a. the Works are completed to his or her satisfaction;

    b. the Deficiency List is prepared to the his or her satisfaction; and

    c. the Owner is not otherwise in breach of any of its obligations under this Agreement,

    and the Owner has:

    d. made payment to the City of any amount owing under this Agreement;

e. delivered the Maintenance Security to the City;

f. delivered the Deficiency Security to the City;

g. provided to the City written confirmation, in a form and content acceptable to the Director that the Owner has obtained and maintained the insurance coverage as required under this Agreement; and

h. delivered to the City all statutory rights of way required by section 45, in a form registrable in the *Land Title Office* and otherwise acceptable to the City,

then the Director will issue a letter of acceptance of the Certificate of Substantial Completion for All Works.

Sections Applicable

39. Sections 7-13, 15, 16, 18, 19 of this Agreement also apply to the Deficiency Security and return of the Deficiency Security but with all necessary changes.

Maintenance Period

40. During the Maintenance Period, the Owner shall forthwith remedy any defect in the Works or failure of the Works to operate normally appearing within the Maintenance Period (excluding defects caused by reasonable wear and tear, and acts of God) and any resulting damage to other works or property.

City Operation of Works

41. During the Maintenance Period, the City will operate those parts of the Works which are within City lands with respect to road and water infrastructure. Notwithstanding that the City will operate such works, the Owner shall remain responsible for remedying any defects in the Works and maintaining the Works during the Maintenance Period and in default thereof the City may draw down on the Maintenance Security or Deficiency Security, as the case may be.

Maintenance Security

42. The Owner shall, prior to the City's acceptance of the Certificate of Substantial Completion for All Works, deposit with the City the Maintenance Security.

Use of Maintenance Security

43. If the Owner fails to remedy any defect in the Works or any failure of the Works to operate normally, the City may deduct from the Maintenance Security the City's cost of repairing the Works, remedying any defect or paying for any resulting damage.

Sections Applicable

44. Sections 7-13, 15, 16, 18, 19 of this Agreement also apply to the Maintenance Security and return of the Maintenance Security but with all necessary changes.

Grant of Statutory Rights of Way

45. The Owner shall, prior to the City's acceptance of the Certificate of Substantial Completion for All Works, grant to the City, in the City's standard form of agreement, and cause to be registered, in priority to all charges except those accepted by the City, statutory rights of way for all portions of the Works located on privately-owned lands which the City determines are to be owned, maintained and repaired by the City, and the Owner shall be responsible for all associated surveying and land title filing fees and registration costs.

Certificate of Final Acceptance of Non-Landscaping Works

46. No sooner than 5 weeks and no later than 3 weeks before the expiry of the Maintenance Period in respect of the Non-Landscaping Works, the Owner shall cause its Consulting Professional(s) to conduct a final inspection of the Non-Landscaping Works, which shall occur before the On-Site Inspection Deadline, which final inspection may be observed by the Director or their designate, and the Owner, being satisfied with the completion of the Non-Landscaping Works, shall deliver to the City the required certificate(s) (the Certificate of Final Acceptance of Non-Landscaping Works) issued, signed and sealed by the Owner's Engineer.

Record Submission

47. The Owner shall submit to the City final Record Drawings sealed by the Owner's Engineer, as specified in the Subdivision and Development Servicing Bylaw, of all the Works as constructed and as approved by the City, at least 2 weeks in advance of the final inspection contemplated in the previous section.

48. The Owner shall submit to the City all required Record documents, sealed by the Owner's Engineer, as specified in the Subdivision and Development Servicing bylaw, at least 2 weeks in advance of the final inspection contemplated in Section 46.

City Acceptance of Certificate of Final Acceptance of Non-Landscaping Works

49. Upon:

a. the City's receipt of the Certificate of Final Acceptance of Non-Landscaping Works from the Owner;

b. the Director being satisfied that all deficiencies have been remedied and the Non-Landscaping Works have been properly maintained during the Maintenance Period; and

c. the Owner's payment to the City of any amount owing to the City under this Agreement,

the City will accept, and issue a letter of acceptance, of the Certificate of Final Acceptance of Non-Landscaping Works and:

d. return the Deficiency Security (other than that part of it provided in respect of the Landscaping Works), or remaining portion thereof, if any, to the Owner; and

e. return the Maintenance Security (other than that part of it provided in respect of the Landscaping Works), or remaining portion, if any, to the Owner.

Certificate of Final Acceptance of Landscaping Works

50. No sooner than 5 weeks and no later than 3 weeks before the expiry of the Maintenance Period in respect of the Landscaping Works, the Owner shall cause its Landscape Professional to conduct a final inspection of the Landscaping Works, which shall occur before the On-Site Inspection Deadline, which final inspection may be observed by the Director or their designate, and the Owner, being satisfied with the completion of the Landscaping Works , shall deliver to the City the required certificate(s) (the Certificate of Final Acceptance of Landscaping Works) issued, signed and sealed by the Landscape Professional..

Maintenance Records of Landscaping Works

51. The Owner shall submit to the City Maintenance Records of all Landscaping Works at least 2 weeks in advance of the final inspection contemplated in the previous section.

City Acceptance of Certificate of Final Acceptance of Landscaping Works

52. Upon:

a. the City's receipt of the Certificate of Final Acceptance of Landscaping Works from the Owner;

b. the Director being satisfied that all deficiencies have been remedied and the Landscaping Works have been properly maintained during the Maintenance Period; and

c. the Owner's payment to the City of any amount owing to the City under this Agreement,

the City will accept, and issue a letter of acceptance, of the Certificate of Final Acceptance of Landscaping Works and:

d. return the Deficiency Security held in respect of the Landscaping Works, or remaining portion thereof, if any, to the Owner; and

e. return the Maintenance Security held in respect of the Landscaping Works, or remaining portion, if any, to the Owner.

Indemnification

53. The Owner shall indemnify and save harmless the City Representatives from and against any and all actions, causes of action, liabilities, demands, losses, damages, costs, expenses (including actual fees of professional advisors), remediation of contamination costs, fines, penalties and other harm of any kind whatsoever, despite any negligence by the City or the City Representatives, whether related to death, bodily injury, property loss, property damage or consequential loss or damage, suffered or incurred by the City and/or any of the City Representatives arising from, resulting from, connected with or related to:

a. this Agreement;

b. any incident or occurrence during the construction or installation of the Works (including during the Deficiency Period and the Maintenance Period);

c. the construction, installation, maintenance or correction of the Works (including during the Deficiency Period and the Maintenance Period);

d. liens, non-payment for labour or materials, Workers' Compensation assessments, employment insurance, federal or provincial tax, or union dues check off;

e. any default or breach of this Agreement by the Owner;

f. any wrongful act, omission or negligence of the Owner or its shareholders, directors, officers, employees, agents, contractors, subcontractors, licenses, or others for whom it is responsible in law.

This indemnity shall survive any expiry or other termination of this Agreement.

Release

54. The Owner shall release the City and the City Representatives from and against any and all actions, causes of action, liabilities, demands, losses, damages, costs, expenses (including actual fees of professional advisors), remediation of contamination costs, fines, penalties and other harm of any kind whatsoever, despite any negligence by the City or the City Representatives, whether related to death, bodily injury, property loss, property damage or consequential loss or damage, which the Owner may suffer or incur in relation to this Agreement.

This release shall survive any expiry or other termination of this Agreement.

Section 219 Covenant

55. If this Agreement is registered in the Land Title Office, then the covenants and agreements contained in section 3 and 5 and the covenants of indemnity contained in section 53 of this Agreement shall, in addition to being covenants and agreements of the Owner, be covenants pursuant to Section 219 of the *Land Title Act* and therefore be charges against and running with the Land. If this Agreement is not registered in the Land Title Office, then the covenants and agreements contained in section 3 and 5 and the covenants of indemnity contained in section 53 shall, all the same, together with the balance of the Agreement, be binding on the Owner and its successors and assigns.

Insurance

56. The Owner will at the Owner's expense, carry with an insurance company or companies acceptable to and approved by the City of Fort St. John the following insurance with limits not less than shown in the following respective items:

a. Automotive Liability Insurance (Owned and Non-Owned Units)

Limits: Bodily Injury and Property Damage – inclusive each accident $3,000,000.

The Owner shall, at the Owner's expense, through the term of the Contract, maintain such insurance as required under the Insurance (Motor Vehicle) Act of British Columbia, except as modified above. The Owner shall provide the City of Fort St. John with a Certificate of Insurance, Insurance Corporation of British Columbia (ICBC) form No. APV 47, for owned and leased vehicles as evidence of third-party motor vehicle insurance coverage.

b. Commercial General Liability Insurance

Limits: Bodily Injury and Property Damage inclusive $5,000,000

The insurance shall include Contractor's Contingent Liability, and Contractual Liability of sufficient scope to include the liability assumed by the Owner under the terms of this Agreement, and Completed Operations Liability. The policy shall include the Owner, the City of Fort St. John, and Contract Administrator as additional insured with a cross liability clause. Any property damage deductible shall be for the account of the Owner and shall not exceed $2,500.00 for any one occurrence.

c. Course of Construction Builders' Risk Insurance [REQUIRED ONLY IF A NEW BUILDING IS PART OF THE SERVICING AGREEMENT]

Coverage on an "All Risks" basis insuring the Works against loss or damage to full replacement cost, subject to a deductible provision for the Owner's account not exceeding $2500.00 each loss. Coverage to include the City of Fort St. John as an additional insured.

Insurance on equipment rented or owned by the Owner to its full insurable value.

57. The above specified insurance policies shall have the right of subrogation waived as again the City of Fort St. John and its respective employees.

58. The Owner shall provide the City of Fort St. John with satisfactory evidence that the insurance required to be provided by the Owner under this agreement is in full force and effect.

59. The City of Fort St. John makes no representation or warranty with respect to the extent or adequacy of the insurance protection afforded by the policies above. It shall be the full responsibility of the Owner and the Owner's contractor(s) to determine their own additional insurance coverages that are necessary and advisable for its own protection or to fulfil its obligations under this Agreement. Any such additional insurance shall be provided and maintained by the Owner at the Owner's own expense.

60. The Owner is responsible for ensuring that its subcontractors comply with the same insurance requirements as set out above.

61. All policies referred to shall provide that thirty (30) days notices of cancellation will be given in writing to each insured, including the City of Fort St. John, otherwise the policies to remain in full force and effect until the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works. Notwithstanding the foregoing, the Comprehensive General Bodily Injury and Property Damage Liability Insurance referred to above shall remain in full force and effect from the commencement of the performance of the Works for a period of not less than twelve (12) months following the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works and with respect to completed operations coverage for a period of not less than 24 months following the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works.

Consulting Professional's Liability

62. Consulting Professionals involved in the design and construction of the Works shall carry minimum Errors and Omission Liability Insurance coverage of $2,000,000 per claim occurrence and maintain such coverage over a period of three (3) years after the City's acceptance of the Certificate of Substantial Completion of All Works. The Consulting Professionals shall provide Certificates of Insurance prior to commencement of construction of the Works and from time to time at the request of the City.

Default

63. If the Director is of the opinion that the Owner is at any time in default of any of the Owner's obligations under this Agreement, then the Director may deliver written notice of default to the Owner (save in respect of emergencies occasioned by such default, in which case delivery of

notice is not required) which notice will specify the default and the time period for remedying the default ("**Notice of Default**").

64. From and after the date of delivery of the Notice of Default, the Owner shall remedy the default identified in the Notice of Default within the time period specified in the Notice of Default, and to the satisfaction of the Director and if the Owner fails or neglects to remedy the default to the satisfaction of the Director then the City may, without in any way limiting the City's remedies, draw upon and use the Security held by the City pursuant to this Agreement to remedy the default.

65. If the Security held by the City is insufficient to cover the City's costs to remedy the default, then the Owner shall reimburse the City upon receipt of the City's invoice for payment of the same, whether or not the City has remedied or will remedy the balance of the default.

66. If the City undertakes to remedy the default, the cost is payable by the Owner shall include the City's actual costs to remedy the default plus the costs of engineering, supervision, legal, contract administration, tendering, survey, other professional services, interest and all other costs required for completion of the Works, plus a 15% administration fee to reflect City staff time.

67. In exercising its rights pursuant to sections 64 to 67, above, the City, together with all City Representatives, may enter onto the Land and make use of so much of the Land as is, in the Director's opinion, necessary to permit the City, without obligation to do so, to fulfil the obligations of the Owner including, without limitation, the obligation to complete the Works on the terms and conditions set out in this Agreement.

Owner's Risk

68. The Owner acknowledges and agrees that the Owner relies exclusively on its own expertise, the Consulting Professional(s) and contractors, and that the City does not, by its approvals, inspections, issuance of certificates, or acceptance of the Works, warrant or represent that the Works are in compliance with this Agreement or any enactment or warrant the quality, fitness for purpose, adequacy or safety of the Works. The Owner further acknowledges and agrees that all approvals and inspections of the Works by the City are for the sole benefit of the City and shall in no way relieve the Owner from constructing and installing the Works in strict compliance with this Agreement.

No Representations

69. The Owner acknowledges that the City has made no representations, covenants, warranties, guarantees, promises or agreements with the Owner with regard to the subject matter of this Agreement.

Municipal Ownership of Works

70. Upon the City's acceptance of a Certificate of Final Acceptance of Non-Landscaping Works and a Certificate of Final Acceptance of Landscaping Works, the Works specified in such certificate shall become the property of the City, free and clear of any claim by the Owner or any person claiming through the Owner, without payment of any compensation or consideration EXCEPT Works on private land (including common property of a strata corporation) unless those Works become the property of the City under a statutory right of way or other agreement with the City.

Terminology

71. Wherever the singular or the masculine are used in this Agreement, they shall be interpreted as meaning the plural or the feminine or body corporate where the context requires.

Assignment

72. The Owner's obligations and rights under this Agreement shall not be assigned without the written consent of the City, such consent not to be unreasonably withheld, EXCEPT THAT the Owner may not assign this Agreement in part nor may the Owner assign this Agreement to a person who is not the registered owner of the Land. Unless the Owner obtains the City's consent to an assignment of this Agreement, the Owner's obligations under this Agreement shall continue in effect notwithstanding any transfer of title to all or part of the Land.

Notices

73. All notices to be given under this Agreement shall be in writing and may be delivered by hand, sent by facsimile transmission, or mailed by first-class prepaid registered mail.

74. Any notice delivered by hand or sent by facsimile transmission shall be deemed to be given and received on the day it is sent. Any notice mailed shall be deemed to be given and received on the third day after it is posted (unless there is a mail strike, slow down or other labour dispute which might affect delivery, in which case the notice shall be effective only if actually delivered or sent by facsimile transmission).

75. Notices shall be addressed to the addresses or facsimile numbers on page 1 or to such other address or facsimile number as may from time to time be advised by a party in writing. Notice by the City to the Owner may be posted on the Land.

76. Notices to the City must be addressed to the attention of the "**Director of Legislative and Administrative Services**".

Binding Effect

77. This Agreement shall enure to the benefit of and be binding upon the parties and their respective corporate successors, heirs, executors, administrators, personal representatives, and permitted assigns.

Sale of Land

78. In the event that the Owner proposes to transfer any part of the Land where a portion of the Works is to be located, prior to the transfer the Owner shall obtain the transferee's written consent to entry by the City on that part of the Land, for the purposes of this Agreement.

Joint and Several

79. If at any time more than one person (as that term is defined in the B.C. Interpretation Act) is the owner of the Land, then those persons shall be jointly and severally responsible for all the obligations of the Owner under this Agreement.

Further Acts

80. Each party shall do all further acts as may be necessary for carrying out this Agreement, including without limitation execution of all required documentation.

Time of the Essence

81. Time is of the essence of this Agreement.

Force Majeure

82. All obligations of the parties shall be suspended so long as the performance of such obligation is prevented, in whole or in part, by reason of labour dispute, fire, act of God, unusual delay by common carriers, earthquake, act of the elements, riot, civil commotion or inability to obtain necessary materials on the open market, and the period in which any party is required to perform any such obligation is extended for the period of such suspension. The impact of the Owner's financial circumstances upon the Owner's ability to perform this Agreement does not suspend the Owner's obligations under this Agreement, and for the Owner to be entitled to rely on the time suspension in this section, the Owner must give prompt notice to the City of the reason the Owner claims to be entitled to a time suspension and the Owner must obtain the City's approval for the reason and duration of the time suspension.

Waiver

83. An alleged waiver by the City of any breach by the Owner of this Agreement is effective only if it is an express waiver in writing of the breach in respect of which the waiver is asserted. A waiver by the City of a breach by the Owner of this Agreement does not operate as a waiver of any other breach of this Agreement.

No Public Law Duties

84. Whenever in this Agreement the City, or a City official, is required or entitled to exercise any discretion in the granting of consent or approval, or is entitled to make any determination, take any action or exercise any contractual right or remedy including without limitation the termination of this Agreement, the City, or the City official, may do so in accordance with the contractual provisions of this Agreement and no public law duty whether arising from the principles of procedural fairness or the rules of natural justice shall have any application.

No Effect on Laws or Powers

85. This Agreement does not:

a. effect or limit the discretion, rights, duties or powers of the City under any enactment or at common law, including in relation to the use or subdivision of the Land;

b. affect or limit any enactment relating to the use or subdivision of the Land; or

c. relieve the Owner from complying with any enactment, including in relation to the use or subdivision of the Land.

Severability

86. If any provision of this Agreement is held to be unenforceable by a court, that provision shall be severed from the remainder of this Agreement and the remainder shall continue in effect.

Amendments

87. No amendment to this Agreement shall be effective unless it is made in writing and is duly executed on behalf of both parties.

Schedules

88. The following schedules are annexed to and form part of this Agreement:

a. Schedule “A” – Reduced Copy of Subdivision Plan

b. Schedule “B” – Development Area Map

c. Schedule "C" – List of Approved Design Plans

d. Schedule "D" – Construction Security Requirements

e. Schedule "E" – Estimated Costs

Acknowledgment

89. The Owner acknowledges having read and fully understood all the terms and conditions of this Agreement and confirms that this Agreement has been entered voluntarily.

IN WITNESS WHEREOF the parties have executed this Agreement on the dates set out below.

DATED the _____ day of _____, 20__

The Corporate Seal of **CITY OF FORT ST. JOHN** was hereunto affixed in the presence of:	)	C/S
_____ Mayor:	)	
_____ Corporate Officer:	)	

[If Owner is an individual, execute below]

DATED the _____ day of _____, 20_____

Signed, Sealed and Delivered in the presence of:	)	
	)	
	)	
_____	)	_____
Name of Witness:	)	
	)	Signature of Owner
_____	)	
Address of Witness:	)	
	)	
_____	)	
Occupation of Witness:	)	
	)	

[If Owner is a corporation, execute below]

DATED the _____ day of _____, 20_____

The Corporate Seal of _____ was hereunto affixed in the presence of its authorized signatories:	)	C/S
_____ Name:	)	
_____ Signature:	)	
_____ Name:	)	
_____ Signature:	)	

Schedule "A"

REDUCED COPY OF SUBDIVISION PLAN

Schedule "B"

DEVELOPMENT AREA MAP

****City provided****

Schedule "C"

LIST OF APPROVED DESIGN PLANS

1. The following is a list of design plans that have been approved by the City for construction.

Table 1: Approved Design Plans	
Drawing No.	**Drawing Title**

Schedule "D"

CONSTRUCTION SECURITY REQUIREMENTS

Construction Security required is 100% of Estimated Costs.

Estimated Costs for this Approved Design are $_____ and therefore the required Construction Security for this Agreement is **$_____**

Letter of Credit Requirements

- The letter of credit must be an irrevocable, unconditional, standby letter of credit.
- The letter of credit must be issued by a Canadian chartered bank with a branch in Fort St. John, B.C. at which the letter of credit can be cashed.
- The letter of credit must be payable at the time of presentation.
- The letter of credit must not require any documentation to be presented in order for it to be cashed.
- The letter of credit must allow partial draws.
- The letter of credit must be automatically-renewing.
- The letter of credit must otherwise meet the requirements of the City.

Schedule "E"

ESTIMATED COSTS

APPENDIX 4

Sample Maintenance Agreement

MAINTENANCE AGREEMENT

THIS AGREEMENT dated for reference the _____ day of _____, 20_____,

BETWEEN:

This appendix was repealed and replaced in its entirety by Bylaw No. 2759, 2023

CITY OF FORT ST. JOHN
10631 - 100th Street
Fort St. John BC V1J 3Z5

(the "City")

AND:

_____
[If a corporation add] (Inc. No. _____)
_____
_____
_____
(the "Owner")

WHEREAS:

A. The Owner is the registered owner of that land in Fort St. John, B.C. having a civic address of _____ and legally described as:

Parcel Identifier: _____
_____
_____

[Insert complete legal description, exactly as per land title search]

(the "Land");

[If more than one parcel of land is being subdivided, change Recital A accordingly and define as (together called the "Land")]

B. The Owner intends to subdivide the Land in the manner shown on the plan of proposed subdivision attached to this Agreement as Schedule "A" (the "**Subdivision Plan**");

C. Section 509 of the *Local Government Act* provides that all works and services required, pursuant to the Subdivision and Development Servicing Bylaw, to be constructed and installed at the expense of the owner of the land being subdivided or developed must be constructed and installed before the Approving Officer approves of the subdivision or the building inspector issues a building permit for the development unless the owner deposits security for those works and services and enters into an agreement with the City to construct and install the works and services by a specified date or forfeit the security;

D. The Owner has elected to construct and provide certain works and services as required by the Director and the Subdivision and Development Servicing Bylaw before the Subdivision Plan is approved by the Approving Officer for the City or a building permit is issued by the building inspector;

F. The Owner has also agreed to provide revegetation and landscaping work in accordance with the Approved Design drawings attached hereto in Schedule "C";

G. The Owner has also agreed, voluntarily, to provide other works and services beyond those required by the Director and the City's bylaws, as referenced in Schedule "C" of this agreement; and

H. In accordance with the Subdivision and Development Servicing Bylaw, the Owner has provided Maintenance Security as per Schedule "D" of this Agreement.

THEREFORE in consideration of the sum of $1.00 paid to the Owner by the City, the approval of the Subdivision Plan, and other good and valuable consideration, the receipt and sufficiency of which are hereby expressly acknowledged by the Owner, the Owner covenants and agrees with the City as follows:

Interpretation

1. In this Agreement:

   a. "**Agreement**" or "**this Agreement**" means this agreement and includes all recitals and schedules to this agreement, and all *Land Title Act* instruments and form comprising this agreement, if any;

   b. "**Approved Design**" means the final plans and specifications that have been prepared in accordance with specifications of the Subdivision and Development Servicing Bylaw and the MMCD and have received written approval from the City;

   c. "**Business Day**" means a day which is not a Saturday, Sunday, statutory holiday recognized by the City or any other day that the City's offices are closed for business;

   d. "**Certificate of Substantial Completion for All Works**" is defined in the Subdivision and Development Servicing Bylaw;

   e. "**Certificate of Substantial Completion for Deep Utilities**" is defined in the Subdivision and Development Servicing Bylaw;

   f. "**Certificate of Substantial Completion for Landscaping Works**" is defined in the Subdivision and Development Servicing Bylaw;

   g. "**Certificate of Final Acceptance of Non-Landscaping Works"** is defined in the Subdivision and Development Servicing Bylaw;

   h. **"Certificate of Final Acceptance of Landscaping Works"** is defined in the Subdivision and Development Servicing Bylaw;

   i. "**City Lands**" means the lands identified in the Approved Design, which lands are registered in the name of the City or are lands dedicated as road, lane, street or park or a are a portion of the Land that, in connection with the Works are, or will be, encumbered by a statutory right of way;

   j. "**City Representatives**" means the City, its Council members, officers, employees, contractors and agents;

   k. "**Consulting Professional**" means a professional person who is retained by the Owner for a purpose referred to in this Agreement and who is qualified and registered to practice in British Columbia for that purpose, and includes a professional engineer, architect and landscape architect;

   l. "Contaminants" means

      i. "waste" as that term is defined in the *Environmental Management Act* of British Columbia (including all regulations thereto); and

ii. any substance which is not "waste" but which exceeds or fails to comply with the most stringent applicable land, water or air use standards set-out in the *Environmental Management Act* of British Columbia (including all regulations thereto) or any and all other standards imposed by municipal, provincial, or federal laws, regulations or policies, as the case may be;

m. "**Deep Utilities**" means those portions of the Works comprising the sanitary sewer, storm sewer, watermain and related services, as more particularly described in the Estimated Costs;

n. "**Deficiency List**" is a list prepared by the Owner's Engineer that specifies those portions of the Works which, in the opinion of the Owner's Engineer, are not completed to the required standards at the date of the Certificate of Substantial Completion for All Works;

o. "**Deficiency Security**" means the security for the performance of the Owner's obligations to correct the deficiencies set out in the Deficiency List in the amount of 200% of the estimated cost to rectify deficiencies set out in the Deficiency List;

p. "**Deficiency Time Limit**" means the time limit specified in the Deficiency List that has been approved by the City;

q. "**Estimated Costs**" means the estimated costs of the Works provided by the Owner to the City that are, as of the reference date of this Agreement, the costs set out in Schedule "E";

r. "**Event of Insolvency**" means the Owner makes a general assignment for the benefit of creditors, or the Owner institutes proceedings to have itself adjudicated as a bankrupt or insolvent, including, without limitation, any application or order under the *Companies Creditors Arrangement Act* (Canada), or the Owner becomes the subject of bankruptcy or insolvency proceedings, or a judgement or decree order is entered by a court of competent jurisdiction judging the Owner bankrupt or insolvent, or the Owner or its directors pass any resolution authorizing the dissolution or winding-up of the Owner;

s. "**Land**" has the meaning given in Schedule "A", and also refers to the Land after it is subdivided by the Subdivision Plan;

t. "***Land Title Act***" means the *Land Title Act* of British Columbia, RSBC 1996, Chapter 250;

u. "**Landscape Professional"** is defined in the Subdivision and Development Servicing Bylaw.

v. "**Landscaping Works**" means all landscaping including without limitation, the lawns, trees, shrubs, bushes, flowers and other flora to be provided, installed and constructed by the Owner as required by the Director by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the landscaping works listed on Schedule "F";

w. **"MMCD" or "Master Municipal Construction Document"** means the latest edition of the Master Municipal Construction Document prepared by the Master Municipal Construction Documents Association, as amended from time to time, but not including "Instructions to

Tenderers" and "General Conditions" in volume II or "Measurement and Payment" sections.

