

1. INTRODUCTION

1.1 Contents of *Engineering Specifications*

1.1.1 The *Engineering Specifications* contains the following sections:

1. Introduction

2. General Specifications - outline the requirement to provide works and services in the Municipality and the process to be followed in providing them.

3. Design Specifications - provide the requirements for the preparation of design drawings, including drafting specifications, as well as the technical aspects of the various types of works and services.

4. Construction Specifications - provide detailed information on materials and construction methods in the provision of works and services. The Municipality has adopted the *Master Municipal Construction Document (MMCD)* as the principal construction specification, and the *Engineering Specifications* provide information supplemental to the MMCD, including *Municipal Supplemental Standard Detail Drawings*.

1.2 Relationship of *Engineering Specifications* to other Specifications, Standards, and Bylaws

1.2.1 The level of services to be provided for subdivisions shall be as per the *Subdivision Bylaw, 7452, September 2001*, or its latest version.

1.2.2 The *Engineering Specifications* are Schedule H to the *Subdivision Bylaw* and as such they apply to the design and installation of sanitary sewers, storm drains, waterworks, roadways, sidewalks, street lighting, and other works and services within and servicing new fee-simple subdivisions in the Municipality, and within Municipal road allowances, municipal rights of way or municipal properties.

1.2.3 No departure from the *Engineering Specifications* shall be permitted without the prior written approval of the Municipality.

2. GENERAL SPECIFICATIONS AND DEVELOPMENT PROCEDURES

2.1 Definitions and Conventions

- 2.1.1 Unless otherwise defined herein, any word or expression in this document shall have the meaning assigned to it in the *Subdivision Bylaw*, the *Zoning Bylaw*, the *Local Government Act* or the *Land Title Act*, in that order of precedence.

APPLICANT means a person who has applied for approval of a proposed subdivision, whether as the owner or as the agent for the owner of the land included therein, or a person who has applied for approval of a building permit, whether as the owner or as the agent for the owner, for a development for which there is a requirement to construct works within municipal road allowances, municipal rights of way or municipally owned properties.

CONSULTING ENGINEER means a Professional Engineer, registered in the Province of British Columbia, experienced in the field of Municipal Engineering, or their authorized representative, who is retained by the Applicant.

MASTER MUNICIPAL CONSTRUCTION DOCUMENTS or MMCD means the Specifications and Standard Detail Drawings of the latest version of the *Master Municipal Construction Document, Volume 2, Printed 2000*, published by the Master Municipal Construction Documents Association, as amended from time to time and includes any successor document.

MUNICIPAL or MUNICIPALITY means the Corporation of the District of Saanich or the Director of Engineering Services or any employee authorized to act on the Director of Engineering Services' behalf.

TAC MANUAL means *Geometric Design of Canadian Roads*, Transportation Association of Canada, September 1999, as amended from time to time and includes any successor document.

TAC URBAN SUPPLEMENT means *Urban Supplement to the Geometric Design of Canadian Roads*, Transportation Association of Canada, April 1995, as amended from time to time and includes any successor document.

- 2.1.2 The words "shall" and "must" and "is required" indicate the imperative. The word "should" indicates the desired or intended result without being mandatory. The word "may", and like expressions, indicate a choice, an election, or a permitted procedure, according to the context.
- 2.1.3 The headings and sub-headings in this document are for the convenience of the reader only. The intent of each part shall be as stated in the text.

2.2 Consulting Engineer

- 2.2.1 As required by the *Subdivision Bylaw*, all works and services shall be designed and inspected during construction by a Consulting Engineer.
- 2.2.2 The Applicant will be required to submit a letter confirming that an Engineer /Client Agreement is in force and outlining the level of engineering services to be provided. The Agreement should be in accordance with the recommendations of the *Association of Professional Engineers and Geoscientists of BC* and the *Consulting Engineers of BC*. At the least, the Agreement shall provide for the level of engineering services required in this specification.

