REGULAR COUNCIL MEETING – AGENDA - ADDENDUM

Addendum to the Agenda for the Regular Council Meeting scheduled for Tuesday, January 12, 2021 at 7:00 p.m. by electronic means via Zoom pursuant to Minister of Public Safety and Solicitor General of the Province of British Columbia – Emergency Program Act, updated Ministerial Order No. M192.

VILLAGE OF ANMORE

---

9. <u>Legislative Reports</u>

(c) Subdivision and Development Control Bylaw

Recommendation: That Council grant third reading, as amended under item 4.11 m. ii as attached to this agenda, to Anmore Subdivision and Development Control Bylaw No. 633-2020.

ANMORE SUBDIVISION AND DEVELOPMENT CONTROL
BYLAW NO. 633-2020

A bylaw to regulate the subdivision and development of land

WHEREAS it is deemed desirable to regulate the Subdivision and Development of land in order to promote the orderly Development of the Village; and

WHEREAS the Local Government Act, as amended, empowers the Council or the Village of Anmore to regulate and require the provision of works and services in respect of the subdivision of land, and require as a condition of approval of a building permit or subdivision that the owner of the land provide works and services on the land being developed or subdivided and on the adjacent highway, all in accordance with the works and services established in the bylaw, and

WHEREAS the Village may, under the Local Government Act, require that the owner of land that is to be subdivided or developed provide excess or extended services; and

WHEREAS the Village may, under the Community Charter, impose requirements on the owners of dikes or the persons undertaking the construction of dikes; and

WHEREAS the Council of the Village may, under the Community Charter, delegate its powers duties and functions to an officer or employee of the Village;

NOW THEREFORE, the Council of the Village of Anmore, in open meeting assembled, enacts as follows:

SECTION 1 - GENERAL

1.1 CITATION

This Bylaw may be cited as " Anmore Subdivision and Development Control Bylaw No. 633-2020".

1.2 REPEAL

Anmore Works and Services Bylaw No. 242-1998 is hereby repealed.

1.3 PURPOSE

The purpose of this Bylaw is to regulate the Subdivision and Development of land, and to require the provision, design, and construction of Works and Services including Highways. Such regulation is intended to provide orderly and aesthetically pleasing Development; to preserve the established amenities of the Village; and to ensure that Subdivisions and Developments are appropriately serviced and best suited to the use for which they are intended.

1.4 ORGANIZATION

This Bylaw is organized into sections dealing with the following subjects:

Section One	General
Section Two	Definitions and Interpretation
Section Three	Administration
Section Four	Land Dedications - Subdivision
Section Five	Works and Services Required

1.5 BYLAW SCHEDULES

Attached to and forming part of this Bylaw are the following Schedules:

Schedule A	General Requirements
Schedule B	Detailed Design Criteria
Schedule C	Standard Drawings
Schedule D	Servicing Agreement Template
Schedule E	Standard Forms
Schedule F	Approved Products List

SECTION 2 – DEFINITIONS AND INTERPRETATION

2.1 DEFINITIONS

In this Bylaw,

"Administrator" means the Chief Administrative Officer of the Municipality or a person designated to act in the place of that officer;

"Applicant" means the Owner of a Parcel who is applying for the approval of a Subdivision, or a person authorized in writing by the Owner to apply for the approval.

"Approving Officer" means a person appointed by the Village Council to act as Approving Officer pursuant to the provisions of the *Land Title Act* and *Local Government Act*.

"Arterial Road" means a road primarily for through traffic usually on a continuous route. Direct access to abutting land is not a priority.

"Building Permit" means the authorization in writing or permit issued under the current Village Building Bylaw as amended from time to time.

"Boulevard" means a portion of highway between the curb lines or the lateral boundary lines of a roadway (e.g. edge of pavement) and the adjoining property or between curbs on median strips or islands, but does not include curbs, sidewalks, ditches, or driveways.

"Collector Road" means a road that provides for traffic movement between Arterial and other Collectors and Local streets with some direct access to adjacent properties.

"Construction Inspector" means a person, who, under the direction or supervision of the Administrator inspects the construction and installation of the Works and Services.

"Construction Schedule" means a schedule indicating the planned start and completion dates of the major activities involved in constructing and installing the Works and Services.

"Developer"	means the Owner or the Developer who has the express written authority to act on behalf of and represent the Owner in carrying out Works and Services under this Bylaw.
"Develop or Development"	means an activity that requires a Subdivision or Building Permit.
"Driveway"	means access from the a Village Highway to an adjoining Highway or to a Private Property
"Engineer"	means a Professional Engineer, registered under the Association of Professional Engineers and Geoscientists in British Columbia.
"Estimated Cost"	means the total cost of constructing and installing Works and Services estimated by the Owner's Consulting Engineer and approved by the Village Official.
"Final Acceptance Certificate (FAC)"	means the written document as set out in Schedule E of this Bylaw by which the Village confirms that the Developer has fulfilled the warranty obligations and all other requirements of this Bylaw in relation to Works and Services.
"Final Subdivision Approval"	means the 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.
"Good Engineering Practices"	means engineering design and construction practices that have been in use for many years and have demonstrated their safety over time, or, design and construction processes and spoken constructability, provided that the processes are based on established engineering principles, including adequate testing of all materials and systems.
"Highway"	includes a street, road, lane, bridge, viaduct and any other way open to public use, other than a private right of way on private property;.
"Infill Lots"	means an undeveloped, surveyed lot located adjacent to or in-between serviced and/or occupied lots.

"MMCD" means the latest edition of the Master Municipal Construction Document published by the Master Municipal Construction Documents Association, in place at the time of the Application.

"Owner" means, in respect of real property:

(a) the registered Owner of an estate in fee simple;
(b) the tenant for life;
(c) the registered holder of the last registered agreement for sale; or
(d) the holder or occupier of land held in the manner referred to in the relevant sections [taxation of Crown land used by others] or [taxation of municipal land used by others], of the *Community Charter*.

"Parcel" means any lot, block or other area in which land is held or into which it is subdivided, but does not include a Highway.

"Place of Work" means all physical locations where construction is undertaken as a consequence of the Works and Services agreement.

"Record Drawings" means a documented record of the constructed Works and Services prepared with sufficient due diligence such that adequate care and attention has been allocated to fulfill the requirements of the Association of Professional Engineers and Geoscientists of British Columbia.

"Road Designations" means road classification and construction to be defined as local, arterial, collector with major and minor collectors, as identified in the Geometric Design Guide for Canadian Roads, TAC.

"Shallow or Franchise Utilities" means independent utilities shall mean private companies, crown corporations and regional government utility organizations providing services such as electric power, gas and communications (telephone, cable, microwave and fibre optic lines).

"Small Subdivisions" means subdivisions that meet the following criteria:

(a) subdivision of one or two lots or a subdivision by which fewer than three additional lots would be created if the parcel proposed to be subdivided was itself created by subdivision within the past five years.
(b) the consolidation of existing parcels.

"Standard Drawings"	means drawings as stipulated under Schedule C.
"Subdivide or Subdivision"	means the division of land into two (2) or more parcels, or the consolidation of two or more parcels into one, whether by plan, apt description, words, or otherwise
"Substantial Performance"	as defined by MMCD.
"Total Performance"	as defined by MMCD.
"Village"	means the Corporation of the Village of Anmore or the area within the boundaries of the Village of Anmore as the context requires.
"Village Engineer"	means the person appointed by the Administrator as the Engineer for the Village or his or her authorized representative as designated by the Village Council from time to time.
"Village Inspection"	means periodic inspections by the person appointed by the Administrator for installation of the Works and Services.
"Village Official"	means the Approving Officer, Administrator or other authorized representative of the Village designated by the Village Council.
"Works and Services"	includes Highways, sidewalks, boulevards, boulevard crossings, transit bays, street lighting, wiring, electrical distribution systems, water supply and distribution systems, fire hydrant systems, sewage collection and disposal systems, drainage collection and disposal systems and such other infrastructure or systems that are required by this Bylaw in connection with the Subdivision or Development of land.
"Zone"	means a zone as defined under the Village of Anmore Zoning Bylaw.

2.2 Unless otherwise defined herein, any word or expression in this Bylaw shall have the same meaning as any similar word or expression in the *B.C. Motor Vehicle Act*, the *Local Government Act*, the Anmore Zoning Bylaw, or any regulation or Schedule to the enactment and in case of conflict the *Local Government Act* shall prevail.

2.3 INTERPRETATION

2.3.a In this Bylaw whenever words are used implying the Subdividing or Subdivision of land, those words shall be deemed to refer to the division of land into two or more parcels, whether by plan or by meets and bounds description or by a replotting scheme or otherwise.

2.3.b Where the text refers to the word "Subdivision" it shall be deemed that the requirements also apply to "Developments", where applicable, which may not involve the Subdivision of land.

2.3.c A reference to a statute in this Bylaw refers to legislation adopted by the Province of British Columbia unless otherwise indicated, and a reference to an enactment, including a statute, regulation code or bylaw refers to that enactment as it may be amended or replaced from time to time.

SECTION 3 - ADMINISTRATION

3.1 COMPLIANCE WITH BYLAW

No person shall Subdivide a Parcel or undertake Development of land in the Village of Anmore except in compliance with the provisions of this Bylaw.

3.2 AUTHORITY TO ENTER LANDS

The Village Official is authorized to enter at all reasonable times on any property or premises to inspect same in connection with their duties under this Bylaw and to ascertain whether the provisions of this Bylaw are being complied with, subject to the *Community Charter*.

3.3 APPLICANT'S RESPONSIBILITY AND OTHER LEGISLATION

Nothing in this Bylaw shall relieve the Applicant from the responsibility to comply with every enactment applicable to their undertaking. Neither the granting of a permit nor the issuance or review of any plans, specifications or documents or any inspection made by any Village employee shall in any way relieve the Applicant from compliance with all enactments.

3.4 SEVERABILITY

The provisions of this Bylaw are severable. If any provision is for any reason held to be invalid by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this Bylaw.

3.5 DELEGATION

The Council hereby delegates, pursuant to the relevant provisions of the *Community Charter*, to the Administrator or Approving Officer, the following powers of Council under the Local Government Act to:

3.5.a require the Developer, Owner or Applicant to construct excess or extended services as defined in the *Local Government Act*;

3.5.b determine whether the cost to the Village to provide the excess or extended services would be excessive and, in that event, the cost that must be paid by the Developer, Owner or Applicant;

3.5.c determine the benefit of the excess or extended services that may be attributed to each of the Parcels that will be served by the services;

3.5.d impose latecomer charges as defined under the Local Government Act;

3.5.e Where the Village Administrator or Approving Officer exercises a power in accordance with subsections 3.5.a to 3.5.d above, the person that is subject to that decision is entitled to have Council reconsider the matter, provided that:

i) The person who wishes to have Council reconsider the matter shall give written notice of its request for reconsideration to the Village's Corporate Officer within thirty (30) days of receiving the decision from the Village Official, and such notice must include a description of the grounds upon which the request for Council reconsideration is made;
ii) Upon receipt of a written notice for reconsideration by the Village's Corporate Officer within the timeframe noted above, the Corporate Officer shall schedule the time, date, and place for Council to hear the reconsideration and notify the person accordingly; and
iii) In reconsideration of a decision made by the Village Official, Council may confirm, amend, or set aside the decision, as it may deem appropriate in the circumstances.

SECTION 4 – LAND DEDICATION - SUBDIVISION

4.1 HIGHWAY ALLOWANCES

4.1.a When the Applicant proposes a Highway allowance in a plan of Subdivision, the

Village Official will consider the sufficiency of the Highway allowance or Right of Way by determining the road classification. Road Designations shall be based on a hierarchy of roads integrated into the existing or proposed adjoining road pattern, and are determined in relation to land use, configuration of the land, the classification of the existing or approach Highway, in accordance with this Bylaw.

4.1.b The Applicant shall provide, without compensation, land for Highway provisions and widening as identified by the Approving Officer in accordance with the *Local Government Act*.

4.2 EMERGENCY ACCESS

If an emergency access is deemed necessary by the Administrator, it shall be provided in accordance with the standards set out in Schedule B to this Bylaw.

4.3 PARKLAND DEDICATION ON SUBDIVISION

4.3.a The Applicant shall satisfy the requirements of the Approving Officer with respect to the provision of parkland in accordance with the requirements of the *Local Government Act* and the Official Community Plan.

4.3.b If it is determined that cash-in-lieu of parkland dedication is exercised, the amount to be paid shall be equivalent to 5.0% of the current market value of all the land proposed for Subdivision in accordance with provisions of the *Local Government Act*.

SECTION 5 – WORKS AND SERVICES REQUIRED

5.1 SERVICING REQUIREMENTS - GENERAL

5.1.a Except as herein provided, no person shall Subdivide or Develop land except in conformity with the relevant requirements of this Bylaw, unless otherwise agreed upon by the Administrator. All Works and Services required to be constructed and installed and all other requirements of this Bylaw shall be completed at the sole expense of the Developer.

5.1.b Except as herein provided, unless otherwise approved by a Development Variance Permit, issued by the Council, servicing shall be as set out in this Bylaw and all construction and installation shall be carried out in conformity with requirements of Schedule D to this Bylaw.

5.1.c The Owner of any lands which are proposed to be Subdivided or Developed shall provide each parcel of land within the proposed Subdivision or Development with the following:

i) **Roads**
All existing Highways immediately adjacent to lands being Subdivided or Developed shall be constructed in accordance with the standards herein and all new Highways within land subject to a proposed Subdivision or Development shall be dedicated and constructed in accordance with the standards herein.

ii) **Sidewalks, Boulevards, Street Lighting**
Sidewalks, Boulevards and street lighting on all Highways in and immediately adjacent to the lands in accordance with the standards contained in Schedules B and C.

iii) **Water Distribution System**
A water distribution system including the standard service connection, which shall be constructed in accordance with the standards contained in Schedules B and C, and shall be connected by trunk water mains to an existing municipal water supply system. If a Subdivision or Development is proposed and is not connected to an existing municipal water supply system, the Developer shall connect the subject land or obtain and demonstrate that all regulatory approvals necessary have been secured.

iv) **Sanitary Sewer System**

A sanitary sewer collection and disposal system including the standard service connection, constructed in accordance with the standards contained in Schedule B and C, and the sewer system shall be connected by trunk sewer mains to an existing municipal treatment and disposal sanitary sewer system. If a Subdivision or Development is proposed and is not connected to an existing municipal system, the Developer shall connect the subject land or obtain and demonstrate that all regulatory approvals have been secured.

v) **Storm Drainage Collection System**
A storm drainage collection system including the standard service connection, constructed in accordance with the standards contained in Schedules B and C, and the municipal drainage system shall be connected by trunk drainage mains to a municipal drainage system of the Village. If a Subdivision or Development is proposed and is not connected to an existing municipal system, the Developer shall connect the subject land or obtain and demonstrate that all regulatory approvals have been secured.

5.1.d The Owner of any lands which are proposed to be Subdivided may be required by

the Approving Officer, prior to the issuance of a preliminary notification, to provide any or all of the requirements outlined in sections 2.2, 2.3, 2.4 and 2.5 of Schedule A.

5.1.e If, in the opinion of the Village Official, the installation of the Works and Services in accordance with this Bylaw in respect of the Subdivision or Development of a particular site would not be in accordance with sound civil engineering practice because such Works and Services are best installed on an area-wide basis, the Owner may, in lieu of constructing and installing the Works and Services be permitted, upon Village approval, to make a cash payment to the Village, in the amount estimated by the Consulting Engineer as the design construction and installation value of the Works and Services. The Village shall hold such payments in a reserve fund to be expended on the installation of such area-wide Works and Services at such time as may reasonably be determined by the Village Official. On infill lots and Small Subdivisions if it is not recommended to upgrade the frontage or collect cash in lieu for the Village to complete the Works and Services, and when there are no plans to upgrade the entire Highway, then the Village Official at the time of Preliminary Layout review or the Village Official at the time of the Servicing Agreement or Building Permit has the authority to waive the construction and cash requirements.

5.1.f Where a bylaw has been approved by Council, in the form of a sub-area or neighbourhood plan, and the bylaw contains provisions that conflict with this Bylaw, the neighborhood or sub area plan shall take precedence only over the relevant applicable sections of this Bylaw where such conflicts exist.

5.1.g The Village may request a financial sustainability report from the Developer. This report should identify the life cycle cost of the proposed infrastructure and potential tax revenue generated by the development. The purpose of the report is to ensure the Village is not inheriting an infrastructure burden when accepting a Subdivision.

5.2 STATUTORY RIGHTS-OF-WAY

For the purpose of constructing and installing or maintaining Works and Services, statutory rights-of-way in the form of the Village's standard agreements and plans shall be provided by the Owner, at the Owner's cost, where Works and Services are not located in Highways and shall be registered in the Land Title Office and shall run with the land. It is the responsibility of the Applicant to negotiate and secure any Rights-of- Way or Easements necessary to the application and to process the legal documentation to its registration in Land Title Office, and pay all direct or indirect costs including:

5.2.a B.C. Land Surveyor costs;

5.2.b Legal fees;

5.2.c Registration costs and fees including Land Titles Office fees.

The Village Official may require the Applicant to provide a lawyer's or notary's undertaking satisfactory to the Village's solicitor to ensure registration of these documents is completed.

5.3 EXCEPTIONS TO SERVICING REQUIREMENTS

5.3.a **Where the Works and Services Exist**
Without limiting the generality of Section 5.1, the Applicant will not be required to provide a particular Work or Service where that particular work or service exists in accordance with the standards required in Schedules A, B and C to this Bylaw.

5.3.b **Subdivisions for Specific Purpose**
The Works and Services requirements of this Bylaw do not apply to a Subdivision, which creates only:

i) a Highway dedication;
ii) park land;
iii) a parcel for the installation of public utilities and related structures and equipment;
iv) a consolidation or a lot line adjustment, in which the number of buildable lots is not increased and the land use is residential single unit dwelling or two unit dwelling only.

5.4 WORKS AND SERVICES IMPRACTICAL TO BUILD

5.4.a If it is not practical to build all or part of the required Works and Services until a project of greater scope proceeds, and

5.4.b If the Work or Service is not immediately required for the Subdivision or the building, the Developer may not be required to build the part so identified by the Village Official. Instead the Developer may be required to provide the Village with cash in lieu of the required works or security, in the form of cash, certified cheque or irrevocable Letter of Credit in an amount, accepted by the Village Official, to equal the cost of designing, constructing and providing the Work or Service. The funds will be placed by the Village in a reserve fund until they are used to provide or complete the Work or Service

5.5 LEVELS OF WORKS AND SERVICES REQUIREMENT

If Development is to be connected to existing servicing, the Developer must provide all municipal services including roads conforming to the typical road cross sections and required standards. The exception tothis condition is when a Development is located in a rural area of the Village and cannot be reasonably connected to existing servicing. In these locations, the Developer may provide sanitary services by way of a septic system that conforms with Provincial enactments and water services by way of a well that conforms with Provincial enactments.

5.6 CONSTRUCTION OF THE WORKS

If it is in the Village's opinion that the Contractor selected by the Developer, is not qualified to perform the required Works as described in the Servicing Agreement, the Village will provide a list of acceptable Contractors to perform the Works. The costs associated with an alternative will be borne by the Developer solely.

5.7 ALTERNATE SERVICE LEVELS

The Village Official may, in their sole discretion, require or consider and accept or reject alternate service levels, specifications or designs for Works and Services outlined by this Bylaw that, in the opinion of the Village Official, provide environmental or technical solutions that:

i) achieve a level of performance that meets or exceeds the level of performance that would be achieved by strict adherence to the service levels, specifications or designs contained in this Bylaw; or
ii) otherwise meet the service levels, specifications or designs contained in this Bylaw.

READ a first time the 15th	day of December, 2020	
READ a second time the 15th	day of December,2020	
READ a third time the	day of	,2020
ADOPTED the	day of	,2020

_____

MAYOR

_____

CORPORATE OFFICER

SCHEDULE A
ANMORE SUBDIVISION AND DEVELOPMENT CONTROL BYLAW NO. 633-2020
GENERAL REQUIREMENTS

1.0 GENERAL INFORMATION
2.0 GENERAL DESIGN CRITERIA

SECTION 1 – GENERAL INFORMATION

1.1 INTRODUCTION

Schedule A to the Anmore Subdivision and Development Control Bylaw identifies the General Information required by the Village.

1.2 SCOPE AND USE OF SCHEDULE A

Schedule A is prepared for providing guidelines to the Developer and the development industry in the design of engineering servicing facilities and systems to be incorporated in the utilities infrastructure of the Village.

It is intended to provide a minimum design criteria and standard for proposed works. The onus is on the Developer to ensure that their designs meet accepted engineering principles and good engineering practices and are adequate for the site conditions and their accepted uses.

1.2.a Master Municipal Construction Documents (MMCD), Current Edition

The provisions of the Bylaw are to be applied in conjunction with the Master Municipal Construction Documents, most current edition, which otherwise apply to all Works and Services constructed within the Village.

Where the provisions of this Bylaw are in conflict with the Master Municipal Specifications, the provisions of this Bylaw take precedence, unless otherwise agreed to in writing by the Village Engineer.

1.2.b Master Municipal Construction Documents (MMCD), Design Guideline Manual, Current Edition

The provisions of this Bylaw are to be applied in conjunction with the Master Municipal Design Guideline Manual, most current edition, which otherwise applies to all Works and Services constructed within the Village.