x. "**Maintenance Period**" means the period which expires:

i. one (1) year for the Non-Landscaping Works; and

ii. two (2) years for the Landscaping Works,

or such other period in the Director's discretion, after the date of registration of final Subdivision Plan, EXCEPT THAT if the Maintenance Period expires on a date between November 1 and April 30, it shall be extended to May 1;

y. "**Maintenance Security**" means security for the performance of the Owner's obligations to maintain the Works in accordance with this Agreement in the form of a cash deposit, certified cheque, bank draft or in the form of a letter of credit meeting the terms and conditions set out in Schedule "D" in the amount set out in Schedule "E" to this Agreement;

z. "**Non-Landscaping Works**" means all works and services to be provided, performed and constructed by the Owner as required by the Director by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the Works include all the construction shown or referred to in the Approved Design, utilities and connections to be constructed on and off the Land, environmental protection measures, and all other utilities and services, all as listed on Schedule "F", except the Landscaping Works;

aa. "**Notice of Default**" has the meaning given in section 45;

bb. "**On-Site Inspection Deadline**" means the date in each year that is the earlier of:

i. the first day of snowfall to occur after September 1 in the City of Fort St. John; and

ii. October 31,

provided that, if either date falls on a day that is not a Business Day, then the preceding Business Day;

cc. "**Owner's Engineer"** is the definition given in the Subdivision and Development Servicing Bylaw.

dd. "**Record Drawings**" means the approved "for construction" drawings accurately revised to reflect actual construction changes in the field, sealed by Design Engineer, including digital copies using the MMCD as constructed template.

ee. "**Security**" means one or more of the Deficiency Security and Maintenance Security, as the context requires;

ff. "**Subdivision and Development Servicing Bylaw**" means *Subdivision and Development Servicing Bylaw No. 2405, 2021*, as amended from time to time and in effect on the reference date of this Agreement;

gg. "**Subdivision Plan**" has the meaning given in Schedule "A";

hh. "**Substantial Completion**", "**Substantially Complete**", or other similar form of any such phrase has the meaning given to the term "Substantial Performance" in the definitions section of the General Conditions of the MMCD Documents;

ii. "**Works and Services**" includes: highways, walkways, boulevards, boulevard crossings, transit bays, curbs, gutters, street lighting, underground wiring, electrical distribution systems, water distribution systems, fire hydrant systems , sewage collection and disposal systems, drainage collection and disposal systems, access to highways, and such other infrastructure or systems required under this Agreement and the Subdivision and Development Servicing Bylaw in connection with the Subdivision or Development of the Land;

jj. "***Workers Compensation Act***" means the *Workers Compensation Act* of British Columbia, RSBC 1996, Chapter 492, as may be amended from time to time; and

Commencement of Construction

2. The Owner shall not commence construction of the Works until the Owner has:

a. provided to the City, the Estimated Costs of construction which has been accepted by the City and reflected in Schedule "E" of this Agreement;;

b. an Approved Design;

c. provided to the City written confirmation, in a form and content acceptable to the Director that the Owner has obtained the insurance coverage as required under this Agreement;

d. provided to the City confirmation, in a form and content acceptable to the Director that all contractors, subcontractors, material suppliers and their respective personnel are registered in accordance with the *Workers Compensation Act*. Without limiting the generality of the foregoing, if the workplace in which the installation, construction and completion of the Works is being performed constitutes a "multiple-employer workplace" (as defined in the *Workers Compensation Act*), the Owner hereby agrees that the Owner shall be the "prime contractor" (as defined in the *Workers Compensation Act*) and shall comply with all of the obligations and duties of the "prime contractor" set out in the *Workers Compensation Act*, together with all regulations thereto with respect to workplace health and safety;

e. provide to owners of all public and private utilities, if any, that may be affected by the construction and installation of the Works, notice of the same and obtained consent, where required, and provided copies to the City of all notices and consents in respect of the same;

f. if requested by the City, granted to the City, in a form and content acceptable to the Director such statutory rights of way, Section 219 covenants or such other instruments as are, in connection with this Agreement, required by the City in the City's sole discretion;

g. if requested, provided to the Director in a form and containing content acceptable to that person:

   i. a traffic management plan in a form and content acceptable to the Director;

   ii. a geotechnical report in a form and content acceptable to the Director;

   iii. an environmental report of the Land, in a form and content acceptable to the Director; and

   iv. such other documents, plans, certificates and confirmations as may be requested by the Director;

h. provided to the City, notice of the Owner's intention to commence construction of the Works not less than 2 Business Days prior to such commencement;

i. received the City's prior written authorization to proceed with installation and construction of the Works.

Construction and Installation of Works

3. The Owner covenants and agrees with the City that the Owner shall:

   a. diligently construct, install and complete the Works in accordance with this Agreement, the Approved Design, and the Subdivision and Development Servicing Bylaw;

   b. comply with any changes to the Approved Design required by the Director so as to satisfy the Director so that the Works will function and operate in a manner satisfactory to the City;

   c. retain at all times an Owner's Engineer to provide competent survey, layout and onsite supervision to ensure that the Works strictly conform to the Approved Design and to record the details of any field design or construction changes to the Approved Design and to record all of the relevant information for preparation of the Record Drawings;

   d. not damage any City works, City services, City property or other property; and

   e. not deposit or permit to be deposited on City Lands any material or debris except to the extent expressly authorized by the City and, without limiting the generality of the foregoing, any deposit authorized by the City must be free and clear of all Contaminants.

Compliance with Laws

4. In undertaking the Works, the Owner shall construct, install and complete the Works in accordance with this Agreement and all applicable laws, bylaws, permits, licenses, statutes, regulations, orders, codes (including the BC Building Code), and other applicable enactments.

Adherence to Approved Design

5. The Owner confirms to the City that the Works have been designed by a Consulting Professional.

6. In undertaking the Works, the Owner shall strictly adhere to the Approved Design and obtain the prior written approval of the Director for any changes to the Approved Design.

Standard of Work

7. Each component of the Works shall be provided and constructed to the satisfaction of the City and to all of the following standards:

   a. a standard which is sufficient for its intended purposes;

   b. generally accepted engineering practices; and

   c. the standards of the Subdivision and Development Servicing Bylaw.

Competent Contractors

8. The Owner shall not engage any employee or contractor in the construction of the Works who, in the reasonable opinion of the Director is unfit, incapable or unskilled.

On-Site Supervision

9. At all times during the construction and provision of the Works, the Owner shall retain one or more Consulting Professionals to oversee the completion of the Works and in addition, the Owner shall ensure that a competent superintendent is on site at all times during the construction and installation of the Works.

Essential Services

10. At all times after any construction has begun, the Owner shall ensure that all land where construction is underway is provided with:

    a. highway access which is sufficient for fire trucks and other emergency vehicles; and

    b. water service which is sufficient for fire-fighting purposes.

Work on City Lands

11. The Owner shall not begin the construction of any portion of the Works on City Lands without advising the Director at least five business days before beginning that portion of the Works, and the Owner must subsequently follow all instructions of the Director as to traffic control, public safety and other matters.

Debris Removal

12. The Owner shall promptly remove any material or debris during the course of constructing the Works, but in the event that any material or debris is left upon any highway, park or other municipal property during or after the construction of the Works, the City may remove the material or debris at the expense of the Owner.

City Review and Entry on Land

13. The Owner authorizes the City, its agents and contractors to enter upon the Land and other work sites at all times as the City may consider necessary or convenient for the carrying out of this Agreement, including without limitation for the purpose of witnessing tests or inspections. If the Director is not satisfied with the quality of construction work or is not satisfied that the Consulting Professional is providing the appropriate level of inspection, the Director may, after twenty-four (24) hours written notice, engage an inspector to provide a satisfactory level of inspection over the duration of the project. Payment for this inspection will be taken from the Security.

City Witness of Field Conditions and Field Tests

14. During the course of construction, the Owner shall provide advance written notice to the City so that the Director may be in attendance at various stages of construction, including:

CONSTRUCTION STAGE	MINIMUM NOTICE
Sub-grade proof rolling	3 business days
Prior to placement of curb and gutter and walkway	3 business days
Prior to paving	3 business days
Water system pressure/leakage tests	3 business days
Sanitary sewer system leakage tests	3 business days
Storm Drainage system leakage tests	3 business days
Tie – in to City infrastructure	3 business days
Tree Planting	3 business days
Start-up of Pump Stations, Reservoirs, etc.	3 business days
Substantial Completion Inspection	3 business days
Final Acceptance Inspection – Non-Landscaping Works	3 business days
Final Acceptance Inspection – Landscaping Works	3 business days

City Directions

15. If the City considers at any time that the Works are in any way defective or do not operate in a satisfactory manner, the City may require the Works to be corrected and Owner shall, at its own expense, modify and reconstruct the Works immediately so that the Works are fully operative and function in accordance with the required standards.

16. Any explanations, orders, instructions, directions and requests given by the City to the Consulting Professional shall be deemed to have been given to the Owner.

General Use of Security

17. If the City incurs any costs in correcting any breach of the Owner's obligations under this Agreement, including by remedying any defect or undertaking maintenance during the Maintenance Period, the City may recover all its costs in doing so, including supervision, legal, contract administration, tendering, survey, other professional services, interest and all other costs, plus a 15% administration fee to reflect staff time, by drawing down on the Security.

18. In addition to and not in substitution for the City's other rights and remedies in this Agreement, the City may, without notice, immediately draw upon the Security if:

    a. at any time before the expiration of the Maintenance Period the balance of the term remaining on any letter of credit constituting the whole or part of the Security is less than 30 days; or

    b. an Event of Insolvency Occurs.

Certificate of Substantial Completion for Deep Utilities

19. Upon completion of the Deep Utilities to Substantial Completion, the Owner shall deliver to the City, a Certificate of Substantial Completion for Deep Utilities issued, signed and sealed by the Owner's Engineer certifying that the Deep Utilities have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Certificate of Substantial Completion for All Works

20. Upon completion of the Works to Substantial Completion, the Owner shall cause its Consulting Professional(s) to conduct a Substantial Completion Inspection of the Works before the On-site Inspection Deadline, which Substantial Completion Inspection may be observed by the Director or their designate, and the Owner, being satisfied with the completion of the Works, shall deliver to the City a Certificate of Substantial Completion for All Works issued, signed and sealed by the Owner's Engineer certifying that the Works have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Deficiencies

21. At the time the Owner delivers to the City the Certificate of Substantial Completion for All Works, the Owner shall also:

    a. deliver to the City a list (the "**Deficiency List**") for the City's acceptance, prepared by the Owner's Engineer, specifying those portions of the Works which, in the opinion of the Owner's Engineer, are not completed to the required standard as at the date of the Certificate of Substantial Completion for All Works, setting out an estimate of the cost to rectify the deficiencies set out in the Deficiency List, and the date by which such deficiencies shall be remedied;

    b. deliver to the City, security in the amount calculated to be 200% of the estimate of the cost to rectify the deficiencies set out in the Deficiency List (the "**Deficiency Security**") as security for the performance of the Owner's obligations to correct the Deficiencies.

Deficiency Time Limit

22. The Owner will correct the deficiencies set out in the Deficiency List to the satisfaction of the Director within the time limit (the "**Deficiency Time Limit**") specified in the Deficiency List approved by the City.

Use of Deficiency Security

23. If the Owner does not correct the Deficiencies, to the satisfaction of the City, within the Deficiency Time Limit, the City may use the Deficiency Security for the purpose of correcting the deficiencies set out in the Deficiency List.

City's Acceptance of Substantial Completion of All Works

24. Following delivery of the required Certificate(s) of Substantial Completion of All Works and the Deficiency List, the Director will then, if there is sufficient time prior to the On-Site Inspection Deadline, inspect the Works and if:

    a. the Works are completed to the satisfaction of the Director;

    b. the Deficiency List is prepared to the satisfaction of the Director; and

    c. the Owner is not otherwise in breach of any of its obligations under this Agreement,

    and the Owner has:

    d. made payment to the City of any amount owing under this Agreement;

    e. delivered the Deficiency Security to the City; and

    f. provided to the City written confirmation, in a form and content acceptable to the Director that the Owner has obtained and maintained the insurance coverage as required under this Agreement,

    then the Director will issue a letter of acceptance of the Certificate of Substantial Completion for All Works.

Maintenance Period

25. During the Maintenance Period, the Owner shall forthwith remedy any defect in the Works or failure of the Works to operate normally appearing within the Maintenance Period (excluding defects caused by reasonable wear and tear, and acts of God) and any resulting damage to other works or property.

City Operation of Works

26. During the Maintenance Period, the City will operate those parts of the Works which are within City Lands with respect to road and water infrastructure. Notwithstanding that the City will operate such works, the Owner shall remain responsible for remedying any defects in the Works and maintaining the Works during the Maintenance Period, and in default thereof the City may draw down on the Maintenance Security or Deficiency Security, as the case may be.

Use of Maintenance Security

27. If the Owner fails to remedy any defect in the Works or any failure of the Works to operate normally, the City may deduct from the Maintenance Security the City's cost of repairing the Works, remedying any defect or paying for any resulting damage.

Grant of Statutory Rights of Way

28. The Owner shall, prior to the City's acceptance of the Certificate of Substantial Completion for All Works, grant to the City, in the City's standard form of agreement, and cause to be registered, in priority to all charges except those accepted by the City, statutory rights of way for all portions of the Works located on privately-owned lands which the City determines are to be owned, maintained and repaired by the City, and the Owner shall be responsible for all associated surveying and land title filing fees and registration costs.

Certificate of Final Acceptance of Non-Landscaping Works

29. No sooner than 5 weeks and no later than 3 weeks before the expiry of the Maintenance Period in respect of the Non-Landscaping Works, the Owner shall cause its Consulting Professional(s) to conduct a final inspection the Non-Landscaping Works, which shall occur before the On-Site Inspection Deadline, which final inspection may be observed by the Director or their designate, and the Owner, being satisfied with the completion of the Non-Landscaping Works, shall deliver to the City the required certificate(s) (the "**Certificate of Final Acceptance of Non-Landscaping Works**") issued, signed and sealed by the Owner's Engineer certifying that the Non-Landscaping Works have been fully installed, constructed and completed, and any defects in the Non-Landscaping Works remedied, in accordance with the Approved Design and this Agreement.

Record Submission

30. The Owner shall submit to the City final Record Drawings sealed by the Owner's Engineer, as specified in the Subdivision and Development Servicing Bylaw, of all the Works as constructed and as approved by the City, at least 2 weeks in advance of the final inspection contemplated in the previous section.

31. The Owner shall submit to the City all required Record documents, sealed by the Owner's Engineer, as specified in the Subdivision and Development Servicing bylaw, at least 2 weeks in advance of the final inspection contemplated in Section 29.

City Acceptance of Certificate of Final Acceptance of Non-Landscaping Works

32. Upon:

    a. the City's receipt of the Certificate of Final Acceptance of Non-Landscaping Works from the Owner;

    b. the Director being satisfied that all deficiencies have been remedied and the Non-Landscaping Works have been properly maintained during the Maintenance Period; and

    c. the Owner's payment to the City of any amount owing to the City under this Agreement,

    the City will accept, and issue a letter of acceptance, of the Certificate of Final Acceptance of Non-Landscaping Works and:

    d. return the Deficiency Security (other than that part of it provided in respect of the Landscaping Works), or remaining portion thereof, if any, to the Owner; and

    e. return the Maintenance Security, (other than that part of it provided in respect of the Landscaping Works or remaining portion, if any, to the Owner.

Certificate of Final Acceptance of Landscaping Works

33. No sooner than 5 weeks and no later than 3 weeks before the expiry of the Maintenance Period in respect of the Landscaping Works, the Owner shall cause its Landscape Professional to conduct a final inspection of the Landscaping Works, which shall occur before the On-Site Inspection Deadline, which final inspection may be observed by the Director or their designate, and the Owner, being satisfied with the completion of the Landscaping Works, shall deliver to the City the required certificate(s) (the "**Certificate of Final Acceptance of Landscaping Works**") issued, signed and sealed by the Landscape Professional certifying that the Landscaping Works have been fully installed, constructed, planted and completed, and any defects in the Landscaping Works remedied, in accordance with the Approved Design and this Agreement.

Maintenance Records of Landscaping Works

34. The Owner shall submit to the City Maintenance Records of all Landscaping Works at least 2 weeks in advance of the final inspection contemplated in the previous section.

City Acceptance of Certificate of Final Acceptance of Landscaping Works

35. Upon:

a. the City's receipt of the Certificate of Final Acceptance of Landscaping Works from the Owner;

b. the Director being satisfied that all deficiencies have been remedied and the Landscaping Works have been properly maintained during the Maintenance Period; and

c. the Owner's payment to the City of any amount owing to the City under this Agreement,

the City will accept, and issue a letter of acceptance, of the Certificate of Final Acceptance of Landscaping Works and:

d. return the Deficiency Security held in respect of the Landscaping Works, or remaining portion thereof, if any, to the Owner; and

e. return the Maintenance Security held in respect of the Landscaping Works, or remaining portion, if any, to the Owner.

Indemnification

36. The Owner shall indemnify and save harmless the City, its Council members, officers, employees, contractors and agents (the "**City Representatives**") from and against any and all actions, causes of action, liabilities, demands, losses, damages, costs, expenses (including actual fees of professional advisors), remediation of contamination costs, fines, penalties and other harm of any kind whatsoever, despite any negligence by the City or the City Representatives, whether related to death, bodily injury, property loss, property damage or consequential loss or damage, suffered or incurred by the City and/or any of the City Representatives arising from, resulting from, connected with or related to:

a. this Agreement;

b. any incident or occurrence during the construction or installation of the Works (including during the Deficiency Period and the Maintenance Period);

c. the construction, installation, maintenance or correction of the Works (including during the Deficiency Period and the Maintenance Period);

d. liens, non-payment for labour or materials, Workers' Compensation assessments, employment insurance, federal or provincial tax, or union dues check off;

e. any default or breach of this Agreement by the Owner;

f. any wrongful act, omission or negligence of the Owner or its shareholders, directors, officers, employees, agents, contractors, subcontractors, licenses, or others for whom it is responsible in law.

This indemnity shall survive any expiry or other termination of this Agreement.

Release

37. The Owner shall release the City and the City Representatives from and against any and all actions, causes of action, liabilities, demands, losses, damages, costs, expenses (including actual fees of professional advisors), remediation of contamination costs, fines, penalties and other harm of any kind whatsoever, despite any negligence by the City or the City Representatives, whether related to death, bodily injury, property loss, property damage or consequential loss or damage, which the Owner may suffer or incur in relation to this Agreement.

This release shall survive any expiry or other termination of this Agreement.

Insurance

38. The Owner will at the Owner's expense, carry with an insurance company or companies acceptable to and approved by the City of Fort St. John the following insurance with limits not less than shown in the following respective items:

a. Automotive Liability Insurance (Owned and Non-Owned Units)

Limits: Bodily Injury and Property Damage – inclusive each accident $3,000,000.

The Owner shall, at the Owner's expense, through the term of the Contract, maintain such insurance as required under the Insurance (Motor Vehicle) Act of British Columbia, except as modified above. The Owner shall provide the City of Fort St. John with a Certificate of Insurance, Insurance Corporation of British Columbia (ICBC) form No. APV 47, for owned and leased vehicles as evidence of third party motor vehicle insurance coverage.

b. Commercial General Liability Insurance

Limits: Bodily Injury and Property Damage inclusive $5,000,000.

The insurance shall include Contractor's Contingent Liability, and Contractual Liability of sufficient scope to include the liability assumed by the Owner under the terms of this Agreement, and Completed Operations Liability. The policy shall include the Owner, the City of Fort St. John, and Contract Administrator as additional insured with a cross liability clause. Any property damage deductible shall be for the account of the Owner and shall not exceed $2,500.00 for any one occurrence.

c. Course of Construction Builders' Risk Insurance [ONLY REQUIRED IF BUILDING IS INVOLVED]

Coverage on an "All Risks" basis insuring the Works against loss or damage to full replacement cost, subject to a deductible provision for the Owner's account not exceeding $2500.00 each loss. Coverage to include the City of Fort St. John as an additional insured

Insurance on equipment rented or owned by the Owner to its full insurable value.

39. The above specified insurance policies shall have the right of subrogation waived as against the City of Fort St. John and its respective employees.

40. The Owner shall provide the City of Fort St. John with satisfactory evidence that the insurance required to be provided by the Owner under this agreement is in full force and effect.

41. The City of Fort St. John makes no representation or warranty with respect to the extent or adequacy of the insurance protection afforded by the policies above. It shall be the full responsibility of the Owner and the Owner's contractor(s) to determine their own additional insurance coverages that are necessary and advisable for its own protection or to fulfill its obligations under this Agreement. Any such additional insurance shall be provided and maintained by the Owner at the Owner's own expense.

42. The Owner is responsible for ensuring that its subcontractors comply with the same insurance requirements as set out above.

43. All policies referred to shall provide that thirty (30) days' notice of cancellation will be given in writing to each insured, including the City of Fort St. John, otherwise the policies to remain in full force and effect until the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works. Notwithstanding the foregoing, the Comprehensive General Bodily Injury and Property Damage Liability Insurance referred to above shall remain in full force and effect from the commencement of the performance of the Works for a period of not less than twelve (12) months following the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works and with respect to completed operations coverage for a period of not less than 24 months following the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works.

<u>Consulting Professional's Liability</u>

44. Consulting Professionals involved in the design and construction of the Works shall carry minimum Errors and Omission Liability Insurance coverage of $2,000,000 per claim occurrence and maintain such coverage over a period of three (3) years after the date of the City's acceptance of the Certificate of Substantial Completion of All Works. The Consulting Professionals shall provide Certificates of Insurance prior to commencement of construction of the Works and from time to time at the request of the City.

Default

45. If the Director is of the opinion that the Owner is at any time in default of any of the Owner's obligations under this Agreement, then the Director may deliver written notice of default to the Owner (save in respect of emergencies occasioned by such default, in which case delivery of notice is not required) which notice will specify the default and the time period for remedying the default ("**Notice of Default**").

46. From and after the date of delivery of the Notice of Default, the Owner shall remedy the default identified in the Notice of Default within the time period specified in the Notice of Default, and to the satisfaction of the Director and if the Owner fails or neglects to remedy the default to the satisfaction of the Director then the City may, without in any way limiting the City's remedies, draw upon and use the Security held by the City pursuant to this Agreement to remedy the default.

47. If the Security held by the City is insufficient to cover the City's costs to remedy the default, then the Owner shall reimburse the City upon receipt of the City's invoice for payment of the same, whether or not the City has remedied or will remedy the balance of the default.

48. If the City undertakes to remedy the default, the cost is payable by the Owner shall include the City's actual costs to remedy the default plus the costs of engineering, supervision, legal, contract administration, tendering, survey, other professional services, interest and all other costs required for completion of the Works, plus a 15% administration fee to reflect City staff time.

49. In exercising its rights pursuant to sections 45 to 48, above, the City, together with all City Representatives, may enter onto the Land and make use of so much of the Land as is, in the opinion of the Director necessary to permit the City, without obligation to do so, to fulfil the obligations of the Owner including, without limitation, the obligation to complete the Works on the terms and conditions set out in this Agreement.

Owner's Risk

50. The Owner acknowledges and agrees that the Owner relies exclusively on its own expertise, the Consulting Professional(s) and contractors, and that the City does not, by its approvals, inspections, issuance of certificates, or acceptance of the Works, warrant or represent that the Works are in compliance with this Agreement or any enactment or warrant the quality, fitness for purpose, adequacy or safety of the Works. The Owner further acknowledges and agrees that all approvals and inspections of the Works by the City are for the sole benefit of the City and shall in no way relieve the Owner from constructing and installing the Works in strict compliance with this Agreement.

No Representations

51. The Owner acknowledges that the City has made no representations, covenants, warranties, guarantees, promises or agreements with the Owner with regard to the subject matter of this Agreement.

Municipal Ownership of Works

52. Upon the City's acceptance of a Certificate of Final Acceptance of Non-Landscaping Works and a Certificate of Final Acceptance of Landscaping Works, the Works specified in such certificate shall become the property of the City, free and clear of any claim by the Owner or any person claiming through the Owner, without payment of any compensation or consideration EXCEPT Works on private land (including common property of a strata corporation) unless those Works become the property of the City under a statutory right of way or other agreement with the City.

Terminology

53. Wherever the singular or the masculine are used in this Agreement, they shall be interpreted as meaning the plural or the feminine or body corporate where the context requires.

Assignment

54. The Owner's obligations and rights under this Agreement shall not be assigned without the written consent of the City, such consent not to be unreasonably withheld, EXCEPT THAT the Owner may not assign this Agreement in part nor may the Owner assign this Agreement to a person who is not the registered owner of the Land. Unless the Owner obtains the City's consent to an assignment of this Agreement, the Owner's obligations under this Agreement shall continue in effect notwithstanding any transfer of title to all or part of the Land.

Notices

55. All notices to be given under this Agreement shall be in writing and may be delivered by hand, sent by facsimile transmission, or mailed by first-class prepaid registered mail.

56. Any notice delivered by hand or sent by facsimile transmission shall be deemed to be given and received on the day it is sent. Any notice mailed shall be deemed to be given and received on the third day after it is posted (unless there is a mail strike, slow down or other labour dispute which might affect delivery, in which case the notice shall be effective only if actually delivered or sent by facsimile transmission).

57. Notices shall be addressed to the addresses or facsimile numbers on page 1 or to such other address or facsimile number as may from time to time be advised by a party in writing. Notice by the City to the Owner may be posted on the Land.

58. Notices to the City must be addressed to the attention of the "**Director of Legislative and Administrative Services**".

Binding Effect

59. This Agreement shall enure to the benefit of and be binding upon the parties and their respective corporate successors, heirs, executors, administrators, personal representatives, and permitted assigns.

Sale of Land

60. In the event that the Owner proposes to transfer any part of the Land where a portion of the Works is to be located, prior to the transfer the Owner shall obtain the transferee's written consent to entry by the City on that part of the Land, for the purposes of this Agreement.

Joint and Several

61. If at any time more than one person (as that term is defined in the B.C. Interpretation Act) is the owner of the Land, then those persons shall be jointly and severally responsible for all the obligations of the Owner under this Agreement.

Further Acts

62. Each party shall do all further acts as may be necessary for carrying out this Agreement, including without limitation execution of all required documentation.