- 2.2.3 The Consulting Engineer shall be responsible for design, layout, approval of materials, field reviews of installation, communication with the Contractor, and preparation of as-constructed record drawings, for all services which are the responsibility of the Applicant. Approval of the design drawing by the Municipality is only to ensure general conformance with the *Subdivision Bylaw* and the *Engineering Specifications*. The Consulting Engineer is solely responsible for the appropriateness of the design in all aspects.
- 2.2.4 Engineering Field Reviews shall consist of general and sufficient resident inspection to ensure that the works and services are constructed in accordance with the approved design drawings. "Sufficient inspection" shall range from a minimum of one site visit per day during construction to full time resident inspection for major developments. The Consulting Engineer shall submit copies of inspection reports, when requested, to the Works Inspector.
- 2.2.5 In addition to the Consulting Engineer carrying out field reviews, the Works Inspector may periodically inspect the work for general conformance to the specifications, and will assist in co-ordinating subdivision construction with any related works to be done by the Municipality. Inspection by the Municipality of any aspect of the Works will not relieve the Applicant of the responsibility to ensure that the Works undertaken by their Contractor are in accordance with the *Engineering Specifications*.
- 2.2.6 The Works Inspector may bring to the attention of the Consulting Engineer the use of unacceptable materials or practices. If satisfactory remedial action is not taken, the Director of Engineering Services may issue instructions to the Consulting Engineer to have the Applicant's Contractor cease construction until remedial action is taken.
- 2.2.7 If the Consulting Engineer wishes to make any changes to an approved design, either before or during the execution of the work, they shall first submit a marked print showing proposed revisions to the Director of Engineering Services. If approval is granted for the revision, the original drawing shall be immediately revised by the Consulting Engineer, signed by the Director of Engineering Services, and new prints issued. These two operations may be carried out simultaneously.
- 2.2.8 The Consulting Engineer and the Applicant should be aware that Municipal employees must adhere strictly to Workers Compensation Board regulations. If Inspectors or other Municipal employees are unable to perform their duties due to working conditions which are unsafe for them, delays in approvals or municipal work may result.
- 2.3 Circulation and Approval of Design Drawings
- 2.3.1 The steps to be undertaken to have design drawings approved generally include:
- Preliminary Drafting Check by the Consulting Engineer
 - Circulation within the Municipality
 - Revisions as required by the Consulting Engineer
 - Submission of Design Drawing Approval Package by the Consulting Engineer.
 - Preparation of estimates by the Director of Engineering Services for works and services to be done by the Municipality.
 - Preparation of Financial Terms and Conditions (FTC) by the Director of Engineering Services
 - Issuance of Design Approval
 - Payment of Fees and Charges by the Applicant

2.3.2 Preliminary Drafting Check

2.3.2.1 Design Drawing Numbers shall be obtained from the Municipal Drafting Department prior to the circulation submission

2.3.2.2 A Municipal Preliminary Check Sheet shall be completed and submitted with the circulation submission.

2.3.3 Circulation

2.3.3.1 Circulation submissions shall be eleven (11) full sets of design drawings.

2.3.3.2 The drawings will be checked by the Director of Engineering Services upon receipt for obvious deficiencies and will be returned to the Consulting Engineer if required.

2.3.3.3 After circulation within the Municipality, a comment sheet is compiled and a Design Drawing Approval Form is prepared, indicating revisions to be done before approval will be considered. These are returned to the Consulting Engineer for revisions to the design as required.

2.3.4 Design Drawing Approval Package

2.3.4.1 Among other items, the Approval Package submitted by the Consulting Engineer shall include:

- Original design drawings on vellum.
- A letter regarding the Engineer/Client Agreement as noted in a previous section of these specifications.
- The registerable plan of subdivision.
- Copies of any rights of way or easements required for the works and services.
- Any approvals and/or permits from senior governments
- An estimate of the cost of the works to be done by the Applicant.
- Drainage calculations if applicable.

2.3.4.2 If any trees are to be removed from Municipal property, approval of Council will be required before the Design Approval can be issued.

2.3.5 Financial Terms and Conditions and Design Approval

2.3.5.1 The Financial Terms and Conditions (FTC) sheet will be prepared by the Director of Engineering Services and will include all fees and charges such as: fees for work to be done by the Municipality, development cost charges, etc.

2.3.5.2 The FTC will include information as to the amount of the security deposits required for early registration as per the *Subdivision Bylaw*. The cost estimate prepared by the Consulting Engineer, after review by the Director of Engineering Services, forms the basis of the security deposit amounts.

2.3.5.3 The approved Design Drawings and the FTC will be returned to the Consulting Engineer and a copy of the FTC will be sent to the Applicant.

2.4 Works and Services Installation

2.4.1 The following steps shall be carried out prior to start of construction of the Works and Services:

2.4.1.1 Design Drawings shall be approved by the Director of Engineering Services.

2.4.1.2 The Consulting Engineer shall make arrangements to inspect the site of the work in the company of a Works Inspector, such inspection to occur at least 24 hours prior to start of construction. The Works Inspector will indicate what works they must inspect and what their availability is for inspections.

2.4.1.3 A permit must be obtained from the Director of Engineering Services to work on a Municipal road allowance and/or rights-of-way.

