
CITY OF KELOWNA

MEMORANDUM

Date: January 18, 2022
File No.: Z21-0108
To: Community Planning (LK)
From: Development Engineering Manager (NC)
Subject: 1070-1130 Ellis St. RM6-C4 to C7

The Development Engineering Department has the following comments and requirements associated with this Rezoning application to rezone the subject properties from RM6 – High Density Multiple Housing and C4 – Urban Centre Commercial to C7 – Central Business Commercial to facilitate the development of multiple dwelling housing. The road and utility upgrading requirements outlined in this report will be a requirement of this development. The Development Engineering Technologist for this project is Ryan O’Sullivan

1. General.

a) The following are requirements as laid out in this Engineering Memo for this rezoning application for a 4 residential tower.


- i. Frontage Improvements on Ellis Street
- ii. Water service upgrade
- iii. Sanitary service upgrade
- iv. Sanitary down stream analysis from the development to the Raymer Road Treatment Plant
- v. Landscape requirements on Ellis St.
- vi. A Site Preparation Security Agreement needs to be completed and signed.

b) Provide easements as may be required.

c) The following requirements are valid for two (2) years from the reference date of this memo, or until the application has been closed, whichever occurs first. The City of Kelowna reserves the rights to update/change some or all items in this memo once these time limits have been reached.

d) The proposed development may require the installation of centralized mail delivery equipment. Please contact 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.

e) The proposed development triggers a traffic impact assessment. The applicant's transportation engineer shall contact the City's Development Engineering group to determine the terms of reference for the study. Recommendations from the Traffic Impact Analysis (TIA) will become requirements of the building permit release.

ATTACHMENT		A
This forms part of application # Z21-0108		
Planner Initials	TA	 City of Kelowna DEVELOPMENT PLANNING

2. Geotechnical Study

- a. Provide a comprehensive geotechnical report (3 copies), 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.**
- b. The Geotechnical reports must be submitted to the Planning and Development Services Department (Planning & Development Officer) for distribution to the Works & Utilities Department and Inspection Services Division prior to submission of Engineering drawings or application for subdivision approval.
 - 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. Recommendations for items that should be included in a Restrictive Covenant.
 - vi. Recommendations for roof drains and perimeter drains.
 - vii. Recommendations for erosion and sedimentation controls for water and wind.
 - viii. Any items required in other sections of this document.
- c. Should any on-site retaining walls surpass the following limits, an Over Height Retaining Wall Permit will be required:
 - i. "Retaining walls on all lots, except those required as a condition of subdivision approval, must not exceed a height of 1.2 m measured from natural grade on the lower side, and must be constructed so that any retaining walls are spaced to provide a 1.2 m horizontal separation between tiers. The maximum number of tiers is two with a maximum total height of 2.4 m. Any multi-tier structure more than 2 tiers must be designed and constructed under the direction of a qualified professional engineer."

The design of all retaining walls is to conform with Engineer & Geoscientists British Columbia's Professional Practice Guidelines for Retaining Wall Design. Submission requirements for the Over Height Retaining Wall Permit include Engineer of Record documents (Appendix A of Retaining Wall Design Guideline) and any necessary independent reviews (as per EGBC's Documented Independent Review of Structural Designs).

- d. Any modified slopes having a finished slope greater than 2H:V1 (50%) and an elevation change greater than 1.2 m must be installed under the direction of a qualified professional engineer.

- e. Any exposed natural rock surface on a lot that has the potential for materials to displace causing a hazardous condition, must be reviewed by a qualified professional engineer with the appropriate measures undertaken as prescribed by the engineer. For adequate Rockfall Protection adjacent to walls and rock cuts, please consider BC MoTI Supplement to TAC Geometric Design Guide 440, page 440-8, which outlines a ditch bottom width depending on wall height. Sidewalks and utilities should be kept out of this protection area. Additional ROW may be required.

Where walls are on the high side, the City's preference is that the walls remain setback and on private property. Where the walls hold up a public road, the City's preference is that additional dedication be provided, and the walls be owned by the City. Please design any geogrids or tie-backs so that they do not encroach into the required road ROW.

3. Domestic Water and Fire Protection

- a. Provide an adequately sized domestic water and fire protection system. The water system must be capable of supplying domestic and fire flow demands for the project in accordance with the Subdivision, Development & Servicing Bylaw. Provide water calculations for this property to confirm this. Ensure every building site is located at an elevation that ensures water pressure is within the bylaw pressure limits.
- b. The Developer's Consulting Mechanical Engineer will determine the fire protection requirements of this proposed development and establish hydrant requirements and service needs. All fire flow calculations are to be shared with the Development Engineering Branch upon submittal of off-site civil engineering drawings.
- c. The property is located within the City of Kelowna service area. This property currently has 3 water services. Only one service will be permitted to the site. The applicant, at his cost, will arrange for the removal of the existing services and the installation of one new larger metered water service.
- d. An approved backflow protection device must also be installed on site as required by the City Plumbing Regulation and Water Regulation bylaws.
- e. A water meter is mandatory for this development and must be installed inside a building on the water service inlet as required by the City Plumbing Regulation and Water Regulation bylaws. The developer or building contractor must purchase the meter from the city at the time of application for a building permit from the Inspection Services Department, and prepare the meter setter at their cost.

4. Sanitary Sewer

- a. Our records indicate that this property is currently serviced with a 100mm-200mm and a 250mm diameter sanitary sewer service. The applicant's consulting mechanical engineer will determine the requirements of the proposed development and establish the service needs. Only one service will be permitted for this development. The applicant will arrange for the removal and disconnection of the existing services and the installation of one new service at the applicant's cost.

