March 3, 2023

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Mr. William Germinario
Villarboit Development Corporation
500 Cochrane Drive, Unit 4
Markham, ON L3R 8E2

Subject: **Site Plan Amendment Application – Preliminary Servicing Review**
Heritage Grove Centre Phase 2B - 2125 16th Street East, Owen Sound
WSP File: 18M-02015

Dear Mr. Germinario:

WSP Canada Inc. (hereinafter "WSP") has conducted a preliminary review of the servicing requirements for the revised development proposal for the northeast quadrant of the Heritage Grove Centre, locally known as 2125 16th Street East in the City of Owen Sound. WSP had previously completed a Functional Servicing Report Update (hereinafter the "2020 FSR Update") for this site, dated Feb 19, 2020. This previous report will be used as the basis for confirming the existing municipal infrastructure has the capacity to provide the required services (domestic and fire fighting water supply, wastewater, and stormwater) to the new development proposal. Detailed information on the existing infrastructure can be found in the 2020 FSR Update.

With the new development proposal, the retail buildings labelled as Buildings J1, J2, L1 and L2 on the approved site plan have been removed. The previously proposed hotel (formerly Building K) has been replaced with two large scale retail commercial buildings, labelled as building K1 and K2.

The new development proposal consists of 48,850 sq.ft of commercial retail space and associated parking area. The layout of the new development proposal is illustrated below.

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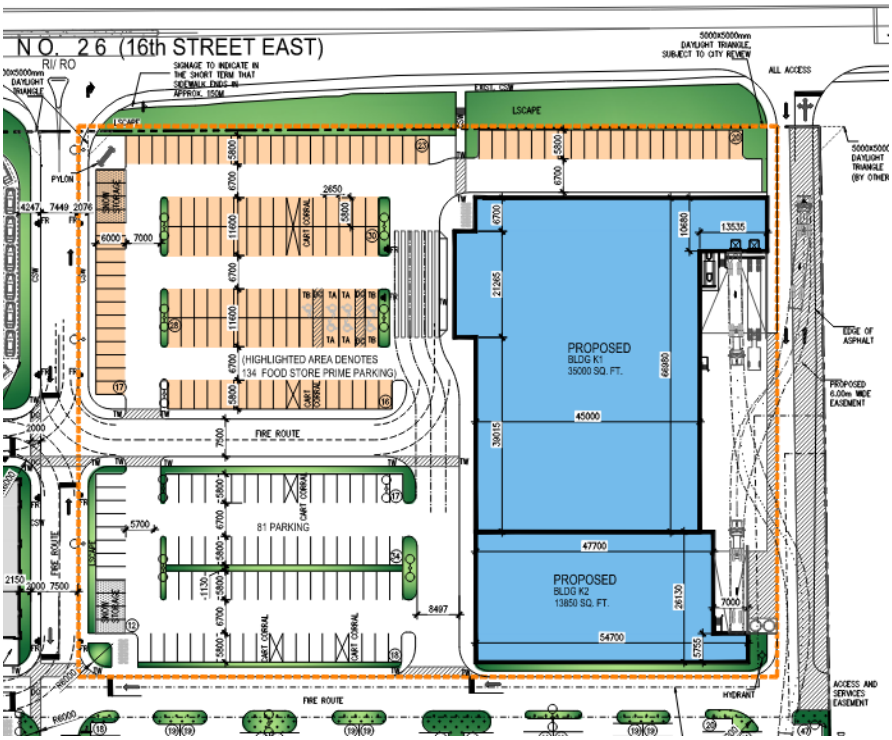

Figure 1: Proposed Site Layout for North-East Quadrant of Heritage Grove Centre

Domestic and Fire Fighting Water Supply

The 2020 FSR Update had concluded that domestic water supply was available to service the previous development proposal. As part of our review, we have re-calculated the required water supply based on the new development proposal. A comparison of the required domestic water supply between the previously approved and current development proposal is summarized below.

