



BLANCHARD LETENDRE
ENGINEERING

Our File Reference No: 23-172

December 6th, 2023

Kieran Watson

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City of Ottawa
Via Email: Kieran.watson@ottawa.ca

SUBJECT: 2ND REVIEW COMMENTS
PROJECT ADDRESS: 1274 MARYGROVE CIRCLE
PERMIT NUMBER: FILE # D02-02-23-0016
REPORT TYPE: ENGINEERING BRIEF

In the City of Ottawa's 2nd Review comments letter, dated October 11, 2023, a comment remained regarding storm water considerations. The full exchange to date is:

"1.7. The section should discuss the increase in imperviousness. The drainage conveyance methods. How impact to neighbouring properties would be reduced (i.e. roof drains only drain to the street/etc). A drainage sub-catchment plan is helpful.

(LBE Jul 2023): The report has been revised to make general statements on the proposed change in imperviousness, how it is proposed to be graded and drained (by others) A drainage sub-catchment plan is not available, however the grading plan is, from which this information can be inferred.

(City 2023): Outstanding. Excess drainage cannot be directed to neighbouring properties. The stormwater management section must include information on the existing site condition and the changes as a result of the proposal along with mitigation measures. Are there existing drainage issues such as ponding/poor grading etc?"

This brief has been prepared to address the comments listed above.

Methodology

The rational method was used, where $Q=2.78CiA$. Flows for both the minor (5 year) and major (100 year) storms were considered.

A $C=0.9$ was used for asphalt, concrete or other impervious areas, and a $C=0.2$ was used for all grass areas. For the 100 year storm, the runoff coefficient was increased by 25%, but limited to no more than $C=1.0$.

Due to the small and direct nature of the drainage areas, a $T=10$ minutes was used for all areas, both pre and post development. The intensities were taken from the Ontario's IDF Curve Lookup tool.

Areas were taken from the site grading plan by Fairhall, Moffatt, & Woodland Ltd.



The 100yr+ return event has not been considered, as this is typically taken into consideration when controlling stormwater onsite. This brief had been prepared only to demonstrate that the proposed development will have positive impacts to runoff quantities.

Existing Conditions

The site currently features an existing single family dwelling unit with split-lot drainage. The following table identifies the two drainage area characteristics, where A101 is the front yard and A102 is the rear yard.

Pre-Development								
Drainage Areas	Area (Ha)	Existing Asphalt & Concrete Area (Ha)	Existing Granular Area (Ha)	Existing Building (Ha)	Total Existing Impervious Area (Ha)	Existing % Impervious	Total Existing Pervious Area (Ha)	Existing % Pervious
A101	0.020	0.005	0	0.006	0.012	58%	0.008	42%
A102	0.033	0.000	0.000	0.006	0.006	19%	0.026	81%
Total Property	0.05	0.00	0.00	0.01	0.01	12%	0.03	50%

The uncontrolled flow from both pre-development areas was calculated in the following tables:

AREA 'A101'						AREA 'A102'					
1:5 Year Storm						1:5 Year Storm					
Tc= 10 min						Tc= 10 min					
Type	Percent	Area (ha)	C	I	Q _s (L/s)	Type	Percent	Area (ha)	C	I	Q _s (L/s)
Pervious	41.6%	0.008	0.25	92.72	0.54	Pervious	81.0%	0.026	0.25	92.72	1.71
Asphalt & Concrete	27.0%	0.005	0.90	92.72	1.26	Asphalt & Concrete	0.0%	0.000	0.90	92.72	0.00
Granular	0.0%	0.000	0.90	92.72	0.00	Granular	0.0%	0.000	0.01	92.72	0.00
Building Roof	31.4%	0.006	0.90	92.72	1.47	Building Roof	19.0%	0.006	0.90	92.72	1.45
Total		0.020	0.63		3.28	Total		0.033	0.37		3.15
			Cw						Cw		

