Design Submission	SECTION 2

I N D E X

Design Submission	**Section 2**

2.01 Scope

The purpose of this section is to outline the minimum standards and requirements the City of Parksville will accept for the design and record drawing submissions for engineering works. It is the specific intent of the City's Engineering Department that quality design and record drawings are submitted. It is recommended that whenever engineering works are required or proposed the Consultant shall arrange a pre-design meeting to ensure compliance with the City's current standards, specifications and policies.

Incomplete or substandard submissions will be returned to the Consultant without comment on the drawings and with a short letter of explanation as to why the drawings are being returned. A subsequent re-submission that remains incomplete or sub-standard will result in a request to meet with the Consultant, the Applicant and the City's Engineer.

Whenever a question arises, the Consultant is advised to contact the City's Engineering Department for clarification.

All submissions shall reflect and comply with the following:

(a) all applicable requirements of the City of Parksville Engineering Standards and Specifications.

(b) all applicable requirements of the City's Bylaws, including, but not limited to:

i. City of Parksville Subdivision Servicing Bylaw, 1996, No. 1261;
ii. City of Parksville Zoning and Development Bylaw, 1994, No. 2000;
iii. City of Parksville Works and Services Bylaw, 1995, No. 1235;
iv. City of Parksville Water Service System Bylaw, 1999, No. 1320;
v. City of Parksville Sanitary and Storm Sewerage System Bylaw, 1999, No. 1319;
vi. City of Parksville Traffic Bylaw, 2009, No. 1436.

2.02 Survey Information

.1 Any information received from the City of Parksville on existing services should be used as a guide only. Verification of locations and elevations must be checked by an actual survey. The City takes no responsibility for the exactness of information obtained from City drawings or website.

.2 All elevations shall be shown in metric geodetic datum (0 = mean sea level). Survey work shall be tied to the Integrated Survey Monument (ISM) System, where reasonably possible. The reference monument or datum and elevation shall be shown on all design drawings. Elevations below 0 geodetic shall be highlighted.

.3 All surveys shall be conducted in a safe manner so as not to create a nuisance to traffic or the public-at-large. The permission of the registered owners is required before entering private property.

.4 Centrelines (or baselines) are to be marked and referenced in the field and all chainage shall be keyed to the legal posting. All existing items such as manholes, catch basins, fire hydrants, poles, existing dwellings, fences, wells, septic tanks, septic fields, trees, hedges and unusual ground shall be noted on the appropriate drawings with a notation indicating any intended changes.

.5 Chainage shall increase from left to right and from bottom to top on a drawing. North should be at the top or right side of a drawing.

.6 Where applicable, cross sections are 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.

.7 All existing statutory right-of-ways or easements and their permitted uses must be checked through the Land Title and Survey Authority and shown on the design drawings complete with registration numbers.

2.03 Drawing Standards

.1 All drawings shall be prepared in accordance with the following requirements and all other applicable requirements of this manual. The standard sheet size for design submissions shall be A1 metric.

.2 The Engineering Department will supply the Consultant with the AutoCAD files for the City's standard title block and general notes sheet which shall be used to generate all design drawings.

.3 Standard drafting procedures shall be used for dimensioning, arrowheads, line densities, etc. Lettering shall be upper case and shall have a minimum font size of 2.5 millimetres for proposed and 2.0 millimetres for existing. All new works shall be drafted in bold lines.

.4 All drawings shall be formatted to obtain individual layer control of the following drawing elements: existing features such as water, storm, sanitary, roads, legal lot lines, right-of-ways, lighting, utility poles and underground wiring, contour lines, spot elevations and proposed features such as water, storm, sanitary, roads, dedication, right-of-way acquisitions, lighting, underground wiring, newly created lot lines and design elevations.

2.04 Design Submission

The Consultant shall seal all sheets of design submissions, except for the street tree, boulevard planting and irrigation plans. Failure to do so will result in the plans being returned without comment. The Consultant's seal shall infer that all works as proposed are structurally sound, and comply with the applicable design criteria of this manual and good engineering practice. The landscaping/irrigation drawings must clearly note the designer's name, address, etc. See Section 9 *Street Tree, Boulevard Plantings and Irrigation Design Criteria* for further requirements.

