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**CITY OF KELOWNA**  
**MEMORANDUM**

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**Date:** August 24, 2016  
**File No.:** S16-0045

**To:** Land Use Management Department (DB)

**From:** Development Engineering Manager (PI)

**Subject:** Engineering Comments

LOCATION:	5425 Upper Mission Drive	ZONE RH2 P3
APPLICANT:	MMM Group for Kestrel Ridge Holdings Ltd	
LEGAL:	Lot A Plan 18646	

**WORKS AND SERVICES REQUIREMENTS**

The City's Development Engineering Department will handle the Works & Services requirements identified below between time of Preliminary Layout Review (PLR) and application for Subdivision Approval. Arrangements for construction must be made before making application for Approval of a subdivision plan.

The Development Engineering Technologist for this project is John Filipenko. AScT

**.1) General**

- a) The subject property requires a Environmental Development Permit application to address the existing Wetlands, Steep Slopes and Wildland Fire Hazard. Requirements of the pending environmental development permit may impact the proposed road alignments and must be satisfied before PLR approval.
- b) This proposed subdivision may require the installation of centralized mail delivery equipment. Please contact Rick Ould, Delivery Planning Officer, Canada Post Corporation, 530 Gaston Avenue, Kelowna, BC V1Y 2K0 to obtain further information and to determine suitable location(s) within the development.
- c) Where there is a possibility of a high water table or surcharging of storm drains during major storm events, non-basement homes may be required. This must be determined by the engineer and detailed on the Lot Grading Plan required in the drainage section.

## .2 Geotechnical Report

- a) Provide a comprehensive geotechnical report, prepared by a Professional Engineer competent in the field of hydro-geotechnical engineering to address the items below: **NOTE: The City is relying on the Geotechnical Engineer's report to prevent any damage to property and/or injury to persons from occurring as a result of problems with soil slippage or soil instability related to this proposed subdivision.**
- (i) Area ground water characteristics, including any springs and overland surface drainage courses traversing the property. Identify any monitoring required.
  - (ii) Site suitability for development.
  - (iii) Site soil characteristics (i.e. fill areas, sulphate content, unsuitable soils such as organic material, etc.).
  - (iv) Any special requirements for construction of roads, utilities and building structures.
  - (v) Suitability of on-site disposal of storm water, including effects upon adjoining lands.
  - (vi) Slope stability, rock fall hazard and slippage including the effects of drainage on the site.
  - (vii) Identify slopes greater than 30%.
  - (viii) Identify creek locations.
  - viii) Top of bank assessment and location including recommendations for property line locations, septic field locations, building setbacks, and ground water disposal locations.
  - ix) Recommendations for items that should be included in a Restrictive Covenant.
  - x) Any special requirements that the proposed subdivision should undertake so that it will not impact the bank(s). The report must consider erosion and structural requirements.
  - xi) Any items required in other sections of this document.
  - xii) Recommendations for erosion and sedimentation controls for water and wind.
  - xiii) Recommendations for roof drains and perimeter drains.
  - xiv) Recommendations for construction of detention or infiltration ponds if applicable.

**.3 Water**

- a) The property is located within the City service area. Provide an adequately sized domestic water and fire protection system complete with individual lot connections. The water system must be capable of supplying domestic and fire flow demands of the project in accordance with the Subdivision, Development & Servicing Bylaw. Provide water calculations for this subdivision to confirm this. Ensure every building site is located at an elevation that ensures water pressure is within the bylaw pressure limits. Note: Private pumps are not acceptable for addressing marginal pressure.
- b) The City Infrastructure Planning Department notes that a water transmission main from Adams Reservoir to the Southcrest Reservoir will need to be built in the near future. A pre-design to establish the preferred watermain alignment will be available to the developer once complete. There is a possibility that a portion of the proposed watermain alignment will be within the Upper Mission Drive right-of-way.

**.4 Sanitary Sewer**

- a) Provide an adequately sized sanitary sewer system complete with individual lot connections.

**.5 Drainage**

- a) Provide an adequately sized drainage system complete with individual lot connections. The Subdivision, Development and Servicing Bylaw requires that each lot be provided with an individual connection; however, the City Engineer may permit use of individual ground water disposal systems, where soils are suitable. For on-site disposal of drainage water, a hydrogeotechnical report will be required complete with a design for the disposal method (i.e. trench drain / rock pit). The Lot Grading Plan must show the design and location of these systems for each lot.
- b) Provide the following drawings:
  - i) A detailed Lot Grading Plan (indicate on the Lot Grading Plan any slopes that are steeper than 30% and areas that have greater than 1.0 m of fill);
  - ii) A detailed Stormwater Management Plan for this subdivision; and,
  - iii) An Erosion and Sediment Control Plan.
- c) Show details of dedications, rights-of-way, setbacks and non-disturbance areas on the lot Grading Plan.
- d) Identify creek corridors. Thompson Creek (Leon Creek) crosses the upper site (confirm location) and needs to be addressed.