Where the provisions of this Bylaw are in conflict with the Master Municipal Design Guideline manual, the provisions of this Bylaw take precedence, unless otherwise agreed to in writing by the Village Engineer.

SECTION 2 – GENERAL DESIGN CRITERIA

2.1 INTRODUCTION, SURVEY INFORMATION, DRAWING SUBMISSION

The purpose of this section is to outline the minimum standards and requirements the Village will accept in the design for Works and Services.

It is the specific intent of the Village to require quality submissions for design of Works and Services and Record Drawings submissions. It is recommended that whenever engineering works are required or proposed, the Consulting Engineer arrange for a pre-design meeting to ensure compliance with the latest Village standards, specifications and policies.

Incomplete or substandard design submissions will be returned to the Consulting Engineer. A subsequent re- submission which remains incomplete or sub-standard will result in a request to meet with the Consulting Engineer, the Developer and the Village Engineer.

Where a question arises, please contact the Village Engineer for clarification, in writing. All submissions shall reflect and comply with the following:

2.1.a All applicable requirements of this Bylaw.

2.1.b All applicable requirements of the Village, including but not limited to:

i) The Official Community Plan
ii) The current Zoning Bylaw(s)
iii) The current Building Bylaw

2.1.c Be designated and dimensioned in Standard Metric units.

2.2 GEOTECHNICAL AND HYDROGEOLOGICAL DESIGN CONSIDERATIONS

The Consulting Engineer shall incorporate Geotechnical and Hydrogeological input into their design such that an appropriate level of Geotechnical Investigations, calculations

and recommendations are performed to confirm that the Works and Services will perform as intended for the duration of the design life.

2.3 SURVEY INFORMATION

2.3.a Anyone employed by the Developer must have permission of the registered Owner before entering private property.

2.3.b All surveys shall be to elevation and coordinates derived from the Geodetic Datum, Geodetic Survey of Canada CGVD2013 and NAD83. All drawings must confirm which Geodetic Datum is referenced for elevations.

The horizontal coordinates shall be referenced to the NAD83 UTM coordinate system. A minimum of two reference points with coordinates shall be shown on each design drawing. A minimum of one reference bench mark or GPS control point with elevation shall be shown on each design drawing.

2.3.c Originating benchmarks and integrated survey monuments shall be noted on all plans as well as those to be established in the work.

2.3.d Copies of legible field notes shall be made available to the Village upon request.

2.3.e Centre lines (or offset lines) or base lines are to be marked and referenced in the field and all chainages and coordinated layout points shall be keyed to the legal posting.

2.3.f All existing items such as manholes, catch basins, valves, fire hydrants, poles, streetlights, sidewalks, ditches, let downs, parking bays, edges of curb/road, existing dwellings, fences, trees, hedges, watercourses and setbacks, and unusual ground conditions shall be noted.

2.3.g Where applicable, roadway cross sections and other pertinent features will be required. The section shall include centreline, edge of pavement or gutter line, edge of shoulder, ditch invert, top of ditch, property line, and an existing ground elevation inside property line.

2.4 DESIGN DRAWING SUBMISSION

2.4.a All drawings submitted to the Village shall be prepared in metric, on standard A1

sheets/scales, in accordance with the following requirements and all other applicable requirements of this Bylaw.

2.4.b All drawings submitted to the Village shall be signed and sealed by a Professional Engineer registered under the Association of Professional Engineers and Geoscientists of British Columbia.

2.4.c All drawings submitted to the Village shall be based on digital coordinates that derive from the project survey information. Design submissions that originate purely from baseline offsets, either physical or otherwise, will not be accepted by the Village.

2.4.d A complete set of Engineering Design drawings shall include, in the following sequence:

i) **Cover Sheet**
The Cover Sheet shall note the Consulting Engineer's name, the Developer's name, the Village project number in the bottom right corner, if applicable, the legal description of the lands involved, a site plan at a 1:5,000 scale, and an index of plans, with revision numbers.

The site plan shall note all proposed roads and the proposed subdivision layout. The cover sheet may be utilized to show the drainage catchment area.

General notes should be located on this sheet.

ii) **Key Plan**
The Key Plan shall be at a 1:500 scale and shall note all proposed services, including street lighting. If more than one sheet is required, note the westerly or southerly portion first and identify as Key Plan "A" with additional plans noting "B" and "C", etc.

iii) **Storm Water Management Plan**
The Storm Water Management Plan shall be 1:500 scale and identified as per key plan system if more than one sheet is required.

iv) **Water**

Plan and profile drawings shall show all grades, inverts, curves, radii, valves, hydrants, bends, and other features. The scale shall be 1:500 for plans and 1:50 for profile. The full pipe shall be shown for the watermain on the profile. All cross over points with sewers shall be noted.

v) **Storm Sewers**

Plan and profile drawings shall show grades, inverts, manholes, catch basins, and other features. The scale shall be 1:500 for Plan and 1:50 for profile. Symbols to denote the service connection elevation at the property line shall be shown on the profile plan. Minor and major system hydraulic grade lines may be required at the discretion of the Village Engineer. The full pipe shall be shown on the profile.

vi) **Sanitary Sewers**

Plan and profile drawings shall show grades, inverts, manholes, and other features. The scale shall be 1:500 for Plan and 1:50 for profile. Symbols to denote the service connection elevation at the property line shall be shown on the profile plan. The full pipe shall be shown on the profile.

vii) **Roads**

Plan and profile drawings shall show all driveways, alignments, grades and location of Canada Post Mail Boxes. The scale shall be 1:500 for plans and 1:50 for profiles.

viii) **Road Cross Sections**

Road cross-sections shall be scaled at 1:100 horizontal and 1:50 vertical and shall note the existing ground elevation, the proposed elevations of the road centreline, the curb and gutter (or road edge) and property lines. Cross-sections are required at 20.0 m intervals.

Additional sections may be required where excessive cuts or fills are involved.

ix) **Street Lighting Plan**

Street Lighting plans shall be a plan view (1:500) of the street lighting proposal designed, signed and sealed by a Professional Engineer. There shall be General Notes included on the Plan noting reference(s) to the Village Standards and Specifications and the appropriate design criteria. Any

street lighting plan(s) should be accompanied with the photometric calculations.

x) **Construction Details**

Construction Details shall show a proposal for construction which are not covered or specifically detailed in the Village Standards and Specifications or as per MMCD. Where there is a Village Standard, it is expected to refer to the Drawing Number. It is not necessary to include or provide drawings for work(s) for which there is a Village Standard Drawing.

xi) **Lot Grading Plan**

Lot Grading Plan shall be at 1:250 scale and shall generally illustrate pre- and post- development contour lines at a maximum of 1.0 m intervals which shall match the pre- development contour lines at the development boundary, or as designed by the Consulting Engineer and approved by the Village Engineer. Plan can be at 1:500 scale for larger subdivisions when approved by the Village Engineer. Delineate with shading to show cut and fill areas and cut and fill volumes. The topographic information shall extend a minimum of 30.0 m outside of the development boundary. All existing lot corner elevations to be illustrated (not circled) and all proposed lot corner elevations to be illustrated (circled). Plan to illustrate proposed building envelope with the Minimum Building Elevation (MBE) noted along with accesses to lots identified. Proposed lot slopes to be noted and any retaining structures, significant grade breaks and surface drainage infrastructure to be illustrated.

xii) **Erosion and Sediment Control Plan**

Erosion and Sediment Control Plan shall be at 1:500 scale and shall generally illustrate the extent of lot by lot tree clearing, grubbing and stripping, and location of on-site sediment and erosion control features to restrict the migration of sediments during construction. This includes silt fencing, sediment basins, construction vehicle access points, construction vehicle wash facilities, maintenance stockpile storage locations etc. Drawings shall provide details and notes describing the installation and maintenance of all features and shall provide delineation, with appropriate construction notes of any environmentally sensitive areas and features. Plan shall identify any works and services required by other approval authorities' requirements.

xiii) **Signage**
Signage design to be submitted and included with the line marking road design and boulevard planting drawings.

2.4.e The Consulting Engineer's seal and signature shall be noted on sheets of final design submissions. Digital signatures secured with a digital certificate are acceptable when submitting digital versions of drawings. The Consulting Engineer's seal and signature shall confirm that the Works and Services as proposed are structurally sound, comply with the applicable design criteria of this Bylaw, and Good Engineering Practice.

2.4.f Notwithstanding the previously detailed requirements, the following additional information is to be noted in design submissions to the Village:

i) The size, grade, inverts, and type of material on profile sections;

ii) The locations, off-sets, curvatures, size and identification of the mains noted on the Plan sections;
- the clearance between mains at cross-over points;
- all existing structures, including houses, sheds, fences, wells, septic tanks and fields, shall be shown on the appropriate drawings(s), with a notation indicating their fate (i.e. to be removed, filled, etc.);
- in rural subdivisions, with an open ditch drainage system, note the size of (future) driveway culverts required to conform to the design.

iii) The first complete design submission shall consist of:
- two complete printed sets of drawings unless directed otherwise by the Village;
- digital version of drawings;
- soils investigation report (to verify road structure design);
- photometrics (lighting calculations) for street lighting plans if specifically required by the Village Engineer;
- all applicable utility hydraulic calculations and structural (water, sanitary, storm sewer);
- any additional design briefs identified as necessary by the Village Engineer;
- Construction and installation cost estimate (under seal of the Consulting Engineer).

iv) Subsequent design submissions requiring changes to the previous

submission shall consist of:

- two complete printed sets of drawings unless directed otherwise by the Village;
- digital version of drawings;
- a complete construction cost estimate;
- all submissions subsequent to first submission shall have highlighted, with 'revisions clouded' areas, any changes made by the Consulting Engineer including and in addition to "Red Line" changes required by the Village;
- items 'Red Lined" must be addressed by the Consulting Engineer. Failure to do so will result in submissions being returned.
- failure to highlight changes may render them null and void.

v) The final submission for Village acceptance shall consist of:

- two complete printed sets of drawings unless directed otherwise by the Village;
- digital copies of design drawings in pdf and AutoCAD (latest version) format.

2.4.g All design and record drawings to be submitted based on MMCD standards.

i) Digital drawing submissions shall follow the latest MMCD standard for AutoCAD symbols, layers & line types, with drawing creation using MMCD AutoCAD templates.

2.5 CONSTRUCTION COST ESTIMATE CALCULATIONS

2.5.a The construction cost estimate shall be broken down in a format as defined in MMCD.

2.5.b Hydro, gas, cable and telephone cost estimates are required and the estimated costs are to be included in the security deposit required under the Subdivision Servicing Agreement. These items and costs will be reviewed and amended where or if necessary.

2.6 SERVICE CONNECTION CARDS

The Consulting Engineer will provide service connection cards for each development where available. These cards are to indicate clearly and accurately, the location, depth and size, and material of construction, of each Village utility connection. The Village

project number shall be required on all cards. Service Connection Cards are considered part of the Record submission and shall be provided in paper copy in addition to pdf and AutoCAD (version as request by the Village) formats.

2.7 RECORD SUBMISSIONS AND ASSET MANAGEMENT SCHEDULE

The following procedures are required in the delivery of Record Submissions and Asset Management Schedules to the Village.

2.7.a The Consulting Engineer shall submit two complete sets of paper prints of the revised design drawings reflecting the as-constructed works and services, including hydro, telephone and cable Records, except for the road cross-section sheet(s), and a complete set of Service Connection Cards for Village review.

2.7.b One marked-up set of the Record paper prints will be returned to the consultant for revision. If there are minor changes, it may be requested that the prints with the revisions noted, be submitted for Village acceptance. If there are numerous amendments, it is likely that the Consulting Engineer will be required to resubmit two sets of revised paper prints for a second review.

2.7.c The Consulting Engineer will be required to submit the following:

i) A digital copy of the CAD files containing the Record drawings.
ii) A digital .pdf files containing Record Drawings signed and sealed by the Professional Engineer.
iii) Two sets of paper prints with the signature and seal by the Professional Engineer who supervised the required inspections.

2.7.d The Village shall receive all documentation in 2.7.c prior to issuing Substantial Performance for the project unless otherwise approved by the Village Official.

A Schedule for Asset Management and Costing consisting of quantities and actual unit prices, of all underground and surface works infrastructure to be owned by the Village. Works and Services shall be grouped by road segment between intersections. Where assets might overlap at intersections, the asset is to be assigned to the primary road. An Excel and .PDF copy is to be submitted in a format as prescribed by the Village.

SCHEDULE B
ANMORE SUBDIVISION AND DEVELOPMENT CONTROL BYLAW NO. 633-2020
DETAILED DESIGN CRITERIA

SECTION 1.0 – GENERAL DESIGN CONSIDERATIONS

The purpose of the design criteria is to supplement and clarify items as described in the latest edition of the MMCD Design Guidelines and Transportation Association of Canada (TAC). The designer must comply with all requirements included in reference documents unless otherwise noted herein or specifically pre-approved in writing otherwise by the Village Engineer.

1.1 SUSTAINABILITY AND ASSET MANAGEMENT

1.1.a The principles of sustainability and asset management shall be based on MMCD methodology as described in Sections 8, 9 and 10 of the current edition of the MMCD Design Guidelines.

1.1.b Should any conflicts arise between this Bylaw and the current edition of the MMCD Design Guideline, the written content of this Bylaw shall govern.

1.1.c Engineers retained by the Developer shall consult the Village Engineer to determine the appropriate balance of sustainability and asset management principles.

1.2 INDEPENDENT UTILITIES

1.2.a Independent utilities such as electrical power, communications and gas are not supplied by the Village and are not included in this design criteria.

1.2.b Engineers retained by the Developer shall design infrastructure to avoid

conflicts with independent utilities.

1.3 UTILITY RIGHTS OF WAY

1.3.a Utility right-of-way requirements shall follow MMCD methodology.

1.4 UTILITY SEPERATION

1.4.a Utility separation shall follow MMCD methodology and BC provincial regulations.

1.5 TRENCHLESS TECHNOLOGIES

1.5.a The use of trenchless technology shall follow MMCD methodology.

1.6 SEISMIC DESIGN STANDARDS

1.6.a Seismic considerations for infrastructure design shall follow MMCD methodology.

1.6.b Engineers retained by the Developer shall consult the Village Engineer to confirm the appropriate material and connection specifications prior to designing infrastructure.

1.7 VILLAGE ELECTRICAL DISTRIBUTION AND COMMUNICATIONS

1.7.a All control circuits shall be on circuit breakers, not fuses.

1.7.b All electrical cabinets are to be stainless steel or other approved by the Village Engineer.

1.7.c All electrical distribution equipment shall be located in a separate cabinet from SCADA equipment.

1.7.d All Village facilities connected to the Village SCADA network that are part of a single development shall be interconnected with their own communications conduit.

1.7.e All SCADA sites are to come with indoor and outdoor ambient air and roadway temperature sensors.

SECTION 2.0 – WATER DISTRIBUTION

The purpose of the design criteria is to supplement and clarify items as described in the latest edition of the MMCD Design Guidelines. The designer must comply with all requirements included in reference documents unless otherwise noted herein or specifically pre-approved in writing otherwise by the Village Engineer.

2.1 GENERAL

a. The water distribution system design shall be prepared under the direction of a design professional who has the appropriate experience and is registered with the Association of Professional Engineers and Geoscientists of British Columbia.

b. Design professionals retained by the Developer to design the works and services must consult with the Village Engineer to determine what existing information may be of assistance to them.

c. The water system design is to be done using a calibrated water model acceptable to the Village unless the systems design, as determined by the Village Engineer, is not complex.

d. Geotechnical reports shall provide review of soil corrosiveness and design submissions shall include recommendations for necessary corrosion protection of all infrastructure susceptible to damage due to soil corrosion, where applicable.

e. Approval from Fraser Heath is required prior to construction, installation, alteration or extension of a water system. Note, the Developer will be required to submit documentation to the Health Authority, once drawings and specifications are approved and provide approval confirmation to the Village Engineer.

2.2 METERING

a. Strata lots, including bareland strata lots, shall provide the meter at the property line, or as directed by the Village Engineer.

b. All meters, where required, shall be supplied and installed by the Developer under the direct supervision of the Village staff. Refer to Approved Products List for acceptable meters.

c. Where developments require water meters to be installed outside of buildings, the outside meter chambers, vaults or enclosures shall include the same requirements as listed under Chambers

2.3 PER CAPITA DEMAND

The design criteria noted in Table 2.3.1 must be used for most applications. Where the flow characteristics of the development area are substantially different, the criteria may be modified with written approval from the Village Engineer.

Table 2.3.1 – Per Capita Demand	
Average daily demand, domestic flow	**550 litres/capita/day**
Maximum daily demand, domestic flow	**2x average day demand**
Peak hour demand, domestic flow	**3x average day demand**

a. The population densities in table 2.3.2 are to be used when applicable.

Table 2.3.2 – Population Densities	
Single Family Residence	**3.5 people per unit**
Townhome	**3.1 people per unit**
Condo/apartment	**2.1 people per unit**

2.4 NON-RESIDENTIAL DEMAND

a. Non-residential demand shall be as indicated by MMCD.

2.5 FIRE FLOWS

a. Fire flow and storage demand shall follow MMCD methodology and the Fire Underwriter Survey of Canada.

b. Where a difference arises between MMCD minimum requirements and the current edition of the "Water Supply for Public Fire Protection – A Guide to Recommended Practice" published by Fire Underwriters Survey, the more stringent requirements shall take precedence, unless the Village provides a relaxation.

2.6 DESIGN FLOWS

a. Design for water distribution systems shall be based on MMCD methodology.

2.7 WATER PRESSURE

a. The design criteria noted in this subsection must be used except where, in the opinion of the Village Engineer, the flow characteristics of the development area are substantially different, at which time the criteria may be modified to take into account the differences.

b. The water system must be designed to provide domestic water at the design building main floor elevation of each parcel in accordance with Table 2.7.1

Table 2.7.1 – Design Pressures	
Minimum pressure at Peak Hour Demand	300 kPa (44 psi)
Maximum allowable pressure	850 kPa* (123 psi)
Minimum pressure in system during design Fire Flow plus Maximum Day Demand	150 kPa (22 psi)

*Subject to approval from the Village Engineer, the maximum allowable pressure may be increased to 1035 kPa (150psi) for systems with multiple pressure zones.

2.8 HYDRAULIC DESIGN

a. Hydraulic design shall follow MMCD methodology.

b. Where the existing water system network is inadequate to provide minimum flow and pressure to a property, installation of supplementary mains may be required from the Developer and may necessitate the provision of rights-of-way in favour of the Village.

2.9 MINIMUM PIPE DIAMETER

a. Minimum watermain size shall be the more stringent of requirements stated in MMCD or as demonstrated by a comprehensive hydraulic network analysis.

b. Minimum water service size to residential lots shall be 38mm.

2.10 DEAD ENDS

a. Where dead ends are unavoidable and approved by the Village, the Village will require one or more of the following:

i. Permanent automatic flush valve
ii. Portable automatic flush valve

iii. Fire Hydrant
iv. Blow Down/Blow Off

2.11 MINIMUM DEPTH OF COVER

a. Minimum depth of cover shall be 1.0m in addition to meeting all other requirements specified by MMCD.

b. Cover over pipe above 3.0m requires approval from the Village Engineer and supported by load calculations.

c. Depth of cover must allow for excavation via open trench with sloped sides in accordance with WorkSafeBC regulations and within the bounds of the right of way. This trench must not interfere structurally or operationally with any other utility or undermine nearby structures.

2.12 GRADE

a. Criteria for pipe grades shall be as specified by MMCD requirements.

2.13 CORROSION PROTECTION

a. Corrosion protection and assessment of corrosive soils shall be as indicated in MMCD.

2.14 VALVES

a. In addition to the location of valves specified by MMCD, valves are required at the following;

i. **4** valves at “X” intersection;
ii. **3** valves at “T” intersection, including hydrant branch tees;
iii. At both ends of a utility Right-of-Way, water course boundary line, Provincial Highway;
iv. It must be possible to isolate a section of water main by operating no more than 4 valves;
v. Additional valves may be required due to phasing of subdivision development and as determined by the Village Engineer.

b. Resilient seat gate valves are required on mains smaller than 450 mm diameter.

2.15 HYDRANTS

a. The Developer's Engineer must consider the existing and intended use in the area, and ensure that adequate spacing is provided in accordance with MMCD requirements.

b. Hydrants shall be located as specified by MMCD.

   i. The location of the hydrants shall be a minimum **1.5 m** clear of all existing or proposed utilities and features such as street lights, power poles, transformers or driveways, etc. and shall be 2.0m from back of curb or 0.6m from back of sidewalk

   ii. In mid-block locations, fire hydrants shall be located at the property line corners, unless otherwise approved.

   iii. Hydrant access provisions may be required and placed strategically and shall be reviewed and approved by the Village Engineer. Where the road cross-section provides ditched drainage, a culvert crossing shall be provided to permit unobstructed access up to the fire hydrant. Culverts shall be installed per MMCD standard drawings.

   iv. Minimum distance from the finished ground elevation to a hydrant port is 450 mm (18 inches). The maximum distance for this measurement is 815 mm.

   v. For cul-de-sac roads, hydrants shall be located at the last lot before the cul-de-sac bulb.