2.4.1.4 Works to be carried out by Municipal forces are subject to prepayment of the costs. A minimum three weeks must be allowed after payment for preparation of work orders and scheduling of the work.

2.4.1.5 Payment must be made to the Municipality for the supply of hydrants, water valves and water flush valves assemblies. The Applicant's Contractor shall pick up these items at the Municipal Works Yard.

2.4.1.6 Blasting will be allowed only after securing a permit from the Municipality.

2.4.2 If any work proceeds without Municipal inspection, the Director of Engineering Services may require the works to be exposed for an inspection. Inspection by the Municipality of any aspect of the Works will not relieve the Applicant of the responsibility to ensure that the Works undertaken by their Contractor are in accordance with the *Engineering Specifications*.

2.4.3 Every effort must be made to protect boulevard trees from harm during service installation. No tree root over 50 mm in diameter may be cut or damaged on any tree on Municipal property. No tree may be removed unless it is shown as such on the approved Design Drawing.

2.4.4 A copy of the approved Design Drawing and the *Engineering Specifications*, including the *MMCD*, shall be maintained by the Contractor at the construction site at all times during the installation of all services.

2.4.5 Underground subdivision services shall not be permitted to operate as part of existing Municipal services until the respective subdivision services have been inspected, tested and approved in writing by the Director of Engineering Services.

2.4.6 The Municipality shall make all necessary connections or alterations to existing watermains, sanitary sewers, and storm drains at the Applicant's expense.

2.4.7 The Municipality shall install all required street lighting at the Applicant's expense. The Applicant's contractor shall coordinate the work with the Municipality.

2.5 Testing of Works and Services

2.5.1 Works and services shall be tested in accordance with the relevant sections of the *Construction Specifications* of this document.

2.6 Approval for Registration of a Subdivision or Issuance of a Building Permit

2.6.1 If the Applicant wishes early registration of the subdivision plan or issuance of a Building Permit prior to service installation, they shall, among other things, complete or provide the following:

2.6.1.1 A Development Servicing Agreement between the Applicant and the Municipality.

2.6.1.2 A Warranty Agreement.

2.6.1.3 A State of Title Certificate for each legal parcel involved. Legal descriptions and references to ownership on all documents must conform exactly to that appearing on the State of Title Certificate(s).

2.6.1.4 A certified cheque or irrevocable letter of credit equal to 120 percent of the deposit total indicated in Part A, Deposit Form F.T.C.-1 (Financial Terms of Conditions). Irrevocable letters of credit will not be accepted for deposit totals less than \$3,000.00.

2.6.1.5 Payment by cheque or cash for the works to be installed by Municipal forces as indicated in Part B, Payments, Form F.T.C.-1.

2.6.1.6 Payment by certified cheque or cash of Development Cost Charges as indicated in Part C, Form F.T.C.-1, when such charges are authorized by a Development Cost Charge Bylaw.

2.6.2 If the Applicant chooses to install all the required Works and Services prior to subdivision registration or building permit issuance, they shall, among other things, complete or provide the following:

2.6.2.1 As-constructed record drawings, prepared in accordance with Section 3.3 *As-Constructed Record Drawings*, approved by the Director of Engineering Services.

2.6.2.2 A Warranty Agreement and bonding as per Section 7.4 of the *Subdivision Bylaw*.

2.6.2.3 State of Title Certificates for each legal parcel involved shall be delivered to the Municipality. Legal descriptions and references to ownership on all documents must conform exactly to that appearing on the State of Title Certificate(s).

2.6.2.4 Payment by cheque or cash for the works to be installed by Municipal forces as indicated in Part B, Payments, Form F.T.C.-1.

2.6.2.5 Payment by certified cheque or cash of Development Cost Charges as indicated in Part C, Form F.T.C.-1, when such charges are authorized by a Development Cost Charge Bylaw.

2.7 Release of Security Deposits During Construction

2.7.1 The Director of Engineering Services may release a portion of any deposit for work requiring an extended period to construct, provided that:

2.7.2

2.7.2.1 The Consulting Engineer certifies in writing the extent and value of work completed, as well as itemizing the outstanding work and cost of same (including outstanding engineering fees for as-constructed record drawings submission if

applicable), and certifies that the completed works meet the specifications of the Municipality.

2.7.2.2 The Director of Engineering Services is satisfied that the work to date is acceptable.

2.7.3 Deposits may be released according to the following schedule:

2.7.3.1 If the total estimated value of construction is less than \$10,000.00, no releases will be permitted.

2.7.3.2 If the total estimated value of construction is \$10,000.00 or greater, but less than \$100,000.00, up to 75% of the deposit may be released.