Table 1: Domestic Water Demand Comparison

	Previous (Approved) Development Proposal (2020)	Current Development Proposal (2023)
Average Daily Demand	0.64 L/s	0.63 L/s
Peak Hour Demand	9.22 L/s	9.04 L/s
Maximum Daily Demand	6.12 L/s	6.01 L/s

As can be seen above, the anticipated domestic water demands for the revised development proposal are less than the previously approved development proposal. As such, the existing water supply infrastructure has adequate capacity to service the proposed development.

WSP has also reviewed the fire fighting water supply requirements. A hydrant flow test was completed for the existing water supply system as part of the Servicing Design Report Heritage Grove Centre, dated August 2011. Based on this test, it was found that the existing water supply system could supply a fire flow of 2,166 USGPM (137 L/s). Based on the largest building floor area, building K1, a fire flow of 1,583 USGPM (100 L/s) is required. As the required fire flow is below the available flow rate, we can confirm that the existing water system has sufficient capacity to provide fire fighting water supply volumes for the proposed development. Supporting calculations are appended.

Sanitary Sewage System

The post-development sanitary flows from the site have been calculated taking into consideration the proposed development and the existing Heritage Grove buildings. The estimated sanitary flows were calculated in accordance with the design criteria outlined in the 2020 FSR Update.

Based on the revised development proposal gross floor areas, the total estimated population for the commercial complex, including the existing buildings, is 200 people. This results in an estimated peak sanitary flow of 5.37 L/s. As this is below the estimated sanitary flow for the previous approved development proposal of 6.40 L/s, we can confirm sanitary sewage capacity is available to service the revised development proposal. Supporting calculations are appended.

Stormwater Management Approach

The Stormwater Management approach will meet the criteria outlined in the 2020 FSR Update. All storm flows will be collected by on-site catch basins and directed to respective stormwater quantity control tanks and controlled to the allowable release rate. Details of the stormwater management system will be provided on the forthcoming site engineering plans. At this time, WSP does not anticipate any issues achieving the stormwater management objectives outlined in the 2020 FSR Update.

Based on the above preliminary review, WSP is of the opinion that existing services are available to service the new development proposal and the conclusions outlined in the 2020 FSR Update remain valid. Further details will be illustrated on the forthcoming site engineering plans. Should you require further information or clarification, please contact the undersigned at your convenience.

Sincerely,
WSP CANADA INC.

Peter Cane, P.Eng.
Senior Project Manager
Land Development, Ontario

Encl. Appendix B – Proposed Domestic Water Demand
Appendix B – Fire Flow Calculations
Appendix C – Proposed Sanitary Flow Generation

APPENDIX B

PROPOSED DOMESTIC WATER DEMAND

Project: **Heritage Grove Owen Sound**
Job No.: **18M-02015**

Proposed Development

Building	Studio / 1 bed	Pop. (1.4ppu)	2 bed	Pop. (2.1ppu)	3 bed	Pop. (3.1ppu)	Retail (m^2)	Pop.[1]	Total Population
Commercial Build H1	0	0	0	0	0	0	464	4	4
Commercial Build H2	0	0	0	0	0	0	200	2	2
Commercial Build H3	0	0	0	0	0	0	204	2	2
Commercial Build I1	0	0	0	0	0	0	241	3	3
Commercial Build I2	0	0	0	0		0	116.08	1	1
Commercial Build K1	0	0	0	0	0	0	3252	28	28
Commercial Build K2	0	0	0	0	0	0	1287	12	12
Ex. Commercial Building C	*0*	*0*	*0*	*0*	*0*	*0*	*780*	*7*	*7*
Ex. Commercial Building D	*0*	*0*	*0*	*0*	*0*	*0*	*789*	*7*	*7*
Ex. Commercial Building A	*0*	*0*	*0*	*0*	*0*	*0*	*3685*	*32*	*32*
Ex. Commercial Building F	*0*	*0*	*0*	*0*	*0*	*0*	*796*	*7*	*7*
Ex. Commercial Building E	*0*	*0*	*0*	*0*	*0*	*0*	*1858*	*16*	*16*
Ex. Commercial Building G	*0*	*0*	*0*	*0*	*0*	*0*	*1418*	*13*	*13*
FUT. Commercial Building	*0*	*0*	*0*	*0*	*0*	*0*	*2378.3*	*21*	*21*
Ex. Commercial Building B	*0*	*0*	*0*	*0*	*0*	*0*	*2000*	*18*	*18*
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**19470**	**173**	**173**