2.16 BLOW OFFS AND BLOW DOWNS

a. Blow-offs and blow-downs are to be provided as specified by MMCD.

b. Where practical, and approved by the Village, a hydrant may serve a secondary role as a blow-off or blow-down.

2.17 TEST POINTS

a. Test Points shall be installed on all watermains as specified by MMCD at strategic locations approved by the Village Engineer and coordinated with Village of Anmore Public Works Department.

b. Install test point assemblies as per manufacturers' recommendations.

2.18 AIR VALVES

a. Air valves must be installed under conditions indicated by MMCD and be dual acting.

2.19 THRUST RESTRAINTS

a. Mechanical joint restraints shall be provided at all fittings requiring thrust restraint. The Engineer shall indicate on the design drawings the number of joint restraints required to resist the thrust at the fittings as well as type, manufacturer, and model number of the joint restraint.

.

b. The Consulting Engineer's design may use concrete thrust blocks with prior approval from the Village Engineer. The design shall give due regard to soil bearing pressures, pipeline pressure transients and expected test pressures. Thrust block design calculations and soil bearing pressures must be shown on the design drawings.

c. Mechanical joint restraints shall be used on all water main joints designated by the Village Engineer as "lifeline service mains in case of disaster". The decision as to which mains are to be so designated is at the discretion of the Village Engineer.

2.20 CHAMBERS

a. Chambers shall be designed with provisions as stipulated in MMCD and the following;

i. watertight structures;
ii. drainage and ventilation;
iii. protection against freezing;
iv. adequate access and interior space for maintenance and equipment removal;
v. Minimum headroom of 2.0 m;
vi. full open access to avoid confined space restrictions;
vii. permanent ladder to WorkSafeBC regulations;
viii. piping primed and painted with a rust-inhibiting paint;
ix. meter bypass;
x. remote radio reading capability;
xi. Structural design to withstand vehicle wheel loadings;
xii. additional requirements as identified by the Village Engineer.

2.21 SERVICE CONNECTIONS

a. Service connections shall be designed with provisions as stipulated in MMCD and the following:

   i. Service connection size shall be as indicated under sub-heading “minimum pipe diameter”.

   ii. All water connections for industrial, commercial and institution land use shall have a double check valve that is certified and installed on the private system. The level of backflow protection shall be based on an assessed risk of potential backflow contamination.

   iii. Main stops must be staggered and not less than 2.0 m apart, along the main line. All connections to have stainless steel inserts and include poly pipe specifications.

   iv. Services and curb stops must have a minimum cover of 1.0 m and must not be deeper than 1.5 m.

   v. All single family detached and single lot duplex housing developments with the exception of bare land strata developments shall require water meter boxes complete with setter and spools. All other developments shall require the installation of water meters for domestic flows.

   vi. Each unit of a two unit dwelling (duplex) must be serviced individually. An Accessory Dwelling Unit shall be serviced from the existing service connection on private property through the main residence where practical.

b. All meters, where required, shall be supplied and installed by the Developer under the direct supervision of Village staff.

c. All meters in excess of 50 mm to be compound meters with strainer.

d. Meter boxes are to be as indicated on the Approved Products List

2.22 ALIGNMENTS AND CORRIDORS

a. Curved mains will not be permitted.

b. Water main extensions shall extend to and terminate at the furthest property line of the last lot it services complete with blow-off as per standard drawing.

c. When the utility is required to cross private land(s), the Right-of-Way must be surfaced and graded accordingly to allow access for Village maintenance vehicles and equipment to repair or replace the utility line and be a minimum of 5.0 m wide, or at the discretion of the Village Engineer. The Right-of-Way shall be registered on title.

d. Vertical deflection must not exceed ½ of the manufacturer's maximum allowable deflection.

2.23 RESERVOIRS

a. Pre-Design Requirements - The Consulting Engineer retained by the Owner to design the Works must obtain approval from the Village that the siting of the reservoir is acceptable. Prior to commencing detailed design, the Consulting Engineer must submit a pre-design report that addresses the design considerations with stated assumptions. Approval of the pre- design concept from the Village Engineer must be obtained prior to the Consulting Engineer commencing detailed design.

b. The pre-design (including a pre-design report) and detailed design of a reservoir must incorporate all requirements specified by MMCD and the following;

   i. Approval from Fraser Health prior to construction;
   ii. A Programmable Logic Controller (PLC) control system connected to the Village of Anmore SCADA system;
   iii. Each cell is to have an access opening in the roof for cleaning and maintenance purposes and shall be a minimum dimension of 900mm x 900mm to be located so that the overflow pipe is clearly visible inside the reservoir, when viewed from the access opening
   iv. Operation and Maintenance manuals to be supplied as per "Manuals" section;

2.24 PUMP STATIONS

a. Pre-Design Requirements - The Consulting Engineer retained by the Owner to design the Works must obtain approval from the Village that the siting of the pump station is

acceptable. Prior to commencing detailed design, the Consulting Engineer must submit a pre-design report that addresses the design considerations with stated assumptions. Approval of the pre- design concept from the Village Engineer must be obtained prior to the Consulting Engineer commencing detailed design.

b. The pre-design (including pre-design report) and detailed design of a pump station must incorporate all requirements specified by MMCD and the following;

i. All inlet and outlet piping to accommodate a 19mm sampling port with isolating ball valve.
ii. A Programmable Logic Controller (PLC) control system with the ability to connected to a SCADA system;
iii. Access hatch to be as per the access requirements of the Pressure Reducing Valve Stations
iv. Spring return check valves and testable cross-connection device
v. Lockable roof hatches for motor and pump removal
vi. Motors must be driven by variable frequency drives. Hard-starts are not permitted;
vii. Station to include exterior alarm strobe light with signage. Programing of light to be confirmed by the Village Engineer.
viii. Fencing and enclosers are to be agreed with the Village prior to design

c. Operation and Maintenance Manuals to be provided as per “Manuals” section

d. Standard Operating Procedure Manuals will be required. The Manual shall identify procedures to rectify alarms and warning on the station.

2.25 PRESSURE REDUCING VALVE (PRV) STATIONS

a. The predesign and detailed design of a PRV station must incorporate all requirements specified by MMCD and the following:

i. Stations shall be above ground unless otherwise approved by the Village Engineer;
ii. Forced air ventilation, heat and light;
iii. Parallel pressure reducing valves;
iv. Air release valves
v. Water quality sample points;
vi. If underground, access hatch to be an aluminum double door to full length and full width opening complete with stainless steel hardware. Where depth of chamber is over 900mm, provide an aluminum 600mm wide access stairway and removable railings.
vii. A Programmable Logic Controller (PLC) control system capable of

connecting to a SCADA system;

viii. Control valve piloting to be braided stainless steel
ix. Manuals to be provided as per "Manuals" section;

2.26 MANUALS

a. Supply (3) copies of Operating and Maintenance manuals in the following format:

i. Bind contents in a three-ring, hard covered, plastic jacketed binder, name of facility to be embossed onto binder cover and spine;
ii. Each section shall be separated from the preceding section with a plasticized cardboard divider with a tab denoting contents of the section;
iii. Digital copies of all reports are required.

b. Contents to include:

i. Title sheet, labeled "Operation and Maintenance Instructions", and containing project name and date;
ii. Table of contents
iii. Reviewed shop drawings of all equipment;
iv. Equipment list showing all model and serial numbers;
v. All equipment manufacturers' manuals;
vi. Record drawings sealed by a Professional Engineer registered in BC of all mechanical, electrical, structural, control and alarm installations, including a digital PDF and AutoCAD (latest version) format;
vii. Full description of system operation including: design points, designed pump and system curves, ultimate capacity, area served and any relevant design criteria relevant to the operation of the system;
viii. Full description of entire mechanical, electrical and alarm system operation;
ix. Names, addresses and telephone numbers of all design professionals, major sub- contractors and suppliers;
x. Commissioning report showing pressures, flows, current draw for all possible operating conditions;
xi. All SCADA programming shall be provided to the Village in digital format.

2.27 FACILITY ACCESS

a. All-weather vehicular access must be provided to all reservoirs, PRV's and pump stations. The minimum standard must be as for an emergency access road with positively drained hard surface with asphalt or concrete paved surface, curbing and drainage provisions as may be required. In any case, the maximum facility access grade

shall not exceed 12% unless approved by the Village Engineer.

2.28 CROSS CONNECTION CONTROL

a. All developments shall meet the requirements of AWWA Canadian Cross Connection Control Manual (latest edition).

b. All backflow protection assemblies shall be manufactured in accordance with the American Waterworks Standards AWWA/ANSI C510-92 Standard for Double Check Valve Backflow Prevention Assemblies, AWWA/ANSI C511-92 Standard for Reduced Pressure Principle Backflow Prevention Assemblies, and AWWA/ANSI Standard for Dual Check Backflow Prevention Assemblies. Double Check and Reduced Pressure Principle Backflow Prevention Assemblies shall have isolation valves with ports suitable to allow testing.

c. Crossing of sewer and water mains should be avoided. If absolutely required, a crossing may be constructed as shown in MMCD Standard Detail Drawing G6.

2.29 PRESSURE TESTING AND CHLORINATION

a. Pressure, chlorination, and water tie-in plans (as per AWWA and MMCD standards) are to be submitted two weeks before work commences for Village staff to review.

b. Village staff must be notified of all pressure testing, chlorination and all water tie-ins a minimum of one week in advance.

c. Pressure test to be 200psi with minimum two hour period (as per AWWA standards) and the allowable leakage is to be determined by the MMCD standards.

d. Flushing velocity to be a minimum of 2.5ft/s (0.76m/s) before chlorination begins to remove all contaminants and debris from construction.

e. When possible, chlorination should follow the “Continuous Feed Method” with a minimum of 25ppm for 24h and with a chlorine drop of no less than 10ppm (as per AWWA C651-05 “Disinfecting Water Mains”).

f. Contractor is required to flush to remove high chlorinated water with proper de-chlorination procedures.

g. Two sets of bacteriological samples are required to be taken 24h apart. The number of samples taken per set is determined by length of water main. Typically there are 3 samples taken from the top, middle, and bottom of a water main installation but refer to AWWA C651- 05 “Disinfecting Water Mains” to confirm.

h. All work to be coordinated through the proper Village Staff and Developer’s Representative with enough time allotted for the testing - a 5-day process.

Village staff will oversee work to make sure it is as per MMCD and AWWA specifications, The Village will witness any testing that occurs but will not be responsible for any testing, sampling, arranging shipment of samples or any positive sample failures.

SECTION 3.0 – SANITARY SEWERS

The purpose of the design criteria is to supplement and clarify items as described in the latest edition of the MMCD Design Guidelines. The designer must comply with all requirements included in reference documents unless otherwise noted herein or specifically pre-approved in writing otherwise by the Village Engineer.

Note

- The requirement for a Sanitary Sewer may be waived by the Administrator in part or in whole for a subdivision.
- A Small Subdivision will not require a Sanitary Sewer

3.1 GENERAL

a. Engineers retained by a Developer to design the works and services must consult with the Village Engineer to determine what existing information may be of assistance to them.

b. The sanitary sewer system is to be designed using a calibrated sanitary sewer model acceptable to the Village Engineer unless the Village Engineer determines the system is not complex.

c. The downstream capacity of the existing system must be confirmed and capable of accepting the proposed flows from the subject development. This may require modelling of the existing system and procurement of modeling may require a deposit paid to the Village by the Developer. The Developer is responsible for all costs to confirm, design and construct sufficient downstream capacity for the subject property without eliminating capacity for other properties.

d. No development shall be approved unless every parcel contained within the development is capable of either discharging to a regional sanitary system or accommodating on-site sewage disposal as authorized by the Health Region or Ministry of Environment or the Applicant enters into a Restrictive Covenant with the Village acknowledging that the development has not been approved for Sewage disposal.

3.2 PER CAPITAL FLOW

a. Per capita flow shall be as specified in MMCD except for the following;

i. Residential Average Dry Weather Flow Rate = **350 L/d/c**

3.3 NON-RESIDENTIAL FLOWS

a. Non-residential flow shall be as specified in MMCD.

3.4 PEAKING FACTOR

a. The peaking factor shall follow MMCD methodology.

3.5 INFILTRATION

a. Infiltration allowance shall follow MMCD methodology.

3.6 DESIGN FLOW

a. The sanitary sewer system must be designed based on MMCD methodology.

3.7 PIPE FLOW FORMULAS

a. Design for gravity sewers and forcemains shall be calculated using MMCD methodology.

3.8 FLOW VELOCITIES

a. The minimum velocity shall be as indicated by MMCD.

3.9 ALIGNMENT

a. Alignment of sewers shall follow MMCD methodology.

3.10 MINIMUM PIPE DIAMETER

a. The minimum permitted size of pipe shall be as indicated by MMCD.

3.11 MINIMUM GRADE

a. The minimum grade of any sewer is governed by MMCD

3.12 CURVED SEWERS

a. Curved sewers are not permitted.

3.13 DEPTH

a. The depth of sewers shall follow all MMCD considerations.

b. If depth of sewer is outside of the MMCD guideline, the Developer's Engineer shall provide detailed analysis to demonstrate mechanical protection from external loads.

3.14 MANHOLES

3.14.1 Locations

a. Manholes are required as indicated by MMCD.

b. Manholes are required for all service connections that are 150mm or greater.

c. Sanitary manhole rim elevations in off-road areas must be designed to be a minimum of 150mm above the surrounding finished grade.

d. Manholes located outside road right-of-ways must be identified with a steel marker post painted red with offset dimension noted on the post.

3.14.2 Hydraulic Details

a. Hydraulic flow at manholes shall follow MMCD.

3.15 ODOUR AND CORROSION CONTROL

a. Dissolved total sulphide maximum limit at any point in the system is to be 0.1 mg/l.

b. Odour controls shall follow MMCD methodology in addition to meeting the following criteria;

i. At 10m from any sewer infrastructure or work site, hydrogen sulfide concentrations shall not exceed 7×10^{-6} mg/m^3 (4×10^{-6} ppm) within a 30-minute averaging period.

ii. At 10 m from any sewer infrastructure or work site (summer conditions, winds between 2-10 km/h), measured odour levels shall not exceed 1.0 odour units within a 10-minute averaging period.

iii. Where sewer facilities are closer than 10 m to houses, parks or walkways, measured odour levels shall not exceed 4.0 odour units within a 10-minute averaging period.

3.16 SERVICE CONNECTIONS

a. Service connections shall meet all MMCD requirements and shall include an inspection chamber 0.3m inside the Right-of-Way with a concrete box and cast iron lid at the surface rated for vehicle loading.

b. Pump connections, if permitted, shall terminate at property line into a manhole with gravity flow into the sanitary main. Pumped connections will not be permitted to connect directly to a sanitary gravity main or to a sanitary sewage forcemain.

c. Minimum grade from property line to sanitary sewer main shall be as indicated in MMCD except:

i. 100 mm diameter pipe slope to be a minimum of 2.0%

3.17 LOCATIONS AND CORIDORS

a. The location of sanitary sewers shall follow the requirements specified in MMCD.

b. Except for conditions noted in 3.17.c, Rights-of-Way shall be surfaced and graded accordingly to allow access for Village maintenance vehicles to repair or replace the utility and shall be registered on title.

c. Where there is no infrastructure that would require occasional maintenance by the Village of Anmore, such as where only one pipe is present within the utility Right-of-Way or Easement, the requirement for access by maintenance vehicles may be waived by the Village Engineer.

d. Sewer main extensions shall extend past the furthest property line of the last serviced lot with sufficient distance to eliminate future impact on developed lots and/or temporary cul-de-sacs.

3.18 LIFT STATIONS

a. Pre-Design Requirements - The Consulting Engineer retained by the Owner to design

the Works must obtain approval from the Village that the siting of the lift station is acceptable. Prior to commencing detailed design, the Consulting Engineer must submit a pre-design report that addresses the design considerations noted in MMCD with stated assumptions. Approval of the pre-design concept from the Village Engineer must be obtained prior to the Consulting Engineer commencing detailed design.

b. Both the pre-design, including a pre-design report, and detailed design of the lift station, must incorporate all requirements specified by MMCD and the following;

i. A Programmable Logic Controller (PLC) control system connected to the Village of Anmore SCADA system;
ii. Manuals to be supplied as per section 2.26 in the water design criteria;
iii. Minimum storage between the high level alarm and the start of overflow under the more critical of:

- Minimum 1 hour in wet well at average wet weather flow; OR
- Minimum 1 hour in wet well and influent pipes at peak wet weather flow;

iv. Station to allow removal of pumps using hoist truck with 1.8 m boom;
v. Pumps shall be above-ground. Submersible pumps are allowed upon approval by Village Engineer.
vi. Pumps are to be Variable Frequency Drive (VFD) unless specified soft-start by the Village Engineer;
vii. Across-the-line starters (Hard-Starts) are not permitted.
viii. Station design such that each pump does not cycle more than ten times in one hour under normal operating conditions;
ix. Noise control may be required when criteria in Section 3.21 is exceeded;
x. Odour control may be required when criteria in Section 3.15 is exceeded;
xi. Pumps are able to operate alternately and independently of each other as well as in tandem;
xii. Must be able to remove pump power cables from conduit for pump removal;
xiii. Check valves must be ball lift check valves or Valmatic swing flex with valve open indicator, manual opener, and electronic sensing equipment, or similar style approved by the Village. Check valves with external arms are not permitted.
xiv. All access hatches shall have fall restraint grate or railings.
xv. Engineered fall restraint tie-off points must be installed near underground lift station entrances.
xvi. Influent line inlets must be designed to prohibit the entrainment of air.
xvii. Pump controls must have a test mode in which alarms are silenced for maintenance purposes.

xviii. Station communication to be provided via radio transmission and redundantly activated cellular system compliant with the Village's telemetry system, and an antenna must be installed on a suitable mast or pole to ensure reliable transmission

xix. Station to allow removal of pumps and valves using hoist truck with 1.8 m boom;

xx. Station to include overhead crane or built-in davit system for removal of pumps and valves;

xxi. Landscaping acceptable to the Village is to be provided including irrigation;

xxii. 2.4m high Perimeter fencing made of chain link with security wire (barbed wire) is to be provided complete with concrete barrier per the Ministry of Transportation standard devices to protect lift station. Fencing to include double swing gates that accommodates a 2.4 m wide opening plus one person gate.

xxiii. Station to have infrastructure to allow for bypass via above ground pumping. This includes and is not limited to: inlet manhole with ability to isolate inlet flow and to provide a suction point, a discharge standpipe on the forcemain or station discharge downstream of a station isolation point, space to install portable pumping system(s), and space to route suction and discharge piping. Bypass pump and piping locations should not interfere with access to the station.

xxiv. Station to have pump down timers and high-high level alarm strobe light with signage.

xxv. Station is to be equipped with outdoor security lighting.

xxvi. Pumps are to be equipped with specialty non-clogging impellers unless otherwise directed by the Village Engineer.

xxvii. All stations are to come with a spare impeller.

xxviii. Wetwells with submersible pumps or valving below grade shall come with a frame and subfloor for maintenance access.

xxix. Stations will be equipped with phase monitor relays and a single phase power failure alarm.

xxx. Stations will be equipped with an unauthorized entry alarm for all control chamber/building entrances and all kiosk doors.

xxxi. Station control panel will have pump running lights.

xxxii. Pressure gauges will be liquid filled compound gauges.

xxxiii. Above ground pump systems will come with an insulated hood if not located inside a building.

xxxiv. Station will come with pump and prime failure alarms.

3.19 LOW PRESSURE SEWERS

a. Low pressure sewers are not permitted by the Village except under special circumstances only and with prior approval by the Village Engineer.

3.20 FORCEMAIN DESIGN

a. Design of force mains shall follow the methodology stated in other sections as well as the following additional considerations;

i. An automatic air relief valve must be placed at high points in the forcemain to prevent air locking;

ii. Force mains should enter the gravity sewer system at a point not more than 600 mm above the flow line of the receiving manhole, otherwise outside drop pipe must be incorporated;

iii. With the exception of valves, the material selected for force mains must meet the standards specified for water mains and must adapt to local conditions such as character of industrial wastes, soil characteristics, exceptionally heavy loadings, abrasion and similar problems;

iv. Valves used on force mains shall be plug valves sufficient for long term use in a corrosive environment.

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

vi. For non-metallic force mains, a trailing wire shall be installed for the purpose of locating the force main.

vii. Corrosion protection requirements shall be determined by the Engineer. Geotechnical reports shall provide review of soil corrosiveness and design submissions shall include recommendations for necessary corrosion protection of all infrastructure susceptible to damage due to soil corrosion, where applicable

3.21 NOISE CONTROL CRITERIA

Noise levels for facilities must not exceed 65 dB at property line or 20.0 m away whichever is closer.

3.22 INSPECTIONS

a. All sanitary mains must be inspected by CCTV inspection, following a standard approved by the Village, prior to commissioning.

b. All sanitary mains shall be tested for leakage following MMCD specifications with methodology to be identified by the Village.

SECTION 4.0 – STORMWATER MANAGEMENT

The purpose of the design criteria is to supplement and clarify items as described in the latest edition of the MMCD Design Guidelines. The designer must comply with all requirements included in reference documents unless otherwise noted herein or specifically pre-approved in writing otherwise by the Village Engineer.