1:100 Year Storm						1:100 Year Storm					
Tc= 10 min						Tc= 10 min					
Type	Percent	Area (ha)	C	I	Q ₁₀₀ (L/s)	Type	Percent	Area (ha)	C	I	Q ₁₀₀ (L/s)
Pervious	41.6%	0.008	0.31	154.65	1.13	Pervious	81.0%	0.026	0.31	154.65	3.56
Asphalt & Concrete	27.0%	0.005	1.00	154.65	2.34	Asphalt & Concrete	0.0%	0.000	1.00	154.65	0.00
Granular	0.0%	0.000	1.00	154.65	0.00	Granular	0.0%	0.000	1.00	154.65	0.00
Building Roof	31.4%	0.006	1.00	154.65	2.73	Building Roof	19.0%	0.006	1.00	154.65	2.68
Total		0.020	0.71		6.20	Total		0.033	0.44		6.24
			Cw						Cw		

Proposed Conditions

The proposed conditions are based on the Grade and Services Plan, prepared by Fairhall, Moffatt & Woodland Limited (Job # AC28000, dated January 25, 2023).

The proposed development features a pair of semi-detached residential dwellings with sloped roofs. The proposed grading scheme by FM&W features split lot drainage, with a highpoint that has been moved slightly further back within the property. The following table identifies the two drainage area characteristics, where A201 is the front yard and A202 is the rear yard.

Post-Development Conditions								
Drainage Areas	Area (Ha)	Post-Dev Asphalt & Concrete Area (Ha)	Post Granular Area (Ha)	Post-Dev Building (Ha)	Total Post-Dev Impervious Area (Ha)	Post-Development % Impervious	Total Post-Dev Pervious Area (Ha)	Post-Development % Pervious
A201	0.024	0.004	0.000	0.011	0.01	60%	0.010	40%
A202	0.029	0.000	0.000	0.011	0.01	38%	0.018	62%
Total Property	0.05	0.00	0.00	0.02	0.03	48%	0.03	52%

The uncontrolled flow from both post-development areas was calculated in the following tables:

AREA 'A201'

1:5 Year Storm					
Tc= 10 min					
Type	Percent	Area (ha)	C	I	Q ₅ (L/s)
Pervious	40.5%	0.010	0.25	92.7	0.63
Asphalt & Concrete	15.4%	0.004	0.90	92.7	0.86
Granular	0.0%	0.00	0.90	92.7	0.00
Building Roof	44.1%	0.011	0.90	92.7	2.46
Total		0.02	0.64		3.94
			Cw		

AREA 'A202'

1:5 Year Storm					
Tc= 10 min					
Type	Percent	Area (ha)	C	I	Q ₅ (L/s)
Pervious	61.6%	0.018	0.25	92.7	1.15
Asphalt & Concrete	0.0%	0.000	0.90	92.7	0.00
Granular	0.0%	0.000	0.90	92.7	0.00
Building Roof	38.4%	0.011	0.90	92.7	2.58
Total		0.03	0.50		3.72
			Cw		

1:100 Year Storm					
Tc= 10 min					
Type	Percent	Area (ha)	C	I	Q ₁₀₀ (L/s)
Pervious	40.5%	0.010	0.31	107.8	0.91
Asphalt & Concrete	15.4%	0.004	1.00	107.8	1.11
Granular	0.0%	0.000	1.00	107.8	0.00
Building Roof	44.1%	0.011	1.00	107.8	3.18
Total		0.02	0.72		5.19
			Cw		

1:100 Year Storm					
Tc= 10 min					
Type	Percent	Area (ha)	C	I	Q ₁₀₀ (L/s)
Pervious	61.6%	0.018	0.31	107.8	1.67
Asphalt & Concrete	0.0%	0.000	1.00	107.8	0.00
Granular	0.0%	0.000	1.00	107.8	0.00
Building Roof	38.4%	0.011	1.00	107.8	3.33
Total		0.03	0.58		5.00
			Cw		

Discussion

The proposed development will result in a small net decrease in uncontrolled run-off to the rear property lines as a result of this development, while there will be a small net increase in uncontrolled run-off to the City ROW.