Total # of Units = 0 units

Proposed Water Demands

				Peak Hour		Max Day	
Building	Population (see above)	Per Capita Flow (L/cap/day)[4]	Average Daily Demand (L/s)	Peaking Factor[3]	Demand (L/s)	Peaking Factor[3]	Demand (L/s)
Commercial Build H1	4	325	0.02	14.30	0.22	9.50	0.14
Commercial Build H2	2	286	0.01	14.30	0.09	9.50	0.06
Commercial Build H3	2	337	0.01	14.30	0.11	9.50	0.07
Commercial Build I1	3	225	0.01	14.30	0.11	9.50	0.07
Commercial Build I2	1	325	0.00	14.30	0.05	9.50	0.04
Commercial Build K1	28	325	0.11	14.30	1.51	9.50	1.00
Commercial Build K2	12	300	0.04	14.30	0.60	9.50	0.40
Ex. Commercial Building C	7	*312*	*0.03*	*14.30*	*0.36*	*9.50*	*0.24*
Ex. Commercial Building D	7	*316*	*0.03*	*14.30*	*0.37*	*9.50*	*0.24*
Ex. Commercial Building A	32	*322*	*0.12*	*14.30*	*1.71*	*9.50*	*1.13*
Ex. Commercial Building F	7	*319*	*0.03*	*14.30*	*0.37*	*9.50*	*0.25*
Ex. Commercial Building E	16	*325*	*0.06*	*14.30*	*0.86*	*9.50*	*0.57*
Ex. Commercial Building G	13	*305*	*0.05*	*14.30*	*0.66*	*9.50*	*0.44*
FUT. Commercial Building	21	*317*	*0.08*	*14.30*	*1.10*	*9.50*	*0.73*
Ex. Commercial Building B	18	*311*	*0.06*	*14.30*	*0.93*	*9.50*	*0.62*
TOTAL	**173**		**0.63**		**9.04**		**6.01**

Note: Unit count and floor areas per Architectual drawings by Point Architects Revision 44 dated February 06, 2020.
Note 1: Refer to Section E - 1.2 Commercial & Institutional Water Demands of the Owen Sound Municipal Engineering Design Standards pg 68 for Watermain Design Parameters (Population Equivalence factor of 86 persons per hectare)
Note 2: Refer to Table 3-2 on page 3-8 of the MOE Design Guidelines for Drinking Water Systems dated 2008
Note 3: Refer to Table 3-3 on page 3-9 of the MOE Design Guidelines for Drinking Water Systems dated 2008
Note 4: Refer to Section 3.4.3 on page 3-7 of the MOE Design Guidelines for Drinking Water Systems dated 2008

APPENDIX B

FIRE FLOW CALCULATIONS

Project: **Heritage Grove Owen Sound**
Job No.: **18M-02015**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 1999 by Fire Underwriter Survey, p 20.

$$F = 220\ C\sqrt{A}$$

where

F = Fire flow in Litres per minute (Lpm)
C = coefficient related to the type of construction
A = total floor area in square metres

A. Determine Type of Construction

=> Fire-resistive construction (fully protected frame, floors, roof)
Therefore C = 0.6

B. Determine Ground Floor Area

=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 3252 + 0.25*(0 + 0)
A = 3,252 m2

C. Determine Height in Storeys

=> 1

D. Determined the Fire Flow

F = 220 x 0.6 x √3252
F = 7,527 Lpm

E. Determine Increase or Decrease for Occupancy

=> Reduction for Limited Combustible Occupancies
Therefore 15% reduction

15% reduction of 7527 Lpm =	1,129	Lpm
7527 - 1129 =	6,398	Lpm

F. Determine Decrease for Automatic Sprinkler Protection

=> Has Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 30% reduction

30% reduction of 6398 Lpm =	1,919	Lpm

G. Determine the Total Increase For Exposures

Face	Distance (m)	Charge				
West Side	90.00	0%				
East Side	2.00	25%				
North Side	40.00	5%				
South Side	0.00	25%	See Note (1)			
	Total	55%	of	6,398	=	1,280 Lpm