4.1 GENERAL

a. All developments:

i. Must have a Stormwater Control Plan as per section 4.2.
ii. Must have an Integrated Stormwater Management Plan as per section 4.15 if the subdivision or development is greater than 3.0ha.
iii. May use the Rational Method for design where tributary areas are less than 10ha.
iv. Must use computer modeling software approved by the Village Engineer for design where tributary areas are greater than 10ha.
v. Must follow Minor and Major System Design as per 4.9 and 4.10.
vi. If sections 4.9 or 4.10 are not possible, must use an Alternative Stormwater Management System as per section4.16.
vii. Must incorporate Runoff Control measures as per section 4.11.
viii. Must provide an Erosion and Sediment Control plan as per section 4.12.

b. The presence of an existing Village drainage facility or natural channel does not imply that such is a suitable or adequate point of discharge. The Developer's Engineer shall confirm that downstream capacity is adequate. Where existing downstream facilities are inadequate to handle the increased flow from the proposed development, an alternate design is required. At no time, however, will direct discharge be permitted without adequately addressing stormwater quality and quantity. It must be shown that all existing or downstream drainage facilities are capable of handling the drainage from the development.

c. The Developer is responsible for all costs to confirm design requirements and shall construct sufficient downstream capacity for the subject property without eliminating predevelopment capacity for other properties and future developments within the same catchment area. The storm drainage system shall be designed with sufficient capacity to collect and convey anticipated storm runoff from the total catchment area to be served when fully developed.

d. Suitable on-site or off-site stormwater detention or storage facilities may be

required depending upon the impact of runoff on downstream areas. They shall be designed in accordance with this Bylaw and the most recent Federal and Provincial regulations and guidelines and are subject to the approval of the Village Engineer.

e. Engineers retained by the Developer to design the works and services must consult with the Village to determine what existing information may be of assistance to them.

f. It is the Developer's Engineer's responsibility to ensure that they obtain true and accurate elevations for the Development of the site.

g. All mains must be inspected by CCTV inspection, following a standard approved by the Village, prior to commissioning.

4.2 STORMWATER CONTROL PLAN

a. All Developments require a Stormwater Control Plan as outlined in MMCD, in addition to considering the following:

i. Detention storage volumes;
ii. Groundwater infiltration;
iii. Proposed lot grading

4.3 MINOR AND MAJOR SYSTEMS

Each drainage system shall follow MMCD methodology except;

The Minor system shall be capable of conveying runoff from the ten-year return period storm.

The Major system shall be capable of conveying that portion of the runoff from the 100-year return storm over and above the capacity of the Minor system.

Components of the Minor system may be enlarged to accommodate the major flow, but only in cases where an overland flow route or storage system is physically impossible, and only with the approval of the Village Engineer.

4.4 RUNOFF ANALYSIS

a. Runoff analysis shall follow MMCD methodology.

4.5 SITE AND LOT GRADING

a. Site and lot grading shall follow MMCD methodology.
b. The Lot Grading Plan shall be prepared by the Developers Engineer for the review and approval of the Village Engineer.
c. Grading Plans are to identify driveway locations and driveway grades

4.6 MINIMUM BUILDING ELEVATIONS (MBE)

a. MBE shall follow MMCD methodology.

4.7 RATIONAL METHOD

a. Calculation of peak flow using the Rational Method shall follow MMCD methodology.
b. The rainfall intensity for the Rational Method shall be determined using the following IDF table.

	Rainfall Intensity (mm/hr)					
Return Period / Duration	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
5-min	43.0	61.3	73.4	88.6	100.0	111.2
15-min	26.3	37.6	45.1	54.6	61.7	68.7
30-min	19.8	25.7	29.6	34.6	38.3	41.9
1-hour	13.6	17.7	20.4	23.8	26.4	28.9
2-hour	10.5	13.8	16.0	18.8	20.8	22.8
6-hour	7.7	10.6	12.5	14.9	16.7	18.4
12-hour	5.6	8.0	9.6	11.7	13.2	14.7
24-hour	4.0	5.8	7.0	8.5	9.6	10.7
48-hour	2.7	4.2	5.1	6.3	7.2	8.1
72-hour	2.1	3.2	3.9	4.8	5.5	6.1

Source: Metro Vancouver Rain Gauge QT57 - Westwood Plateau (1997-2014)

4.8 HYDROGRAPH METHOD

a. Calculation of peak flow using the Hydrograph Method shall follow MMCD methodology.

4.9 MINOR SYSTEM DESIGN

a. The Minor system design shall follow MMCD methodology with the following exceptions;

4.9.1 Level of Service

a. The 1:10 year storm shall be used to design the minor drainage system.

4.9.2 Minimum Pipe Diameter

a. Minimum pipe diameter shall be as noted in the table below;

Table 4.9.1 - Minimum Pipe Diameter	
Description	Minimum Pipe Diameter (mm)
Storm Drainage Main	300
Catch Basin Leads/Double Catch Basin Leads	150/250

4.9.3 Curved Sewers

a. Curved storm sewers shall only be considered in exceptional situations to the maximum indicated in MMCD provided a functioning tracer wire is installed over the curved section between manholes and shall require review and approval on a case by case basis by the Village Engineer

4.9.4 Depth

a. Depth must allow for excavation via open trench with sloped sides in accordance with WorkSafeBC regulations and within the bounds of the Right of Way. This trench must not interfere structurally or operationally with any other utility or undermine nearby structures.

4.9.5 Service Connections

a. Each legal lot and each unit of a two unit dwelling (duplex) shall include an inspection chamber with a concrete box and lid at the surface rated for vehicle loading.

b. Service connections may be permitted into manholes if inspection chambers installed to MMCD standards and shall include a backflow prevention device at property line.

4.10 MAJOR SYSTEM DESIGN

a. The Major system design shall follow MMCD methodology.

4.11 RUNOFF CONTROLS

a. All developments which are within an approved study boundary for stormwater or drainage plan must conform to the objectives and recommendations of the approved plan.

b. If necessary, stormwater runoff is to be directed to a regional detention system (whether existing or proposed) in an effort to maximize the tributary area of the regional detention systems. Where an engineering investigation concludes that connection to a regional system is not practical in the long term, independent drainage systems with direct drainage discharge to creek systems may be permitted and shall meet the requirements of Wet Detention Ponds.

c. Designers shall refer to the publication Stormwater Source Control Design Guidelines, latest edition (Metro Vancouver) or most recent publication for additional Stormwater Source Controls.

d. Runoff controls are required to meet the objectives indicated in the sections entitled Storm Water Management and Discharge Rates and Quality in the Sustainability section of MMCD.

e. Location of the maintenance options for control facilities as well as types of storage for the purpose of controlling discharge rates are defined in MMCD.

f. The use of French Drains shall only be permitted where the topography and soil conditions are proven adequate and approved by the Village Engineer. A soils report prepared by a qualified geotechnical engineer will be required to support the design.

g. Infiltration-based runoff controls must be supported by a geotechnical engineering report for the site indicating the suitability of soils to accept the design infiltration rates. Under no circumstance shall these controls be used in the following conditions:

i. Areas within 30.0 m of a slope that is steeper than 3.0 (horizontal) to 1.0 (vertical) and higher than 6.0 m, or other unstable slopes;

ii. Areas where the post-development wet season groundwater table is less than 300 mm below the base of infiltration features;

iii. Areas where existing dwellings do not have foundation drains;

h. Infiltration rates shall be determined by a Qualified Professional and must include testing completed during times that reflect conditions of wet weather, and where applicable, relatively high river levels and relatively high tides.

i. If infiltration rates exceed 0.017mm/s, then the runoff should be fully treated prior to infiltration to protect groundwater quality.

j. Permeable pavers shall be allowed with the Village's approval in appropriate areas.

k. All stormwater source control measures must come with an operations and maintenance manual complete with maintenance schedules.

l. Underground detention facilities such as concrete chamber are the preferred method of detention for a subdivision. The Village reserves the right to determine which detention method shall be used by the Developer.

m. Wet Detention Ponds

i. A geotechnical engineering report is required to assess any slope stability risks and impacts to downstream lands related to groundwater recharge.

ii. Wet detention ponds, complete with a permanent low level pool, are the preferred method of detention ponds, when compared to other types of ponds such as dry ponds. This does not supersede point (l). However, for small development parcels, where engineering studies have determined that wet detention ponds are not feasible or prone to algae growth, dry detention ponds or pipe-based, stormwater detention systems may be considered, but only if approved by the Village.

iii. In general, wet detention pond designs should maximize habitat and structural complexity in order to fully utilize the benefits offered by the wet detention pond with adequate controls for beaver activity or other undesirable habitats resulting from simple wet detention pond designs. Aesthetics and multiple-use aspects should be emphasized throughout the design.

iv. All vegetation within the low level pool, pond and surrounding buffer shall be agreed with the Village prior to planting.

v. The surface area of the permanent low level pool should represent at least 1.0% of the total developed area.

vi. The wet detention pond and outlet structure shall be designed such that the designed post-development discharge rate of the pond outflow does not exceed runoff levels generated by a pre-development 10-year storm event. If development is located within the boundary of a Village approved stormwater or drainage plan, refer to the appropriate plan for approved discharge rates.

vii. Primary spillway shall be designed to accommodate the post-development run-off generated by a 10-year storm event and an emergency spillway shall be designed to accommodate the post-development run-off generated by a 100-year storm event. The discharge path from the wet detention pond to the receiving environment shall be adequately protected from erosion.

viii. The flow control structure shall be located within a lockable manhole positioned within the embankment for purpose of maintenance, access, safety and aesthetics. The design of the outfall structure shall be determined based on the exit velocity of stormwater runoff from the wet detention pond.

ix. Where identified by the Village's OCP or as required by the Village through the development approval process, pedestrian trails shall meet the Village Trail Standards and include a 6.0m wide Right-of-Way around the perimeter of the pond with an all-weather surface and adequate positive drainage. Pedestrian trail access grades shall not be greater than 10%.

x. Safety is to be provided by managing the contours of the wet detention pond to eliminate drop-offs and other hazards and by discouraging access to the permanent low level pool with appropriate vegetation on an earthen bench. The earthen bench, located at the toe of the side-slopes leading to the permanent low level pool, is to be 2.0 m wide with a maximum slope of 3.0% and is required around the entire perimeter of the wet detention pond.

xi. Safety fencing may be required for the perimeter of the detention pond, at the discretion of the Village Engineer.

xii. A minimum of 4 warning/information signs shall be installed around the perimeter of the wet detention pond to meet the requirements of the Village Signage Bylaw with the following wording:

> WARNING
> Water levels are subject to sudden change Please KEEP OUT
> For information, call the Village of Anmore

n. Pollution Control Devices

The requirements for Pollution Control Device such as oil/grit separators and oil/water separators are stipulated in MMCD and must meet the following additional requirements:

i. Required for all industrial, commercial, institutional, and mixed use zoned parcels, parking lots, and any residential parcels with 50 or more parking stalls.

ii. Provide an internal high flow bypass that regulates the flow rate into the treatment chamber and conveys high flows (which must total 10.0% or less of the annual runoff volume) directly to the outlet such that scour and re-suspension of material previously collected does not occur.

iii. For oil/grit separator, be capable of removing a minimum of 80% of the total suspended sediment load (TSS) for particle size of 50 microns and larger during a 24hr precipitation event with a 5-year return period. Chamber design to include provisions to capture floatable debris and oil/grease.

iv. Maintenance access both to the structure and within the structure shall be provided so that accumulated oils and sediments can be readily removed with a vacuum truck.

v. The pollution control device shall be enclosed in a separate concrete manhole or vault structure. The structure and lid shall meet H20 loading. Concrete joints shall be oil resistant and water tight.

4.12 EROSION AND SEDIMENT CONTROL (ESC)

a. An Erosion and Sediment Control Plan is required for all developments and shall

follow MMCD methodology in addition to the following considerations;

i. The Developer's Engineer will be required to demonstrate how work will be undertaken and completed so as to prevent the release of silt, raw concrete and concrete leachate, and other deleterious substances into any ditch, storm drain, watercourse or ravine. Construction and excavation wastes, overburden soil or other deleterious substances must be disposed of or placed in such a manner as to prevent their entry into any water course, ravine, storm drain system, or restrictive covenant area.

ii. General notes shall indicate that deposit and release of raw concrete is forbidden

iii. All sediment control devices must be situated to provide ready access for cleaning and maintenance.

iv. Proposed sediment control structures must be maintained throughout the course of construction and to the end of the maintenance period (final acceptance). Changes in the design of the structure will be required if the proposed structure is found to be inadequate.

4.13 HYDROGEOLOGICAL INVESTIGATION

A hydrogeological investigation by qualified professionals shall follow MMCD methodology and is required for all developments when stormwater infiltration is proposed or ground water within 1.0m of the surface is prevalent.

4.14 NATURAL WATERCOURSES

All proposals for works affecting natural watercourses must be forwarded to and approved by the appropriate regulatory agencies including, but not limited to, the Village of Anmore.

4.15 INTEGRATED STORMWATER MANAGEMENT PLAN

a. Subdivisions and Developments that are greater than 3.0 ha. require an Integrated Stormwater Management Plan;

b. The Integrated Stormwater Management Plan shall be designed based on the principles contained in the Stormwater Planning Guidebook for British Columbia (latest edition);

c. The Integrated Stormwater Management Plan must:

i. Demonstrate how site level solutions fit in to a larger watershed context and are complemented by a range of other watershed protection and flood risk management tools.

ii. Demonstrate how the ecological values of stream corridors and receiving waters will be protected and enhanced and drainage related problems prevented.

iii. Incorporate watershed specific drainage, stream protection, and water quality objectives that encompass the following:
- Alleviate existing and potential drainage, erosion, and flooding concerns;
- Protect and restore stream health, including riparian and aquatic habitat;
- Remediate environmental risks;
- Remediate existing and potential water quality problems.

iv. Integrate stormwater management planning and land use planning.

4.16 ALTERNATIVE STORMWATER MANAGEMENT SYSTEMS (ASMS)

a. Intended for unusual and innovative developments, Alternative Stormwater Management Systems set out general guidelines that designs must meet, but allow qualified professionals to determine the methods to meet the guidelines, subject to the written approval of the Village. The standards described in the following section should be a starting point for the development of any performance standards.

b. ASMS requirements for Stormwater Management Systems include:

i. No discharge from impervious surface areas for storm events with rainfall depths up to one half the 24 hour Mean Annual Rainfall (MAR).

ii. Post-development runoff for the 2-year recurrence 24-hour storm shall be 50% of the pre-development runoff and the post-development runoff of the 5-year recurrence 24 hour storm shall not exceed the pre-development runoff.

iii. For storm events that exceed the 5-year recurrence, provide safe conveyance of runoff.

iv. Proposals for Stormwater Management Systems using the ASMS approach shall

be in report form, sealed by the responsible professional, and shall include information:

a. Tributary areas in the catchment with existing and ultimate land uses;
b. Details indicating how the local catchment area relates to the boundary's ISMP's;
c. Contours at 1.0 m elevation intervals;
d. Existing watercourses including environmental classifications and/ or fish presence information;
e. Continuous flow modeling using currently accepted hydrologic and hydraulic modeling software and practices. Selection of computer programs requires review of the historical application of each program in watersheds similar to those under consideration. Village approval of computer program selection should be obtained before design is commenced;
f. Layouts of existing and proposed drainage systems;
g. Major flow paths;
h. Conceptual lot grading patterns;
i. Design of proposed infiltration facilities, if appropriate, including location, sizing, detail cross sections and typical profiles. Results of on-site infiltration testing of soils at the elevation of the proposed infiltration;
j. Locations, sizes and hydraulic grade line (HGL) elevations of proposed detention facilities, if appropriate;
k. Other proposed mitigation measures, if appropriate;
l. Proposed minimum building elevations (MBE) and 100 year HGL of major flow path (100-year storm);
m. Pre and post-development flows, with and without the impact mitigation measures;
n. Current and future upstream and downstream flows and system capacities;
o. Plan for erosion and sediment control during all phases of construction;
p. Plan for monitoring of performance by qualified professionals during construction and maintenance periods;
q. Plan for maintenance during the maintenance period; and
r. Plan for maintenance of oil/water and oil/grit separators.

v. The proposed system shall be 'equivalent' or better to the Conventional Stormwater Systems.

4.17 Points of Discharge

All points of discharge to a natural watercourse must provide ability to isolate the upstream system.

SECTION 5.0 – ROADS

The purpose of the design criteria is to supplement and clarify items as described in the latest edition of the MMCD Design Guidelines and TAC. The designer must comply with all requirements included in reference documents unless otherwise noted herein or specifically pre-approved in writing otherwise by the Village Engineer.

5.1 GENERAL

a. All road classifications and designations for vertical and horizontal alignment elements will be designed utilizing information contained in this section and in compliance with the current edition of the Transportation Association of Canada (TAC) – Geometric Design Guide for Canadian Roads and MMCD. When in conflict the higher standard should apply.

b. Engineers retained by the Developer to design the works and services must consult with the Village Engineer to determine what existing information may be of assistance to them.

c. The design and arrangement of roads shall consider snow removal and snow storage operations.

5.2 ROAD CLASSIFICATIONS

a. Prior to commencing detailed design, the Consulting Engineer must consult with the Village Engineer with respect to classification, road cross section, sidewalk, parking and bicycle lane requirements for all streets in or adjacent to the subdivision or development or other road improvements required due to the Development.

5.3 CROSS-SECTION ELEMENTS

a. Road cross sections shall follow Schedule C Standard Drawings and the table below.

Table 5.3 – Road Cross Section Elements

Road Classification	Minimum Right-of-Way Width (m)	Required minimum Lane Width (m)*
Arterial	25.0	Refer to MOTI
Collector – Major	20	3.5
Collector - Minor	20	3.5
Local Street	20.0	3.3
Limited Local Street	15.25 – 20.0	3.3
Unprotected Bike Lane	-	1.8
Protected Bike Lane (not including protective elements)	-	Unidirectional 1.6 Bi-directional 3.0
Multi-Use Pathway	6	3.0m
Parking Lane	-	2.4
Trails	6	Varies
Sidewalks	-	1.8
Laneway	6.0	Varies

* excludes gutter pan.

b. Where buses and large trucks are expected to regularly use a travel lane, a minimum width of 3.5m, excluding gutter pan, is required regardless of the design speed or traffic volume.

c. The Developer shall dedicate sufficient right-of-way to cover the road embankments. Where a cut or fill slope exceeds 1.5 m in vertical height, additional right-of-way or easement may be required at the discretion of the Village Engineer.

d. Boulevards shall be graded to drain towards the curb at a minimum of 2.0% and a maximum of 8.0%

5.4 ALIGNMENTS

a. Road alignment criteria shall follow MMCD except in the following;

Vertical Curves

a. Vertical curves shall be provided at all grade changes greater than 2%.

5.5 INTERSECTIONS

a. Intersection design shall follow MMCD.

b. Intersections are to be designed as close as possible to right angles with a maximum variation of 20 degrees.

c. Cross-slopes at intersections shall follow TAC, Geometric Design Guide for Canadian Roads.

d. The minimum spacing between intersections is:

i) Along Collector Streets – 60.0 m.
ii) Along Local Streets, 4 Way Intersections – 60.0 m.
iii) Along Local Streets, 3 Way Intersections – 40.0 m.

5.6 ROUNDABOUTS

a. Roundabout design shall follow MMCD and NACTO design guidelines

5.7 TRAFFIC CONTROL DEVICES

a. Traffic control devices, signs and pavement markings are to be designed in accordance with MMCD and the TAC Bikeway Traffic Control Guidelines for Canada.

b. Coloured green paint shall be applied to the full width of a bike lane along with dotted line extensions through high conflict areas such as intersections and high traffic crossings. This shall include a minimum of 10m on both sides of the conflict areas. Additional paint markings shall be considered as per the Urban Bikeway Design Guide prepared by the National Association of City Transportation Officials.

c. Crosswalks to be designed in accordance with the current edition of the Province of British Columbia Ministry of Transportation and Infrastructure - Pedestrian Crossing Control Manual.

5.8 CUL-DE-SACS

a. Cul-de-sac bulbs shall be used to terminate “no exit” roads and shall have adequate pavement radii to ensure emergency or operations vehicle access.

b. Maximum length of cul-de-sac streets to be consistent with MMCD. With special approval from the Village Engineer, maximum length may exceed MMCD requirements.

c. Roads must be constructed to the end of the furthest property line of the last lot being built. If the road is to continue in the future then a temporary turn around complete with barrier posts must be constructed. The temporary turn around must be constructed to allow emergency vehicles, maintenance vehicles, and garbage trucks to turn around.

d. Maximum grade for cul-de-sac bulb is 6%.

5.9 EMERGENCY ACCESS

a. Maximum grade is 17.0%.

b. Right-of-way width to be a minimum of 6.0 m

c. Restricted non-emergency vehicles' access through the use of removable restriction posts per MMCD standard drawing C12.

d. Removable bollards to prevent access by non-emergency vehicles.

e. Shared use with pedestrian walkway or bikeway

5.10 TRAFFIC BARRIERS

a. Traffic barriers and the need for barriers shall follow TAC Guidelines.