.1 Cover Sheet

The cover sheet shall note the Consultant's and Applicant's names, addresses, phone numbers, the City project number, the legal description, civic address of the lands involved, a site plan at a 1:5000 scale and an index.

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.

.2 Key Plan

a) The key plan shall be at a 1:500 scale or to a standard scale whereby information is clear and legible. The key plan shall note all proposed and existing services and objects. For example, the key plan shall include street lighting, junction/utility/service boxes, conduits, street trees and all service connection offsets from lot lines. If more than one sheet is required, the westerly or southerly portion shall be presented first and identified as Key Plan "A," with additional plans identified as "B", "C," etc. The development site is to be outlined with a bold line.

b) The key plan shall also note:
   i. locations of existing homes (with addresses), detached garages, wells, fences, ditches, swales, features and locations of utilities, etc.;
   ii. lot dimensions and legal descriptions for all lands included within the development;
   iii. locations of all existing services (e.g. gas, overhead wires, water, sanitary sewer, storm sewer) to original parcels.

.3 Storm Water Management Plan

The storm water management plan shall be at a 1:500 scale, unless otherwise approved. Sheets shall be organized in a similar manner to the key plan sheets. The storm water management plan shall include the following:

a) the minor (10 year return) storm sewer system with the flows noted and the accumulated flows from all upstream sections. Provision must be made for upstream development potential where applicable;

b) the major (100 year return) storm sewer system with the flows noted per section and the accumulated flows from all upstream sections;

c) all swales. A lawn basin, connected to a storm sewer system, may be required at every individual lot;

d) a legend noting all items proposed in the Storm Water Management Plan. Applicable 'General Notes' should also be included;

e) a site plan showing the catchment area(s) involved. This generally can be at a scale of 1:5000 and set as an insert on the sheet. Where this is not possible, it is suggested that the catchment area(s) be noted on the cover sheet. The size of the catchment area (in hectares) and run-off coefficients are to be noted. All manholes and pipes, both existing and proposed are to be noted;

f) storm sewer pipe calculation table; and

g) lot dimensions.

.4 Lot Grading Plan

The lot grading plan shall be at a 1:500 scale unless otherwise approved. Sheets shall be organized in a similar manner to the key plan sheets, if more than one sheet is required. The lot grading plan shall include the following:

a) the pre-development contour lines at maximum 1.0 metre intervals. This topography shall extend a minimum of 30.0 metres outside the development site;

b) all existing lot elevations (uncircled) at each corner and at any change in slope;

c) all proposed lot elevations (circled) at each lot corner, at any change in slope and around any buildings. All locations where the proposed lot grading meets the existing ground must be clearly depicted using the word 'MEET' within a circle and noting the existing lot elevations (uncircled);

d) the proposed minimum basement elevation's (M.B.E.'s). All M.B.E.s are to be set a minimum of 0.3 m above the 100 year (major) storm hydraulic grade line;

e) the proposed slope direction(s) and magnitude(s) in percent for each lot. These must be depicted using arrows in the direction of the slope(s) and include the slope percentage above each arrow. The finished grades must not be less than one percent at any location;

f) areas of fill over 0.5 m in depth.

.5 Roads and Water

Plan and profile drawings shall show all grades and slopes, inverts, valves, hydrants, bends, ground profiles, etc. The scale shall generally be 1:250 for plan and 1:50 vertical for profile unless otherwise approved. The full pipe shall be shown on the profile, with the proposed pipe size and material. All crossover points with sewers shall be noted and where the invert of the water main is less than 0.5 metre above the top of any sewer, the water main shall be protected in accordance with Island Health requirements. On the plan, a list of the water main fittings is to be 'boxed in' for each location and tied to chainages. On the profile, the fittings are to be shown and the chainages indicated. All existing services/objects in the area must be depicted. Proposed storm and sanitary shall be depicted on the plan in a lighter shade.

.6 Storm and Sanitary Sewers

Plan and profile drawings shall show slopes, inverts, depths of services, minimum building elevations, manholes, catch basins, cleanouts etc. The scale shall be 1:250 for plan and 1:50 vertical for profile unless otherwise approved. Symbols to denote the service connection elevation at the property line shall be shown on the profile, as well as the minor and major system hydraulic grade lines. The full pipe shall be shown on the profile with the proposed pipe size and material. Cross-sectional views of each service connection should be shown on the profile drawing at the design invert for each property. Rim elevations are required for all manholes, catch basins and cleanouts. All existing services/objects in the area must be depicted. Proposed road and water shall be depicted on the plan in a lighter shade.