H. Req'd Fire Flow = E - F + G

F = 5,759 Lpm
F = 6,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 1,583 US GPM

Note 1: Buildings K1 and K2 are adjoined, minimum 2hr fire rating required

APPENDIX C
PROPOSED SANITARY FLOW GENERATION

Project: **Heritage Grove Owen Sound**
Job No.: **18M-02015**

Proposed Development

Building	Studio / 1 bed	Pop.[1] (1.4ppu)	2 bed	Pop.[1] (2.1ppu)	3 bed	Pop.[1] (3.1ppu)	Retail (m^2)	Pop.[1]	Total Population
Commercial Build H1	0	0	0	0	0	0	464	5	5
Commercial Build H2	0	0	0	0	0	0	200	2	2
Commercial Build H3	0	0	0	0	0	0	204	3	3
Commercial Build I1	0	0	0	0	0	0	241	3	3
Commercial Build I2	0	0	0	0	0	0	116.08	2	2
Commercial Build K1	0	0	0	0	0	0	3252	33	33
Commercial Build K2	0	0	0	0	0	0	1287	13	13
Ex. Commercial Building C	0	0	0	0	0	0	*780*	8	8
Ex. Commercial Building D	0	0	0	0	0	0	*789*	8	8
Ex. Commercial Building A	0	0	0	0	0	0	*3685*	37	37
Ex. Commercial Building F	0	0	0	0	0	0	*796*	8	8
Ex. Commercial Building E	0	0	0	0	0	0	*1858*	19	19
Ex. Commercial Building G	0	0	0	0	0	0	*1418*	15	15
FUT. Commercial Building	0	0	0	0	0	0	*2378.3*	24	24
Ex. Commercial Building B	0	0	0	0	0	0	*2000*	20	20
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**19469.69**	**200**	**200**

Total # of Units = 0 units

Design Flows

Building	Population (see above)	Population Flow (L/s)[1]	Peaking Factor[3]	Peak Population Flow (L/s)	Groundwater (L/s)[2]
Commercial Build H1	5	0.02	4.10	0.09	0.00
Commercial Build H2	2	0.01	4.10	0.04	0.00
Commercial Build H3	3	0.01	4.10	0.06	0.00
Commercial Build I1	3	0.01	4.10	0.06	0.00
Commercial Build I2	2	0.01	4.10	0.04	0.00
Commercial Build K1	33	0.15	4.10	0.63	0.00
Commercial Build K2	13	0.06	4.10	0.25	0.00
Ex. Commercial Building C	8	0.04	4.10	0.15	0.00
Ex. Commercial Building D	8	0.04	4.10	0.15	0.00
Ex. Commercial Building A	37	0.17	4.10	0.70	0.00
Ex. Commercial Building F	8	0.04	4.10	0.15	0.00
Ex. Commercial Building E	19	0.09	4.10	0.36	0.00
Ex. Commercial Building G	15	0.07	4.10	0.28	0.00
FUT. Commercial Building	24	0.11	4.10	0.46	0.00
Ex. Commercial Building B	20	0.09	4.10	0.38	0.00
TOTAL (Entire Site)	**200**	**0.93**		**3.80**	**0.00**

Site Area =	7.9	ha (entire site)
I/I =	1.57	L/s (0.20 L/s/ha)
Groundwater Discharge =	0.00	L/s^2
Total Design Flow =	**5.37**	**L/s**

Note: Unit count and floor areas per Architectual Site Plan by Greystone Architectural Partners, dated March 9, 2022
Note 1: Refer to Section D - 3.0 Sanitary Sewer Design page 62 of the Owen Sound Municipal Engineering Design Standards for Sanitary Design Parameters
Note 2: Refer to East Owen Sound Master Servicing Study commercial peaking factor per Servicing Design Report Heritage Grove Centre dated August 2011

Date Printed: 2023-03-03