5.11 SIDEWALK AND PEDESTRIAN CROSSINGS

a. Concrete sidewalks must be provided on roads in or adjacent to subdivisions in accordance with the Works and Services required, the Standard Drawings of this Bylaw and MMCD. Upon demonstrated need, a Village Engineer may approve an asphalt pathway in place of a concrete sidewalk.

b. The minimum width for concrete sidewalk shall comply with Table 5.3 of this Bylaw excluding the curb. At occasional locations where conflicts may occur (such as power poles, hydrants, signs, etc.) the width can reduce to 1.5m.

c. Concrete stairs and ramps are to be installed where required to suit the terrain of the

site, when the grade exceeds 12.0%.

5.12 BIKEWAYS

a. Bikeway design shall follow the Standard Drawings of this Bylaw and TAC Bikeway Guidelines.

b. Protected bike lanes shall have a minimum buffer of 0.6m from any street parking or travel lane.

c. The minimum width for both separated and protected bike lanes shall comply with Table 5.3 of this Bylaw excluding the curb or required buffers. At occasional locations where conflicts may occur (such as power poles, hydrants, signs, etc.) the widths can reduce by 0.2m accordingly.

5.13 TRANSIT FACILITIES

a. Transit facility design shall follow the BC Transit Infrastructure Design Guidelines and MMCD where applicable.

5.14 DRIVEWAYS

a. All lots must be provided with a practical access driveway.

b. Driveway grades are to be set such that minimum cover over utilities within the boulevard is maintained.

c. Between the back of curb (or road edge in the absence of a curb) and property line, the maximum driveway grade is 15.0%.

d. Number of Driveways

Urban Residential Areas:
1) One driveway per road frontage
2) Second driveway may be permitted
3) Where residential lot abuts roads of different classifications, the principal driveway should access the road of the lower classification

Upon demonstrated need, the Village may approve more than one access.

Driveway Location and Widths

a. Residential Areas

i. Driveways located on corner lots should be at least 5.0 m from the lot corner nearest the intersection. Provision of adequate sight distance should be considered in accordance with TAC Geometric Design Guidelines. Minimum and maximum widths of Urban residential driveways are 6.0m and 7.5m respectively.

ii. Commercial, Industrial, Institutional, Comprehensive and Multifamily Development Driveways to corner lots should be located no closer than 12.0 m from the property line of the adjoining road. Provision of adequate sight distance should be considered in accordance with TAC Geometric Design Guidelines. The minimum width of a driveway to a property having one or more accesses is 6.0 m for one way access and 7.5m for two way access with a maximum of 9.0 m. Where a corner lot adjoins roads of different classifications, the principal driveway should access from the road of the lower classification, except for commercial sites where access may be provided for both roads, subject to the Village approval.

Table 5.14 – Driveway Widths	
Zone or Land Use	Driveway Widths (not including flares)
Residential and Rural	max. 6.0 m, min. 4.0 m
Comprehensive Development.	max. 6.5 m
Commercial, Institutional	Single D/W: max. 7.5 m unless otherwise approved by Village Engineer More than one D/W: max. 6.5 m unless otherwise approved by Village Engineer
Industrial	Single D/W: max. 12.0 m unless otherwise approved by Village Engineer More than one D/W: max. 9.0 m unless otherwise approved by Village Engineer

1. Driveway Grades:

    a. For driveways with grades over 8%, a driveway profile drawing is required.
    b. Smooth grade changes shall not exceed 6% for every 6m of horizontal distance without approval from Village Engineer.
    c. The transition grades into private property shall follow MMCD limits.
    d. Driveway grades are to be set such that minimum cover, as described in other sections of the Bylaw, is maintained over utilities within the boulevard.

2. Parking Garage Grades:

    a. The maximum ramp slope allowed in the first 6.0 m from the property line is 10.0%. The maximum slope after the first 6.0 m from the property line is 12.5%.
    b. Slopes up to 15% may be acceptable, at the discretion of the Village Engineer, if a 7.5% to 10% transition ramp or continuous transition curve is provided at the bottom for at least 4m (13') in length. Ramps which have a 15% slope and are exposed to the weather must be heated. The percent of slope, the length of the ramp at the specified slope, and design elevations on both sides of the ramp at all break points (plus along the centre of travel lanes in curves) must be shown on the submitted drawings.

5.15 CLEARANCES

a. Clearances shall follow MMCD.

5.16 UNDERGROUND UTILITY LOCATIONS

a. Underground utility locations shall follow MMCD and Schedule C Standard Drawings.

5.17 PAVEMENT STRUCTURES

a. Pavement structure design shall follow MMCD, except as noted in this section and confirmed adequate for the site by a qualified Geotechnical Engineer.

Table 5.17.1: Minimum Pavement Structure for Asphaltic Concrete (A.C.) Pavement		
Classification	Minimum Thickness with Subgrade Soil Classification SC & Better	Minimum Thickness with Subgrade Soil Classification ML/CL/OL
Collector - Major	**40mm** A.C. surface course	**40mm** A.C. surface course
	60mm A.C. lower course	**60mm** A.C. surface course
	150mm base course	**150mm** base course
	300mm subbase	**325mm** subbase
Collector - Minor	**40mm** A.C. surface course	**40mm** A.C. surface course
	45mm A.C. lower course	**45mm** A.C. surface course
	150mm base course	**150mm** base course
	300mm subbase	**325mm** subbase
Local and One Way	**40mm** A.C. surface course	**40mm** A.C. surface course
	45mm A.C. lower course **150mm** base course **300mm** subbase	**45mm** A.C. lower course **150mm** base course **300mm** subbase

Table 5.17.2 Asphaltic Concrete Sidewalks	
Item	Structure
Sidewalk, Walkway and Driveway	50mm asphaltic concrete
	150mm base course
	150mm subbase

Table 5.17.3 Portland Cement (P.C.) Concrete	
Item	Structure
Sidewalk, Walkway and Driveway	**100mm** P.C. concrete
	100mm base course
	150mm subbase
Sidewalk Crossing	**120mm** P.C. concrete
	150mm base course
	150mm subbase

5.18 BRIDGES

a. Bridge design shall follow MMCD and be prepared by a qualified Structural Engineer.

5.19 HILLSIDE STANDARDS

a. Hillside areas are defined as lands in their natural state that have a slope angle of 20% or greater for a minimum horizontal distance of 10m, or there are adjacent offsite areas within 50m where existing or potential sloughing or slope stability warrants concern.

b. Road design in hillside areas shall follow MMCD except as noted in this section. Maximum road grades cannot be increased without special considerations for cold climate conditions.

c. Detailed geotechnical, slope stability and hydrological reports shall be required prior to approval of a subdivision or development;

d. Retaining walls shall be installed for sidewalks as required to suit the site topography. The design shall meet the requirements in Schedule B section 8 of this Bylaw.

e. For hillside areas, a Pre-Design Study and Report prepared by a qualified Engineer will be required prior to approval and shall provide recommendations for the following:
   i. Slope stability concerns;
   ii. retaining walls as required;
   iii. Lot Grading Plans that mitigate onsite and offsite downstream drainage impacts;
   iv. Road structure and tack coat requirements;

v. Guard rail requirements;
vi. Driveway access profiles;
vii. Environmental impact assessment

5.19.1 Roads

a. Hillside road design shall follow MMCD methodology except as noted in this section
   i. Maximum road length from the edge of the intersection through road: 400 m provided that a mid-block turnaround is provided;
   ii. Secondary emergency access is required where cul-de-sac lengths exceed 500 m;
   iii. At road intersections, cul-de-sacs must be constructed with an approach grade of not greater than 3.0% for a distance of not less than 15.0m from the adjacent edge of asphalt of the major road;
   iv. The draining grade around the outside curb of a cul-de-sac must be not less than 0.5% and not greater than 5.0%. Longitudinal gradients of cul-de-sac bulbs shall not exceed 4.0%;
   v. Major flood routes must be provided on down slope cul-de-sac streets;
   vi. Snow storage areas must be provided in the boulevard and outside of the cul-de-sac bulb.

5.20 TRAFFIC CALMING

a. Traffic calming measures shall be employed as appropriate and at the direction and approval of the Village Engineer to maximize road safety and are to be designed in accordance with the current edition of the TAC “Canadian Guide to Neighbourhood Traffic Calming” and MMCD.

b. Traffic control and calming design drawings are to be submitted as part of the Detailed Design Drawing package.

5.21 STREET PARKING

a. Design of street parking is to follow MMCD.

b. Allocation of street parking is to follow the Standard Drawings and in consultation with the Village Engineer.

5.22 BOULEVARDS AND STREETSCAPES

a. The design of streetscape improvements shall consider the items listed below. The determination of what is to be addressed rests with Village Officials. In determining which items are to be included, consideration will be given to the road classification of the street and the zoning of adjacent properties including but not limited to the following:

   i. Concrete sidewalk;
   ii. Trees, shrubs and other, bear smart and resilient plant materials;
   iii. Grass and other bear smart and resilient ground cover vegetation;
   iv. Saw cut concrete or paving stones in a variety of materials;
   v. Streetscape Lighting
   vi. Street furniture such as seating, bike racks, signage and garbage disposal.
   vii. Bioswales or infiltration trenches as described in other sections of the Bylaw

b. The type, location and design of street trees shall be agreed with the Village

c. A minimum depth of 150mm of topsoil is required under all plantings including grass.

d. Bike racks shall permit securing of both frame and wheel with a single lock. Approved bike rack styles include “Inverted U”, “Post-and-Ring” and “Hanger Rack” with square or triangular brackets.

e. Invasive species present within boulevards must be managed following all applicable legislation including the Weed Control Act (BC) and municipal bylaws. Direction on removal and disposal of invasive species may be provided by the Village and an Invasive Species Management Plan may be required.

5.23 PAVEMENT PATCHING

a. Complete all pavement patching as per MMCD unless otherwise specified by the Village Engineer.

b. Patching along dedicated bike lanes and shoulders typically used by cyclists must be of adequate smoothness so as to not hinder their use.

c. The Village Engineer may require repaving of a section of road or drive aisle rather than patching depending on existing condition and extent of patching required.

d. If a utility has been installed as part of offsite works, the Developer will be required to remove and replace the entire driving lane. The pavement restoration requirement will be as per Table 5.17.3.1: Minimum Pavement Structure for Asphaltic Concrete (A.C.) Pavement

5.24 CURBS

a. All curbs, except those in laneways, are to be barrier type as per MMCD unless otherwise approved by the Village

b. Minimum curb return radii to conform to MMCD standards and shall be provided at all intersections.

c. The minimum property corner cut shall follow MMCD standard.

5.25 TRAIL STANDARDS

Table 5.25.1 –Trail Standards	
Trail Surface Width	Minimum – 3 m
Cleared width for drainage	Minimum – 6 m to allow for drainage and buffers
Right of way setbacks from cleared width	1 – 2 m/side as topography indicates and/or as required for future growth.
Surface	Minimum - Highly compacted screenings.
	Preferred – Asphalt or alternative (closer to Corridor trail connections).
Gradients	Average 0 - 10%, Max. 15% or 20% over 30 m Hillside trails to follow existing grades
Cross-slope	2 - 3%
Clearance: Width – Brush – Height – Branches	Cleared Width plus min.1.5 m/side Height - 3.5 m to branches Retain trees when practical
Sightlines	Good visibility for 10 m.
Buffers	Maintain natural buffers where they do not compromise safety. Buffer from homes and businesses to mitigate impacts (ex. fencing, landscaping).
Landscaping	Landscape appropriately between trail and adjacent facilities and amenities. Landscape at appropriate trailheads with native vegetation.
Lighting	As determined by the Village Engineer

Maintenance Access	Some trails may require gates to control vehicle access.
Signage / Markers	Includes trailhead posts and appropriate signage/markers. Interpretive signs where appropriate.

Where a trail intersects with a highway a baffle gate per MMCD Drawing C10, C11 and/or C12 shall be provided.

SECTION 6 – ROADWAY LIGHTING AND ELECTRICAL POWER

NOTE
The Village Engineer should be consulted regarding the requirement for lighting. Not all subdivisions will require street lighting

The purpose of the design criteria is to supplement and clarify items as described in the latest edition of the MMCD Design Guidelines. The designer must comply with all requirements included in reference documents unless otherwise noted herein or specifically pre-approved in writing otherwise by the Village Engineer.

6.1 GENERAL

a. The Designer shall minimize light pollution and avoid over-lighting. The lighting shall not exceed the recommended light levels by more than 15%;

b. All lighting shall be LED type, and Unit Power Density (UPD) of luminaire shall not exceed 0.2 W/m2. The designer shall refer to "Section 10 – Sustainability Considerations 2014 – Lighting & Signalization' of MMCD Design Guidelines 2014, for further clarifications in this regard

c. Documents and drawings are to be submitted to the Village Engineer for review and approval. The Village's review and approval process shall begin with submission of shallow electrical utilities notification and approval documents by the Developer, including:
   - Hydro;
   - Telephone;
   - Communications; and
   - Cable / Television

d. All power wiring and communications cabling in new subdivisions shall be underground. In areas with existing over-head electrical utilities, these shall be transitioned to an underground system for all new developments. All developments shall be required to construct on-parcel ducting and in-building provisions for underground connections to power and communications utilities, unless otherwise approved by the Village Engineer. A variance may be required if underground installation is unavailable or cost prohibitive.

e. A variance to 6.1 (d) shall be required if underground installation is cost prohibitive. Substantiation of the costs of underground installation shall be provided by the Developer from BC Hydro to the Village Engineer.

f. A variance to 6.1 (d) will not be required if underground installation is not possible, regardless of costs.

g. Developer shall be required to submit a copy of service agreements, including proof of payment, for all electrical utilities, noting any non-compliance issues as required.

h. Developer shall be required to submit engineering drawings, depicting the proposed alignments and locations for the underground electrical cables, junction or pull boxes, transformer vaults, pad-mount transformers, above-ground switching cubicles, electrical pedestals and other electrical distribution appurtenances, for review and approval by the Village Engineer. All drawings are to be signed and sealed by a qualified Engineer registered in the Province of British Columbia

6.2 CODES, RULES, STANDARDS AND PERMITS

a. Street lighting systems shall be designed as per MMCD and the following requirements;

6.2.3 Permits

a. The lighting installer shall obtain electrical permit, from nearest BC Safety Authority (BCSA) office and associated utility companies prior to the start of construction.

6.3 ROADWAY AND PEDESTRIAN CRITERIA

a. The criteria shall follow MMCD methodology.

6.4 LIGHTING MEASUREMENTS

a. The design shall follow MMCD methodology.

6.5 VARIABLE LIGHTING CRITERIA

a. Lighting criteria shall follow MMCD except the following;

6.5.1 Light Sources and Luminaires

a. The Luminaire shall be LED, no higher than 3000K color temperature, and maximum 450mA driver current.
b. The Designer shall use the lowest possible BUG (Backlight, Uplight & Glare) rating for outdoor luminaire, preferably no worse than B2-U0-G1.

6.5.2 Light Loss Factor

a. The Designer shall use the light-loss-factor (LLF), for 20 year maintenance cycle per the manufacturer's recommendations.

6.6 STREET LIGHTING

a. Street lighting levels shall follow MMCD methodology

6.7 SIDEWALK LIGHTING

a. Sidewalk lighting shall follow MMCD methodology.

6.8 INTERSECTION LIGHTING

a. Intersection lighting shall follow MMCD methodology

6.9 CROSSWALK LIGHTING

a. Crosswalk lighting shall follow MMCD methodology

6.10 WALKWAYS

a. Walkway lighting shall follow MMCD methodology

6.11 ROUNDABOUT LIGHTING

a. Roundabout lighting shall follow MMCD methodology

6.12 TUNNEL LIGHTING

a. Tunnel lighting shall follow MMCD methodology

6.13 POLES

a. Pole design shall follow MMCD methodology and the following considerations;

i. All poles must be galvanized with powder-coat finish, colour to be confirmed by the Village Engineer to improve appearance for local neighborhood;
ii. The standard pole heights and application are to be as shown on the Standard Drawings.
iii. For approved pole davit and luminaire see Approved Products List.

6.14 POLE FOUNDATIONS

a. Pole foundations shall follow MMCD methodology

6.15 LUMINAIRES

a. Luminaires shall follow MMCD requirements except:

i. Colour temperature shall not exceed 3000k.

b. Products shall be consistent with the Approved Products List;

c. Alternative luminaire requires approval from Village Engineer.

6.16 POWER SUPPLY AND DISTRIBUTION

a. Power Supply and Distribution shall follow MMCD requirements except the following;

i. 347/600v (3 phase) power systems are not permitted due to the additional risk to maintenance personnel;
ii. RPVC conduits shall be provided for all underground wiring. No direct bury wiring is permitted.
iii. A terminal control switch is required for each circuit and all poles to include separate switch for manual operation to turn power on/off.
iv. The Designer shall refer to 'Section 10 – Sustainability Considerations 2014 – Lighting & Signalization' of MMCD Design Guidelines 2014, for further clarifications if Adaptive lighting systems are considered for a project.

6.17 DESIGN

a. Lighting Design shall follow MMCD methodology and additional requirements stipulated below;

i. The design of underground electrical utilities shall conform in general to the Canadian Electrical Code as revised and adopted by the Province of British Columbia, as well as to the specific requirements of the electrical utilities. The designer shall adhere to the stricter standards in the event of conflict among

various design standards. All electrical design drawings are to be sealed by a Professional Engineer registered in British Columbia.

ii. All electrical utilities shall be installed in accordance with the standard road cross sections unless otherwise approved by the Village Engineer.

iii. The minimum separation between underground electrical ducts / cables must be acceptable to the respective electrical utilities. A minimum horizontal clearance of 1.0 m shall be maintained between underground electrical utilities and street lighting wiring.

iv. All underground ducts / cables shall be laid in a straight line at a constant offset and a uniform grade. At the curved road allowance, the ducts / cables may be laid on a horizontal curve at a constant offset. The ducts / cables at road-way crossings shall be laid in a straight line at right angles to the center-line of the road-way.

v. All electrical surface and sub-surface appurtenances shall be designed and located a minimum of 1.0m from other street fixtures, landscaping and infrastructure. Electrical appurtenances must not be located directly above water mains or water service connections.

vi. All control circuits shall be on circuit breakers, not fuses.

SECTION 7–STEEP SLOPE, SITE GRADING AND RETAINING WALLS

7.1 GENERAL

This section applies to the review and approval process for all site grading plans and the design and use of retaining walls for all building permits and subdivisions. Steep slopes are defined as lands in their natural state that have a slope angle of 20% or greater for a minimum horizontal distance of 10 metres.

7.2 GENERAL REQUIREMENTS

i. The development of lands with steep slopes shall be undertaken in accordance with the Village's Official Community Plan as amended from time to time.

ii. The design intent is that engineers work as closely as possible with the existing landscape and minimize the use of large, and visually prominent retaining walls to create developable areas.

iii. Any adjustments made to the existing natural grade of a property or lands, through site grading or retaining, shall be in accordance with an approved site grading plan where relevant, and all modifications and retaining walls shall be the responsibility of the person undertaking the site grading or construction of the retaining wall.

iv. The design of site grading and any retaining walls shall integrate or protect unique or significant natural features of the site such as landforms, rock outcroppings, mature trees and vegetation, drainage courses, hilltops and ridgelines.

v. Site grading and development shall avoid unstable or hazardous portions of the site and protect lives and property from hazardous conditions such as landslides or erosion.

vi. These requirements apply to all forms of retaining structures, including structural retaining walls of all materials, including but not limited to rock stack walls, rammed earth or gabion structures, geotextile reinforced soil structures, and precast unit or Allan block structures.

vii. For retaining walls in excess of 1.0m in height, an appropriate and qualified geotechnical or structural engineer shall prepare all designs for site grading and any retaining wall(s) and shall inspect and approve final installations.

viii. Once constructed, an appropriate and qualified geotechnical or structural engineer shall verify that all site grading and any retaining wall(s) have been constructed in

accordance with the approved designs, including wall drainage.

ix. Underground infrastructure installed in steep slope areas and in proximity to retaining walls shall be capable of being replaced and maintained without the need for extraordinary measures.

7.2.a Site Grading and Design Requirements

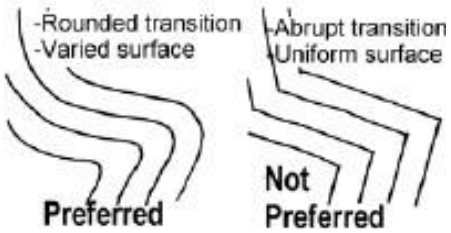
i. Every proposed subdivided lot or parcel shall have sufficient building area for the use intended. In determining whether suitable building area exists, the Zoning Bylaw will stipulate the calculations for lot area, building siting and access.

ii. When calculating lot area within a proposed subdivision, it should be exclusive of any lands with a slope of 30% or greater. Where the minimum lot size cannot be achieved on lands with slopes less than 30%, a larger lot size shall be required.

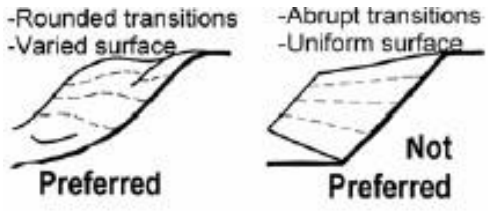
iii. Every proposed subdivided lot or parcel shall be provided with safe and functional access from a municipal street or strata road, that meets the standards of this Bylaw (Schedule B, section 5) and avoids driveways with significant elevations, limited visibility when accessing the road, tight corners or where access would be difficult in winter conditions. Common or shared driveways are encouraged when significant site grading can be reduced.

iv. Site design and grading should avoid substantial regrading or alteration of key topographic features (e.g. knolls, ridgelines, rock outcrops, cliffs, ravines etc.).