Time of the Essence

63. Time is of the essence of this Agreement.

Force Majeure

64. All obligations of the parties shall be suspended so long as the performance of such obligation is prevented, in whole or in part, by reason of labour dispute, fire, act of God, unusual delay by common carriers, earthquake, act of the elements, riot, civil commotion or inability to obtain necessary materials on the open market, and the period in which any party is required to perform any such obligation is extended for the period of such suspension. The impact of the Owner's financial circumstances upon the Owner's ability to perform this Agreement does not suspend the

Owner's obligations under this Agreement, and for the Owner to be entitled to rely on the time suspension in this section, the Owner must give prompt notice to the City of the reason the Owner claims to be entitled to a time suspension and the Owner must obtain the City's approval for the reason and duration of the time suspension.

Waiver

65. An alleged waiver by the City of any breach by the Owner of this Agreement is effective only if it is an express waiver in writing of the breach in respect of which the waiver is asserted. A waiver by the City of a breach by the Owner of this Agreement does not operate as a waiver of any other breach of this Agreement.

No Public Law Duties

66. Whenever in this Agreement the City, or a City official, is required or entitled to exercise any discretion in the granting of consent or approval, or is entitled to make any determination, take any action or exercise any contractual right or remedy including without limitation the termination of this Agreement, the City, or the City official, may do so in accordance with the contractual provisions of this Agreement and no public law duty whether arising from the principles of procedural fairness or the rules of natural justice shall have any application.

No Effect on Laws or Powers

67. This Agreement does not:

    a. effect or limit the discretion, rights, duties or powers of the City under any enactment or at common law, including in relation to the use or subdivision of the Land;

    b. affect or limit any enactment relating to the use or subdivision of the Land; or

    c. relieve the Owner from complying with any enactment, including in relation to the use or subdivision of the Land.

Severability

68. If any provision of this Agreement is held to be unenforceable by a court, that provision shall be severed from the remainder of this Agreement and the remainder shall continue in effect.

Amendments

69. No amendment to this Agreement shall be effective unless it is made in writing and is duly executed on behalf of both parties.

Schedules

70. The following schedules are annexed to and form part of this Agreement:

a. Schedule "A" – Reduced Copy of Subdivision Plan

b. Schedule "B" – Development Area Map

c. Schedule "C" – List of Approved Design Plans

d. Schedule "D" – Maintenance Security Requirements

e. Schedule "E" – Estimated Costs

f. Schedule "F" – Complete Listing of Works

Acknowledgment

71. The Owner acknowledges having read and fully understood all the terms and conditions of this Agreement and confirms that this Agreement has been entered voluntarily.

IN WITNESS WHEREOF the parties have executed this Agreement on the dates set out below.

DATED the _____ day of _____, 20__

The Corporate Seal of **CITY OF FORT ST. JOHN** was hereunto affixed in the presence of:	)	
	)	C/S
	)	
_____	)	
Mayor:	)	
	)	
_____	)	
Corporate Officer:	)	
	)	
	)	
	)	

[If Owner is an individual, execute below]

DATED the _____ day of _____, 20_____

Signed, Sealed and Delivered in the presence of:	)	
	)	
_____	)	
Name of Witness:	)	_____
	)	Signature of Owner
_____		
Address of Witness:	)	
	)	
_____	)	
Occupation of Witness:	)	
	)	

[If Owner is a corporation, execute below]

DATED the _____ day of _____, 20_____

The Corporate Seal of _____ was hereunto affixed in the presence of its authorized signatories:	)	C/S
_____ Name:	)	
_____ Signature:	)	
_____ Name:	)	
_____ Signature:	)	

Schedule "A"

REDUCED COPY OF SUBDIVISION PLAN

Schedule "B"

DEVELOPMENT AREA MAP

Schedule "C"

LIST OF APPROVED DESIGN PLANS

[List plans including name of Consulting Professional, date, version number]

Schedule "D"

MAINTENANCE SECURITY REQUIREMENTS

Maintenance Security required is 10% of the Estimated Costs.

Estimated Costs for this Approved Design are $_____ and therefore the required Maintenance Security for this agreement is $_____.

Letter of Credit Requirements:

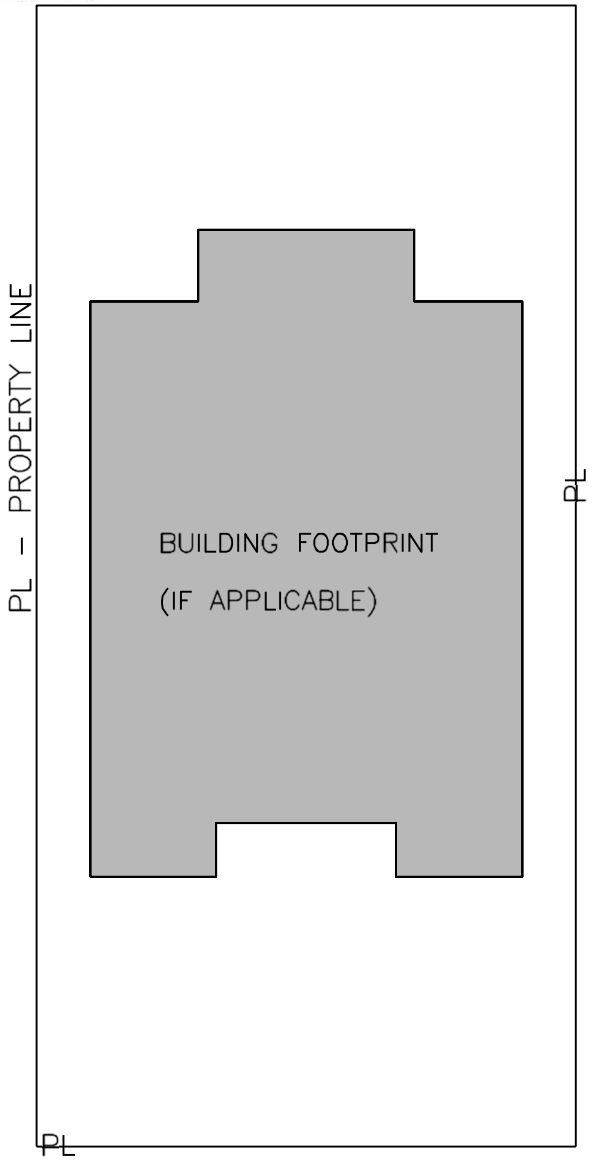
- The letter of credit must be an irrevocable, unconditional, standby letter of credit.
- The letter of credit must be issued by a Canadian chartered bank with a branch in Fort St. John, B.C. at which the letter of credit can be cashed.
- The letter of credit must be payable at the time of presentation.
- The letter of credit must not require any documentation to be presented in order for it to be cashed.
- The letter of credit must allow partial draws.
- The letter of credit must be automatically-renewing.
- The letter of credit must otherwise meet the requirements of the City.

Schedule "E"

ESTIMATED COSTS

APPENDIX 5

Sample Service Card



WATER	
INSTALLATION DATE:	
SIZE	
DISTANCE FROM MAIN TO CURB STOP	
DISTANCE FROM PROPERTY LINE TO CURB STOP	
DISTANCE FROM EX. BUILDING CORNER TO CURB STOP (If applicable)	
MATERIAL	

SANITARY	
INSTALLATION DATE:	
SIZE	
LENGTH	
DISTANCE FROM PROPERTY LINE TO SERVICE	
DISTANCE FROM CURB STOP TO SANITARY SERVICE	
DEPTH AT PROPERTY LINE	
MATERIAL	

STORM	
INSTALLATION DATE:	
SIZE	
LENGTH	
DISTANCE FROM PROPERTY LINE TO SERVICE	
DEPTH AT PROPERTY LINE	
MATERIAL	

NOTE: SHOW DIMENSIONS ON PLAN AND IN DATA CHART ON SIDE.

	SERVICE CARD	HOUSE NO: STREET: LEGAL ADDRESS: CONTRACTOR:
	SCALE: NOT TO SCALE	

APPENDIX 6

Standard Drawings

Standard Drawings

The following standard drawings take precedence over the Master Municipal Construction Documents (MMCD). When no reference is made in the relevant Schedule or this section, the MMCD specifications shall prevail.

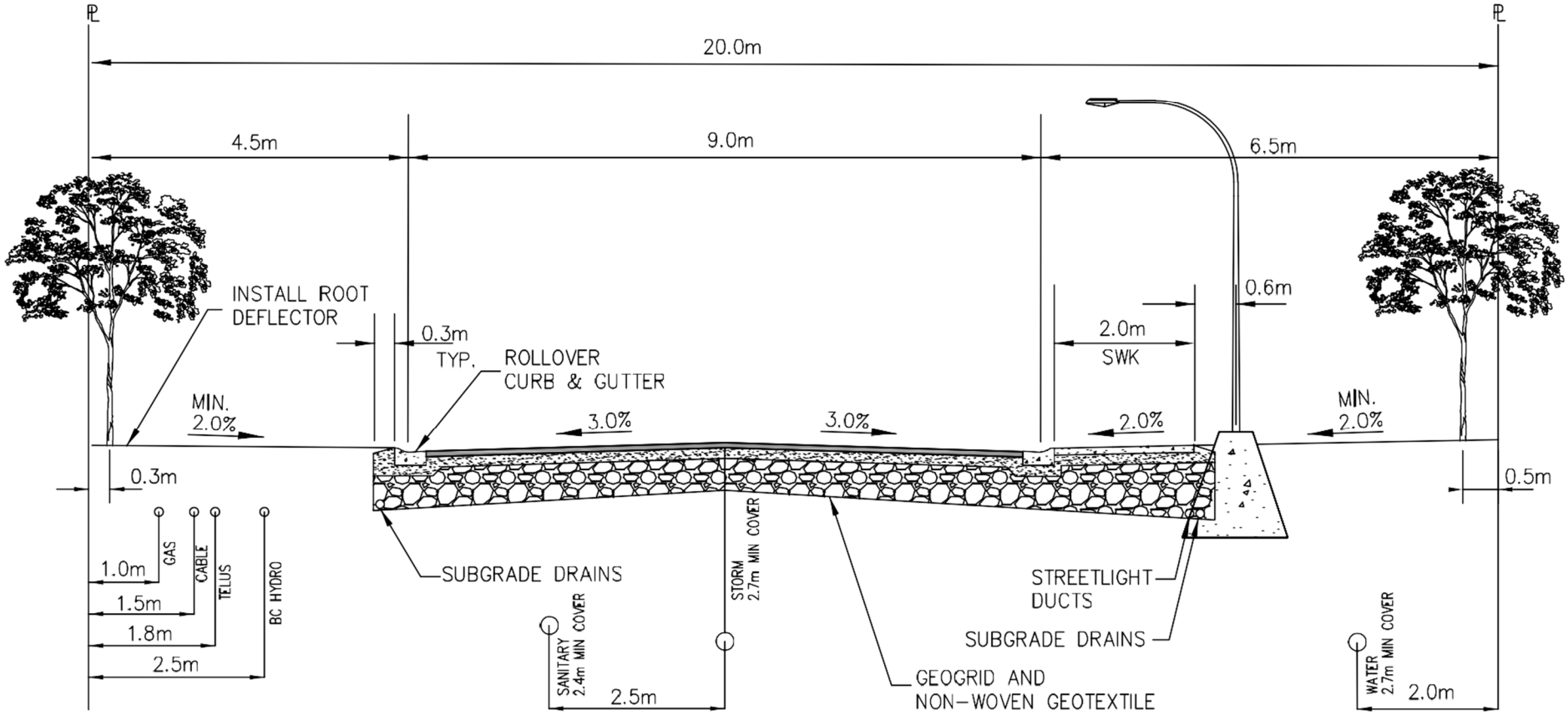
INDEX

Standard Drawings

The following standard drawings take precedence over the Master Municipal Construction Documents (MMCD). When no reference is made in the relevant Schedule or this section, the MMCD specifications shall prevail.

INDEX

Schedule Reference	Drawing Name	Drawing Number
G- Landscaping	Tree Planting Detail	G-1
	Shrub/Perennial Planting Detail	G-2
	Tree Protection Detail	G-3
I - Lighting	Streetlights	I-1



NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF CURB.
3. WHERE SIDEWALK IS TO BE INSTALLED ON ONLY ONE SIDE OF THE STREET, IT SHALL BE PLACED ON THE NORTH OR EAST SIDE. STREETLIGHT TO BE PLACED BEHIND SIDEWALK.
4. ROOT BALL DEFLECTORS ARE TO BE INSTALLED AT EDGE OF ROOT BALL AND RUN PARALLEL TO THE ROAD FOR 1.2m FROM THE CENTER OF THE TREE.

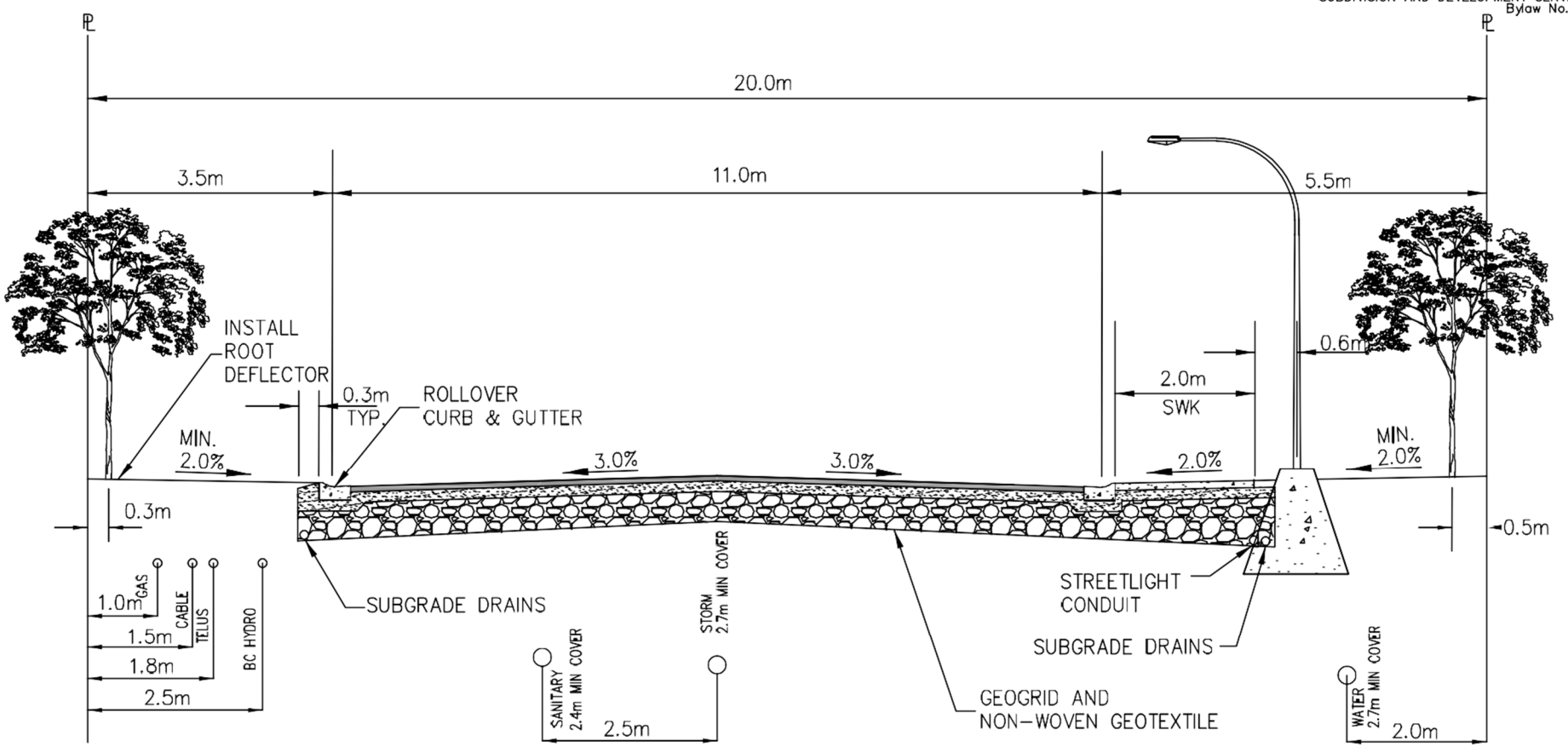
FORT ST JOHN
The Energetic City

LOCAL RESIDENTIAL
DENSITY <= 20 units/ha
Typical Section

SCALE:
NOT TO SCALE

DWG.No.
A-1

APPENDIX 6



NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF CURB.
3. WHERE SIDEWALK IS TO BE INSTALLED ON ONLY ONE SIDE OF THE STREET, IT SHALL BE PLACED ON THE NORTH OR EAST SIDE. STREETLIGHT TO BE PLACED BEHIND SIDEWALK.
4. ROOT BALL DEFLECTORS ARE TO BE INSTALLED AT EDGE OF ROOT BALL AND RUN PARALLEL TO THE ROAD FOR 1.2m FROM THE CENTER OF THE TREE.

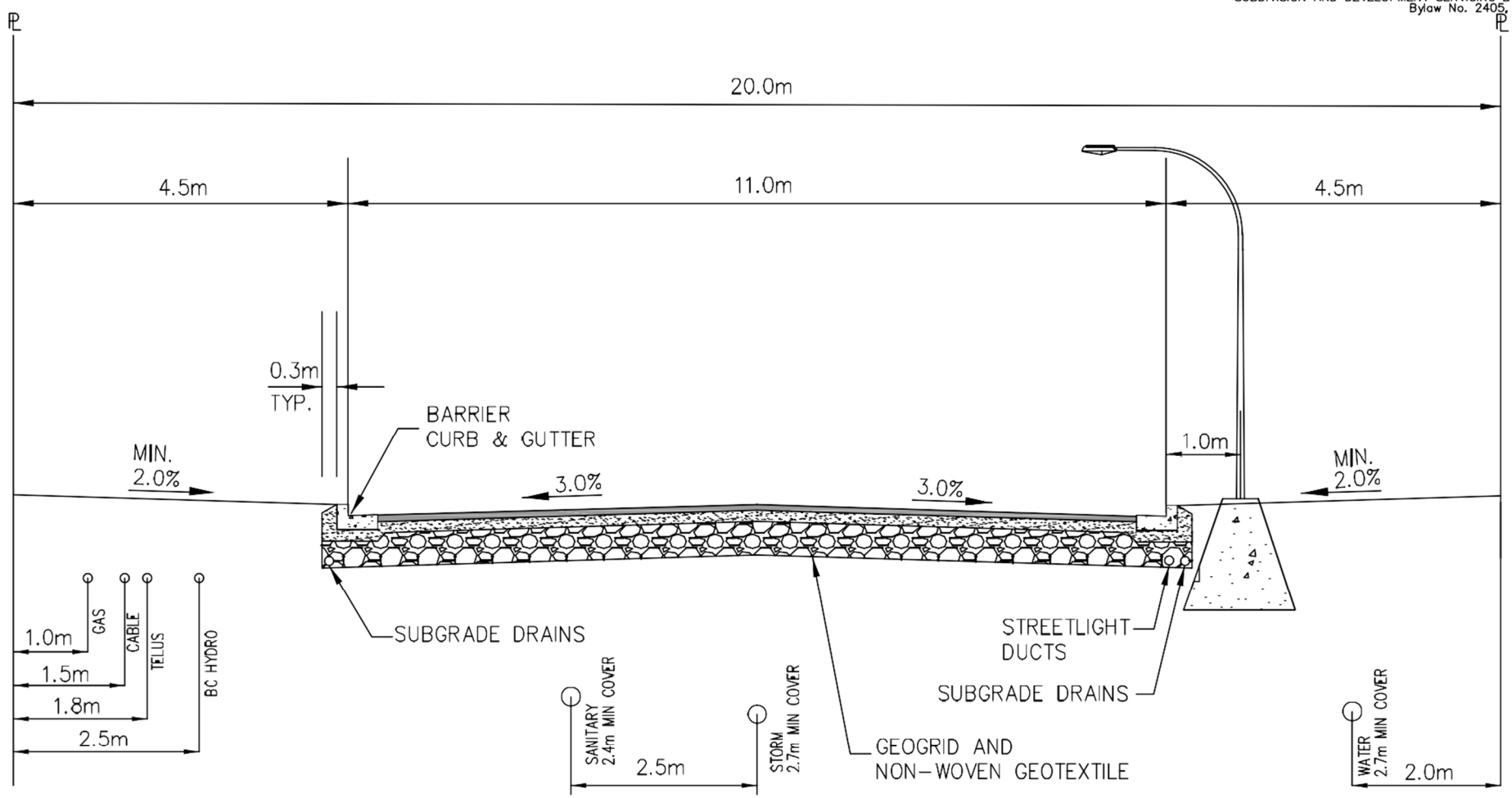
FORT ST JOHN
The Energetic City

LOCAL RESIDENTIAL
DENSITY <= 20 units/ha
Typical Section

SCALE:
NOT TO SCALE

DWG.No.
A-2

APPENDIX 6



NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.

2. SIDEWALK MAY BE REQUIRED AT THE DISCRETION OF APPROVING OFFICER

FORT ST JOHN
The Energetic City

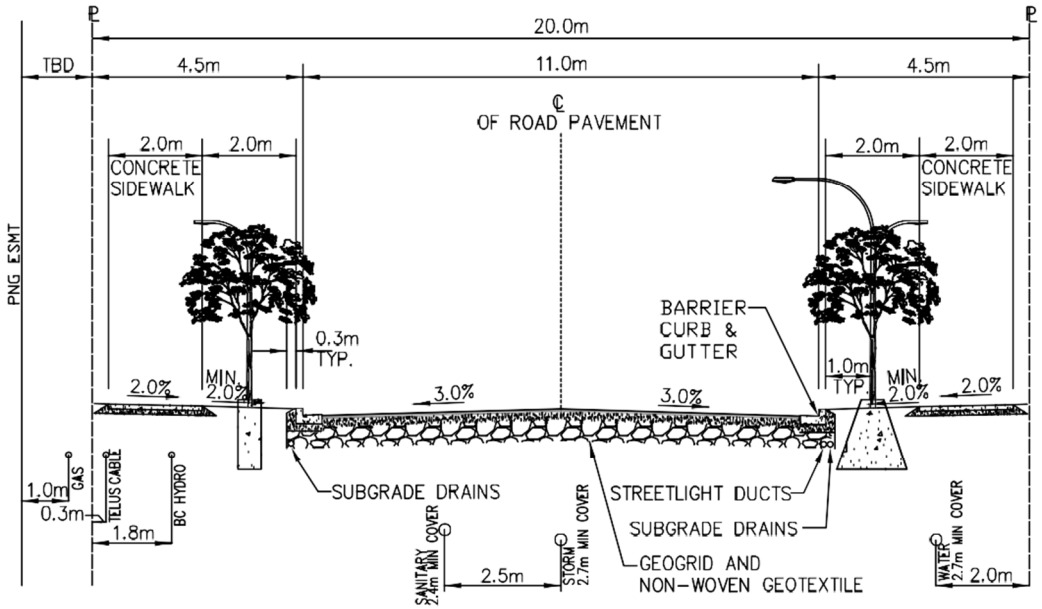
LOCAL
INDUSTRIAL
Typical Section

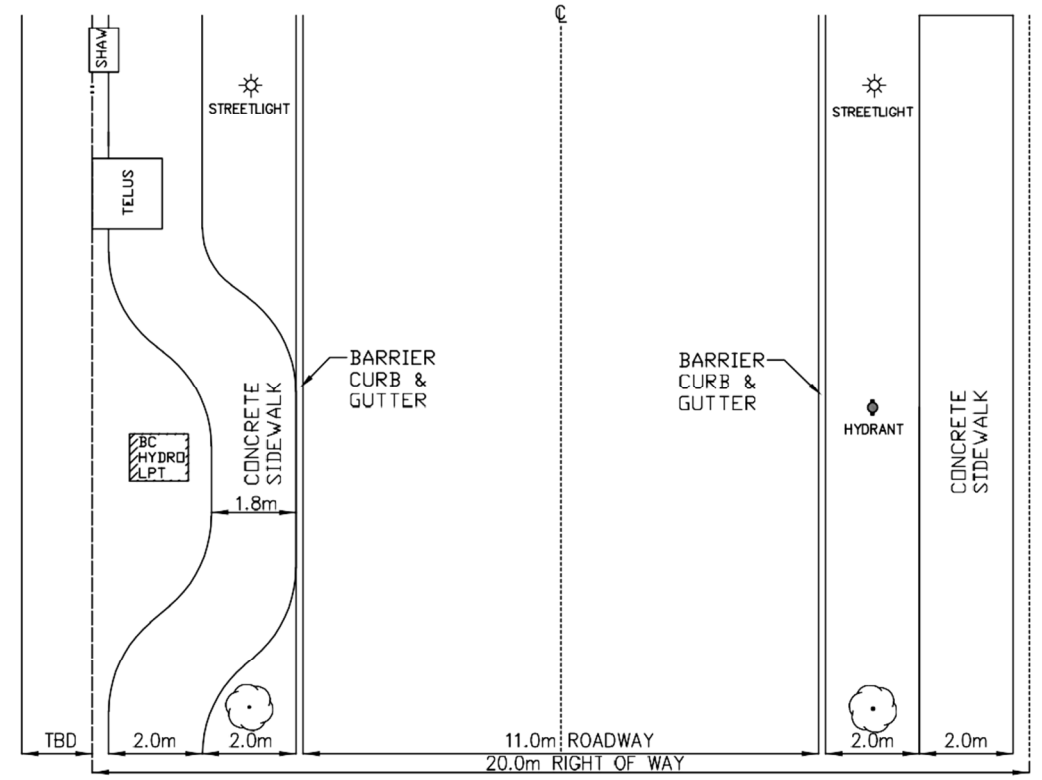
SCALE:
NOT TO SCALE

DWG.No.
A-3

APPENDIX 6

This drawing was repealed and replaced in its entirety by Bylaw No. 2759, 2023





NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. CONCRETE SIDEWALK TO BE A MINIMUM OF 120mm DEPTH.
3. SIDEWALK BASE TO BE 150mm – 19mm MINUS GRANULAR BASE COMPACTED TO 100% SPMDD.
4. SIDEWALK IS 2.0m AND NARROWS TO 1.8m TO GO AROUND HYDRO LPT.
5. EASEMENT WIDTH TO BE DETERMINED IN CONSULTATION WITH SHALLOW UTILITIES DURING DESIGN PHASE.
6. ROOT BALL DEFLECTORS ARE TO BE INSTALLED AT EDGE OF ROOT BALL AND RUN PARALLEL TO THE ROAD FOR 1.2m FROM THE CENTER OF THE TREE.