**.6) Roads**

- a) Upper Mission Drive is designated as an Urban Collector Roads. Dedicate and construct the road in accordance with City standard SS-H3 (15.0m dedication, 10.0m Road, barrier curb, boulevards and a separate sidewalk on one side complete with trees).
- b) Road 'I' is designated as an Urban Local Roads. Dedicate and construct the road in accordance with City standard SS-H13 (10.80m. dedication, 6.0m. Road, roll over curb and parking bays).
- c) Road 'D' is designated as Urban Local Roads. Dedicate and construct the road in accordance with City standard SS-H13 (12.3m dedication, 6.0 m Road, roll over curb, parking bays, sidewalk and trees) or TYP-01 (14.0m. dedication, 9.0 m. Road, roll over curb, parking, sidewalk and trees)
- d) Replace proposed lane with City Standard SS-H13 (10.80m. dedication, 6.0m. Road, roll over curb and parking bays)
- e) Verify that both vertical and horizontal alignments meet bylaw requirements.
- f) The City will install all signs and traffic control devices at the developer's expense.
- g) Provide a Street Sign, Markings and Traffic Control Devices Drawing.
- h) Verify that physical driveway access will satisfy City requirements for all lots. For steeper lots (15% and greater), show driveways on the lot grading plan with grades or profiles.
- i) Re-locate existing poles and utilities, where necessary.
- j) Provide a turn-around at the terminus of roads
- k) Temporary asphalt cul-de-sacs will be required at each terminal end of roads that will be extended in the future. Additional dedication or a Statutory Right-of-Way may be needed.

**.7) Power and Telecommunication Services and Street Lights**

- a) All proposed distribution and service connections are to be installed underground. Existing Overhead wires on the Forestry Road may remain overhead even if relocation is required.
- b) Street lights must be installed on all roads.
- c) Make servicing applications to the respective Power and Telecommunication utility companies. The utility companies are required to obtain the City's approval before commencing construction.

**.8) Design and Construction**

- a) Design, construction supervision and inspection of all off-site civil works and site servicing must be performed by a Consulting Civil Engineer and all such work is subject to the approval of the City Engineer. Drawings must conform to City standards and requirements.
- b) Engineering drawing submissions are to be in accordance with the City's "Engineering Drawing Submission Requirements" Policy. Please note the number of sets and drawings required for submissions.
- c) Quality Control and Assurance Plans must be provided in accordance with the Subdivision, Development & Servicing Bylaw No. 7900 (refer to Part 5 and Schedule 3).
- d) A "Consulting Engineering Confirmation Letter" (City document 'C') must be completed prior to submission of any designs.
- e) Before any construction related to the requirements of this subdivision application commences, design drawings prepared by a professional engineer must be submitted to the City's Development Engineering Branch. The design drawings must first be "Issued for Construction" by the City Engineer. On examination of design drawings, it may be determined that rights-of-way are required for current or future needs.

**.9) Servicing Agreements for Works and Services**

- a) A Servicing Agreement is required for all works and services on City lands in accordance with the Subdivision, Development & Servicing Bylaw No. 7900. The applicant's Engineer, prior to preparation of Servicing Agreements, must provide adequate drawings and estimates for the required works. The Servicing Agreement must be in the form as described in Schedule 2 of the bylaw.
- b) Part 3, "Security for Works and Services", of the Bylaw, describes the Bonding and Insurance requirements of the Owner. The liability limit is not to be less than \$5,000,000 and the City is to be named on the insurance policy as an additional insured.

**.10) Other Engineering Comments**

- a) No disturbance to parkland is permissible except as authorized by the City
- b) Barrier curbs to be provided along all park road frontages.
- c) Provide all necessary Statutory Rights-of-Way for any utility corridors required, including those on proposed or existing City Lands.
- d) If any road dedication affects lands encumbered by a Utility right-of-way (such as B.C. Gas, etc.) please obtain the approval of the utility prior to application for final subdivision approval. Any works required by the utility as a consequence of the road dedication must be incorporated in the construction drawings submitted to the City's Development Manager.

- e) Obtain the approval of Fortis BC Gas for all proposed work within the Gas transmission main right-of-way.

**.11) Charges and Fees**

- a) Development Cost Charges (DCC's) are payable
- b) Fees per the "Development Application Fees Bylaw" include:
- i) Street/Traffic Sign Fees: at cost if required (to be determined after design).
  - ii) Survey Monument Fee: \$50.00 per newly created lot (GST exempt).
  - iii) Survey Monument, Replacement Fee: \$1,200.00 (GST exempt) – only if disturbed.
  - iv) Engineering and Inspection Fee: 3.5% of construction value (plus GST).

- c) *Water Extended Service Area Latecomers:*

<i>ESA#</i>	<i>Frontender</i>	<i>Component</i>	<i>Anniversary (rates increase)</i>	<i>*Rate/unit \$</i>
<i>13</i>	<i>Randhawa</i>	<i>Upper Reservoir</i>	<i>Feb 11,2017</i>	<i>\$5,436.00</i>
<i>14</i>		<i>Adams Reservoir</i>	<i>Sep 29, 2016</i>	<i>\$3,990.00</i>

*\*(these fees are to be confirmed at time of subdivision)*

- e) Sewer Specified Area Administration Fee of \$250.00 to amend service boundary (Spec area 1).
- f) Water Specified Area Administration Fee of \$250.00 to amend service boundary (Spec area 1).

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**Purvez Irani, MS, P.Eng, PTOE.**  
Development Engineering Manager  
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