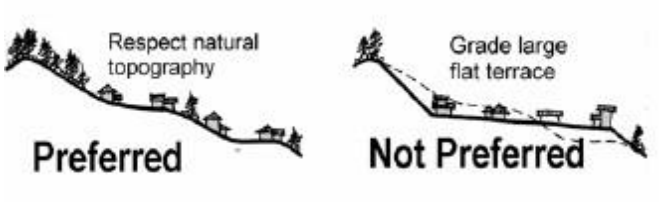
v. Site design and grading shall avoid a manufactured appearance for graded slopes. Avoid sharp cuts and long or wide slopes with a uniform grade, as illustrated.



vi. Site design and grading shall establish contours and gradients that resemble the naturally occurring terrain. Site design shall round out slope transitions and blend transitions between lots or adjacent to undisturbed areas, as illustrated.



vii. Site design and grading shall refrain from grading large flat terraces on hillside sites in order to expand developable area or to develop housing or other uses characteristic of flat or gently-sloped sites. Developing smaller terraces (e.g. for building pads, lawn areas, patios, stepped retaining walls, etc.) is preferable, as illustrated.



viii Site design and grading in the vicinity of ridgelines shall retain trees and other vegetation on ridgelines as much as possible, so that the ridgeline is seen predominately as a continuous line of natural terrain or vegetation.

ix Site grading and design should ensure that where there are gaps or interruptions in the ridgeline caused by site development (e.g. buildings, road cuts, site clearing, earthworks, etc.) trees and vegetation shall be planted in front of and behind the disturbance to screen and restore a naturally appearing ridgeline.

x. Site grading and design should ensure that where there are ridgeline interruptions, they occur in several smaller components rather than one continuous interruption.

xi. Site grading and design shall ensure that building envelopes are sited below the ridgeline. Avoid the placement of roads, clear cuts, and large or continuous buildings on or over ridgelines.

xii. Site grading and design shall ensure that municipal infrastructure buildings are appropriately and accessibly located and are not visually obtrusive or create a significant visual impact on adjacent properties. Exterior infrastructure building materials should complement those of the adjacent structures and be appropriately screened with landscaping.

7.2.b Road Design Requirements

i. Proposed roads shall be designed to promote small street grid plans characterized by small blocks and numerous local roads connecting to collector roads that follow the topography as much as possible. Where street grids are not possible due to topography, adequate space should be reserved to ensure alternative transportation infrastructure such as walking and cycling pathways are still able to achieve the grid-like pattern.

ii. Site design shall align roads to conform to the natural topography. Gentle horizontal and vertical curves are preferable to straight line grid patterns that require significant earthmoving, or create exceptionally steep grades.

iii. Split roads with 1-way access on each portion, may be utilized where:

a. A minimum pavement width of six metres and a minimum right-of-way of nine metres is provided;
b. Does not exceed 200 metres in length to the nearest cross-road;
c. Special features or significant natural habitat can be protected;
d. The amount of slope disturbance or the amount of cut and fill compared to a standard two-way road is reduced;
e. The pre-development cross-slope on the road right-of-way exceeds 15%;
f. Using a conventional road on very steep sections makes parcel access difficult;
g. Through traffic can continue to a conventional road connection, or a turnaround can be provided;
h. Intersection clearance is maintained before the split is allowed to occur; and
i. Pedestrian safety and emergency access is maintained.

iv. Where cul-de-sacs are contemplated, pedestrian connections linking the cul-de-sac to other streets and open spaces shall be incorporated where possible as per Section 8.1.c.i.

v. Alternative road-ends (reduced cul-de-sac radii or hammerhead configurations) may be utilized on a site specific basis where:

a) There is lack of sufficient land for a cul-de-sac or very steep slopes would require excessive cutting and filling;
b) The road serves fewer than 16 lots and/or is less than 100 metres in length; and
c) The road end accommodates the turning of service and emergency vehicles.

vi. Design water service valve and meter boxes with flexible offsets to property lines to maintain ease of access and maintenance. Locate boxes where future grading or

landscaping of boulevards will not make access difficult.

vii. Design roads and road rights-of-way to allow flexible offsets for utility trenches and other facilities such as transformers. This will allow more flexibility to grade rights-of-way to match existing ground within the road rights-of-way, which will reduce physical impacts and provide easier servicing in steep slope neighbourhoods.

viii. Where practical, install power, telephone and cable services in a common trench in accordance with the Village's Standards. Installation of these services under sidewalks is encouraged where this can reduce the effective right-of-way required on a steep slope.

ix. Road designs shall accommodate alternative transportation infrastructure (sidewalks, multi-use path, bike lanes, transit routes etc.) to the approval of the Village Engineer.

7.2.c Retaining Wall Design Requirements

i. The maximum height for a retaining wall shall be 4.0m above existing or natural grade, when measured from the existing or natural grade on the low side of the retaining wall to the top of the retaining wall. Retaining wall grades should only exceed 4.0m in height when they are not visible from public lands or have no visual impact on neighbouring properties.

ii. The maximum height for a retaining wall provided in subsection (i) above does not apply to excavations or bedrock cuts below existing natural grade. Bedrock cuts should exceed no more than 4.0m in vertical height, unless the horizontal distance between the top of the lower bedrock cut and the base of the upper bedrock cut is no less than 2.0m (i.e. if there are two 4.0m high bedrock cuts, then they must be horizontally separated by a distance of no less than 3.0m.)

iii. When retaining structures are used in combination, to manage or create vertical grade differences in excess of 4.0m, then the horizontal distance between the top of the lower retaining wall and the base of the upper retaining wall shall be no less than the vertical height of the larger vertical height of the two retaining walls (i.e. if is a 3.0 and 2.0m high retaining walls, then they must be horizontally separated by a distance of no less than 3.0m.)

iv. A building envelope shall not be created artificially through the use of retaining walls in excess of the standards contained herein.

v. A retaining wall in excess of 1.0m in height shall be located no less than an equivalent horizontal distance from any property line.

vi. All retaining walls shall be located a sufficient distance from a property line to allow for repair and maintenance of the retaining wall, or require an easement on the adjacent property to allow for such repairs and maintenance.

vii. The vertical surface of any retaining wall in excess of 1.0m shall be screened with landscaping such as trees and shrubs.

viii. The design and construction of any retaining wall must allow for both ongoing repair and maintenance, and replacement of the structure following potential failure.

ix. Pre-existing sites where grading and retaining in excess of these standards has been constructed prior to the adoption of this Bylaw, shall be allowed to maintain, repair and replace those structures in accordance with the approval granted to allow their initial construction, and do not need to comply with these standards, except that an appropriate geotechnical or structural engineer shall be engaged to undertake the maintenance, repair and replacement of the retaining wall.

x. In the formation of the highway infrastructure the Village Engineer may provide relaxation to the requirements as set out in this section.

THIS PAGE INTENTIONALLY LEFT BLANK

SCHEDULE C

ANMORE SUBDIVISION AND DEVELOPMENT CONTROL BYLAW NO. 633-2020

STANDARD DRAWINGS

Use Table 1.1 to determine the status of the Standard Drawings contained in the MMCD. For the most part the Village adopts them however there are some that are deleted and some that the Village has added for further clarification.

Drawing Number	Drawing Name	Reference
GENERAL DETAILS		
G0	DRAWING INDEX – GENERAL DETAILS	MMCD
G1	GENERAL LEGEND FOR CONTRACT DRAWINGS	MMCD
G2	LEGEND FOR MATERIALS	MMCD
G3	LEGEND FOR STREET LIGHT AND TRAFFIC SIGNAL DRAWINGS	MMCD
G4	UTILITY TRENCH	MMCD
G5	PAVEMENT RESTORATION	MMCD
G6	CONCRETE ENCASEMENT FOR WATERMAIN/SEWER SEPARATION	MMCD

Drawing Number	Drawing Name	Reference
STORM AND SANITARY SEWERS		
S0	DRAWING INDEX – STORM AND SANITARY SEWERS	MMCD
S1	STANDARD AND SUMP MANHOLES	MMCD
S2	STANDARD MANHOLE CONNECTION DETAILS	MMCD
S3	MANHOLE CONNETION DETAILS-DROP AND RAMP TYPE	MMCD
S4	INSIDE DROP MANHOLE	MMCD
S5	PRECAST RISER MANHOLE	MMCD
S6	SEWER CLEANOUT	MMCD
S7	SANITARY SEWER SERVICE CONNETION	MMCD
S8	STORM SEWER SERVICE CONNECTION	MMCD
S9	INSPECTION CHAMBER FOR 100 TO 200 SANITARY SEWERCONNECTION	MMCD
S10	INSPECTION CHAMBER FOR 250 TO 375 STORM SEWER CONNECTION	MMCD
S11	TOP INLET CATCH BASIN	MMCD
S12	LAWN DRAINS	MMCD
S13	STORM SEWER INLET WITH SAFETY GRILLAGE	MMCD
S14	CONCRETE BLOCK ENDWALL	MMCD
S15	DRIVEWAY CULVERT WITH CONCRETE BLOCK ENDWALLS	MMCD

Drawing Number	Drawing Name	Reference
WATERWORKS		
VoA-W01	INSTALLATION DETAIL FOR 16mm TO 50mm WATER SERVICE AND METER	VILLAGE
W0	DRAWING INDEX – WATERWORKS	MMCD
W1	TYPICAL THRUST BLOCK ARRANGEMENTS	MMCD
W2a	WATER SERVICE CONNECTION – SERVICE BOX DELETE	MMCD
W2b	WATER SERVICE CONNECTION – VALVE BOX DELETE	MMCD
W3	GATE VALVE INSTALLATION	MMCD
W4	FIRE HYDRANT INSTALLATION	MMCD
W5	TEST POINT INSTALLATION	MMCD
W6	AIR VALVE ASSEMBLY – 25 AND 50MM VALVES	MMCD
W7	AIR VALVE ASSEMBLY – 100MM VALVE CT	MMCD
W8	BLOW OFF FOR WATERMAIN	MMCD
W9	BLOW DOWN CHAMBER	MMCD
W10	WATERWORKS CHAMBER DRAIN	MMCD

Drawing Number	Drawing Name	Reference
CONCRETE AND MISCELLANEOUS DETAILS		
C0	DRAWING INDEX – CONCRETE AND MISCELLANEOUS DETAILS	MMCD
C1	CONCRETE SIDEWALK, INFILL AND BARRIER CURB	MMCD
C2	CONCRETE SIDEWALK AND BARRIER CURB	MMCD
C3	CONCRETE SIDEWALK AND ROLLOVER CURB	MMCD
C4	CONCRETE CURB – NARROW BASE	MMCD
C5	CONCRETE BARRIER CURB – WIDE BASE	MMCD
C6	CONCRETE MEDIAN CURB AND INTERIM CURBS	MMCD
C7	DRIVEWAY CROSSING FOR BARRIER CURBS	MMCD
C8	WHEELCHAIR RAMP FOR SIDEWALK, INFILL AND BARRIER CURB	MMCD
C9	WHEELCHAIR RAMP FOR SIDEWALK AND BARRIER CURB	MMCD
C10	CONCRETE WALKWAY	MMCD
C11	BICYCLE BAFFLE	MMCD
C12	REMOVABLE RESTRICTION POST	MMCD
C13	CHAIN LINK FENCE FOR WALKWAY	MMCD
C14	HANDRAIL FOR CONCRETE RETAINING WALL	MMCD

Drawing Number	Drawing Name	Reference
CONCRETE AND MISCELLANEOUS DETAILS		
CE1.1	CONCRETE BASE INDEX	MMCD
CE1.2	TYPE A AND B SONOTUBE CONCRETE BASES	MMCD
CE1.3	TYPE C, C1, C2 & C3 TRAPEZOIDAL SHAPE CONCRETE BASES	MMCD
CE1.4	TYPE C, C1, C1 & C3 TRAPEZOIDAL SHAPE CONCRETE BASES	MMCD
CE1.5	TYPE C4 & C5 SPREAD FOOTING SHAPE CONCRETE BASES	MMCD
CE1.6	TYPE C4 & C5 SPREAD FOOTING CONCRETE BASES	MMCD
CE1.7	TYPE C4 & C5 SPREAD FOOTING CONCRETE BASES	MMCD
CE1.8	TYPE E2 TRAPEZOIDAL SHAPE CONCRETE BASE	MMCD
CE1.9	TYPE E2 TRAPEZOIDAL SHAPE CONCRETE BASE	MMCD
CE.10	TYPES F1, L1 & S1 SPREAD FOOTING SHAPE CONCRETE BASES	MMCD
CE1.11	TYPES F1, L1 & S1 SPREAD FOOTING SHAPE CONCRETE BASES	MMCD
CE1.12	TYPES F1, L1 & S1 SPREAD FOOTING SHAPE CONCRETE BASES	MMCD
CE1.13	TYPES F2, L2 & S2 TRAPEZOIDAL SHAPE CONCRETE BASES	MMCD
CE1.14	TYPES F2, L2 & S2 TRAPEZOIDAL SHAPE CONCRETE BASES	MMCD
CE1.15	1” DIAMETER ANCHOR BOLTS	MMCD
CE1.16	ANCHOR BOLT CAGE FOR TYPE 6, 7 AND S POLES	MMCD
CE1.17	ANCHOR BOLT CAGE FOR TYPE L POLES	MMCD
CE1.18	CONCRETE BASE FOR POST MOUNTED FLASHER LUMINAIRE (PRECAST)	MMCD
CE1.19	POLE BASE INSTALLATION DETAILS	MMCD
CE1.20	POLE BASE INSTALLATION DETAILS	MMCD

Table 1.1

Drawing Number	Drawing Name	Reference
ROADWORKS		
VoA – R01	TYPICAL 20m ROAD RIGHT-OF- WAY	VILLAGE

Drawing Number	Drawing Name	Reference
ELECTRICAL		
E1.1	TYPE M (NEMA CABINET) CONCRETE CONTROLLER BASE	MMCD
E1.2	TYPE P (NEMA CABINET) CONCRETE CONTROLLER BASE	MMCD
E1.3	MODEL 170 CONCRETE CONTROLLER BASE	MMCD
E1.4	CONTROLLER INSTALLATION (FOR TYPE P & M CABINETS)	MMCD
E1.5	CONTROLLER INSTALLATION (FOR MODEL 170 CABINETS)	MMCD
E1.6	TYPE F CONTROLLER PEDESTAL	MMCD
E1.7	TYPE F CONTROLLER PEDESTAL	MMCD
E2.1	ROUND PLASTIC JUNCTION BOXES	MMCD
E2.4	LARGE CONCRETE JUNCTION BOXES	MMCD
E2.5	CONCRETE VAULT	MMCD
E2.2	TYPE 37 AND 66 CONCRETE JUNCTION BOXES	MMCD
E2.3	LARGE CONCRETE JUNCTION BOXES	MMCD
E2.6	CONCRETE VAULT	MMCD
E3.1	UNDERGROUND CONDUIT IN PAVED AREAS	MMCD
E3.2	UNDERGROUND CONDUIT IN NON-PAVED AREAS	MMCD
E4.1	LUMINAIRE POLE (TYPE 2 SHAFT)	MMCD
E4.2	LUMINAIRE POLE (TYPE 2 CHAFT)	MMCD
E4.3	SIGNAL POLE (TYPE 1 SHAFT)	MMCD
E4.4	SIGNAL POLE (TYPE 1 SHAFT)	MMCD
E4.5	SIGNAL POLE (TYPE 3 SHAFT)	MMCD
E4.6	SIGNAL POLE (TYPE 3 SHAFT)	MMCD
E4.7	SIGNAL POLE (TYPE 6 SHAFT)	MMCD
E4.8	SIGNAL POLE (TYPE 6 SHAFT)	MMCD
E4.9	SIGNAL POLE (TYPE 7 SHAFT)	MMCD
E4.10	SIGNAL POLE (TYPE 7 SHAFT)	MMCD
E4.11	SIGNAL POLE (TYPE S SHAFT)	MMCD
E4.12	SIGNAL POLE (TYPE S SHAFT)	MMCD
E4.13	SIGNAL POLE (TYPE S SHAFT)	MMCD
E4.14	SIGNAL POLE (TYPE L SHAFT)	MMCD

E4.15	SIGNAL POLE (TYPE L SHAFT)	MMCD
E4.16	SIGNAL POLE (TYPE L SHAFT)	MMCD
E4.17	SIGNAL POSTS (TYPE 4, 4A AND 5 SHAFTS)	MMCD
E4.18	SIGNAL POSTS (TYPE 4, 4A AND 5 SHAFTS)	MMCD
E4.19	POST TOP LUMINAIRE POLES	MMCD
E4.20	POST TOP LUMINAIRE POLES	MMCD
E4.21	SERVICE BASE	MMCD
E4.22	POLE ACCESSORIES	MMCD
E5.1	POST TOP SIGNAL HEAD MOUNTING	MMCD
E5.2	SIDE POLE SIGNAL HEAD MOUNTING (METHOD 1)	MMCD
E5.3	SIDE POLE SIGNAL HEAD MOUNTING (METHOD 2)	MMCD
E5.4	SIDE POLE SIGNAL HEAD MOUNTING (METHOD 3)	MMCD
E5.5	OVERHEAD SIGNAL HEAD MOUNTING (SPRING CUSHION END HANGER METHOD)	MMCD
E5.6	OVERHEAD SIGNAL HEAD MOUNTING (SPRING CUSHION MID HANGER METHOD)	MMCD
E5.7	OVERHEAD SIGNAL HEAD MOUNTING (PLUMPIZER METHOD)	MMCD
E5.8	OVERHEAD SIGNAL MOUNTING (PLUMBIZER METHOD)	MMCD
E5.9	OVERHEAD SIGNAL HEAD MOUNTING (ADJUSTABLE BRACKET METHOD)	MMCD
E5.10	OVERHEAD SIGNAL HEAD MOUNTING ON POLE ARM (BALL HANGER METHOD)	MMCD
E5.11	OVERHEAD SIGNAL HEAD MOUNTING ON (BALL HANGER METHOD)	MMCD
E5.12	AUDIBLE SIGNALS	MMCD
E6.1	PEDESTRIAN PUSHBUTTON WITH SEPARATE SIGN	MMCD
E6.2	PEDESTRIAN PUSHBUTTON WITH INTEGRAL SIGN	MMCD
E6.3	PEDESTRIAN PUSHBUTTON POST	MMCD
E7.1	UNDERGROUND DIP SERVICE	MMCD
E7.2	SERVICE PANEL IN SERVICE BASE (MOUNTING DETAILS)	MMCD
E7.3	SERVICE PANEL IN SERVICE BASE (MOUNTING DETAILS)	MMCD
E7.4	60A STREETLIGHTING AND 100A STREET LIGHT/TRAFFIC SIGNAL SERVICE PANEL IN	MMCD

	SERVICE BASE (PANEL DETAILS)	
E7.5	60A (120/240V) STREET LIGHTING SERVICE PANEL IN SERVICE BASE (WIRING DIAGRAM)	MMCD
E7.6	100A (120/240V) TRAFFIC SIGNAL/STREET LIGHTING SERVICE PANEL IN SERVICE BASE (WIRING DIAGRAM)	MMCD
E7.7	100A TRAFFIC SIGNAL/STREETLIGHTING SERVICE PANEL ON POLE (MOUNTING DETAILS)	MMCD
E7.8	100A TRAFFIC SIGNAL/STREETLIGHTING SERVICE PANEL ON POLE (MOUNTING DETAILS)	MMCD
E7.9	100A (120/240V) TRAFRFIC SIGNAL/STREETLIGHTING SERVICE PANEL (WIRING DIAGRAM)	MMCD
E7.10	SERVICE GROUND PLATE INSTALLATION DETAIL	MMCD
E7.11	LUMINAIRE WIRING IN POLE HANDHOLE	MMCD
E7.12	SIGNAL CABLE WIRING IN POLE HANDHOLE	MMCD
E7.13	SIGNAL CABLE COLOUR CODE SAMPLE (ONTARIO SPEC METHOD)	MMCD
E7.14	MINIMUM CLEARANCES TO OVERHEAD POWERLINES	MMCD
E7.15	POLE MOUNTED RECEPTABLE	MMCD
E7.16	TELEPHONE DEMARCATION ENCLOSURE	MMCD
E7.17	MOUNTING DETAILS ON CONTROLLER OR POLE TELEPHONE CONDUIT ON UTILITY POLE	MMCD
E7.18	CONDUIT TIE-IN TO TELEPHONE VAULT, MANHOLE JUNCTION BOX	MMCD
E8.1	TYPCIAL DETECTOR DOOP TYPES	MMCD
E8.2	DETECTOR LOOPS	MMCD
E8.3	DETECTOR LOOPS	MMCD
E8.4	DETECTOR LOOP TO SHIELDED CABLE SPLICES	MMCD
E8.5	DETECTOR LOOP PROCEDURES AND RULES	MMCD
E8.6	DETECTOR LOOP PROCEDURES AND RULES	MMCD
E8.7	TYPICAL LAYOUT FOR DIAMOND AND ROUND TRAFFIC SIGNAL DETECTOR LOOPS	MMCD
E8.8	PRE-FORMED DIAMOND DETECTOR LOOP INSTALLATION DETAILS	MMCD
E8.9	PRE-FORMED DIAMOND DETECTOR LOOP INSTALLATION DETAILS	MMCD
E9.1	FLASHER LUMINAIRE AND SIGNS ON	MMCD

	PERFORATED STEEL TUBING	
E9.2	FLASHER LUMINAIRE AND SIGNS ON PERFORATED STEEL TUBING	MMCD
E9.3	FLASHER LUMINAIRE AND SIGNS ON STEEL POLE	MMCD
E9.4	FLASHER LUMINAIRE AND SIGNS ON STEEL POLE	MMCD
E10.1	OVERHAD EXTRUDED ALUMINUM AVANCE WARNING SIGN ASSEMBLY DETAILS	MMCD
E10.2	OVERHEAD EXTRUDED ALUMINUM ADFANCE WARNING SIGN INSTALLATION DETAILS	MMCD
E10.3	OVERHEAD EXTRUDED ALUMINUM ADVANCE WARNING SIGN INSTALLATION DETAILS	MMCD
E10.4	OVERHEAD EXTRUDED ALUMINUM SIGN INSTALLATION DETAILS	MMCD
E10.5	OVERHEAD EXTRUDED ALUMINUM SIGN INSTALLATION DETAILS	MMCD
E10.6	OVERHEAD EXTRUDED ALUMINUM SIGN ASSEMBLY DETAILS	MMCD
E10.7	OVERHEAD EXTRUDED ALUMINUM SIGN ASSEMBLY DETAILS	MMCD
E10.8	OVERHEAD EXTRUDED ALUMINUM SIGN ASSEMBLY DETAILS	MMCD
E10.9	OVERHEAD EXTRUDED ALUMINUM SIGN LUMINAIRE INSTALLATION DETAILS	MMCD
E10.10	JUNCTION BOX INSTALLATION DETAILS ON SIGN ARMS	MMCD

THIS PAGE INTENTIONALLY LEFT BLANK

GENERAL

The appended Servicing Agreement template is typical of the agreement that will be executed between the Village and the Developer for the work. The template will be amended from time to time as conditions warrant and will have specific amendments for each individual agreement prepared.