FORT ST. JOHN
The Energetic City

LOCAL MEDIUM & HIGH DENSITY RESIDENTIAL COMMERCIAL
Typical Section

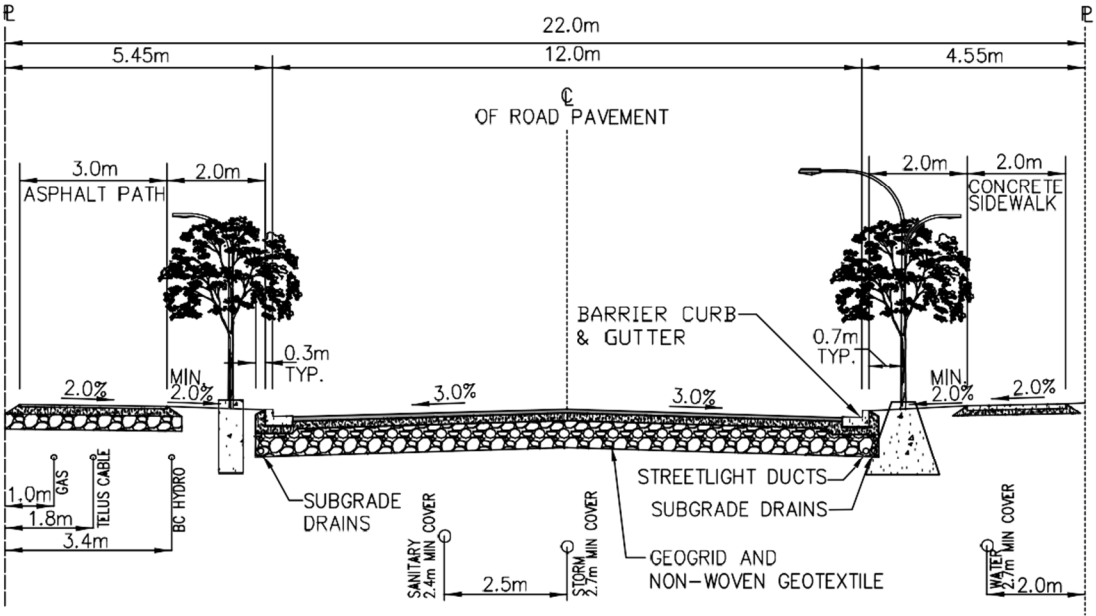
DWG.No. A–4

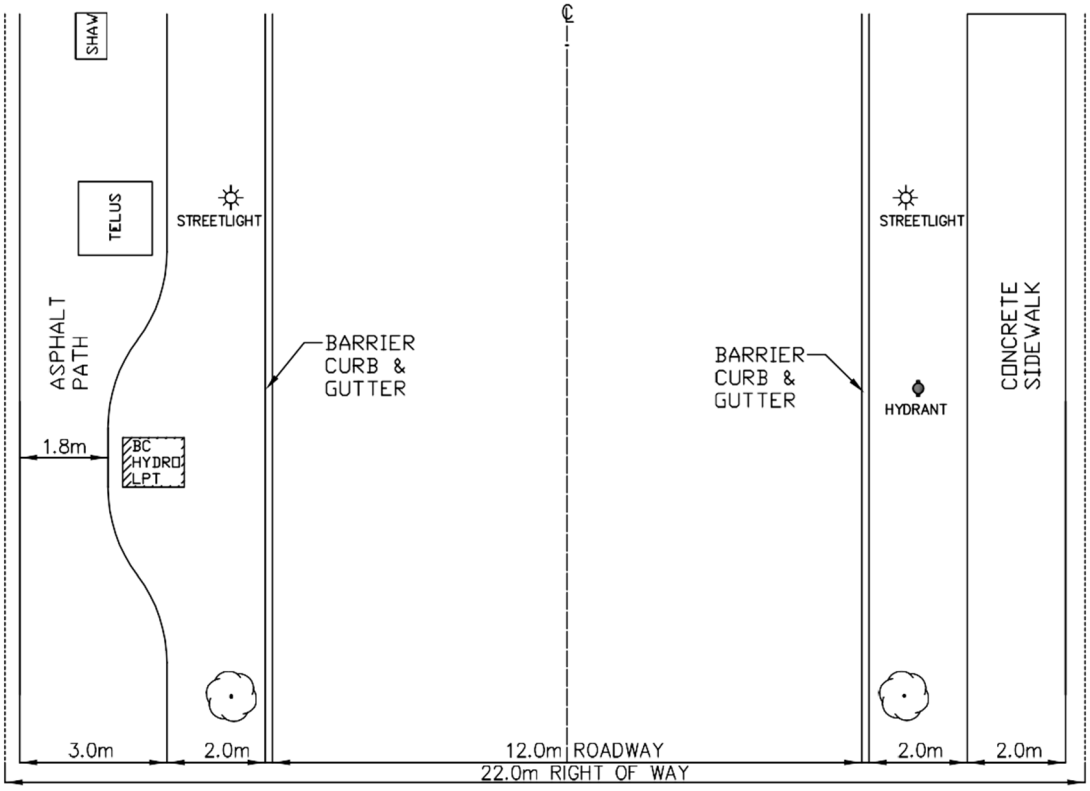
SCALE: NOT TO SCALE

REV. DATE: 2023

APPENDIX 6

This drawing was repealed and replaced in its entirety by Bylaw No. 2759, 2023





NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. CONCRETE SIDEWALK TO BE A MINIMUM OF 120mm DEPTH.
3. SIDEWALK BASE TO BE 150mm – 19mm MINUS GRANULAR BASE COMPACTED TO 100% SPMDD.
4. ASPHALT PATH IS 3.0m AND NARROWS TO 1.8m TO GO AROUND BC HYDRO LPT.
5. ROOT BALL DEFLECTORS ARE TO BE INSTALLED AT EDGE OF ROOT BALL AND RUN PARALLEL TO THE ROAD FOR 1.2m FROM THE CENTER OF THE TREE.

FORT ST. JOHN
The Energetic City

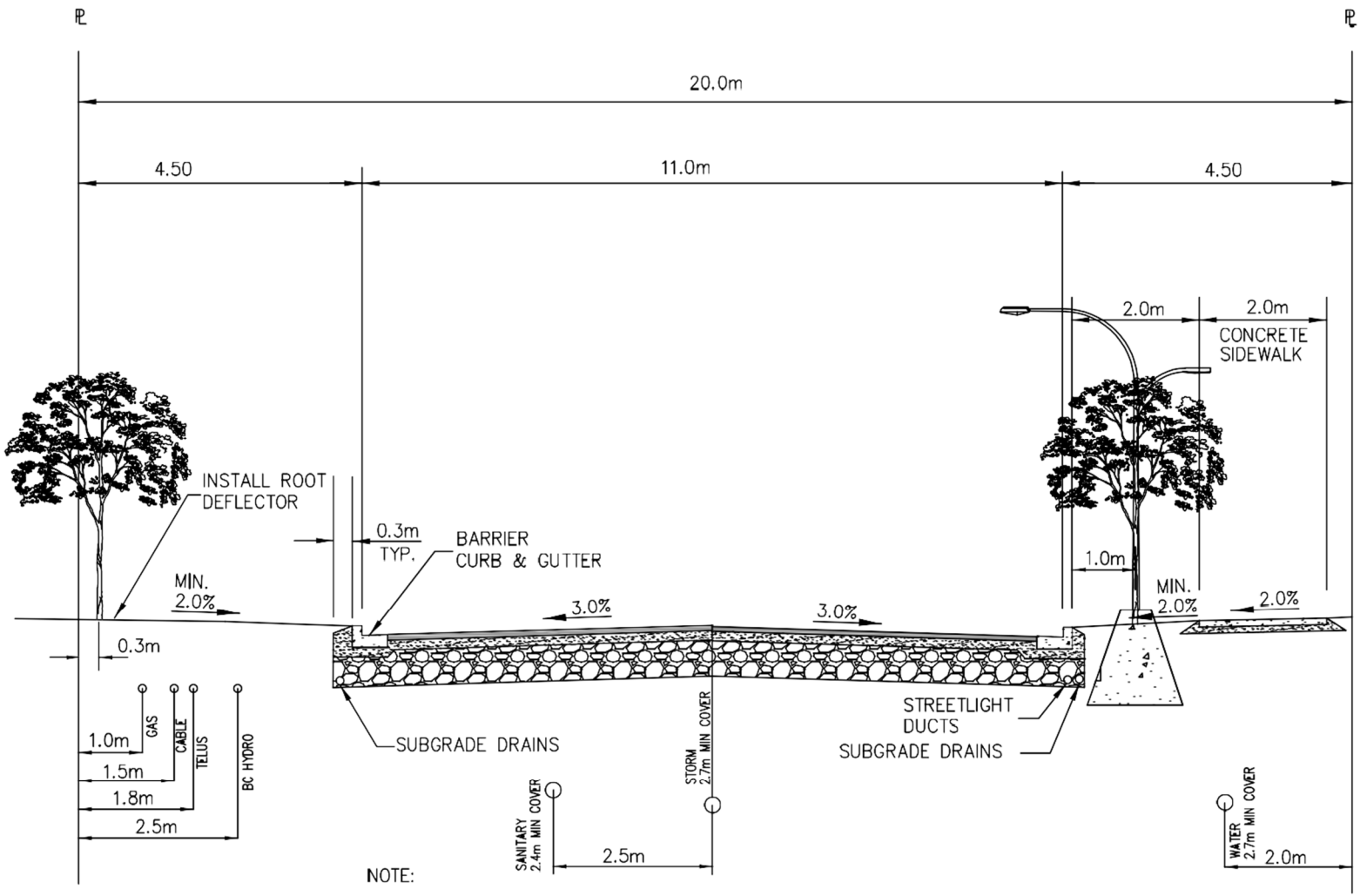
COLLECTOR TWO-LANE Typical Section

DWG.No. A–5

SCALE: NOT TO SCALE

REV. DATE: 2023

APPENDIX 6



NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF CURB.
3. SIDEWALK PLACED ON NORTH OR EAST SIDE OF THE STREET
4. CONCRETE SIDEWALK TO BE A MINIMUM OF 120mm DEPTH.
5. SIDEWALK BASE TO BE 150mm – 19mm MINUS GRANULAR BASE COMPACTED TO 100% SPMDD.
4. ROOT BALL DEFLECTORS ARE TO BE INSTALLED AT EDGE OF ROOT BALL AND RUN PARALLEL TO THE ROAD FOR 1.2m FROM THE CENTER OF THE TREE.

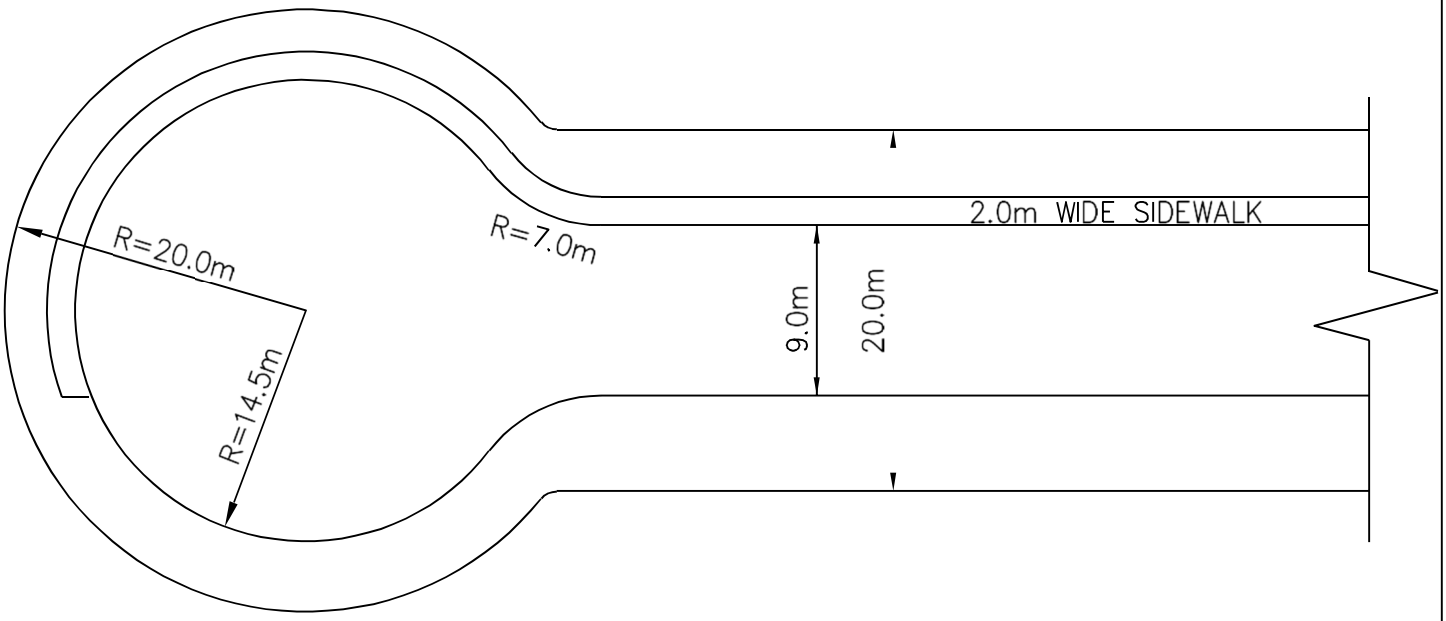
FORT ST. JOHN
The Energetic City

COLLECTOR
Industrial
Typical Section

SCALE:
NOT TO SCALE

DWG.No.
A–6

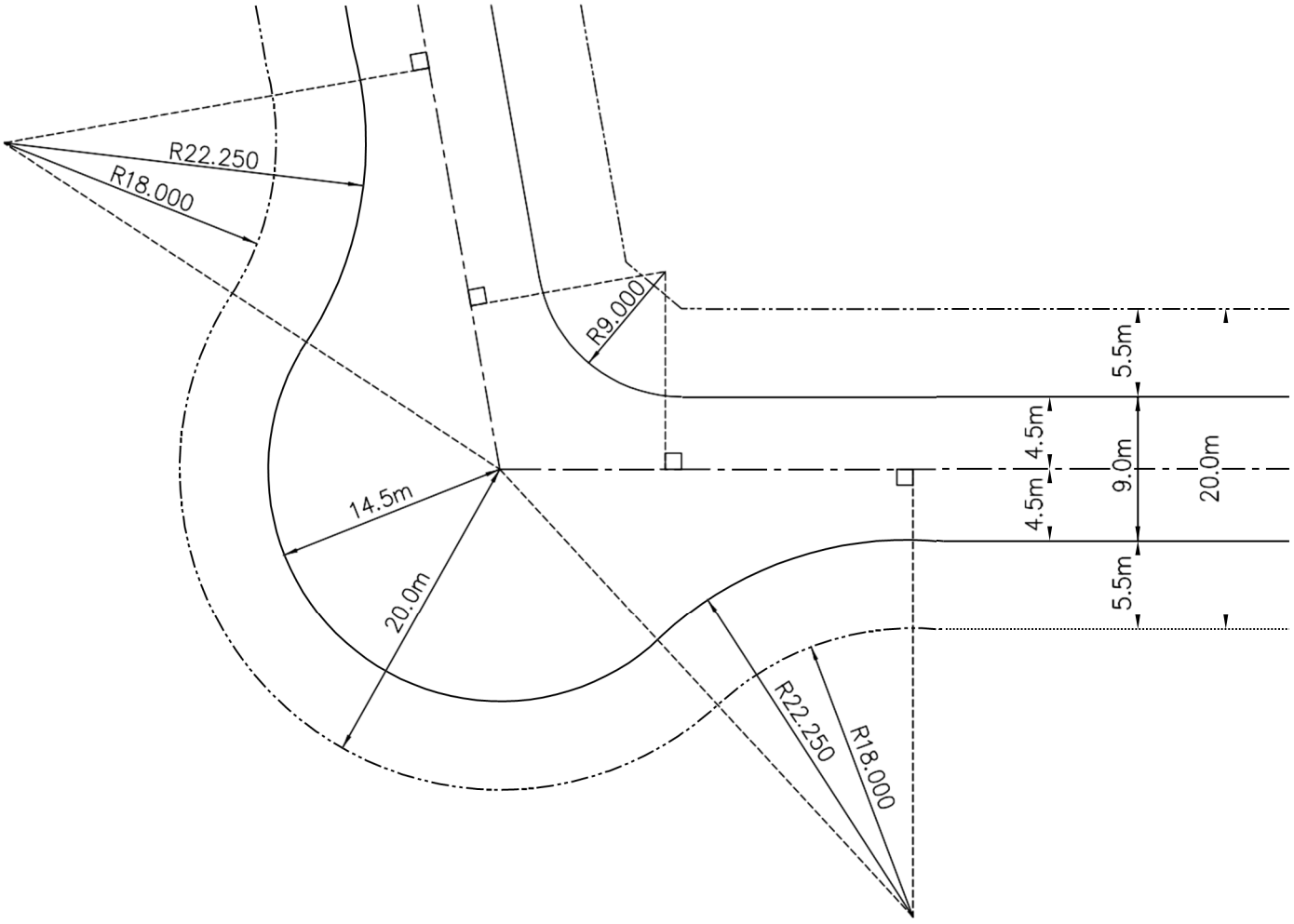
APPENDIX 6



NOTE:

1. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF THE CURB.
2. SIDEWALK PLACED ON NORTH OR EAST SIDE OF THE STREET.

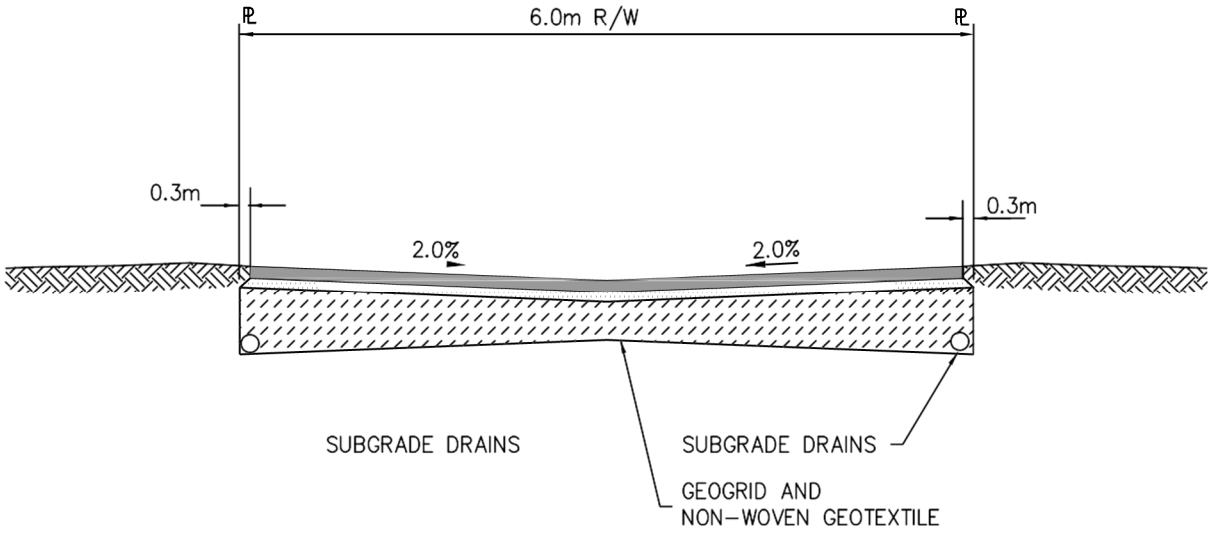
FORT ST. JOHN The Energetic City	CUL-DE-SAC TYPICAL SECTION	DWG.No. A – 7
	SCALE: NOT TO SCALE	APPENDIX 6



NOTE:

1. THE THICKNESS OF SUBBASE & BASE GRAVELS MAY CHANGE DEPENDING ON THE INTEGRITY OF SUBGRADE SOILS DETERMINED BY A GEOTECHNICAL ENGINEER.
2. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.

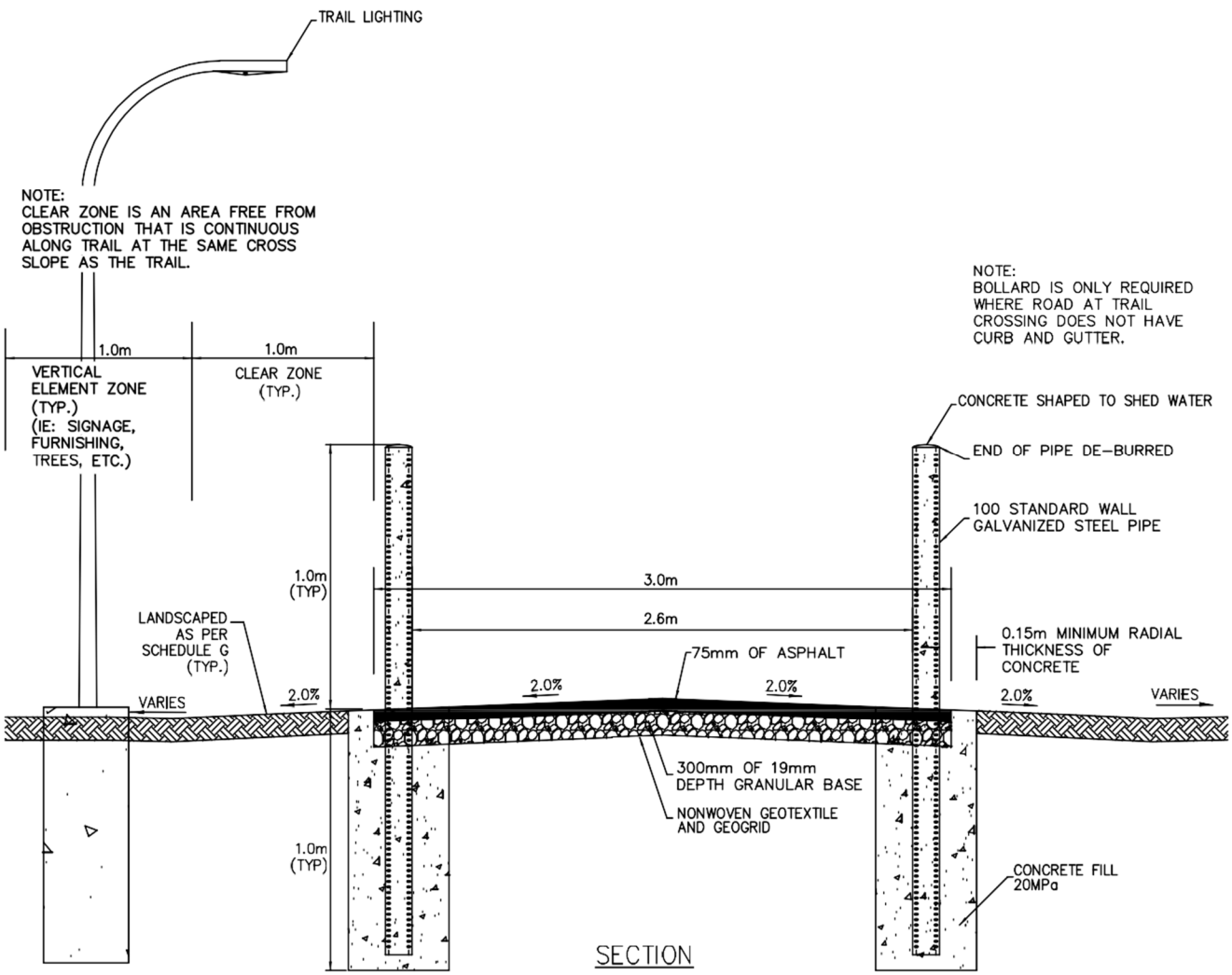
FORT ST. JOHN *The Energetic City*	LOCAL 'HEEL' TYPICAL SECTION	DWG.No. A–8
	SCALE: NOT TO SCALE	APPENDIX 6



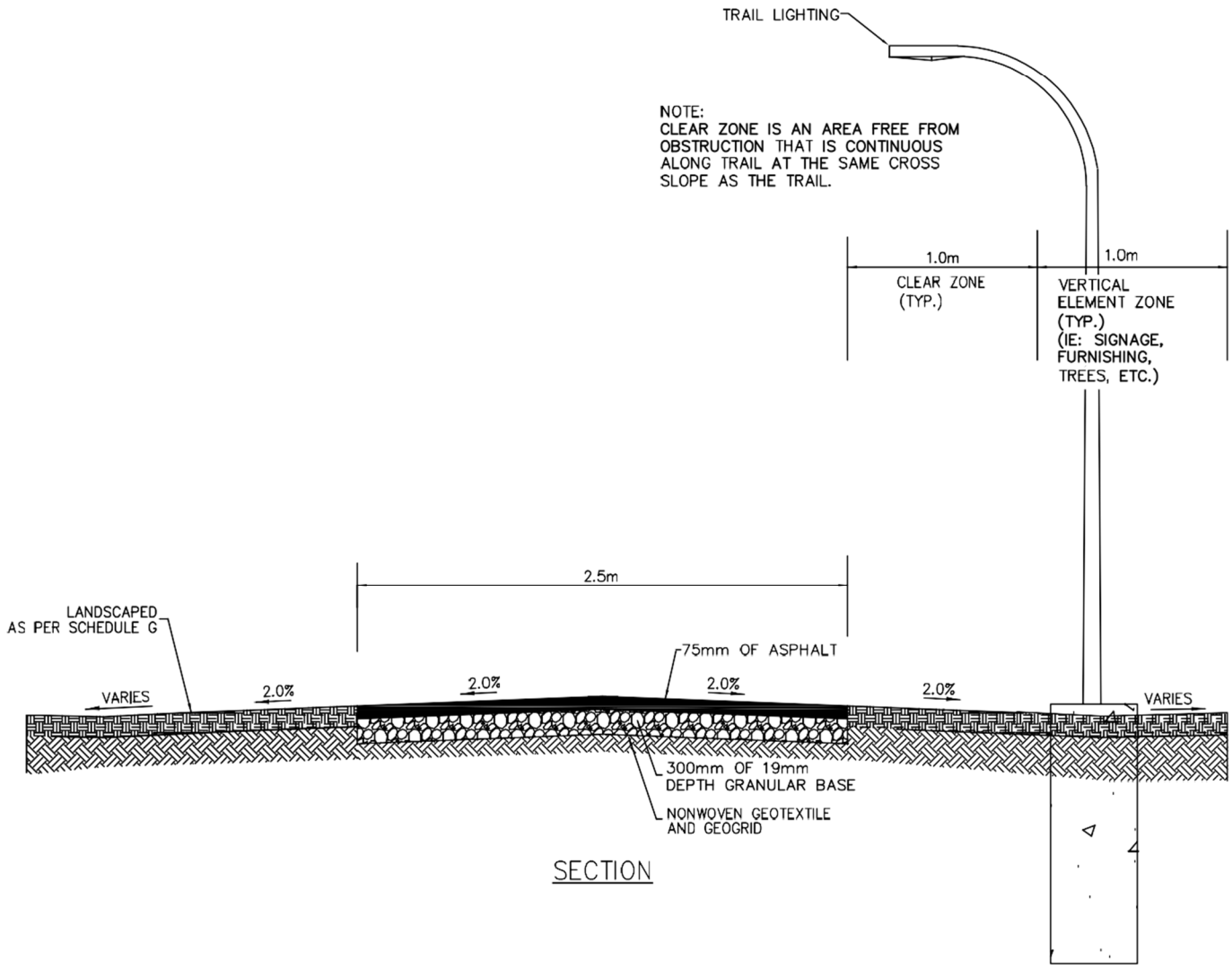
NOTE:

1. ROAD SURFACE TO BE 2% INVERTED CROWN.
2. ALL CATCH BASINS ARE TO BE PLACED ON CROWN LINE (LOW POINT) CROWN LINE OFFSET MAY BE MOVED TO ANY POINT ON THE ROAD SURFACE. IN ORDER TO FACILITATE EASE OF INSTALLATION AND REDUCE INTERFERENCE WITH OTHER EXISTING OR PROPOSED SERVICES.
3. SUBGRADE TO BE CROWNED AT 2%
4. THE THICKNESS OF GRAVEL SUB-BASE MAY CHANGE, DEPENDING ON THE INTEGRITY OF SUBGRADE SOIL.