- b. Any site compaction, pre-loading or base densification requires all underground municipal infrastructure to be video' d, survey elevations etc. on all sides prior to said work and again after works are done to determine if any damage is caused as a result.
- c. Investigate water, sanitary and storm main capacity and age of pipe on Ellis St determine if size or material should be upgraded.

5. Drainage

- a. The property is located within the City of Kelowna drainage service area. 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.
- 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 is to be prepared by a Professional Engineer proficient in the field of erosion and sediment control. The plan is to be prepared as per section 3.14 of Schedule 4 of Bylaw 7900. If a line item for ESC is not included in the Engineer's cost estimate for off-site work, then an additional 3% will be added to the performance security based on the total off-site construction estimate.
- c. On-site detention systems are to be compliant with Bylaw 7900, Schedule 4, Section 3.11.1 *Detention Storage*.
- d. As per Bylaw 7900, Schedule 4, Section 3.1.3 *Climate Change*, the capacity of storm works will include an additional 15 percent (15%) upward adjustment, and applied to the rainfall intensity curve stage (IDF) in Section 3.7.2.
- e. Show details of dedications, rights-of-way, setbacks and non-disturbance areas on the lot Grading Plan.
- f. Register right of ways on private properties for all the storm water infrastructure carrying, conveying, detaining and/or retaining storm water that is generated from the public properties, public road right of ways, and golf course lands.
- g. Identify clearly on a contour map, or lot grading plan, all steep areas (>30 %). Provide cross sections for all steep areas at each property corner and at locations where there are significant changes in slope. Cross sections are to be perpendicular to the contour of the slope. Show the proposed property lines on the cross sections. Not all areas have a clear top of bank; and therefore, field reconnaissance by City staff and the applicant may be needed to verify a suitable location for property lines.
- h. If individual lot connections are required, ensure that payment of connection fees has been completed (please provide receipt).

- i. Where structures are designed or constructed below the proven high groundwater table, permanent groundwater pumping will not be permitted to discharge to the storm system. The City will approve designs that include provisions for eliminating groundwater penetration into the structure, while addressing buoyancy concerns. These design aspects must be reviewed and approved by the City Engineer.

6. Road Improvements

- a. Ellis St. fronting this development site is urbanized but the existing curb and sidewalk are in a deteriorated state. The upgrades to Ellis St. that are required are new sidewalk removal and reconstruction, repaving Ellis St. from Center Line to Gutter line as well as the re-location or adjustment of any existing utility appurtenances if required to accommodate the upgrading construction. A modified SS-R5 cross section will be used and provided at the time of design. The design should include up to centreline of the Ellis Street ROW.
- b. A transit stop facility would like to be placed somewhere on the north half of the property.
- c. All Landscape and Irrigation plans require design and inspection by a Qualified Professional registered with the BCSLA and the IIABC, are to be included as a line item in the estimate for the Servicing Agreement performance security. Landscape and irrigation plans require approval by the Development Engineering Branch at the same time as other "issued for construction" drawings.
- d. Streetlights must be installed on all public roads. All streetlighting plans are to include photometric calculations demonstrating Bylaw 7900 requirements are met and approval by the Development Engineering Branch at the same time as other "issued for construction" drawings.

7. Development Permit and Site Related Issues

- a. By Registered plan to provide the following
 - i. Grant statutory rights-of-way or dedicate lands if required for utility services and/or pedestrian access.
- b. All vehicle access to the development will be via private laneway and existing parkade.
- c. Truck turning movements are needed to show that a truck can access the loading bays along private lane.
- d. a Perimeter access must comply with the BC Building Code. Fire Truck access designs and proposed hydrant locations will be reviewed by the Fire Protection Officer.

8. Power and Telecommunication Services and Street Lights

- a. All proposed distribution and service connections are to be installed underground. Existing distribution and service connections, on that portion of a road or laneway immediately adjacent to the site, are to be relocated and installed underground.
- b. 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.

9. 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 Department. 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

10. Servicing Agreements for Works and Services

- a. A Servicing Agreement is required for all offsite 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.

11. Bonding and Levy Summary

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



Nelson Chapman, P. Eng.
Development Engineering Manager

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CITY OF KELOWNA
MEMORANDUM

Date: January 18, 2022
File No.: DP21-0277
To: Planning and Development Officer (LK)
From: Development Engineering Manager (NC)
Subject: 1070-1130 Ellis St. Form and Character

The Development Engineering Branch has no comments or requirements associated with this Development Permit application for the form and character Development Permit for multiple dwelling housing (4 towers).

All works and services requirements related to this development are addressed in the Development Engineering memo for rezoning under file Z21-0108.



Nelson Chapman P.Eng.
Development Engineering Manager

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CITY OF KELOWNA
MEMORANDUM

Date: January 18, 2022
File No.: DVP21-0278
To: Planning and Development Officer (LK)
From: Development Engineering Manager (NC)
Subject: 1070-1130 Ellis St Height and Space

The Development Engineering Branch has no comments or requirements associated with this Development Variance permit to vary the maximum building heights from 26 m & 8 storeys to 115 m & 36 storeys, 109.5 m & 34 storeys, 104 m & 32 storeys and 92 m & 28 storeys and to vary the amount of functional commercial, civic or cultural space, or ground-oriented residential use on the first floor from 75% required to 70% provided for building 2.

All works and services requirements related to this development are addressed in the Development Engineering memo for rezoning under file Z21-0108



Nelson Chapman P. Eng.
Development Engineering Manager

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