THIS AGREEMENT made this day of , 20xx

BETWEEN: Village of Anmore, a Village incorporated under the Local Government Act of British Columbia, and having its Municipal offices 2697 Sunnyside Road Anmore, BC, V3H 5G9

(hereinafter called the "Village")

AND:

(hereinafter called the "Developer")

WHEREAS:

A. The Developer is the registered Owner of lands within the Village of Anmore in the Province of British Columbia, more particularly known and described as follows:

PID:
(hereinafter called the "Lands")

B. The Developer desires to subdivide the Lands or develop the Land;

C. The Developer has requested approval of the building permit or Subdivision (as defined in the Bylaw) prior to the construction and installation of the Works and Services in their entirety and is agreeable to entering into this Agreement pursuant to the Local Government Act and the Developer will deposit the Security Deposit, as defined herein and specified by this Agreement; and

D. the Developer has voluntarily agreed to construct and install the Works and Services which are necessary to serve the proposed Development.

NOW THEREFORE THIS AGREEMENT WITNESSES that in consideration of the promises, covenants and agreements hereinafter set forth, the parties hereto covenant, agree, represent and promise as follows:

APPENDICES: 1. The following Appendices are attached to and form part of this Agreement:

a) Appendix "A" – A list of the Works and Services and the Developer's Consulting Engineer's estimate of their respective construction costs;
b) Appendix "B" – Construction drawings to be used for the construction of the Works and Services;
c) Appendix "C"- A copy of the subdivision plan of the Lands or of the Building Permit application;
d) Appendix "D" – List of Section 219 Covenants, Statutory Rights of Way and other charges as may be required by the Village or the Approving Officer.
e) Appendix "E" – Standard Forms

DEVELOPER TO DO WORK:

1. The Developer acknowledges, covenants and agrees with the Village:

   a) to construct, install and provide all the Works and Services listed and shown on Appendices A and B hereto, as approved by the Village, in accordance with the standards contained in the Village's Subdivision and Development Control Bylaw No. 633-2020 (hereinafter called the "Bylaw").

   b) that the Developer shall from time to time and at all times so long as it exercises any rights of ownership in the Lands upon the request of the Village, and to the satisfaction of the Village make, do and execute or cause or procure to be made, done and executed, all such further acts, deeds, rights-of-way, covenants, easements and assurances in favour of the Village as are required for the more effectual carrying out of this Agreement , including, without limiting the generality of the foregoing, all documents referenced in Appendix "D

   c) that Appendices A and B identify and illustrate both 'On-Site Works and Services' and/or 'Off-Site Works and Services'.

   d) that the Developer relies exclusively on its own Professional Engineer, who shall be registered with Engineers and Geoscientists BC (the "Consulting Engineer"), contractors and staff, and that the Village does not, by its approvals,

inspections or acceptance of the Works and Services warrant or represent that the Works and Services are without fault or defect, and that all approvals and inspection of the Works and Services given or made by the Village are for the sole benefit of the Village and shall in no way relieve or excuse the Developer from construction and installing the Works and Services in strict compliance with the provisions of this Agreement and the Subdivision Development Control Bylaw No. 633-2020.

TRANSFER OF INTEREST IN WORKS AND SERVICES:

2. The Developer covenants and agrees with the Village to assign, transfer and convey to the Village all of its rights, title and interest in the Works and Services on any and all of the Lands, upon or in which the Works and Services are situated, upon the completion of the Works and Services, (as witnessed by the issuance of a Certificate of Substantial Performance).

PERMISSION TO DO WORK:

3. The Village covenants and agrees to permit the Developer to construct the Works and Services, on the terms and conditions herein, and in the manner required by and at the places specified in the Plans and Specifications in Appendix B; provided that nothing in this Agreement shall be construed as to make available the use of or access to the Works and Services for any purpose, and without limiting the foregoing, for the purpose of serving the Lands or any other real property whatsoever either Owner or controlled by the Developer or its associates or otherwise, but rather the Village reserves the right in its sole and absolute discretion to make available, operate, alter, use, extend, diminish, discontinue, tear up, sell, rent or otherwise dispose of the Works and Services as its Administrator from time to time deems fit.

CHANGES TO THE LAW:

4. The Developer covenants and agrees to comply with any changes in subdivision requirements or standards enacted by Bylaw prior to the actual commencement upon the lands of the Works and Services Contemplated by this Agreement.

START OF WORK:

5. The Developer covenants and agrees not to commence work until the Village Engineer provides the Developer with written permission to proceed with construction in the form provided in Appendix E.

COMPLETION OF WORK:

6. The Developer shall complete the construction of the Works and Services, specified in Appendices "A" and "B" to the satisfaction of the Village, within **one (1) year** from the date of this Agreement. The term maybe extended on the authority of the Administrator, as evidenced in writing.

DEVELOPER TO GRANT RIGHTS OF WAY:

7. The Developer shall grant to the Village all necessary road dedications, statutory rights-of-way and easements over the said Lands (in conformity with the Village's standard form documents) to accommodate the said Works and Services and, where the said Works and Services are located upon or under privately owned lands other than the Lands, to obtain at the Developer's expense, all necessary road dedications, statutory rights-of-way and easements over such lands, in favour of the Village where applicable, to accommodate the Works and Services, and to register the dedications, rights of way and easements in the Land Title Office.

DESIGN:

8. a) The Developer covenants and agrees that all Works and Services required herein shall be designed by a Consulting Engineer, and retained by the Developer. Plans and Specifications for the Works and Services shall be prepared by or under the direct supervision of the Consulting Engineer and all plans shall bear his or her professional seal and signature.

   b) The Developer covenants and agrees to ensure that the Developer's Consulting Engineer maintains professional liability and errors and omissions insurance to a minimum value of two million dollars ($2,000,000) per occurrence, which insurance shall provide coverage in respect of any claims arising out of the Consulting Engineer's services in connection with this Agreement regardless of when the claim is made. The professional liability insurance shall be provided for a duration of two years beyond the date of substantial completion of the Works and Services. Written proof of coverage will be provided to the Village upon request of the Approving Officer.

SCHEDULE:

9. a) The Developer covenants and agrees to provide an updated work schedule,

at a minimum on a weekly basis, to the Village.

b) The Developer covenants and agrees to provide at least 1 week notice and 48 hours notice to the Village for the following works: trenching, tie-ins, paving, decommissioning of utilities, and backfilling.

c) The Developer covenants and agrees to provide a disinfection plan to the Village at least 2 weeks in advance of scheduled disinfection work.

Field Reviews:

10. a) The Developer covenants and agrees to retain the Consulting Engineer during the construction period for the purpose of on-site field reviews to ensure compliance with the approved design and to provide certification of the construction documentation and Record Drawings of the Works and Services, as defined by this Bylaws.

b) Further, the Developer's Consulting Engineer and/or their appointed site inspector(s) shall visit the Place of the Work at intervals as defined by this bylaw and to remain familiar with the progress and quality of the Works and Services and to determine if the Works and Services are proceeding in general conformance with the plans and specifications. The level of on-site field review to be provided by the Developer's Consulting Engineer shall be a minimum of 60% of the time the Developer's Contractors are carrying out on-site or off-site Works and Services and shall include, and not be limited to, field reviews of tie-ins, pressure tests, compaction of backfill, and laying of permanent asphalt.

c) The Village, the Developer's Consulting Engineer, their authorized representatives and /or their appointed site inspector(s), shall, at all reasonable times during the performance of the Works and Services, have access to the Works and Services, including any parts of the Works and Services that are in progress at locations other than where the Works and Services are being installed.

d) The Village Engineer and the Developer's Consulting Engineer and their representatives have the authority to reject Works and Services that, in their opinion, does not conform to the requirements of the Works and Services.

ENGINEERING DRAWINGS:

11. a) The Developer covenants and agrees that the intent of this Agreement is that the Developer shall construct fully completed Works and Services, and grant all necessary dedications, rights of way and easements as shown in the following plans and specifications prepared by the Developer's Consulting Engineer:

    Under Drawings Numbers:

Drawing Number	Drawing Title	Revision

And as received for the purposes of this Agreement by the Village on the xx day of, 20xx:

DESIGN CHANGES:

12. a) The Approving Officer, the Village's Engineer may alter the plans because of conditions on site so that the Works and Services function and operate in a manner satisfactory to the Approving Officer or Village's Engineer. Should the Works and Services, as provided herein, prove to be in any way defective or should they not operate to the satisfaction of the Approving Officer or the Village's Engineer, then the Developer shall, at his own expense modify and reconstruct the Works and Services so that the works shall be fully operative and function to the satisfaction of the Approving Officer or Village's Engineer.

    b) The Developer covenants and agrees that the Developer's Consulting Engineer shall obtain the prior written approval of the Village Engineer for any changes to the design and specifications of the Works and Services set out in the Construction Drawings.

c) All changes to the design drawings shall be submitted to the Village Engineer for review and approval in advance of completing revised Works and Services in the field. Drawings shall be revised and denoted with revision numbers and 'clouded' areas surrounding specific changes or revisions.

d) In carrying out the Works and Services, the Developer covenants and agrees not to damage any of the Village's works, services or property, or remove, alter, or destroy any survey pins, posts or monuments, and in default shall replace, repair and restore any damage of whatsoever nature to the satisfaction of the Administrator.

SUBSTANTIAL PERFORMANCE:

13. A Certificate of Substantial Performance shall be provided by the Village's Engineer on the completion of the construction listing all the deficiencies. This certificate of Substantial Performance shall not be construed as acceptance of the Works and Services. Substantial Performance is defined in section 16, below.

CONSTRUCTION DOCUMENTATION AND RECORD DRAWING SUBMISSIONS:

14. The Developer covenants and agrees to submit to the Village final Record Drawings, service connection cards and construction documentation, test results and digital asset management information, as accepted by the Village's Engineer as identified in Schedule A, Section 2.7 of the Bylaw prior to issuing a Certificate of Substantial Performance.

MAINTENANCE PERIOD AND RESPONSIBILITY:

15. The Developer covenants and agrees to maintain every part of the Works and Services in good order and in complete repair for a period of one (1) year from the date shown on the Certificate of Substantial Performance (the "Maintenance Period").

    Should the Developer fail to maintain the Works and Services, then the Village's Engineer, at its option, after giving the Developer seven (7) days written notice (emergencies excepted), may do so, and the whole costs, charges and expenses so incurred by the Village will be payable by the Developer, as

provided for herein. The decision of the Village's Engineer will be final with respect to the necessity for repairs, or the adequacy of any work done.

Once any Works and Services covered by this Agreement are connected to the Village's infrastructure, only Village crews or Contractors under the direct supervision of the Village may undertake work on such Village infrastructure. As such, Village crews or contractors retained by the Village may correct any defects, imperfections, settlements and/or re-chlorination and flushing which is deemed by the Village's Engineer to be necessary during the one (1) year period from the date shown on the Certificate of Substantial Performance and the whole of such costs, charges and expenses so incurred by the Village in undertaking such work including but not limited to contractor costs will be payable by the Developer as provided for herein.

CERTIFICATES OF SUBSTANTIAL PERFORMANCE AND FINAL ACCEPTANCE:

16. a) The Administrator shall provide a Certificate of Substantial Performance to the Developer upon the Substantial Performance of the Works and Services. Substantial Performance shall only be approved when proper inspection of the Works and Services has been carried out, an updated schedule for asset management and costing consisting of quantities and actual unit prices of all underground and surface works infrastructure to be owned by the Village is provided, and when all remaining work as certified to the satisfaction of the Village by the Developer's Consulting Engineer upon the submission of a Certificate of Inspection, is capable of completion or correction at a cost of not more than:

i. 3% of the first $500,000 of the Total Construction Cost;
ii. 2% of the next $500,000 of the Total Construction Cost;
iii. 1% of the balance of the Total Construction Cost.

b) The date of the Certificate of Substantial Performance is the date of commencement of the Maintenance Period under Section 14 of this Agreement.

c) Within the Maintenance Period, the Administrator may provide a Certificate of Total Performance to the Developer provided that all the Works and Services and outstanding deficiencies identified in Sections 12 and 16.a

(above) are completed to the satisfaction of the Village upon the submission of a Certificate of Inspection by the Developer's Consulting Engineer.

d) The Administrator shall issue a Certificate of Final Acceptance upon the expiry of the Maintenance Period provided that all outstanding deficiencies identified by the Administrator with respect to the Off-Site Works and Services and On-Site Works and Services have been remedied and Record Drawings, service record cards, construction documentation and test results have been provided.

e) On issuance of the Certificate of Final Acceptance and upon the expiration of the Maintenance Period, the Developer may apply to the Village for discharge of this covenant, at their cost, by submitting the appropriate Form. The Village will execute the discharge and return the Form to the Developer for deposit with the Registrar.

DEVELOPER INDEMNIFIES VILLAGE:

17. The Developer covenants and agrees to save harmless and effectually indemnify the Village, its elected officials, officers and employees, contractors, agents, successors and assigns from and against:

    a) All actions and proceedings, costs, damages, expenses, claims and demands whatsoever and by whomsoever brought by reason of the construction, installation, maintenance or repair of the Works and Services provided by the Developer;
    b) All expenses and costs which may be incurred by reason of the construction, installation, maintenance or repair of the Works and Services resulting in damage to any property owned in whole or in part by the Village for which the Village by duty or custom is obliged, directly or indirectly, in any way or to any degrees, to construct, install, maintain or repair;
    c) All expenses and costs which may be incurred by reason of liens for non-payment of labour or materials, Workers Compensation, Unemployment Insurance Federal or Provincial tax, check-off or encroachments owing to mistakes in survey;
    d) All expense and costs which may be incurred by the Village as a result of faulty workmanship and defective material in any of the Works and Services installed by the Developer.

e) The above clauses shall not be construed as to extinguish any rights which the Village would have were it not for the inclusion of Clause 17 in this Agreement. This indemnification obligation owed by the Developer to the Village shall survive the termination or earlier cancellation of this Servicing Agreement.

INSURANCE BY DEVELOPER:

18. The Developer will at its sole expense throughout the term of this Agreement until the Village has accepted the Works and Services under Clause 16(c) carry Comprehensive Liability Insurance acceptable to the Village in the amount of at least Five Million Dollars (5,000,000.00) with insurance companies licensed to carry on business in the Province of British Columbia in partial discharge of its obligation under Clause 16 (a), (b), (c) and (d).

INSURANCE COVERAGE:

19. The Developer covenants and agrees to provide the following insurance coverage, and to provide the Village with a copy of the insurance policy prior to the commencement of any construction of the Works and Services:
    a) To protect the Developer and the Village against all claims arising out of:
        i. Death or injury to persons; and
        ii. Damage to or loss of, any property of third persons, including without limiting the foregoing; the following classes of property; Real property, chattels, land, works, buildings, structures, wires, boilers, and pressure vessels, conduits, pipes, mains, shafts, sewers, tunnels, and apparatus in connection therewith, even when the damage or loss of use is caused by vibration , moving, shoring, underpinning, raising, rebuilding or demolition of any building, structure or support, or by excavation, tunneling or other work below the surface of the ground or water; and
        iii. damage to or loss of all building, structures, stores, equipment and materials included in or required to the carrying out of the Works and Services.
    b) Every policy of insurance required will:
        i. Name “The Village of Anmore” and any named appointed third party, such as Contracted Employees as an additional insured; and
        ii. State that the policy applies to each insured in the same manner and to the same extent as if a separate policy had been issued to each insured; and

iii. State that the policy cannot be cancelled, lapsed or materially changed without at least thirty (30) days written notice to the Village, delivered to the Village's Corporate Officer.

SECURITY DEPOSIT:

20. As security for the due completion of the construction and installation of the Works and Services and the performance of all the covenants and promises contained in this Agreement, the Developer shall concurrently with the execution of this Agreement deposited 120% of estimated cost of the Works and Services, in the amount of **$ xxx.xx** as determined by the cost estimate of the Developer's Consulting Engineer and as attached as Appendix A, in the form of cash or an irrevocable and automatically renewing Letter of Credit acceptable to the Village (herein called the "Security Deposit").

FORFEIT OF SECURITY:

21. In the event that the Developer fails to construct and install the Works and Services prescribed herein within the time specified in Clause 6, the Security Deposit will be forfeited to the Village.

    Should the Village agree to an extension of the time required to complete the Works and Services, the Village reserves the right to have the value of the Works and Services re-estimated, and the Security Deposit adjusted.

    The Developer shall be deemed to be in default of this Agreement if the Developer files a voluntary petition of bankruptcy, or is adjudicated bankrupt or insolvent, or files any petition or answer seeking any reorganization, arrangement, liquidation, dissolution or similar under any enactment respecting bankruptcy, insolvency or other relief for debtors.

USE OF SECURITY DEPOSIT AND MAINTENANCE HOLDBACK:

22. If the Developer is in default of any of its obligations in respect to the construction and installation or maintenance of the Works and Services or any portion thereof, the Village may draw down on the Security Deposit or the Maintenance Holdback, as the case may be, to secure completion or maintenance of all or a portion of the Works and Services in compliance with the terms of this Agreement and any payment obligations of the Developer in respect of the Works and Services that remain unpaid including the discharge

of any builders' liens, and such monies shall be applied to remedy the default and complete all or any portion of the Works and Services and to satisfy the Developer's warranties in respect of same in place and stead of the Developer and ensure compliance with the terms of this Agreement. In addition, the Village may cash, retain and use the Security Deposit to remedy any emergency condition which, in the sole opinion of the Village Engineer, is associated with, arises from or is a result of the Works and Services and requires expedient action. Despite the foregoing, the Village may cash, retain or use the Security Deposit or the Maintenance Holdback, as the case may be, to pay, settle or compromise any claim against the Village for which the Developer indemnified the Village pursuant to Clause 16. If the proceeds from the Security Deposit or the Maintenance Holdback, as the case may be, are not sufficient to pay all costs and expenses incurred by the Village in completing or maintaining all or a portion of the Works and Services including the Village's normal overhead charges and satisfying the warranties thereof,

curing other default by the Developer, or satisfying any amounts owing to the Village pursuant to Clause 16, the Developer shall forthwith pay to the Village the difference upon receipt from the Village of invoices for the same together with all interest thereon at the commercial prime rate of interest plus two percent from the date of receipt by the Developer of the invoices for the same and continuing until payment in full. The amount required to be paid by the Developer is a debt owing to the Village, and may be collected in the same manner as property taxes in arrears.

RELEASE OF SECURITY DEPOSIT, MAINTENANCE HOLDBACK:

23. If the Village's Engineer is of the opinion that the Works and Services or any portion thereof have been adequately completed and the Developer's covenants performed in compliance with this Agreement, and if there is no litigation pending by any third party against the Village as a result of, or arising from, the construction and installation of the Works and Services, the Village's Engineer shall be authorized to return all, or any portion of the Security Deposit to the Developer at such times and in such amounts as he may deem proper but in no case shall be more frequently than once per month, provided that he will retain an amount equal to 10% of any released funds for a total of 10% of the total Security Deposit at the completion of the construction and installation of the Works and Services to secure the performance of the maintenance required for the Developer for the Maintenance Period (hereinafter called the "Maintenance Holdback").

RELEASE OF MAINTENANCE HOLDBACK:

24. Upon expiration of the Maintenance Period outlined in Clause 14 and provided that the Village's Engineer is satisfied that the Developer has complied with the covenants contained in this agreement and if there is no litigation pending by any third party against the Village as a result of, or arising from, the construction of the Works and Services, the Village's Engineer be authorized to return the Maintenance Holdback to the Developer and thereinafter the Developer's responsibility for the Works and Services shall cease.