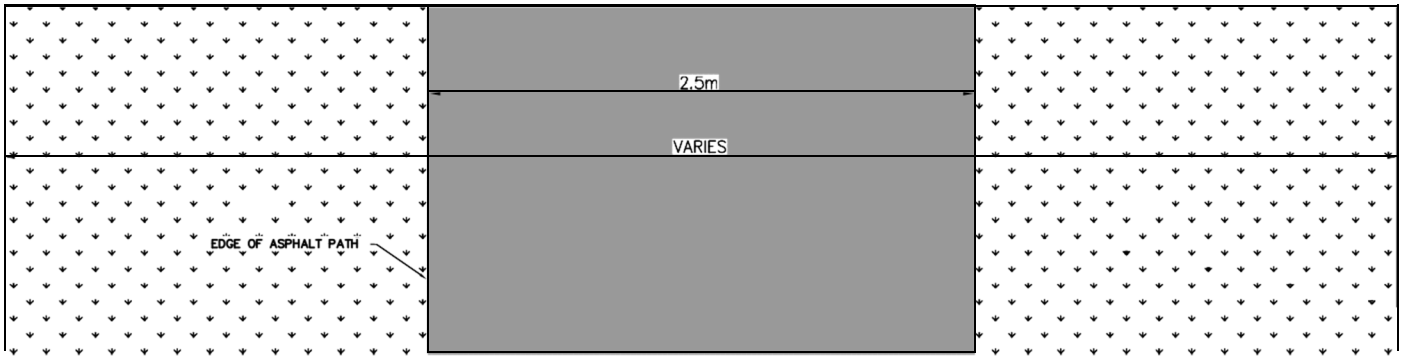
FORT ST. JOHN *The Energetic City*	LANE PAVED TYPICAL SECTION	DWG.No. A-9
	SCALE: NOT TO SCALE	APPENDIX 6



FORT ST. JOHN The Energetic City	SHARED TRAIL TYPICAL SECTION	DWG.No. B-1
	SCALE: NOT TO SCALE	APPENDIX 6



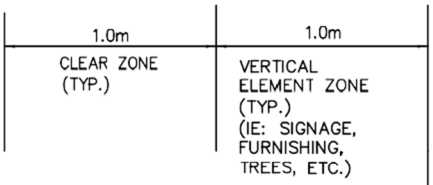
SECTION

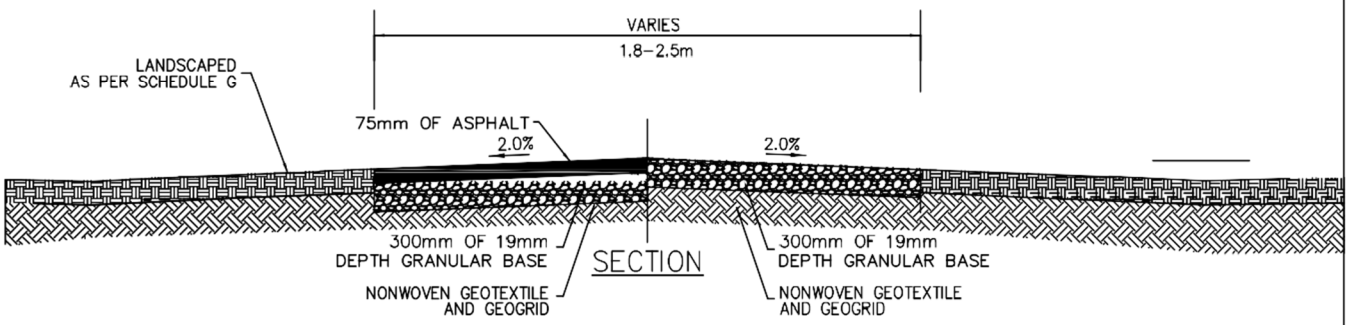


PLAN VIEW

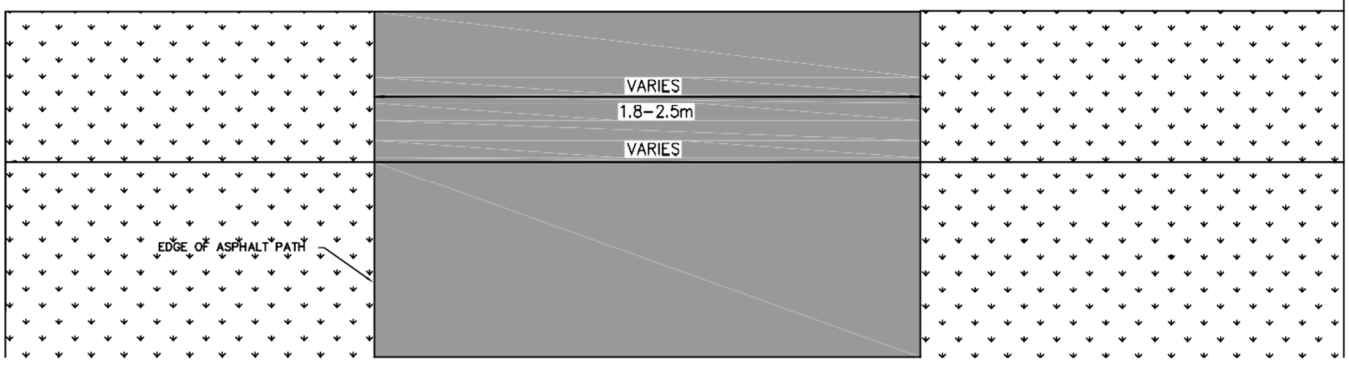
FORT ST. JOHN The Energetic City	PRIMARY PARK TRAIL	DWG.No. B–2
	SCALE: NOT TO SCALE	APPENDIX 6

NOTE:
CLEAR ZONE IS AN AREA FREE FROM OBSTRUCTION THAT IS CONTINUOUS ALONG TRAIL AT THE SAME CROSS SLOPE AS THE TRAIL.





NOTE:
SURFACE FINISH SHALL BE DETERMINED BY THE DIRECTOR.

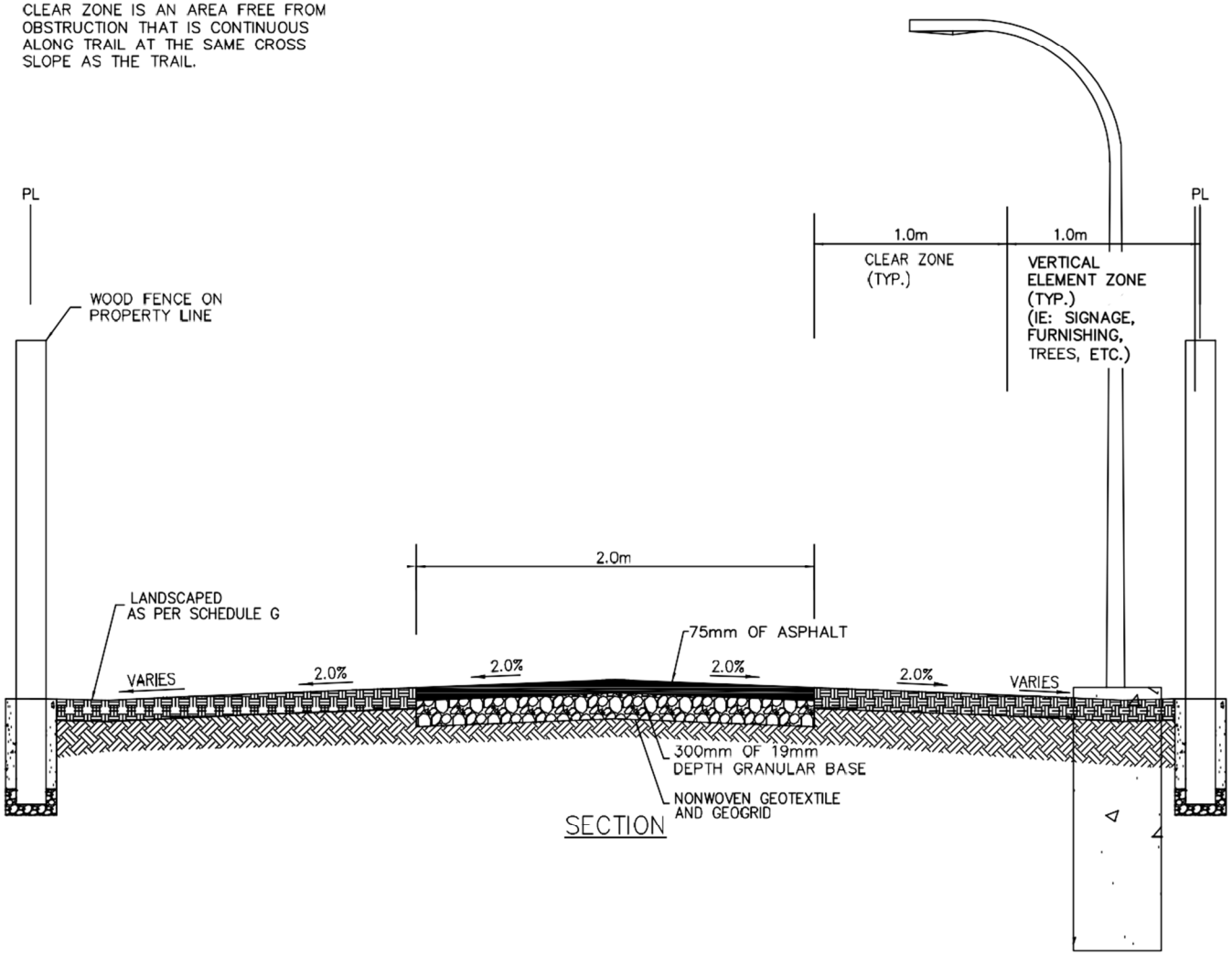


PLAN VIEW

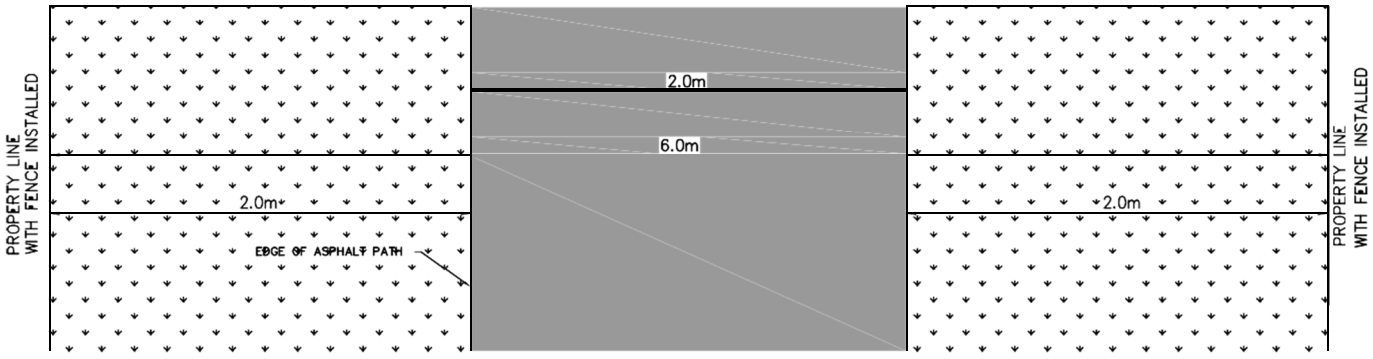
FORT ST. JOHN
The Energetic City

SECONDARY PARK TRAIL	DWG.No. B–3
SCALE: NOT TO SCALE	APPENDIX 6

NOTE:
CLEAR ZONE IS AN AREA FREE FROM OBSTRUCTION THAT IS CONTINUOUS ALONG TRAIL AT THE SAME CROSS SLOPE AS THE TRAIL.



SECTION



PLAN VIEW

FORT ST. JOHN
The Energetic City

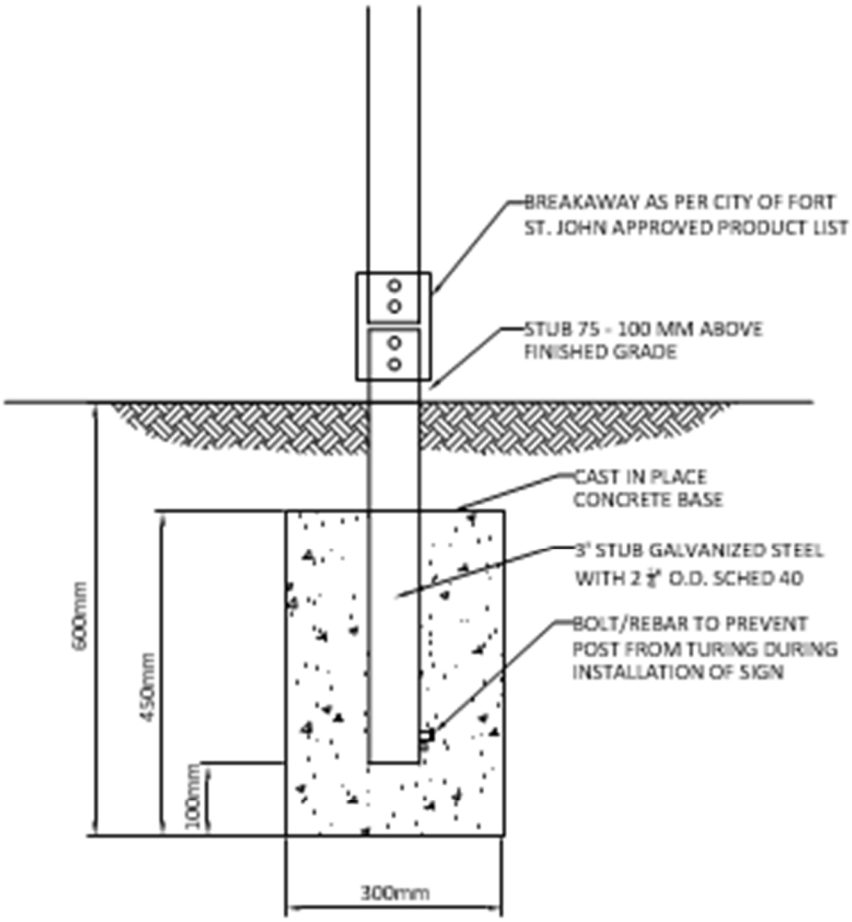
CONNECTOR TRAIL TYPICAL SECTION

DWG.No.
B – 4

SCALE:
NOT TO SCALE

APPENDIX 6

PLAN VIEW

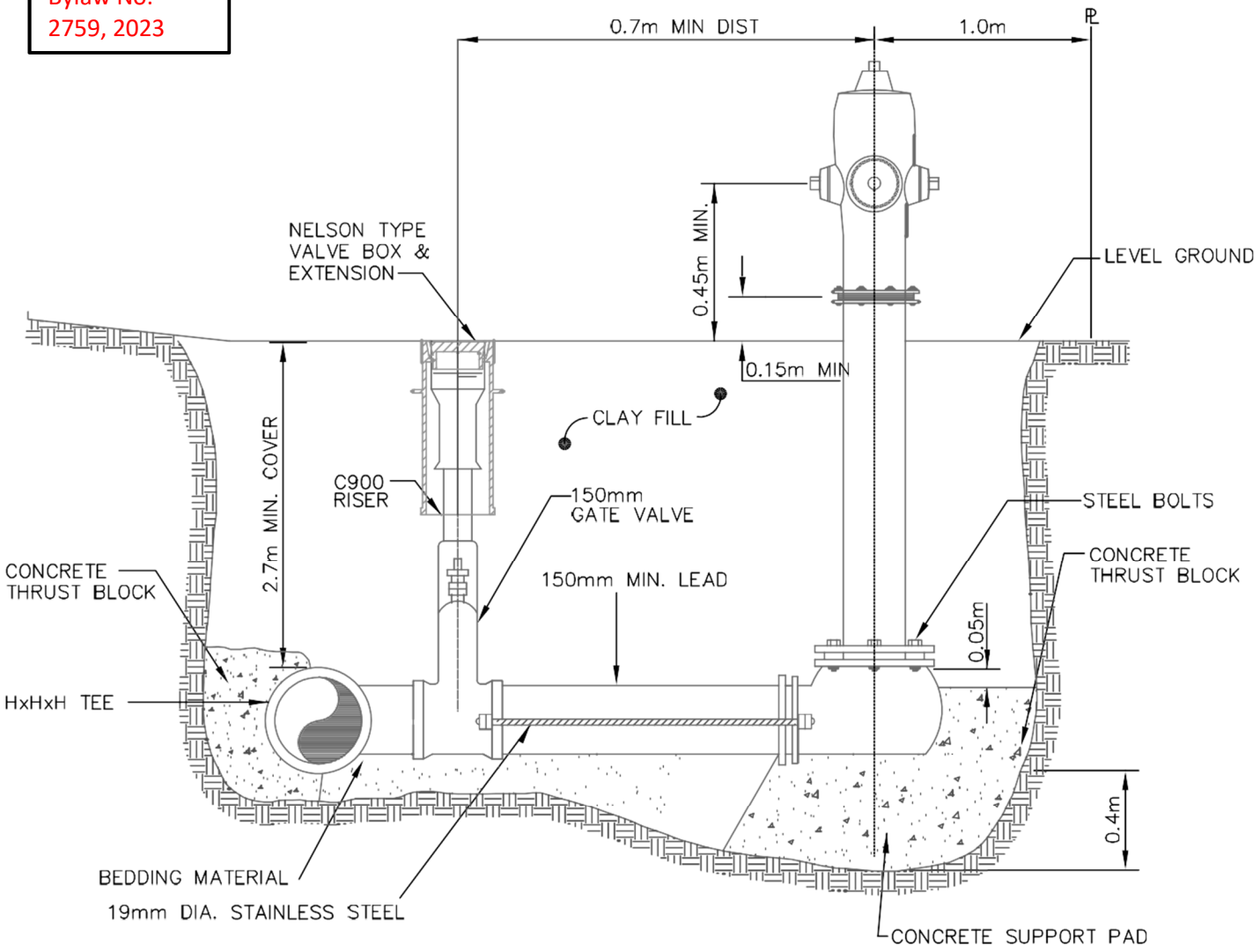


PROFILE VIEW

NOTE:
1. PLACEMENT OF SIGNS AS PER MOTI "MANUAL OF STANDARD TRAFFIC SIGNS AND ROAD MARKING" MOST RECENT EDITION

FORT ST. JOHN *The Energetic City*	SIGN INSTALLATION DETAIL	DWG.No. B–5
	SCALE: NOT TO SCALE	APPENDIX 6

This drawing was repealed and replaced in its entirety by Bylaw No. 2759, 2023



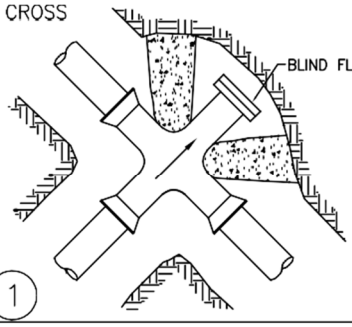
NOTES:

1. HYDRANTS SHALL BE COMPRESSION TYPE AND EACH SHALL CONTAIN
   A) PUMPER PORT–N.F.P.A STANDARD 101.6mm I.D. AND 127mm O.D., FOUR (4) THREADS PER 25.4mm AMERICAN NATIONAL HOUSE COUPLING THREADS. LENGTH OF NIPPLE – 31.75mm. LENGTH OF PILOT TO START OF SECOND THREAD–30.163mm. DIAMETER OF WASHER SEAT – 130mm. LENGTH OF COUPLING INTERNAL THREAD – 22.225MM. LENGTH FROM FACE OF COUPLING TO START OF SECOND THREAD – 9.525MM.
   B) HOSE OUTLETS – 63.5mm NOMINAL I.D. – 8 THREADS PER 25.4mm.
2. PUMPER OUTLET MUST FACE CURB
3. HYDRANT BOOT SIZED FOR 150mm PIPE
4. HYDRANT DRAIN MUST BE PLUGGED WITH THREADED BOLT
5. HYDRANT BODY AND BOOT TO BE EXPOXY COATED

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

FORT ST. JOHN *The Energetic City*	FIRE HYDRANT INSTALLATION DETAIL	DWG.No. D–1
	SCALE: NOT TO SCALE	APPENDIX 6

CROSS



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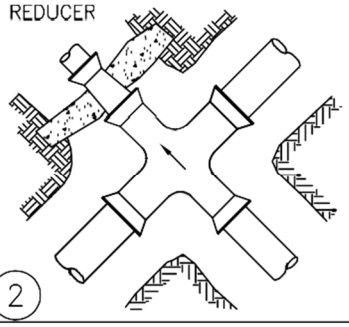
REDUCER



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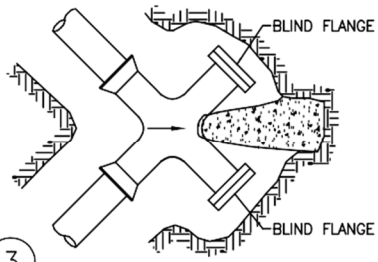
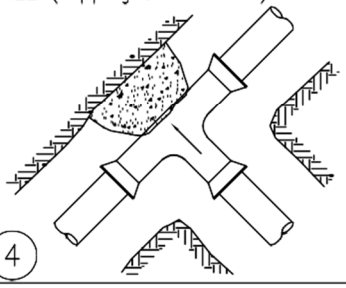
CROSS



3

TEE (Tapping or Standard)



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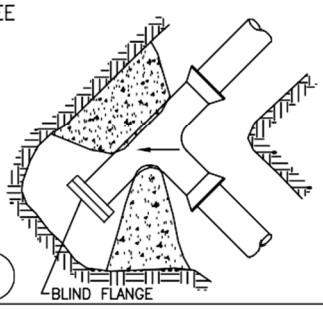
TEE



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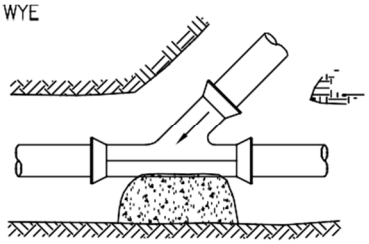
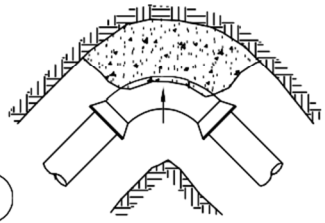
WYE



6

90° BEND



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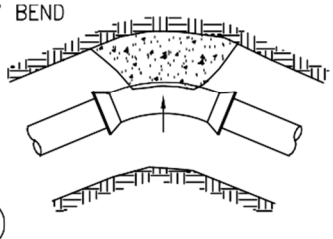
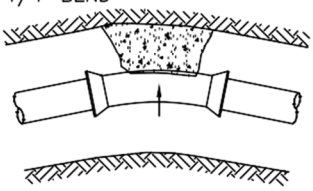
45° BEND



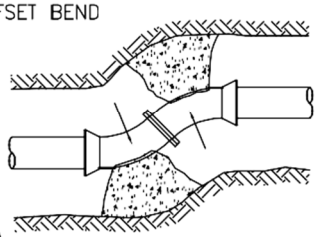
8

22-1/2° BEND AND
11-1/4° BEND



9

OFFSET BEND



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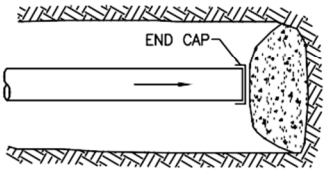
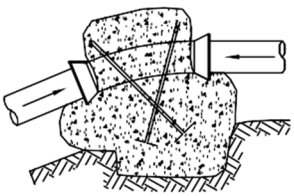


11

VERTICAL BEND



VERTICAL REACTION BLOCK SHALL BE DESIGNED BY A STRUCTURAL ENGINEER.

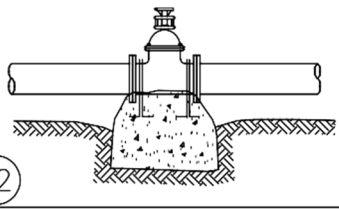
13

BEARING AREA OF BLOCKS

CONCRETE AREAS IN M^2

TYPE	PIPE SIZE	150	200	250	300
	1, 4, 11, 12	0.4	0.7	1.1	1.6
	3, 5, 7	0.5	1.0	1.5	2.2
	2	0	0.3	0.5	0.75
	6, 8	0.4	0.5	0.8	1.2
	9	0.4	0.4	0.4	0.6
	10	0.8	1.0	1.6	2.4

ANCHOR BLOCK FOR VALVE



12

NOTES:
- CONCRETE MUST BE TYPE 50
- THRUST BLOCK EXTENDED TO UNDISTURBED GROUND
- THRUST BLOCKS FOR MAINS LARGER THAN 300mmø SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND SHOWN ON THE ENGINEERED DRAWINGS
- OWNER'S PROFESSIONAL ENGINEER TO CONFIRM SIZE AND CONFIGURATION OF THRUST BLOCKS OR OTHER MEANS OF RESTRAINTS TO SUIT ACTUAL CONDITIONS

DESIGN ASSUMPTIONS
- HYDRAULIC HEAD=1.38 MPa.
- SOIL BEARING VALUE = 0.096 MPa. (MED SOFT CLAY)

THIS SPECIFICATION MUST BE READ IN CONJUNCTION WITH THE LATEST VERSION OF THE MMCD AND THE SCHEDULES IN THE SUBDIVISION SERVICING BYLAW. WHERE THERE ARE CONTRADICTIONS, THIS DRAWING SHALL PREVAIL.