.7 Road Cross Sections

Typical road cross-section(s), depicting all above-ground and below ground works and their locations, must be included. These must be in accordance with the City's applicable Standard Road Cross Section Drawings.

Additional sections may be required or requested where excessive cuts or fills are involved. These shall be scaled at 1:250 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.

.8 Street Lighting Plan

The street lighting plan shall include a plan view (1:500) of the street lighting design, signed and sealed by a Professional Electrical Engineer. There shall be general notes included on the plan, noting reference(s) to the City of Parksville Engineering Standards and Specifications and the appropriate design criteria. Generally, street lights shall be located at all intersections and within one metre of the property lines. Streetlighting plans shall be accompanied by the photometric calculations. All existing services/objects in the area must be depicted.

.9 Hydro, Telephone, Cablevision and Gas Utilities (HTCG)

Plan views for all proposed HTCG utilities shall be designed by each utility company and shown on the Key Plan. No new overhead hydro, telephone or cablevision plant and services will be permitted under this bylaw. Existing overhead hydro, telephone or cablevision lines shall be placed underground in the Official Community Plan land use area designations 4 (downtown core) and 6.1 (mixed use edge).

The offset from property line to the proposed and existing underground conductors or mains and the location of all appurtenances related to the system, including house connections shall be shown. Offsets to existing utilities are to be verified through the appropriate utility.

.10 Postal Service

The developer shall provide evidence that satisfactory arrangements have been made with Canada Post Corporation for the installation of Community Mail Box(es) (CMB) as required by Canada Post Corporation. The CMB shall be as shown on the approved drawings.

.11 Construction Details

The construction details sheet(s) shall show all proposals for construction which are not covered or specifically detailed in the City of Parksville Engineering Standards and Specifications. Where there is a Municipal Standard, reference shall be made to the City drawing number.

.12 General Notes Sheet

A digital copy of the City of Parksville's general notes sheet is available to Consultants. This sheet is not to be changed and is to be included as the last page of all submissions.

2.05 Drawing Submission - Procedure

2.05.0.1 Preliminary Design Submission

The preliminary submission shall consist of the following:

- two preliminary key plan drawings depicting all existing works and topographical features, and all proposed works;
- a servicing report from the Consultant stating the adequacy of the existing services (roads, road network and traffic devices, storm drainage, lighting etc.) to support the proposed development;
- all information required by the City to conduct water, storm drainage and sanitary sewer analyses for the project;
- Typical road cross-sections (based on standard drawings);
- Storm Water Management Plan (SWMP).

2.05.0.2 Full Design Submission

The first full design submission shall consist of the following:

- key plan;
- two complete sets of engineering drawings, including streetlight plans with photometric calculations prepared by an Electrical Engineer;
- geotechnical assessment report prepared by a Geotechnical Engineer specifying pavement structure design;
- a complete construction cost estimate for all works;
- proof of application/referrals to and all required approvals from outside agencies (e.g. Ministry of Environment, Island Health Authority, etc.);
- Completed hydro, telephone, cable and gas servicing designs (design drawings prepared by utilities); and
- tree planting, landscape and irrigation plan, if required.

Note: Incomplete design submissions will be returned to the Consultant without comment. All submissions subsequent to the first submission must address all items identified and red-lined by the City and must include the City's "Red Line" drawing. Any changes made by the Consultant, which are in addition to those identified by the City, must be highlighted in yellow. Once the design has been accepted and one set returned to the Consultant, one additional set plus the drawings in .pdf format must be forwarded to the City.

2.06 Construction Cost Estimate

The construction cost estimate must include all items that will be constructed, including service connections, lot grading and lawn basins.

The estimate must be detailed and itemized. Each category must be subtotalled and a summary must be provided. Note that this summary includes category subtotals, 10 percent engineering costs, 10 percent contingency and applicable taxes.

2.07 Administration Fee

The Applicant will be required to pay an administration fee to cover the cost of processing the proposed development application. This administration fee will be calculated as a percentage of the construction cost that was estimated by the Consultant. The administration fee is required for all developments, with or without a Servicing Agreement.