INSPECTION AND ADMINISTRATION FEE:

25. The Developer covenants and agrees to pay to the Village an Inspection and Administration non-refundable fee in the amount indicated in the Fees and Charges Bylaw.

NO OTHER REPRESENTATIONS:

26. It is understood and agreed that the Village has made no representations, covenants, warranties, guarantees, promises or agreements (verbal or otherwise) with the Developer other than those in this agreement.

NO WAIVER:

27. The Developer covenants and agrees that nothing contained or implied herein shall prejudice or affect the rights and powers of the Village in the exercise of its functions under any public and private statutes, bylaws, orders and regulations, of all which may be fully and effectively exercised in relation to the said Lands as if the Agreement had not been executed and delivered by the Developer.

SOLE COST:

28. Every obligation of the Developer under this Agreement shall be performed by the Developer at its sole cost.

TIME OF ESSENCE:

29. Time shall be of the essence of this Agreement.

SEVERABILITY:

30. If any section or portion of this Agreement is declared or held invalid for any reason, such invalidation shall not affect the validity of the remainder of that section or of this Agreement and this Agreement shall continue to be in force and effect and be construed as if it had been executed without the invalid portion.

SUCCESSION:

31. This Agreement shall ensure to the benefit of and be binding upon the parties hereto, their successors and assigns. Any assignment by the Developer is subject to the Village's prior written consent, not to be unreasonably withheld.

FORCE MAJEURE:

32. All obligations of the parties shall be suspended so long as the performance of such obligations is prevented or hindered 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 or civil commotion.

VILLAGE'S OPINION:

33. Any opinion which the Village is entitled by virtue of this Agreement to form may be formed on behalf of the Administrator, in which event the opinion of the Administrator shall be deemed to be the opinion of the Village for the purposes of this Agreement.

REFERENCE TO THE LANDS:

34. Any reference to the Lands shall be deemed to be a reference to each and every parcel comprising the Lands and any reference to the Developer shall be deemed to be a reference to the Developer or Developers of each of the parcels comprising the Lands, all unless the context or the parties otherwise require.

NOTICE:

35. Any notice or other communication required or contemplated to be given or made by any provision of this Agreement shall be given or made in writing and mailed by prepaid registered mail in any Canada Post Office in the Province of

British Columbia (and if so shall be deemed to be delivered on the fourth business day following such mailing, except that in the event of interruption of mail service notice shall be deemed delivered only when actually received by the party to whom it is addressed), so long as the notice is addressed as follows:

To the Developer at:

To the Village at: Village of Anmore
2697 Sunnyside Road
Anmore, BC, V3H 5G9
Attn: Manager of Corporate Services

or to such other address of which a party hereto from time to time notifies in writing the other party hereto.

As evidence of their agreement to be bound by the above terms, the parties each have executed and delivered this Agreement under seal by executing Part 1 of the Land Title Act Form C to which this Agreement is attached and which forms part of this Agreement.

WHENEVER the words “will” and “shall” are used in this Agreement it will be construed as imperative (mandatory).

WHENEVER the singular or the masculine is used in the Agreement it will be construed as meaning the plural or feminine or body corporate or politic where the context or the parties hereto so require.

THIS CONTRACT shall ensure to the benefit of and be binding upon the parties hereto, their respective successors and assigns.

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

Please refer to Form C for signatories.

Signatory page if the servicing agreement with FORM C, D, E, is NOT being registered on title:

SIGNED, SEALED AND DELIVERED

_____
DATE (MMM/DD/YYYY)

_____
DEVELOPER / PROPERTY OWNER

_____
LAWYER OR NOTARY

SIGNED, SEALED AND DELIVERED

The Corporate Seal of the Village of Anmore was hereunto affixed In the presence of:

_____
Administrator

_____
DATE (MM/DD/YYYY)

_____
Village Engineering

_____
DATE (MM/DD/YYYY)

Appendix "A" – Cost Estimate

Appendix "B" – Site Servicing Design Drawings

Drawing Number	Drawing Name	Revision #

Appendix "C" – Subdivision Plan

Appendix "D" – Section 219 Covenants to be registered on title

- Off-site storm drainage, including storm sewers, manholes, catch basins and lawn basins, piping and trenches, swales, outlets and erosion protection measures, and raised traffic island, road sightings and signage with asphalt paving included in the approved Construction Drawings;
- Environment area / Riparian zone setbacks.

END OF DOCUMENT

Appendix "E" – Standard Forms

Schedule E-1 Permission to Construct

Schedule E-2 Certificate of Inspection

END OF DOCUMENT

THIS PAGE INTENTIONALLY LEFT BLANK

SCHEDULE E

SUBDIVISION AND DEVELOPMENT CONTROL BYLAW NO. 633-2020

STANDARD FORMS

Schedule E-1 Permission to Construct

Schedule E-2 Certificate of Inspection

Schedule E-3 Certificate of Substantial Performance

Schedule E-4 Certificate of Total Performance

Schedule E-5 Final Acceptance Certificate

Schedule E-6 List of Inspections

VILLAGE OF ANMORE

PERMISSION TO CONSTRUCT

File No. _____

Authorization to proceed with construction is hereby granted to:

Name of Developer _____

Address _____

For the works described generally as:

_____
_____
_____

Authorized Start Date_____ **Completion Date**_____

Authorized Hours of Work: From_____hrs. to_____hrs. Monday to Saturday inclusive.

Check the following: (all must be completed)

_____ Approved plans covering the works are attached.
_____ Certificates of insurance are attached.
_____ Administration fee has been paid.
_____ Security deposit has been paid.
_____ A Servicing Agreement has been completed – No._____
_____ VCH Approval (or n/a if not required)

Consultant: _____

Contact:_____ Phone No._____bus.

Special Conditions:
_____
_____
_____

_____
Village Official's Approval

VILLAGE OF ANMORE

CERTIFICATE OF INSPECTION

I hereby certify that all engineering and construction services, required under the Subdivision and Development Control Bylaw of the Village of Anmore for the subdivision of:

Legal Description: _____

Project No. _____

which services were designed by:

Name of Firm: _____

Address: _____

and approved for construction on drawing numbers:

drawing number	date	drawing number	date
_____		_____	
_____		_____	
_____		_____	
_____		_____	
_____		_____	

Have been installed and inspected by or under the direction of:

_____
_____

I further certify that the “Record” drawings hereby submitted represent the works and services as installed for the aforementioned subdivision.

ENGINEER’S SEAL

_____
Consulting Engineer
(signature and name of the Professional Engineer responsible for design)

VILLAGE OF ANMORE

CERTIFICATE OF SUBSTANTIAL PERFORMANCE

Developer: _____

_____

Contractor: _____

_____

Project No: _____

Servicing Agreement No: _____

Date: _____

This certificate is issued pursuant to Clause 12 and Clause 14 of Schedule D to the Subdivision and Development Control Bylaw.

The Maintenance Period for the Works will begin on _____

The Maintenance Period for the Works will end on _____

The attached is a List of Deficiencies related to the Works.

The Total Performance Certificate will be issued when all deficiencies have been cleared, the Maintenance Period expired, and the Village Official has been satisfied all conditions of the Servicing Agreement have been fulfilled.

This Certificate has been made to the best of the Village Official's knowledge, information and belief. It does not constitute acceptance of any Work not in accordance with the requirement of the Subdivision and Development Control Bylaw, and not listed as a deficiency herein, whether or not such defect(s) could have been observed or discovered during construction.

_____

Cc: Contractor

Village Official's Approval

VILLAGE OF ANMORE

CERTIFICATE OF TOTAL PERFORMANCE

Date: _____

Owner: _____

Consulting Engineer: _____

_____

_____

Dear Sirs:

Re: _____

This is to certify that to the best of our knowledge all works and services in connection with the above noted project were completed as of_____in accordance with the approved engineering and record drawings including inspections, testing, and acceptance as per Subdivision and Development Control Bylaw.

This does not exempt the Owner from any further requirements or agreement responsibilities which may come to the knowledge of the Village during the one year Maintenance Period.

Based on the above Total Performance date, the Maintenance Period shall extend to_____and the Maintenance Holdback in the amount of $_____will be confirmed for release on this date, in compliance with issuance of a Final Acceptance Certificate.

_____
Consulting Engineer

ENGINEER'S SEAL

_____
Village Official's Approval

Schedule E-5

VILLAGE OF ANMORE

FINAL ACCEPTANCE CERTIFICATE

Date: _____

Owner: _____

Consulting Engineer: _____

_____

Contractor: _____

_____

_____ _____

Dear Sirs:

Re: _____

This is to certify that to the best of our knowledge all works and services in connection with the above noted project achieved Final Acceptance as of_____.

Based on the above date, it is recommended that the Village accept the works and services and release the Maintenance Holdback in the amount of $_____.

_____
Consulting Engineer

ENGINEER'S SEAL

_____
Village Official's Approval

Schedule E-6

VILLAGE OF ANMORE - Inspection List – Sign-Off

Inspection requirements to include:

- Regular and appropriate level of inspection;
- That Village staff be permitted to attend the site to independently view and inspect the quality and progression of the works;
- Take samples of all imported granular materials (pipe / zone / bedding, pit run gravels for replacement compacted back fill, sub-base and base course gravels) be sampled, tested and reported by the Engineer or Contractor (and paid for by the Developer) for gradation limits in comparison to MMCD specs and Village Engineering and bylaw standards;
- All materials requiring compaction in the design or as specified in MMCD and Village standards shall be tested as arranged by the Engineer or the Contractor or a Geotechnical Engineer (and paid for by the Developer) for compliance to compaction specifications found in the design requirements and/or MMDC specifications;
- Daily engineering inspection reports be compiled by the Professional Engineer and copies be made available to the Village Engineer on a weekly basis;
- All QA / QC material and compaction test results be collected and reviewed by the Professional Engineer for completeness and copies be made available to the Village Engineer on a weekly basis;
- The watermains are to be flushed, pressure tested and disinfected in accordance with AWWA and MMCD/Village standards and specifications before use – all written pressure test results and documentation of bacterial sampling/testing be provided to the Village Engineer;
- Conduct final inspections with the participation of Village Engineering and Operations rep.

Project Number with Project Location: _____

Date of inspection: _____

_____
Consulting Engineer

ENGINEER'S SEAL

_____
Village Official's Approval

THIS PAGE INTENTIONALLY LEFT BLANK

SCHEDULE F

SUBDIVISION AND DEVELOPMENT CONTROL BYLAW NO. 633-2020

APPROVED PRODUCTS LIST

1.0 Approval

.1 This Approved Products List was revised and approved by the Village Engineer to supersede all previous oral and written approvals and all lists of an earlier date.

.2 Subject to the restrictions contained herein, materials and products named in this List are approved for use in the Village of Anmore.

.3 In the context of this Section, a product is approved when the vendor obtains a letter from the Village Engineer stating that such product is approved for use in the Village of Anmore, and that the name of the product is entered into the Approved Products List.

.4 Where brand names are specified for a product, any proposal for an alternate product requires the approval of the Village Engineer.

.5 A product is acceptable when it meets all the requirements stipulated in the MMCD. It refers to a "generic" product which may be incorporated into the works without specific approval. Names of "generic" products are not entered into the Approved Products List.

2.0 Exclusions

.1 This List contains products which are specifically excluded by the Village Engineer for use in the Village of Anmore, even though such products may be listed as approved in MMCD.

.2 Unless specifically excluded by the Village Engineer, all approved products listed in MMCD are acceptable for use in the Village of Anmore subject to the restrictions on use as listed.

3.0 Revisions

.1 The Village Engineer may revise this list at any time without prior notice by adding or removing listed products or by making any other changes to the specifications or restrictions.

4.0 List of Approved Materials and Products

Generic = Acceptable products meeting specifications but not specifically approved by name.

Product	Specifications MMCD Section	Approved Material Type	Standards	Approved Product	Comments
WATERMAIN					
Water Main	33 11 01 2.2	Ductile Iron PVC Steel	AWWA C900/C905/ C909 C151 C200 CSA 137.3	IPEX "Blue Brute" Royal Pipe Rehau Bionax	No HDPE unless approved by Village Engineer
Water Fittings	33 11 01 2.2.4	Cast Iron Ductile Iron Compact Ductile Iron	AWWA C900/C605/ C110/C153 CSA B137.5	Terminal City Mueller Robar Clow Smith Blair Romac	5 degree PVC C900 Pressure Class 235 approved. Flanged or push on only. No other PVC fittings for mainline water mains.
Water SErvice	33 11 01 2.5.1	Polyethylene Copper Type K	AWWA C901, C904 CSAB137.5	IPEX Rehau Municipex	No polybutylene pipe.
Gate Valves	33 11 01 2.3.2	Resilient Seated Gate Valve	AWWA C509 NSF-61	Clow Mueller AVK Terminal City	Flanged or push on only (50mm-300mm)
Butterfly Valve	33 11 01 2.3.3		AWWA C504, C207-01	Mueller Pratt Dezurik	Not to be used unless approved by DOS
Blowoff Valve	33 11 01 2.3.4				To be approved by DOS
Air Valve	33 11 01 2.3.5		ASTM A126, Class B ANSI/AWWA C512	ARI Apco Val-matic Crispin	Combination air valves 25-100mm.
Check Valve			NSF/ANSI 61,372 Lead-Free AWWA C508, C550	Valmatic or equivalent	Resilient Seat (silent)
Control Valve		Pressure reducing Pressure relief	AWWA C530-12	Singer Cla-Val	(50mm-300mm) To be approved

		Pressure sustainable altitude			VoA
Hydrant	33 11 01 2.6	Compression – 150mm inlet	AWWA C502-94	**Canada Valve (preferred)** Terminal City Mueller	All hydrants must be equipped with a 100mm Stortz nozzle, painted black. Hydrant to be painted red
Corporation Stop	33 11 01 2.7.2	IP to Compression - Full port, Full flow		Mueller Ford Cambridge McDonald	19 to 50 mm
Curb Stop	33 11 01 2.7.3	Full flow, full port ball valve Compression		Ford McDonald Mueller Cambridge	19 - 50 mm only. Use mainline gate valve for larger sizes. No cylinder type.
Coupling	33 11 01 2.2.3.12	Plain end		CAN-PAC COB Dresser 38 or 162 Robar Romac Hymax	No repair clamp allowed.
		Flanged		Dresser 128 Robar Romac Hymax	
		Compression (19-50mm)	ASTM B62, No lead	Mueller Ford Cambridge McDonald	
Couplings		AC PVC Ductile Iron Cast Iron	AWWA C219, C213, C210, C550	Robar Romac XR501 Smith Blair Hymax	
Restrained Coupling		PVC HDPE Ductile Iron Cast Iron	AWWA C219 AWWA A536	Alpha restrained coupling	
Joint	33 11 01	Ductile Iron		Uni-Flange	To be
Restrainer	2.2.3.13			series Clow	approved by VoA

Product	Specifications MMCD Section	Approved Material Type	Standards	Approved Product	Comments
Joint Protection Tape	Bylaw Schedule B Section 3.0	AWWA C214 AWWA C209 AWWA C217-90		Trenton Tec Tape Denso Tape HDPE Shrink wrap	To be used when minimum clearance with a sewer cannot be achieved.
Saddle	33 11 01 2.5.3	For PVC	ASTM D 2000 AA4 15	Robar Romac Canpac Smith Blair Cambridge	Saddle to come with stainless steel straps
Saddle	33 11 01 2.5.3	For Ductile Iron, Cast Iron, Steel (100-300mm)	AWWA C800, C210, C213, C111 NSF-61	Robar Romac Canpac Smith Blair Cambridge	Saddle to come with stainless steel straps
Saddle	33 11 01 2.5.3	AC (100-300mm)	AWWA C223, C111 ASTM A194 ASTM A240	Robar Romac Canpac Smith Blair Cambridge	Saddle to come with stainless steel straps
Test Point	33 11 01 2.7.1			Eclipse #88 Sampling Station	Permanent Test point
Water Valve Box	33 11 01 2.3.6	Mainline		ACS 0-7 Dobney 0-5 K Casting 1977 Terminal City UIF 85 Mr10 Mueller	Nelson type. Cover marked "WATER".
Curb Stop Box	33 11 01 2.3.7			Daigle Box Dobney 0-10 Mueller A-726 Mueller A-728 Terminal City Trojan VSB1, 2	Nelson type. Cover marked "WATER
Bolt and Nut	33 11 01 2.2.3.9	Type 304 Grade A Stainless Steel		"Generic"	

Product	Specifications MMCD Section	Approved Material Type	Standards	Approved Product	Comments
Tie Rod	33 11 01 2.2.3.10	Type 304 Grade A Stainless Steel		"Generic"	
Backflow Devices		Reduced pressure backflow assembly/ Double check valve assembly	CAN/CSA B64.10-17	Watts Febco Wilkins/Zurn Conbraco	All sizes
Meter Boxes		Concrete	H-20 Loading CSA A23.4	T266 Mueller	
Meter Box Lids		Ductile Iron	H20 Loading 65-45-12 Ductile Iron	T266 Mueller	Must have recessed hole for water meter antenna
Water Meter		16-50mm Greater than 50mm		Neptune T-10 E-coder R900i	Must be compatible with VoA radio reader. (>50mm) to be approved by VoA
Sampling Station				Eclipse #88	To be painted green
Pressure Transmitters/Flow meters					To be approved by VoA

Product	Specifications MMCD Section	Approved Material Type	Standards	Approved Product	Comments
STORM SEWERS					
Storm Sewer	33 42 13 2.0	Concrete pipe, PVC Pipe DR35, HDPE; PVC Profile Pipe		"Generic" KWH Weholite Boss 2000	
Storm Service	33 40 01 2.6	PVC DR28		"Generic"	
PIPE CULVERTS					
Pipe Culverts -road crossings	33 42 13 2.0	Concrete Pipe, PVC Pipe DR35 HDPE PVC Profile Pipe		"Generic" KWH Weholite Boss 2000	No Corrugated Steel Pipe
Pipe Culverts -driveways	33 42 13 2.0	Concrete Pipe, PVC Pipe DR35 HDPE PVC Profile Pipe		"Generic" KWH Weholite Boss 2000	No Corrugated Steel Pipe

Product	Specifications MMCD Section	Approved Material Type	Standards	Approved Product	Comments
SANITARY SEWERS					
Sanitary Sewer	33 30 01 2.0	Concrete Pipe, PVC Pipe DR35		"Generic"	No PVC profile pipe
Sanitary Force Main	33 34 01 2.0	Pipes, fittings, mainline valves, boxes, couplings, bolts and nuts, and tie-rods same as for water applications		"Generic"	Valve box cover marked “SANITARY SEWER:. Air valves to be specially designed for sewage applications.
Sanitary Service Connection	33 30 01 2.3	PVC DR28		“Generic”	

Product	Specifications MMCD Section	Approved Material Type	Standards	Approved Product	Comments
MANHOLES AND CATCHBASIN					
Manhole Frame and Cover	33 44 01 2.1			ACS C-18 Dobney C-18 K Casting CK18 Sierra Dist	Cover marked "STORM SEWER" or "SANITARY SEWER".
				SD18 UIF 1AC, UIF, 1LAF Westview TR18	
Catch Basin and Other Castings	33 44 01 2.1	CB Frame		ACS B-24 Dobney B-24 Dobney B-39B K Casting BJ24D Sierra Dist SD24 UIF 60CBFD Westview TR24	
		CB Grate		ACS B-23 Dobney B-23 K Casting BJ23 Sierra Dist SD23 UIF 60CBG Westview TR23	
		Lawn Basin Grate		ACS B-22A Dobney B-22A	
Inspection / Valve Chamber				LeRon 70A 4x8 WLP-1	
Sanitary Lift Stations		Pumps			Submersible pumps are allowed if approved by Village Engineer
Product	**Specifications**	**Approved**	**Standards**	**Approved**	**Comments**

	MMCD Section	Material Type		Product	
TRANSPORTATION					
Traffic Signal	34 41 13 2.0	Controller		Econolite Intrex	NEMA
		Primary Head		"Generic"	300 mm diam red, yellow, green
		Signal Head		Astro Brac	4 head unit
		Mount			
		Pedestrian Heads		ICC Model No. 7090	460x450 mm illuminated display *c/w* 2-crate visor, full silhouette
		Pedestrian Button		Rees Model No. 1371	Mushroom type plunger
		Pre-emption		Opticom	
		Safety Cable		"Generic"	3.5 mm stranded SS aircraft cable secured with C crimps.

Product	Specifications MMCD Section	Approved Material Type	Standards	Approved Product	Comments
LANDSCAPING					
Irrigation		Pipe		Schedule 40	
		Solenoid		TBOS Potted Latching Solenoid	
		Moisture Monitor		TBOS Rain Shutoff Device	
		Valve Controller		Rainbird TBOS – multi station, battery operated	
		Nipples and fittings		Brass is approved	
		Irrigation Heads			Permanent heads
		Quick coupler		#5RC	
		Temporary head			Rotary nozzles
		Valve Box		NDS Model 1324	Drop in stainless steel bolt down cover
		Valve		PGA solenoid	

THIS PAGE INTENTIONALLY LEFT BLANK

END OF DOCUMENT