FORT ST. JOHN
The Energetic City

PRESSURE MAIN THRUST BLOCK

DWG.No.
D-2

SCALE:
NOT TO SCALE

APPENDIX 6

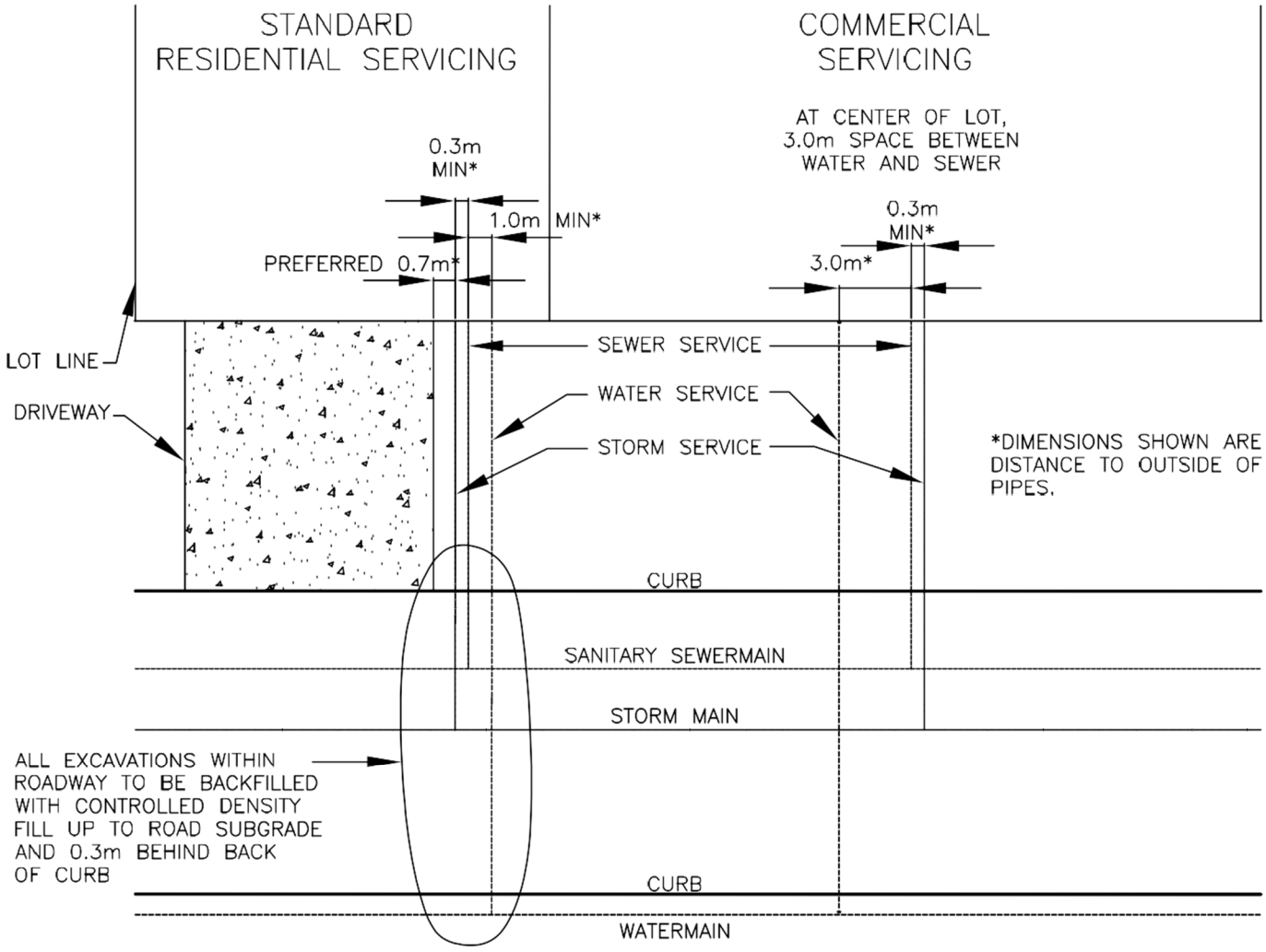
NOTE:
SEWER SERVICE JOINTS TO BE WRAPPED AS PER NORTHERN HEALTH REQUIREMENTS.

CLASS 'B' BEDDING TO BE USED UNLESS OTHERWISE SPECIFIED (REFER TO DWG D–5).

ALL BACK FILL & COMPACTION ON CITY PROPERTY TO BE TO 98% SPD. (REFER TO DWG D–4).

SANITARY MIN GRADE: 2% FOR 100mm DIAMETER, 1% FOR 150mm DIAMETER.

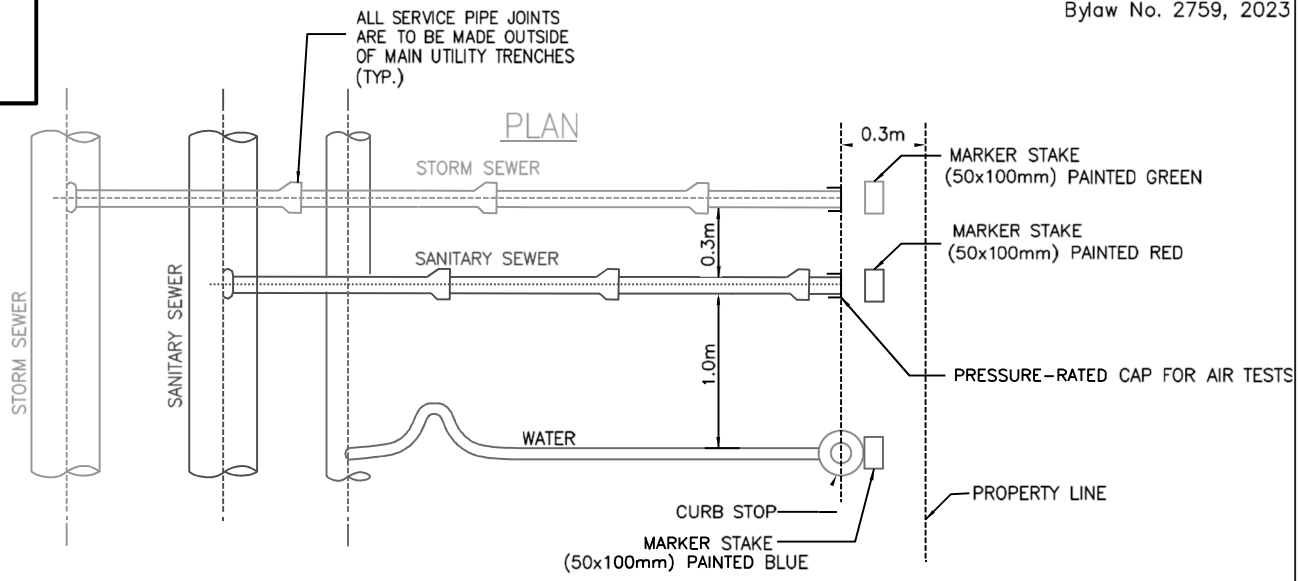
MIN PIPE COVER: WATER 2.7M, FORCEMAIN 2.7M, SANITARY 2.4M, STORM 2.7M. INSULATION REQUIRED AT LESSER DEPTHS (REFER TO DWG D–6), EXCEPT FOR STORM.

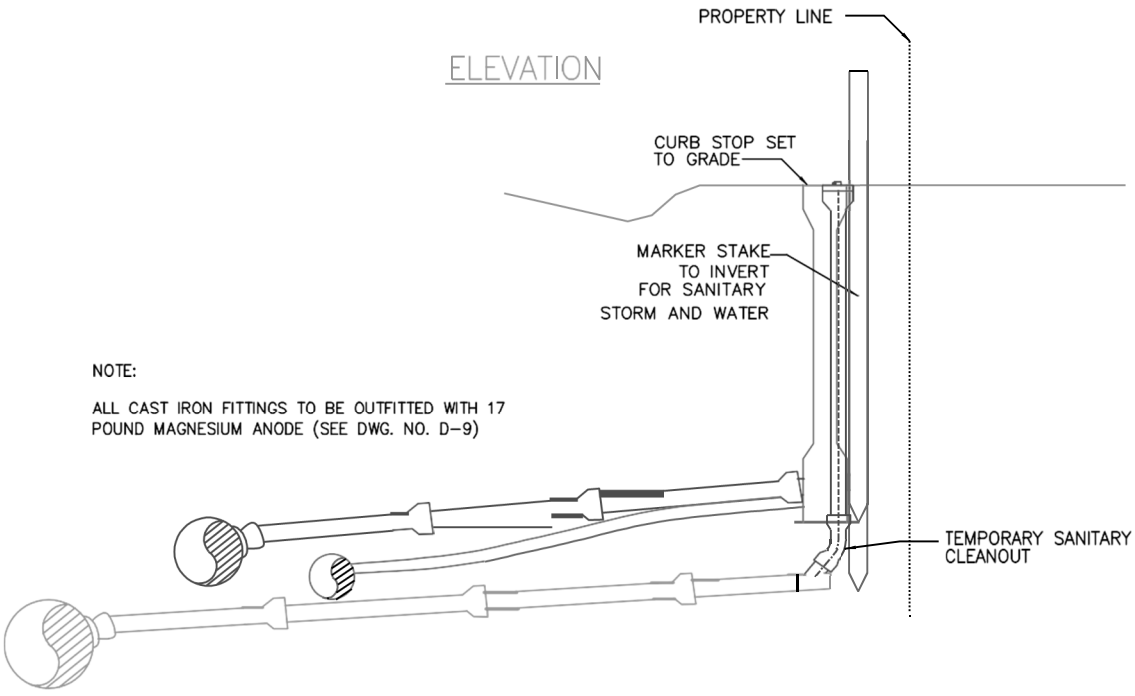


This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

FORT ST. JOHN *The Energetic City*		DWG.No. D–3
	SCALE: NOT TO SCALE	APPENDIX 6

This drawing was repealed and replaced in its entirety by Bylaw No. 2759, 2023

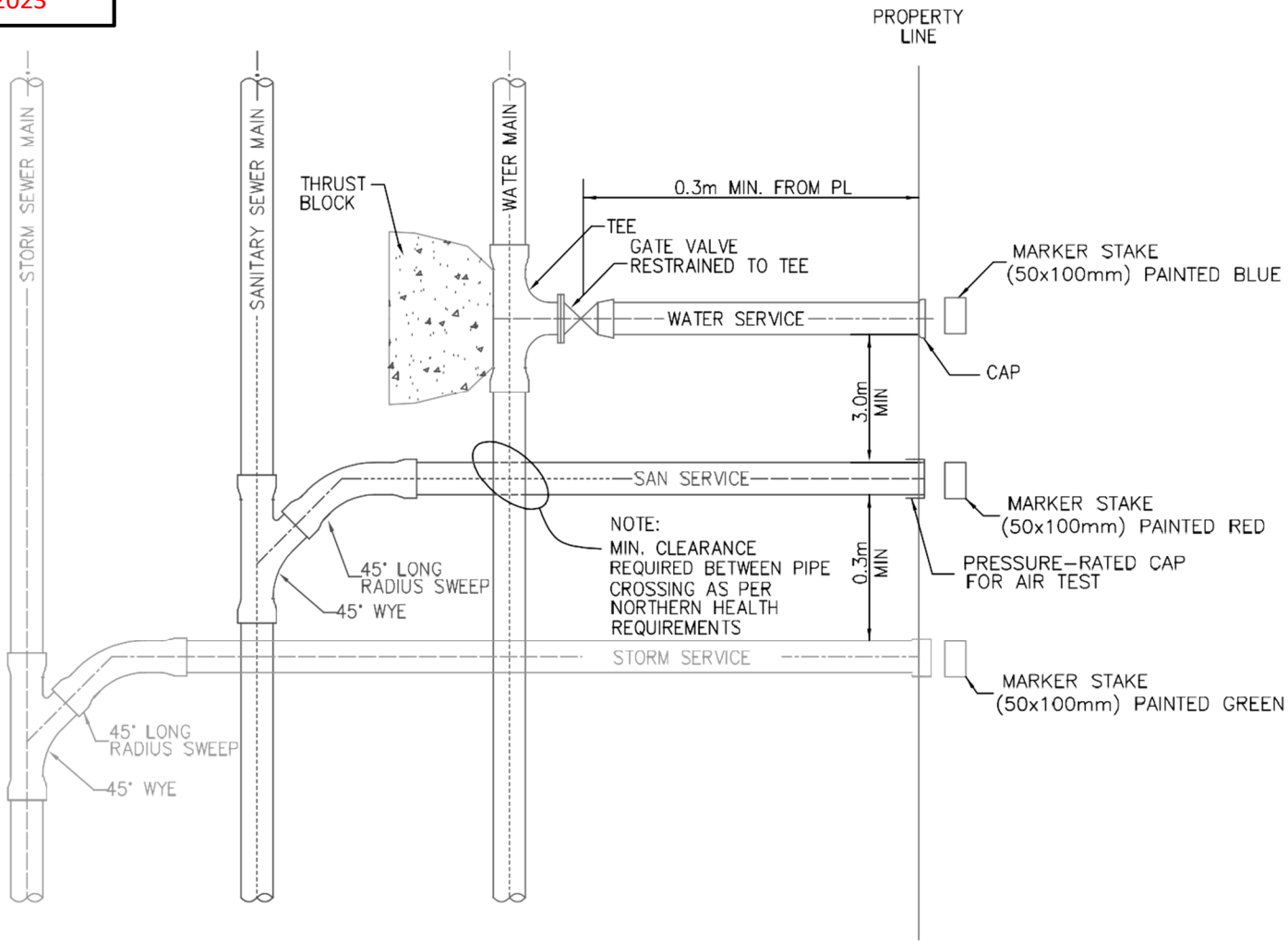




This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

FORT ST. JOHN *The Energetic City*	WATER AND SEWER SERVICES SMALL DIAMETER	DWG.No. D-3A
	SCALE: NOT TO SCALE	APPENDIX 6

This drawing was repealed and replaced in its entirety by Bylaw No. 2759, 2023

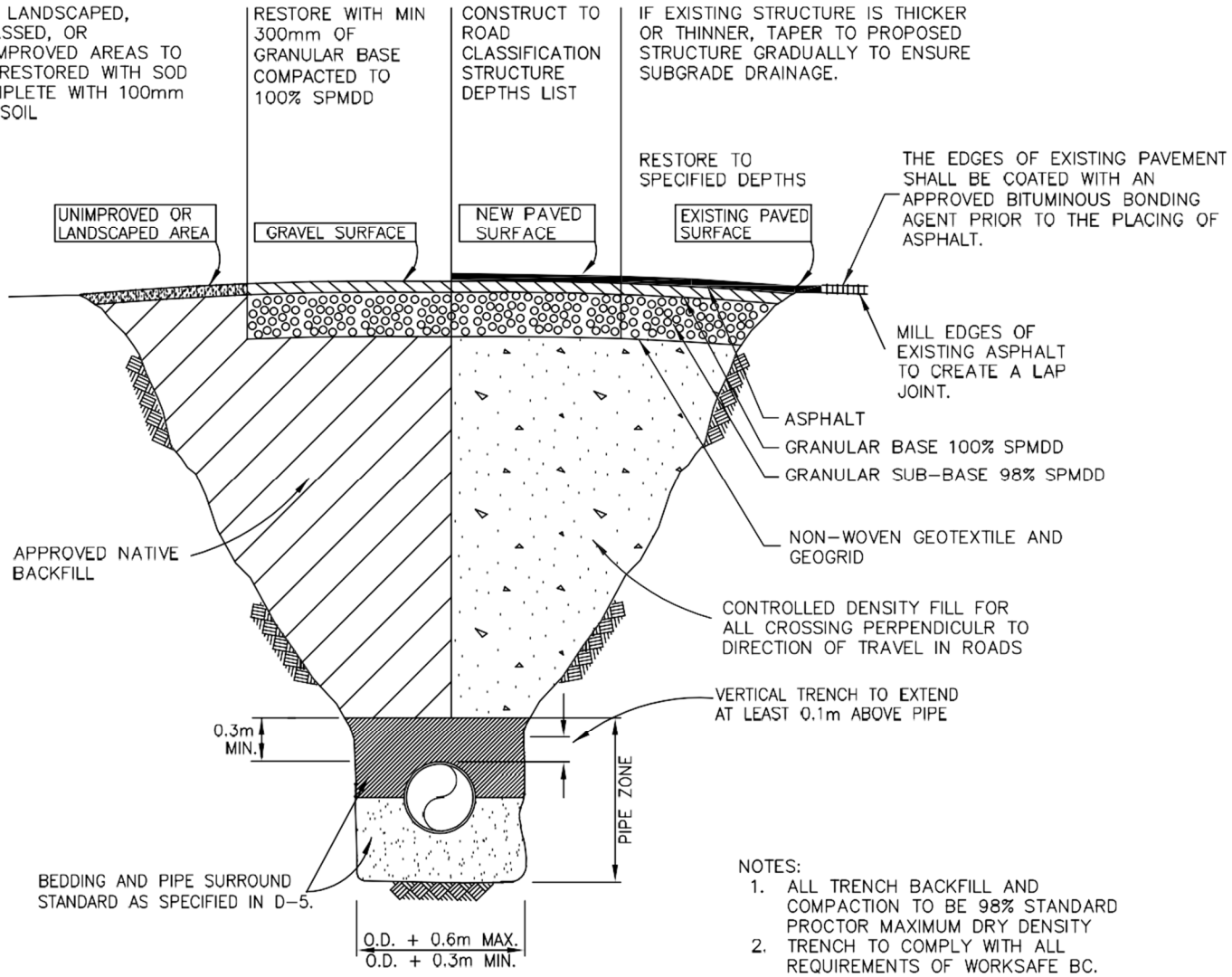


STORM SERVICE REQ'D FOR ALL COMMERCIAL PROPERTIES.

THIS DRAWING IS APPLICABLE WHEN WATER SERVICES ARE GREATER THAN 50mm DIAMETER OR SANITARY SEWER SERVICES ARE GREATER THAN 100mm DIAMETER

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

FORT ST. JOHN *The Energetic City*	WATER AND SEWER SERVICES LARGE DIAMETER	DWG.No. D–3B
	SCALE: NOT TO SCALE	APPENDIX 6

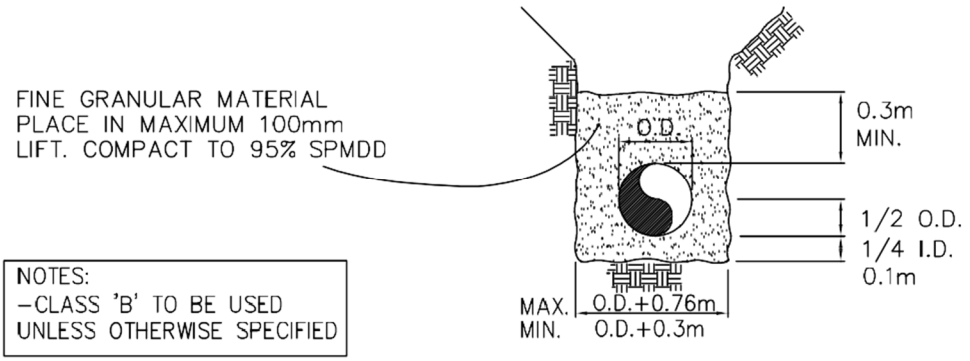


NOTES:
1. ALL TRENCH BACKFILL AND COMPACTION TO BE 98% STANDARD PROCTOR MAXIMUM DRY DENSITY
2. TRENCH TO COMPLY WITH ALL REQUIREMENTS OF WORKSAFE BC.

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

FORT ST. JOHN *The Energetic City*	**TYPICAL UTILITY TRENCH SECTION FOR UNDERGROUND INSTALLATION**	DWG.No. D-4
	SCALE: NOT TO SCALE	APPENDIX 6

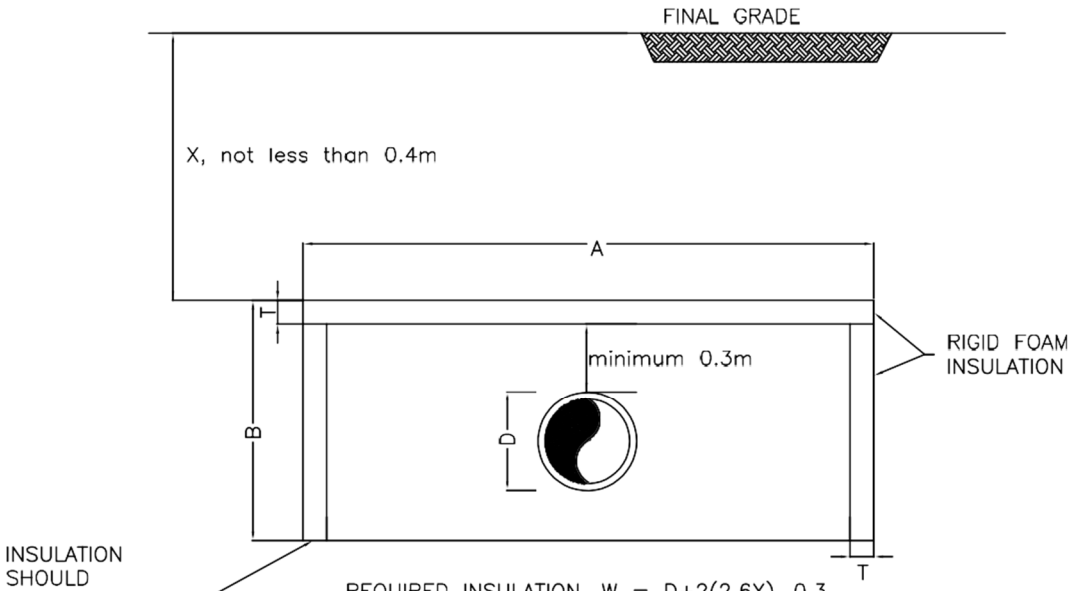
CLASS "B" BEDDING



NOTES:
–CLASS 'B' TO BE USED
UNLESS OTHERWISE SPECIFIED

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

FORT ST. JOHN *The Energetic City*	**PIPE BEDDING**	DWG.No. D–5
	SCALE: NOT TO SCALE	APPENDIX 6



REQUIRED INSULATION, $W = D+2(2.6X)-0.3$

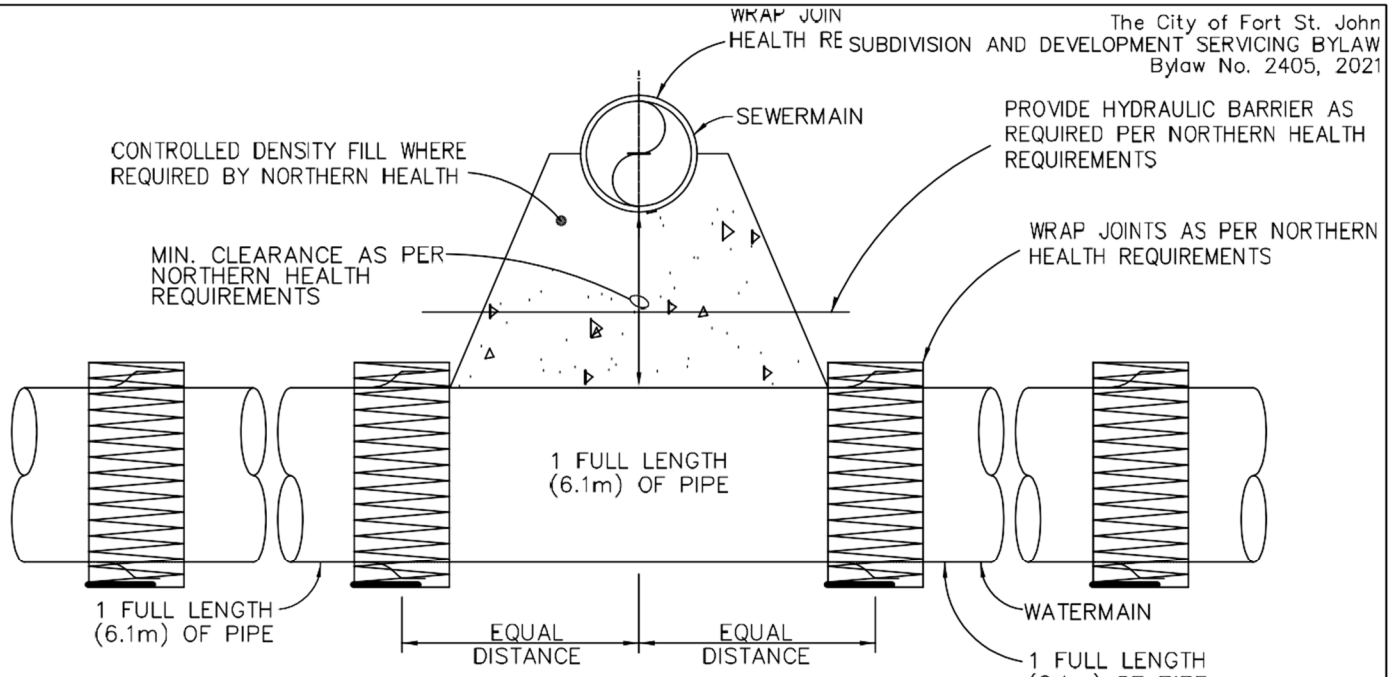
WHERE $W = A + 2B$ (m)
D = PIPE DIAMETER (m)
X = INSULATED DEPTH (m)

INSULATION DEPTH X(m)	MINIMUM INSULATION THICKNESS T(mm)
0.6	100
0.9	100
1.2	90
1.5	75
1.8	65
2.1	50

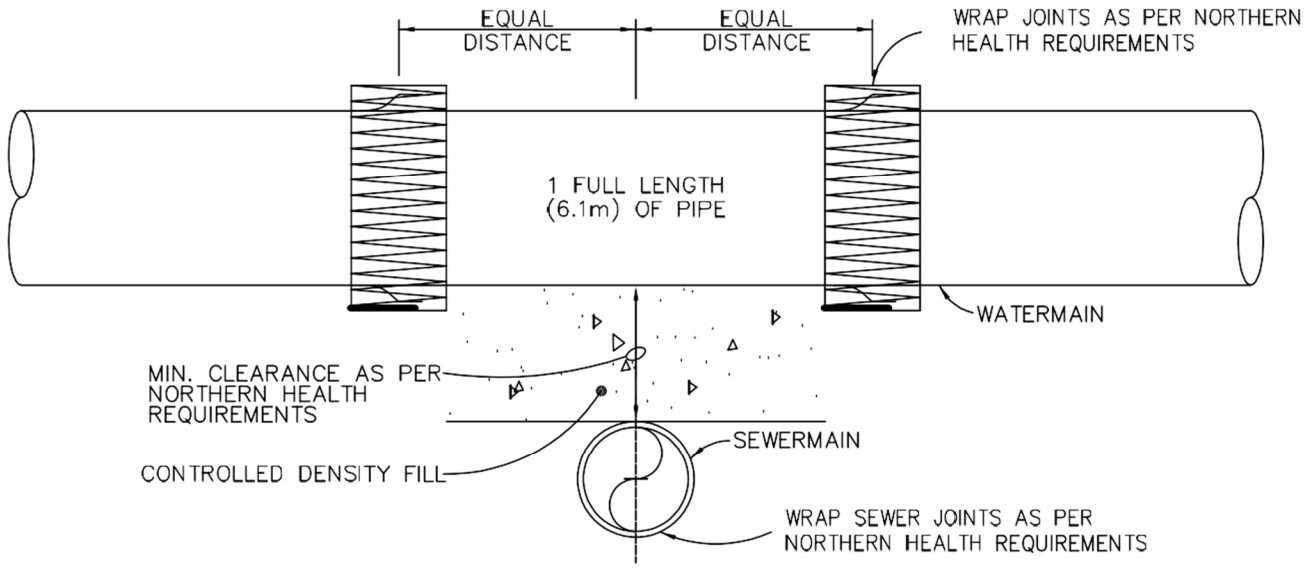
DESIGN NOTES:
1. PROJECT LOCATION: FORT ST. JOHN, DESIGN FREEZING INDEX = 2140 C DAYS.
2. SOIL TYPE: F3.
3. ALL INSULATION SPECIFIED AS PER APPROVED PRODUCTS LIST.
4. THE INSULATION SHOULD BE PLACED HORIZONTALY ON A WELL PREPARED, FLAT, SMOOTH SURFACE AND CENTERED OVER THE PIPE ALIGNMENT.