The uncontrolled area to the rear maintains a typical assumed weighted run-off coefficient of C=0.5 for infill development. This is not anticipated to have any impacts to downstream infrastructure.

Both the front yard and rear yard will have higher weighted run-off coefficients in the post development conditions.

No additional mitigation measures are proposed as part of this development at this time.

The extent of existing topography available suggests that the existing overland flow for rear drainage occurs in the overhead utility easement. The flow direction is southward.

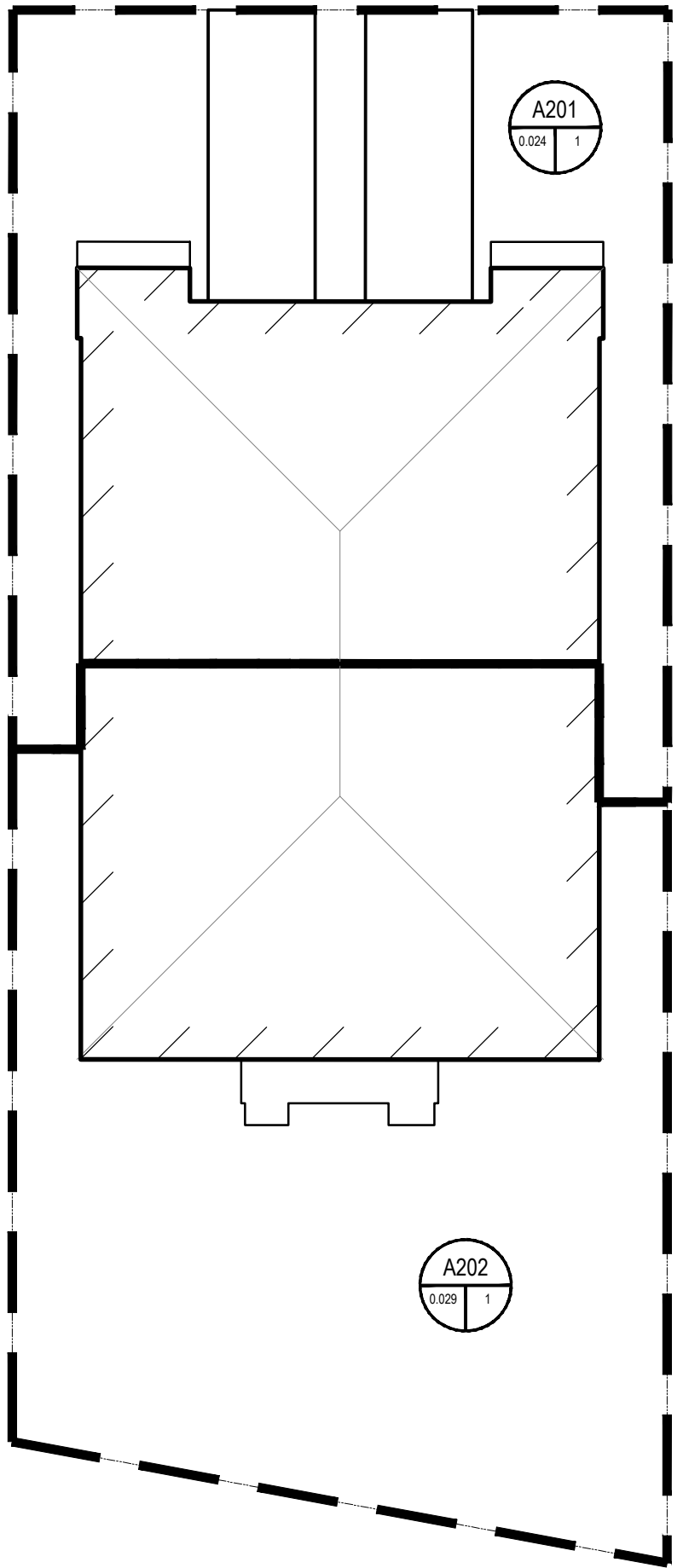
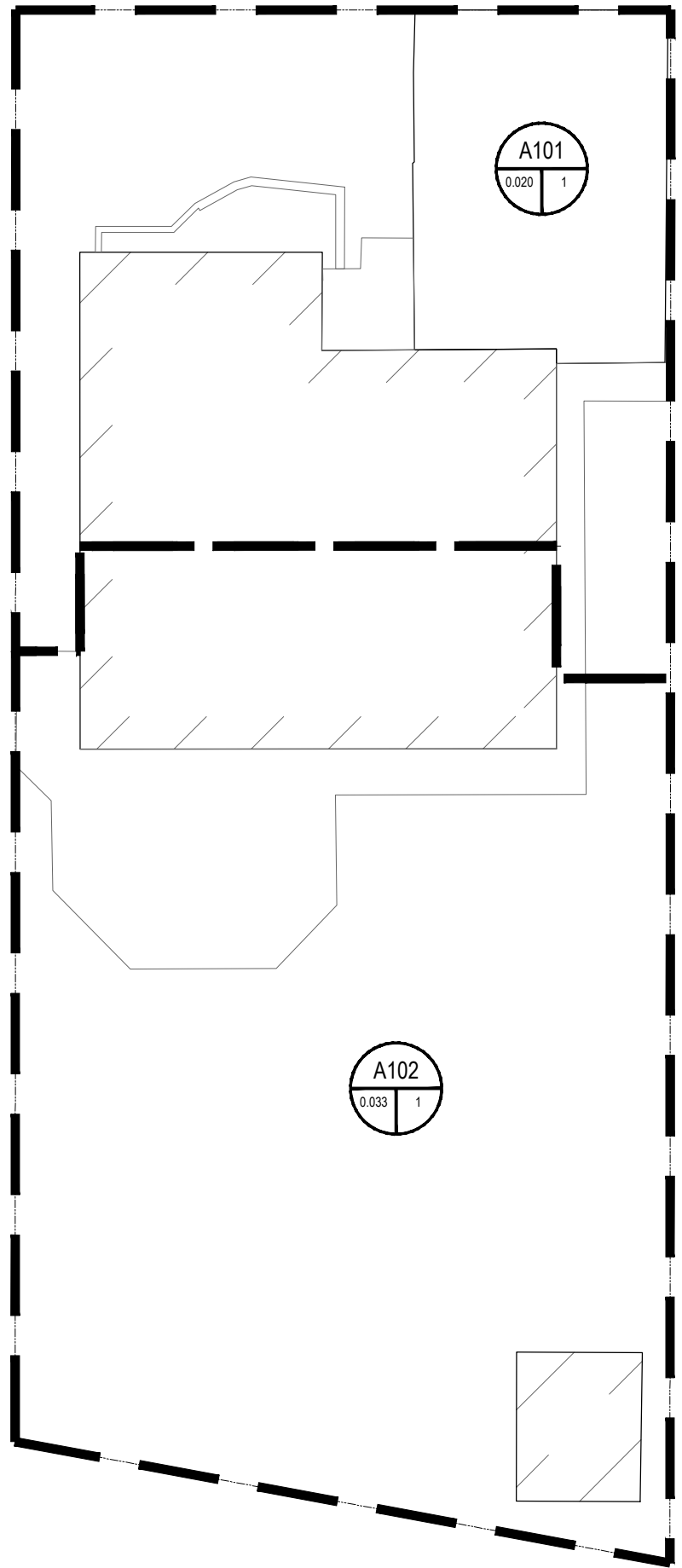
Trusting this satisfies your immediate requirements. Should you have any questions regarding the information in this report, please do not hesitate to contact our office.

Sincerely yours,

Blanchard Letendre Engineering Ltd.



Prepared by:
Michael Jans, P.Eng.



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DRAWING:

Catchment Map

PAPER SIZE:	279x431
DRAWN BY:	MJ
CHECKED BY:	MJ
DATE:	10-2023
SCALE:	1:150
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PAGE:

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