2.7.3.3 If the total estimated value of construction is \$100,000.00 or greater, up to 85% of the deposit may be released.

2.8 Municipal Acceptance of Works and Services

Acceptance of the works and services by the Municipality requires the following:

2.8.1 As-Constructed Record Drawings

2.8.1.1 As-constructed record drawings will be checked by the Director of Engineering Services for deficiencies, drafting requirements, agreement with the site layout, and adherence to the *Engineering Specifications*. If the drawings are unacceptable, a correction list will be prepared and the drawings will be returned to the Consulting Engineer.

2.8.2 Construction Completion Certificate

2.8.2.1 When all deficiencies in the Works have been remedied and as-constructed record drawings have been accepted by the Director of Engineering Services, a Construction Completion Certificate shall be prepared by the Director of Engineering Services. This indicates assumption of responsibility for the works and services by the Municipality.

2.8.3 Warranty Security

2.8.3.1 The Applicant shall enter into a Warranty Agreement and shall provide bonding as per Section 7.4 of the *Subdivision Bylaw*.

2.9 Final Acceptance by the Municipality

2.9.1 The Director of Engineering Services shall inspect the works prior to the expiration of the warranty period.

2.9.2 Deficiencies shall be corrected and /or deposits released in accordance with the Warranty Agreement .

2.10 Oversize Cost-Sharing

2.10.1 The Municipal Council has adopted a policy of sharing the cost of installing civil works for subdivisions when the service being installed is larger in size than is required to serve solely the property being subdivided. The larger size service must be installed by the Applicant and cost-sharing payment may be requested in accordance with the following:

2.10.1.1 Watermains The difference in material cost between 150 mm diameter pipe and the cost of the pipe actually installed.

- 2.10.1.2 Sanitary Sewers The difference in material cost between a 200 mm diameter pipe and the cost of the pipe actually installed.
- 2.10.1.3 Storm Drains The difference in material cost between a 375 mm diameter pipe and the cost of the pipe size actually installed.
- 2.10.1.4 Roads The cost of Collector or Major road construction in excess of standard residential road requirements. Extra depth of asphalt and base materials will be paid through the residential width as well as the total cost for the extra width of road construction exceeding residential road criteria (excluding curb, gutter and sidewalk). Cost sharing is available for single family and two family subdivisions only.
- 2.10.1.5 Street Lighting The cost of collector and arterial road lighting in excess of normal requirements as established by the Municipality for residential streets.

2.10.2 Payment of claims for oversize cost sharing is subject to Municipal funds being available and approval by the Director of Engineering Services. Requests for payment of cost sharing funds should be submitted after approval of as-constructed drawings but must be submitted prior to Warranty expiry.

2.11 Right of Way or Easement Documents

- 2.11.1 The Director of Engineering Services shall prepare all Right-of-Way documents for Sewer, Drain and Water where the Municipality will assume responsibility for maintenance. Two weeks are required for preparation of the documents.
 - 2.11.1.1 Documents for off-site Rights-of-Way required for a subdivision shall be returned to the Applicant for registration prior to Design Approval.
 - 2.11.1.2 For Rights-of-Way within a subdivision, a Right-of-Way plan, acceptable to the Land Titles Office, must be submitted at least two weeks prior to anticipated registration, to allow time for document preparation.
- 2.11.2 Private easement documents must be prepared by the Applicant's lawyer and copies of them must be submitted along with a lawyer's letter of undertaking to register the same with the subdivision plan, prior to finalization of the subdivision plan for registration.
- 2.11.3 Right-of-Way documents for power, telephone and cablevision facilities shall be prepared and registered by the respective Utility companies. It is the Applicant's responsibility to request and to coordinate the preparation of Right-of-Way documents for other utilities.
- 2.11.4 Where a single storm drain, sanitary sewer or water Right-of-Way or private easement is required, the minimum acceptable width is 3 m.
- 2.11.5 Where more than one service is installed in a Right-of-Way or private easement, the width must be increased sufficiently to accommodate the pipe sizes required, together with no less than 1m of clearance between the outside of a pipe and the edge of the Right-of-Way or private easement. The minimum acceptable width is 3.5 m.

- 2.11.6 Right-of-Way documents shall include provision for access across any portion of the lot for maintenance or repair of the sewer, drain or water by the Municipality.
- 2.11.7 Rights-of-Way shall be located within a single property (not separated longitudinally by a property line), adjacent and parallel to property boundaries, and shall be clear of proposed building sites.
- 2.11.8 Rights-of-Way shall be provided by the Applicant for the eventual extension of the sanitary sewer and/or storm drain as required by the Director of Engineering Services.