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

FORT ST. JOHN *The Energetic City*	**PIPE INSULATION**	DWG.No. D–6
	SCALE: NOT TO SCALE	APPENDIX 6



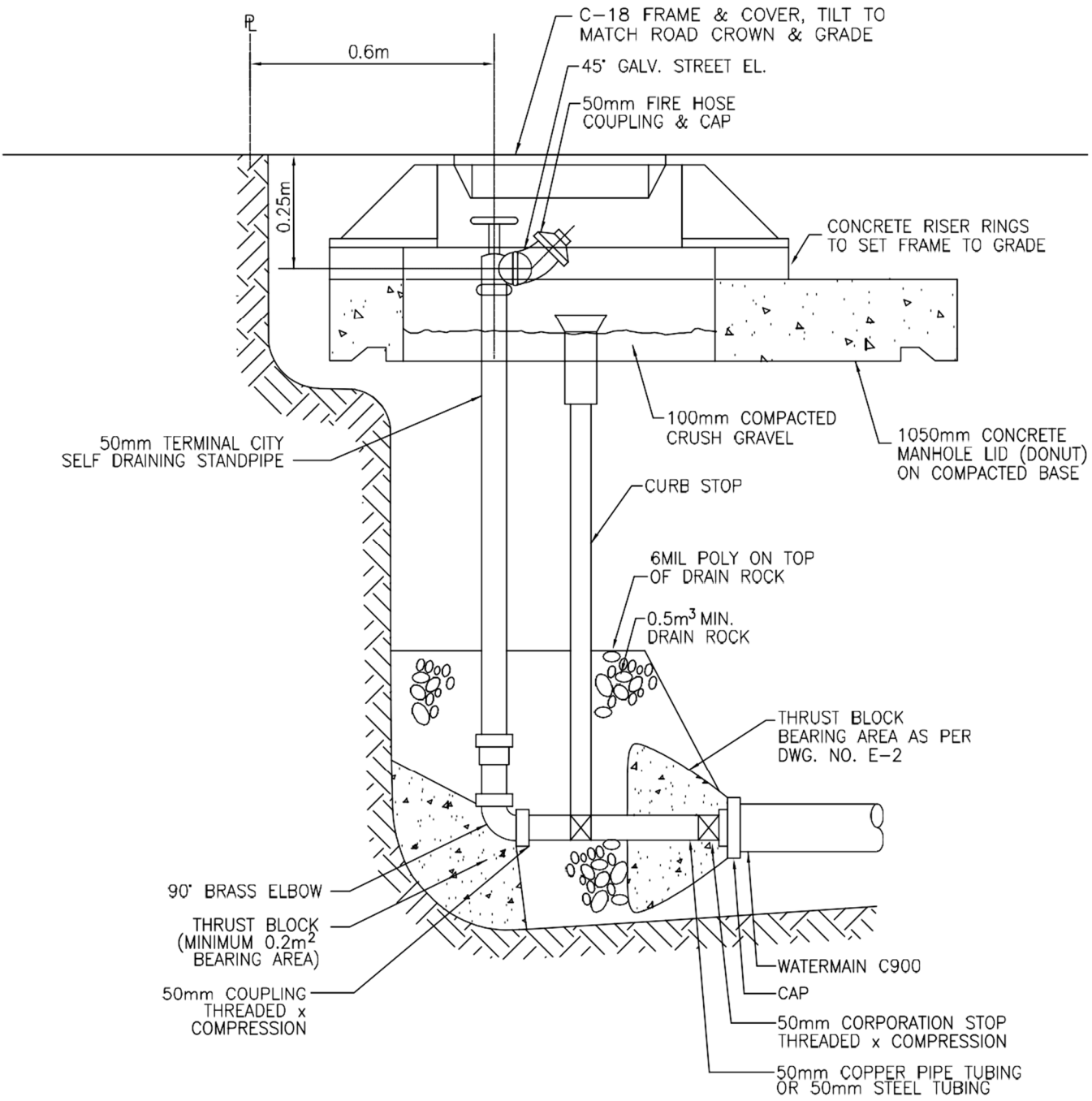
WATER CROSSING UNDER STORM/SANITARY SEWER



WATER CROSSING OVER STORM/SANITARY SEWER

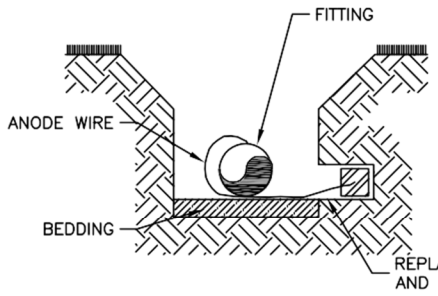
This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

FORT ST. JOHN *The Energetic City*	**WATER AND SEWER CROSSING DETAIL**	DWG.No. D – 7
	SCALE: NOT TO SCALE	APPENDIX 6

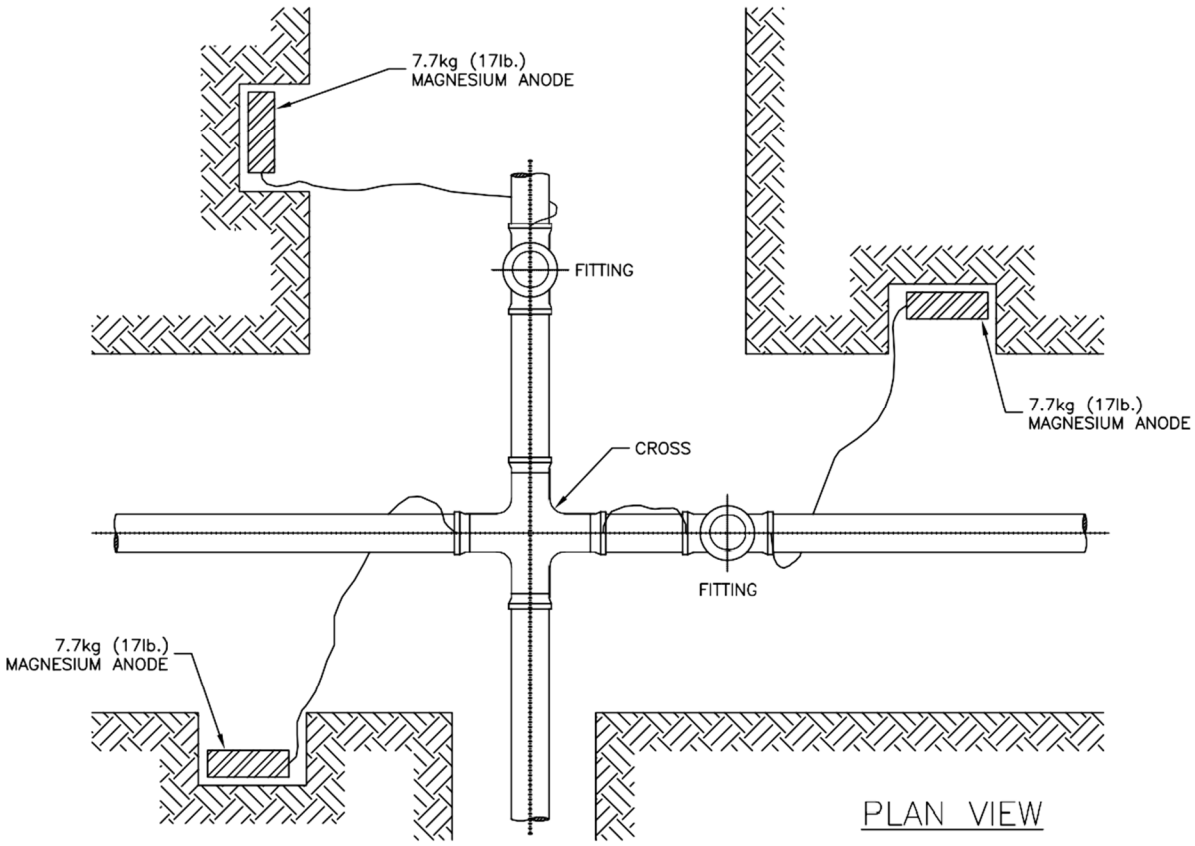


This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

FORT ST. JOHN *The Energetic City*	**BURIED STANDPIPE DETAIL**	DWG.No. D-8
	SCALE: NOT TO SCALE	APPENDIX 6



END VIEW



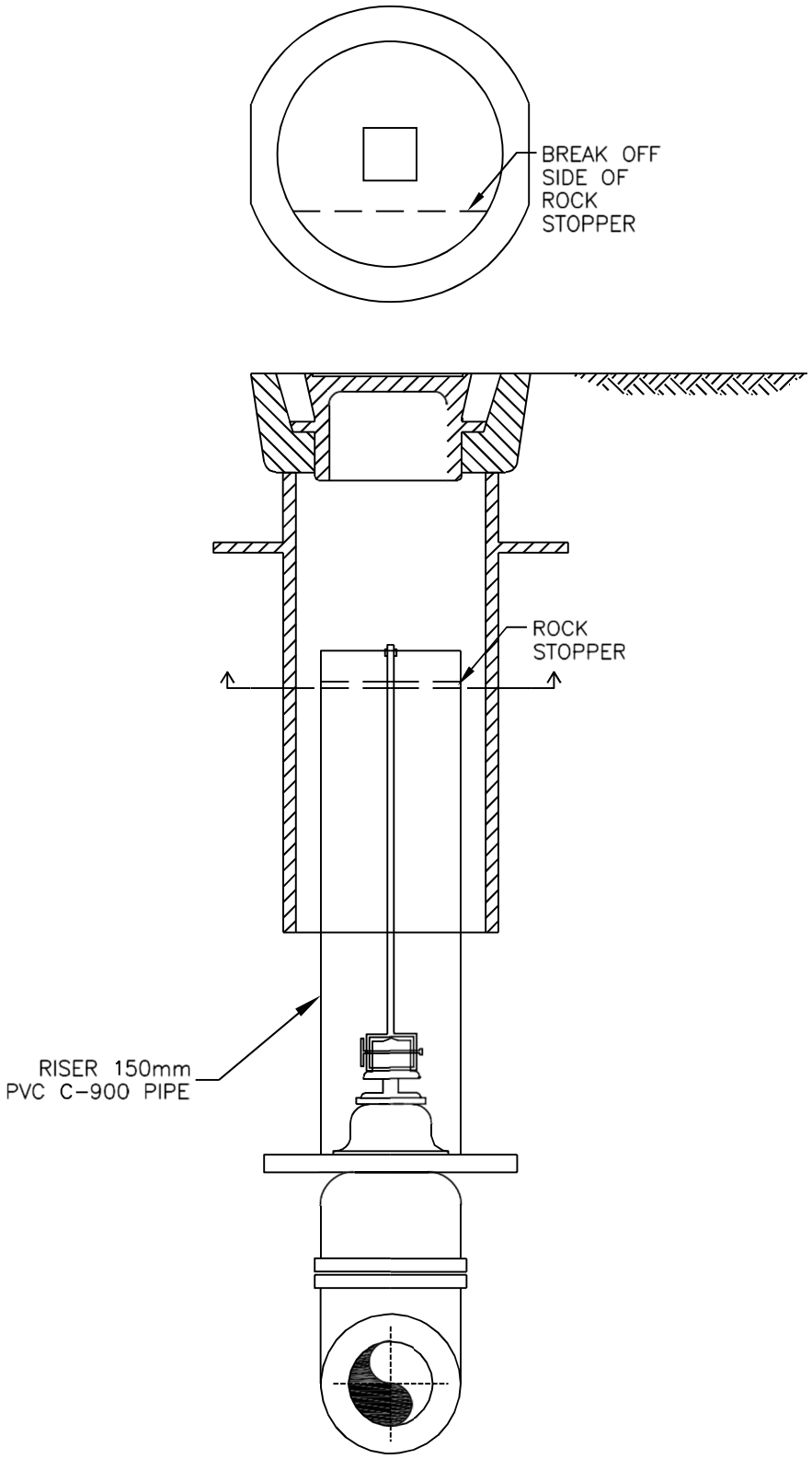
PLAN VIEW

INSTALLATION PROCEDURES:

1.) INSTALL ANODE AT APPROX. PIPE DEPTH IN NATIVE SOIL.
2.) ANODES TO BE EMBEDDED INTO TRENCH WALL TO PROVIDE FOR A MINIMUM OF 50mm OF NATIVE CLAY COMPLETELY SURROUNDING THE ANODE.
3.) ANODES TO BE AT LEAST 300mm CLEAR OF THRUST BLOCK.
4.) INSTALL ONE 17 POUND (7.7kg) MAGNESIUM ANODE PER FITTING (INSTEAD OF THE 12 POUND ZINC ANODE). ACCORDING TO THE APPROVED PRODUCTS LIST.
5.) ATTACH ANODE TO FITTING BY FUSING METHODS (CADWELD OR THERMITE WELD)
6.) IF FITTINGS ARE IN CLOSE PROXIMITY, CONDUCTIVELY CONNECT FITTINGS WITH A #10 WIRE THERMITE WELDED TO FITTINGS
7.) ALL METALLIC FITTINGS TO BE EPOXY COATED ACCORDING TO THE APPROVED PRODUCTS LIST. IF EPOXY COATING IS CHIPPED, USE TOUCH UP EPOXY PAINT.
8.) WHERE BOLTS ARE USED TO CONNECT FLANGES OR FITTINGS, SCRATCH EPOXY COATING TO ENSURE CONTINUITY BETWEEN FITTINGS AND BOLTS.
9.) DO NOT USE DENSO TAPE ON BOLTS, FITTINGS OR HYDRANT BARREL, UNLESS GAPS ARE SMOOTHED OUT WITH MASTIC UNDER THE TAPE TO PREVENT ANY WATER OR AIR FROM SITTING IN GAPS.

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

FORT ST. JOHN The Energetic City	**TYPICAL ANODE INSTALLATION IN NATIVE SOIL AT STEEL OR IRON FITTINGS**	DWG.No. D–9
	SCALE: NOT TO SCALE	APPENDIX 6



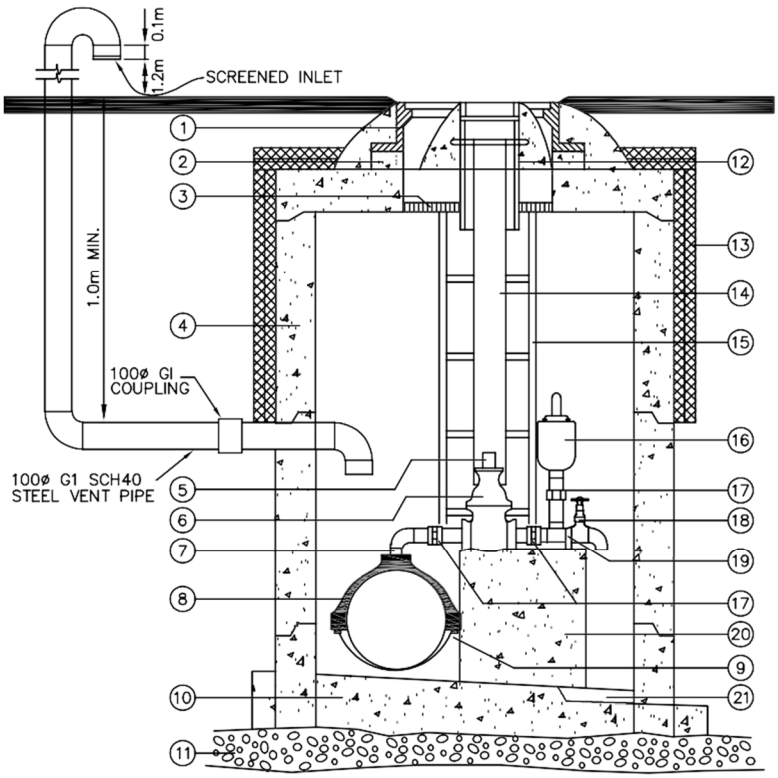
FORT ST. JOHN
The Energetic City

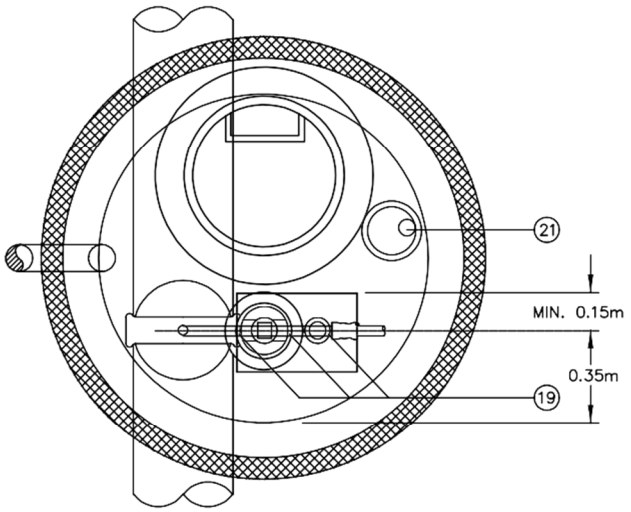
ROCK STOPPER
DETAIL

DWG.No.
D-10

SCALE:
NOT TO SCALE

APPENDIX 6





NOTE:

MANHOLE BARRELS TO BE 75mm CLEAR OF WATER MAIN.
ALL FITTINGS TO BE BRASS;
ALL JOINTS TO BE MORTARED WATER TIGHT INSIDE AND OUT;
INSTALLATIONS OCCURING OUTSIDE OF ASPHALT ROADWAYS WILL HAVE CONCRETE SURFACE PADS MEASURING 1500mm x 1500mm x 150mm

SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION
1	MANHOLE FRAME & COVER (DOBNEY FOUNDRY C-18), MORTAR INSIDE & OUT.
2	PRECAST CONCRETE RISER RINGS IN 50mm, 100mm, & 150mm HEIGHTS. USE A MINIMUM OF 1 & A MAXIMUM OF 3 RINGS WITH MAXIMUM TOTAL HEIGHT OF 250mm.
3	HALF MOON TREATED PLYWOOD COVERS WITH HANDLES, & 50mm RIGID UNSULATION ON LOWER SIDE.
4	PRECAST CONCRETE SECTIONS, 1500mm DIAMETER. LID REINFORNCED TO H-20 LOADING.
5	50mm SQUARE OPERATING NUT.
6	50mm CAST IRON RESILIENT SEAT GATE VALVE WITH 50mm OPERATING NUT.
7	50mm CORP. STOP
8	ROBAR 2706 SERIES SERVICE SADDLE, DOUBLE STAINLESS STEEL STRAPS.
9	50mm MINIMUM CLEARANCE
10	CONCRETE BASE POURED IN PLACE, MINIMUM 27.5Mpa, MINIMUM 150mm THICKNESS. SURFACE TO SLOPE AT 2% TOWARDS SUMP.
11	150mm LAYER OF 38mm MINUS GRAVEL COMPACTED TO 100% STANDARD PROCTOR DENSITY.
12	'MR' TYPE WATER VALVE BOX, MORTAR INSIDE AND OUT.
13	50mm RIGID FOAM INSULATION (SM). EXTENDED MINIMUM 1.2m BELOW SURFACE
14	150mm PVC C900 DR18 WATER PIPE. RISER TO VALVE BOX CORED INTO LID
15	ALUMINUM LADDER RUNGS
16	COMBINATION AIR & VACUUM RELEASE VALVE; 50mm c/w VENT CAP
17	UNION.
18	150PSI RATED 19mm HOSE BIB.
19	STAINLESS STEEL OR GALVANIZED STRAPPING ANCHORED TO SUPPORT BLOCK WITH HILTI BOLTS.
20	CONCRETE SUPPORT BLOCK TO BE CAST IN PLACE WITH BASE.
21	DRAIN TO STORM OR ROCK PIT.

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

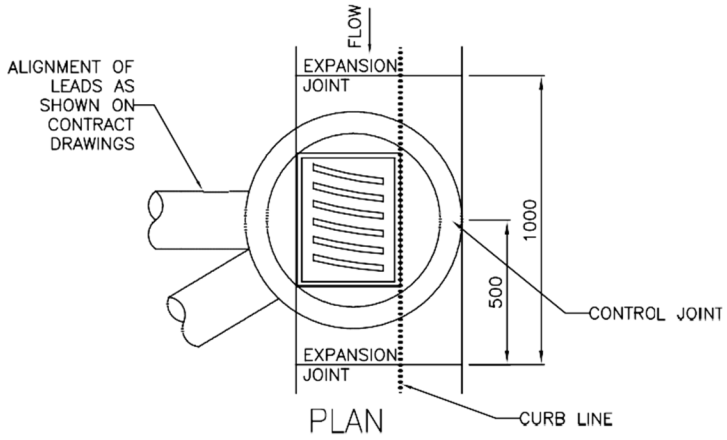
FORT ST. JOHN
The Energetic City

STANDARD AIR VALVE INSTALLATION FOR SANITARY FORCEMAIN

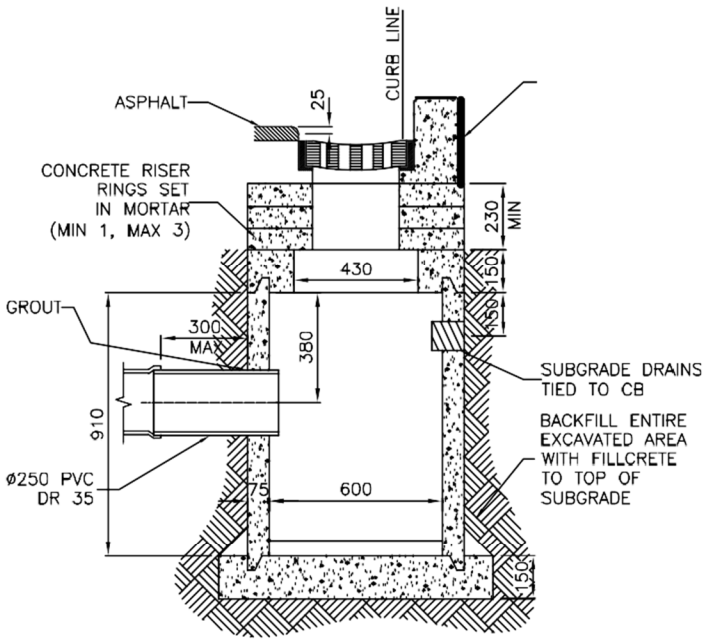
DWG.No.
E-1

SCALE:
NOT TO SCALE

APPENDIX 6



PLAN



SECTION

CATCHBASIN DETAIL

NOTE:

1. LEADS TO BE A STRAIGHT RUN FROM CB BARREL TO MAIN AT 2%
2. LEADS TO PROTRUDE INTO CB BARREL 50mm

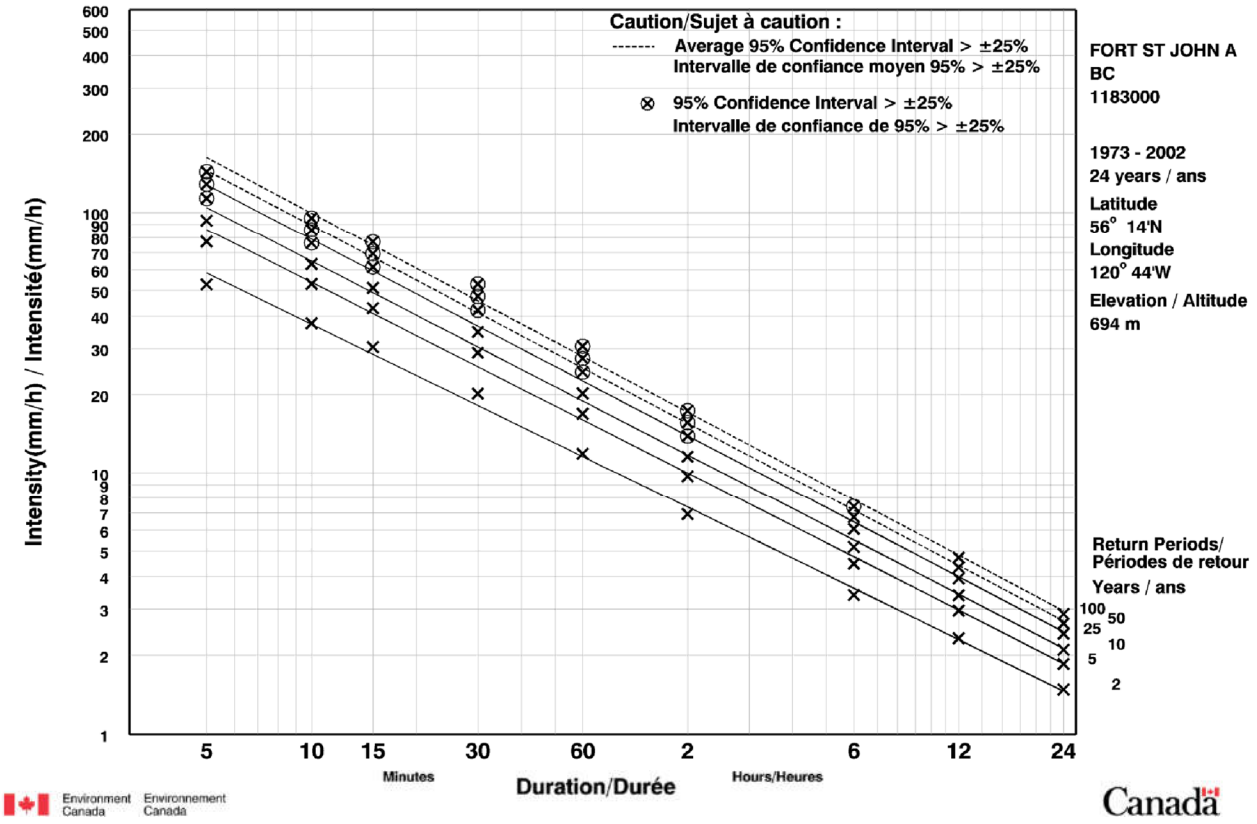
FORT ST. JOHN *The Energetic City*	CATCHBASIN	DWG.No. F—1
	SCALE: NOT TO SCALE	APPENDIX 6

This drawing was repealed and replaced in its entirety by Bylaw No. 2759, 2023

Short Duration Rainfall Intensity-Duration-Frequency Data

2010/04/13

Données sur l'intensité, la durée et la fréquence des chutes de pluie de courte durée



Intensity Duration Frequency Data supplied by Atmospheric Environment Service
Data is from 1973 - 2002 taken at the FSJ airport

Return Period Rainfall Rates (mm/h)						
Duration	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
5 min	52.8	77.2	93.3	113.7	128.8	143.8
10 min	37.5	53.0	63.3	76.2	85.8	95.4
15 min	30.5	42.9	51.2	61.6	69.4	77.1
30 min	20.2	29.0	34.8	42.2	47.6	53.0
1 h	11.9	16.9	20.2	24.5	27.6	30.7
2 h	6.9	9.7	11.6	13.9	15.7	17.4
6 h	3.4	4.5	5.2	6.1	6.7	7.4
12 h	2.3	3.0	3.4	3.9	4.3	4.7
24 h	1.5	1.9	2.1	2.4	2.6	2.9

Return Period Rainfall Amounts (mm)						
Duration	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
5 min	4.4	6.4	7.8	9.5	10.7	12.0
10 min	6.3	8.8	10.5	12.7	14.3	15.9
15 min	7.6	10.7	12.8	15.4	17.3	19.3
30 min	10.1	14.5	17.4	21.1	23.8	26.5
1 h	11.9	16.9	20.2	24.5	27.6	30.7
2 h	13.9	19.5	23.2	27.9	31.3	34.8
6 h	20.4	26.8	31.1	36.5	40.5	44.5
12 h	27.9	35.6	40.7	47.2	52.0	56.7
24 h	35.6	44.6	50.5	58.0	63.6	69.1

PROVIDED FOR CONVENIENCE ONLY. REFER TO MOST RECENT VERSION FROM ENVIRONMENT CANADA.

FORT ST JOHN
The Energetic City

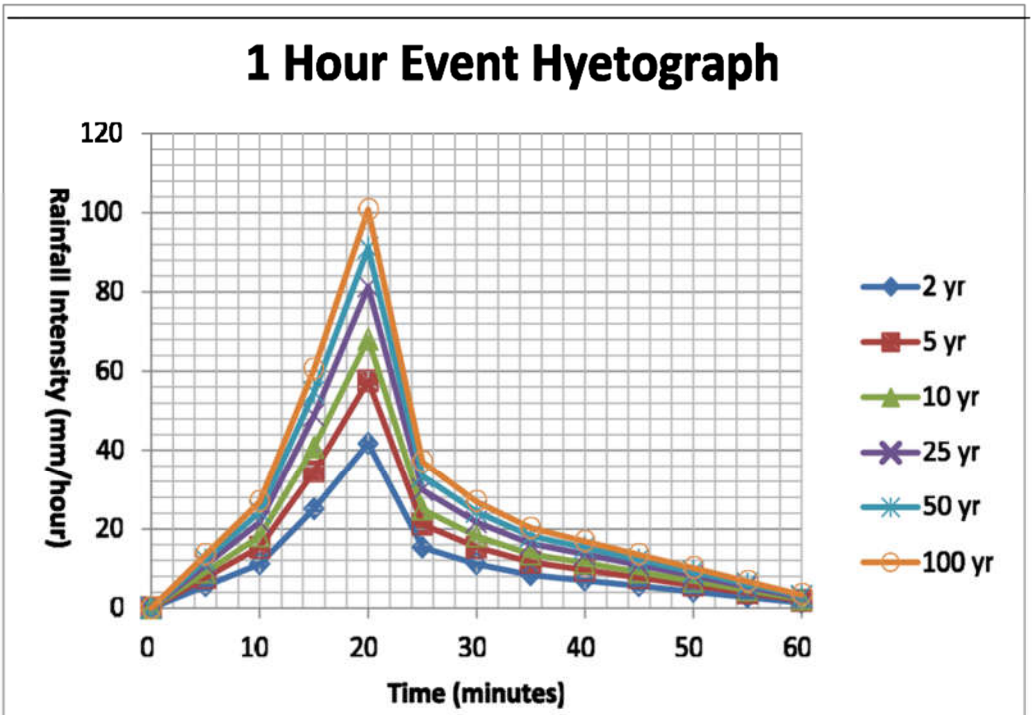
RAINFALL INTENSITY GRAPH

DWG.No.
F – 2

SCALE:
NOT TO SCALE

APPENDIX 6

This drawing was repealed and replaced in its entirety by Bylaw No. 2759, 2023



Time	1 hour					
(minutes)	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
0	0.0	0.0	0.0	0.0	0.0	0.0
5	5.6	7.7	9.1	10.8	12.1	13.4
10	11.1	15.4	18.1	21.7	24.3	26.9
15	25.1	34.6	40.8	48.8	54.6	60.5
20	41.8	57.6	68.0	81.4	91.1	100.8
25	15.3	21.1	24.9	29.8	33.4	37.0
30	11.1	15.4	18.1	21.7	24.3	26.9
35	8.4	11.5	13.6	16.3	18.2	20.2
40	7.0	9.6	11.3	13.6	15.2	16.8
45	5.6	7.7	9.1	10.8	12.1	13.4
50	4.2	5.8	6.8	8.1	9.1	10.1
55	2.8	3.8	4.5	5.4	6.1	6.7
60	1.4	1.9	2.3	2.7	3.0	3.4

HYETOGRAPH PROVIDED FOR HISTORICAL ANALYSIS ONLY. DESIGN STORMS MUST BE ADJUSTED FOR CLIMATE CHANGE FOR PROPOSED CONDITIONS AND POST-DEVELOPMENT FLOWS.

FORT ST. JOHN
The Energetic City

FORT ST. JOHN
RAINFALL DISTRIBUTION
24 HOUR EVENT

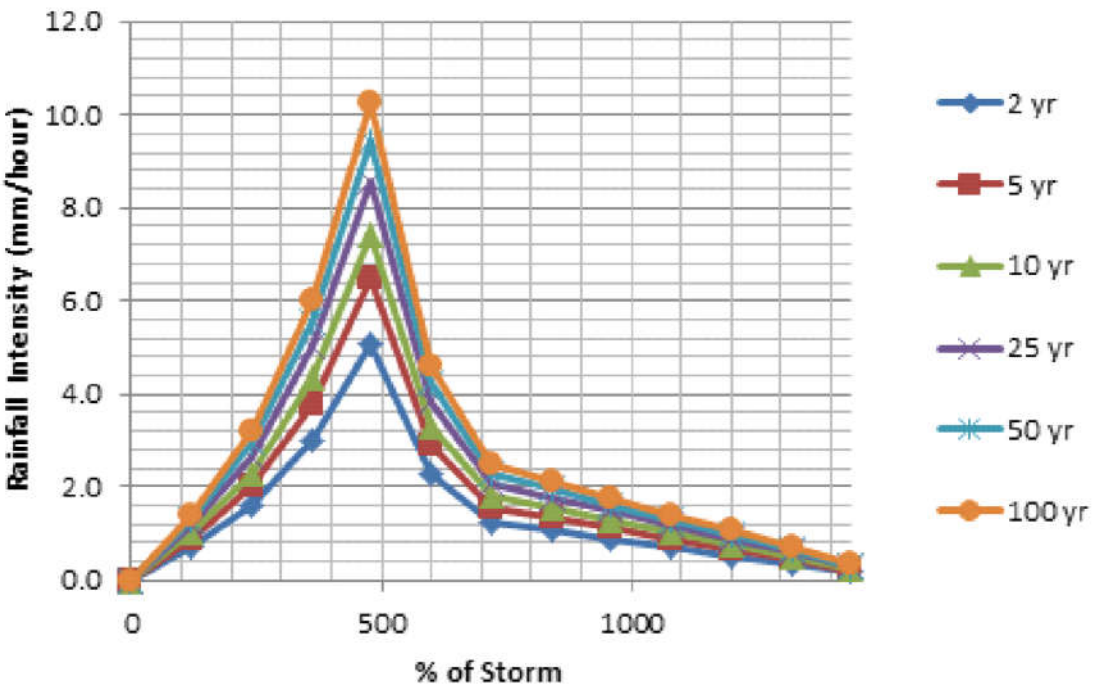
DWG.No.
F – 3

SCALE:
NOT TO SCALE

APPENDIX 6

This drawing was repealed and replaced in its entirety by Bylaw No. 2759, 2023

24 Hour Event Hyetograph



Time	24 hour					
(minutes)	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.7	0.9	1.0	1.2	1.3	1.4
240	1.6	2.0	2.3	2.7	2.9	3.2
360	3.0	3.8	4.3	5.0	5.5	6.0
480	5.1	6.5	7.4	8.6	9.4	10.3
600	2.3	2.9	3.3	3.8	4.2	4.6
720	1.2	1.6	1.8	2.1	2.3	2.5
840	1.1	1.3	1.5	1.8	2.0	2.1
960	0.9	1.1	1.3	1.5	1.6	1.8
1080	0.7	0.9	1.0	1.2	1.3	1.4
1200	0.5	0.7	0.8	0.9	1.0	1.1
1320	0.4	0.4	0.5	0.6	0.7	0.7
1440	0.2	0.2	0.3	0.3	0.3	0.4

HYETOGRAPH PROVIDED FOR HISTORICAL ANALYSIS ONLY. DESIGN STORMS MUST BE ADJUSTED FOR CLIMATE CHANGE FOR PROPOSED CONDITIONS AND POST-DEVELOPMENT FLOWS. A SUITABLE TIME STEP AND DESIGN STORM HYETOGRAPH SHOULD BE SELECTED BASED ON LOCAL HYDROLOGICAL CONDITIONS AND APPLICATION OF THE STORM.

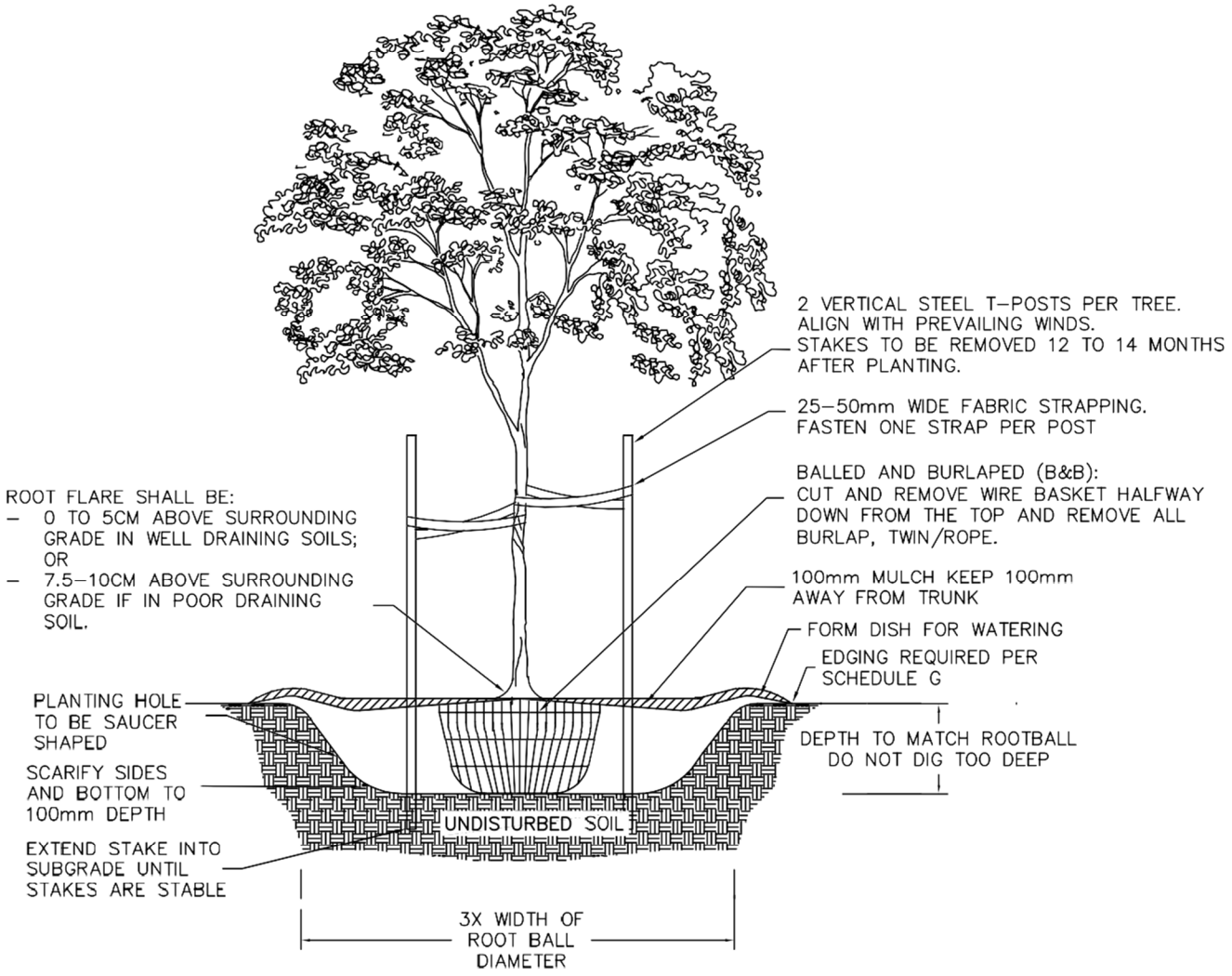
FORT ST. JOHN
The Energetic City

FORT ST. JOHN
RAINFALL DISTRIBUTION
24 HOUR EVENT

DWG.No.
F – 4

SCALE:
NOT TO SCALE

APPENDIX 6



NOTES:
1. PLANTING, PLANT CARE AND PLANTING MATERIAL IN ACCORDANCE WITH THE LATEST CANADIAN LANDSCAPE STANDARDS.
2. PLANTING HOLE TO BE 3X SIZE OF ROOTBALL DIAMETER WITH A MINIMUM OF 450MM SOIL ON ALL SIDES.
3. SIZE OF PLANTING HOLE IS NOT APPLICABLE TO TREES TRANSPLANTED BY TREE SPADE.
4. PRUNE ANY DEAD, BROKEN, AND DISEASED BRANCHES.
5. FOR POTTED TREES: REMOVE POT, LOOSEN ROOTS AND REMOVE GIRDLING ROOTS.
6. REMOVE ANY PLANT TAGS, RIBBONS, AND/OR WRAPPINGS

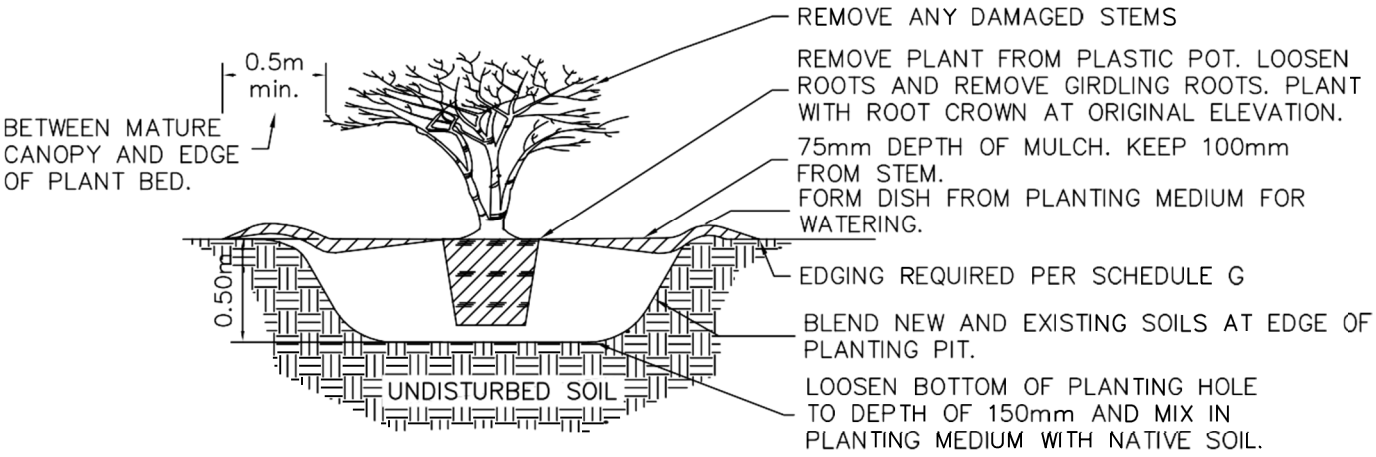
FORT ST. JOHN
The Energetic City

TREE PLANTING DETAIL

DWG.No.
G–1

SCALE:
NOT TO SCALE

APPENDIX 6



NOTE:

1. PLANTING, PLANT CARE AND PLANTING MATERIAL IN ACCORDANCE WITH THE LATEST CANADIAN LANDSCAPE STANDARDS.
2. PLANTING DEPTH TO BE CONTINUOUS IN PLANTING BEDS.
3. REMOVE ANY PLANT TAGS, RIBBONS, AND/OR WRAPPINGS

FORT ST. JOHN
The Energetic City

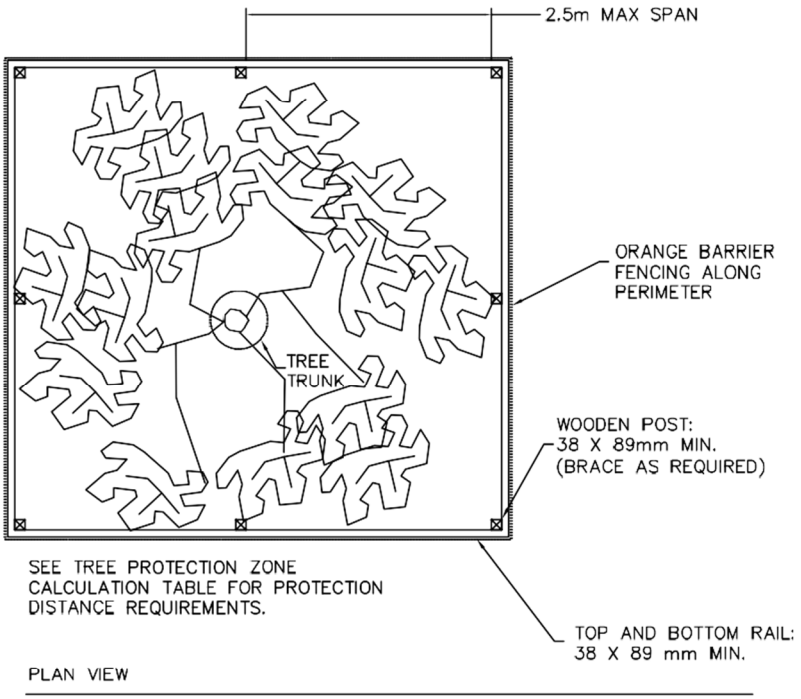
SHRUB/PERENNIAL PLANTING DETAIL

DWG.No.

G–2

SCALE:
NOT TO SCALE

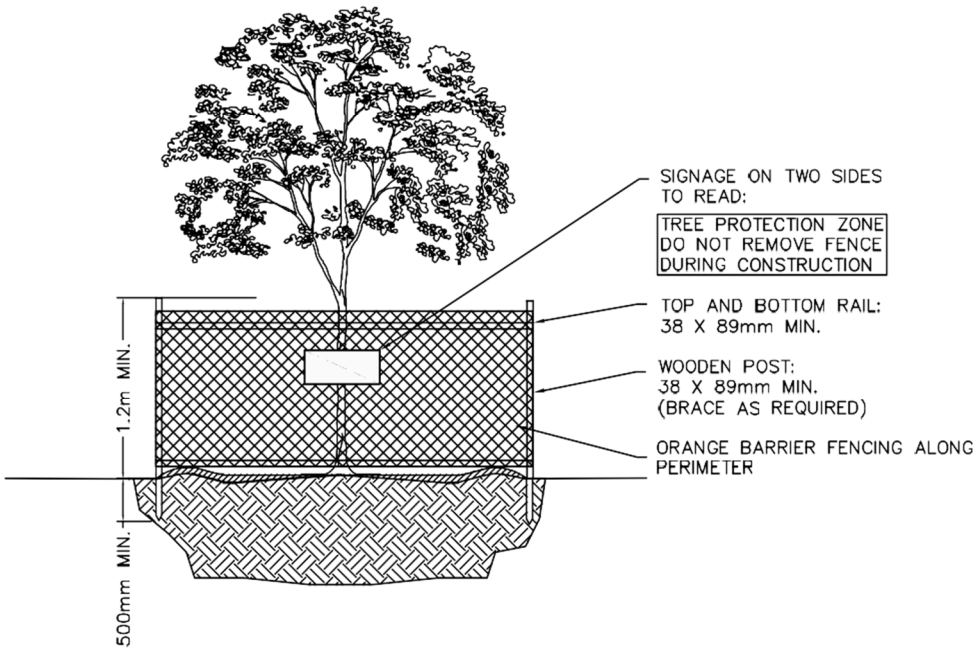
APPENDIX 6



PLAN VIEW

TREE PROTECTION ZONE CALCULATION TABLE	
TRUNK DIAMETER (DBH)	MINIMUM PROTECTION DISTANCE (MEASURE FROM THE OUTSIDE EDGE OF THE TRUNK)*
less than 20cm	1.2m
20cm	1.6m
25cm	2.0m
30cm	2.4m
35cm	2.8m
40cm	3.2m
45cm	3.6m
50cm	4.0m
55cm	4.4m
60cm	4.8m
75cm	6.0m
90cm	7.2m
100cm	8.0m
120cm and greater	9.6m

*NOTE: PROTECTION DISTANCE SHALL BE THE DRIP LINE OR PROTECTION DISTANCE INDICATED IN TABLE, WHICHEVER IS GREATER.



PROFILE VIEW

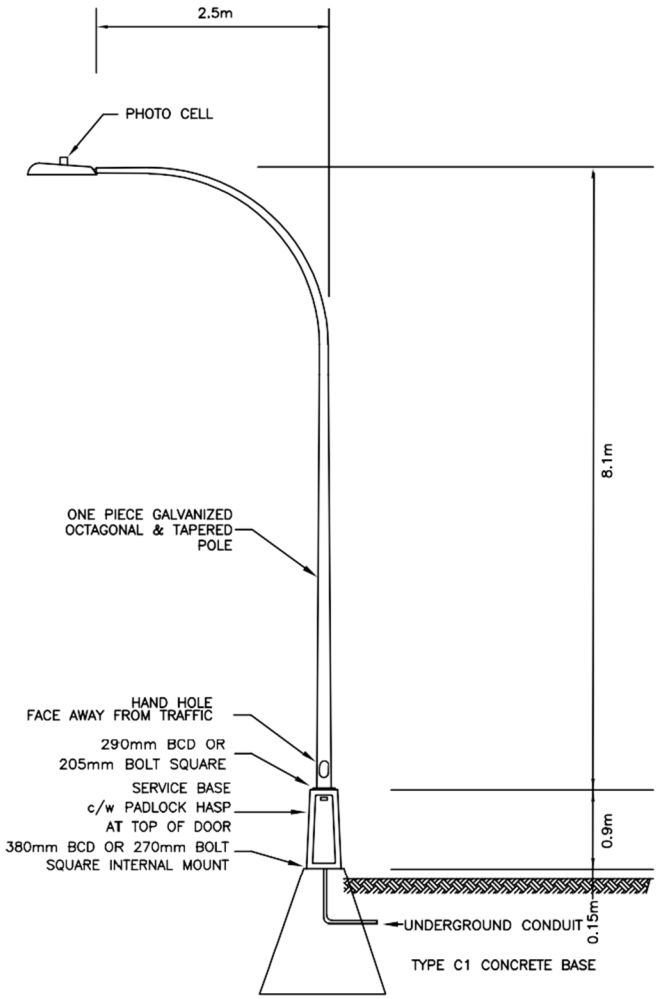
FORT ST. JOHN
The Energetic City

TREE PROTECTION DETAIL

SCALE:
NOT TO SCALE

DWG.No.
G—3

APPENDIX 6



NOTES:

1. POLE BASE TO BE INSTALLED WITH TOP 150mm (6") ABOVE FINISHED GRADE
2. POLES SHALL BE STEEL, ANCHOR BASE TYPE OCTAGONAL OR SQUARE IN CROSS-SECTION, STRAIGHT OT TAPERED FULL LENGTH WITH ONLY ONE WELDED LONGITUDINAL SEAM, DESIGNED FOR 160KMH WIND LOADING (+1.3 GUST FACTOR).
3. POLES TO BE EQUIPPED WITH REINFORCED HAND HOLE MINIMUM 120mm X 120mm AND COVER ASSEMBLY GROUNDING STUD TO BE WELDED INSIDE POLE WITHIN REACH OF HAND HOLE, COMPLETE WITH 2 NUTS.
4. DOOR TO SERVICE BASE TO FACE SIDEWALK WHERE APPLICABLE

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

FORT ST. JOHN The Energetic City	STREETLIGHT WITH SERVICE BASE	DWG.No. I – 1
	SCALE: NOT TO SCALE	APPENDIX 6