To:

Feb 2, 2024

Development Services
Prince Edward County
Shire Hall, 332 Picton Main Street,
Picton ON, K0K 2T0

Re: 4309 Highway 62, Prince Edward County – Septic Design Brief

Summary Statement:

This letter brief sets out the calculations supporting our analysis that the proposed septic system will adequately service the proposed Cannabis Facility

The Subject site is approximately 3.51ha in size. The subject lot fronts Highway 62 and is approximately 13km from highway 401 exit 543 via Belleville. The land is currently zoned as Rural 1 (RU1) zone under the County of Prince Edward Comprehensive Zoning By-Law 1816-2006. It is understood that the intended use will be in compliance with RU1 zoning per section 4.39 cannabis production and processing facility.

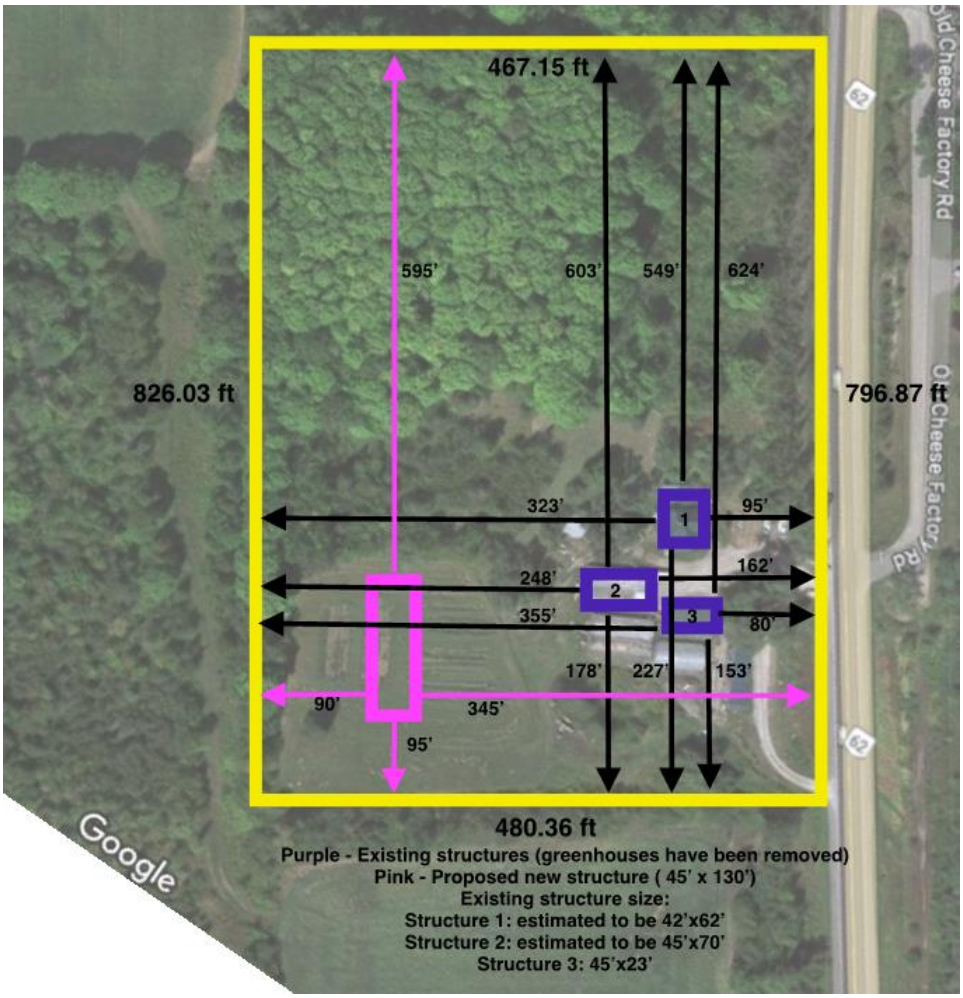

Figure 1 Site Sketch

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233 FRONT ST
BELLEVILLE, ON K8N 2Z4

The client is looking to make site modifications, including the proposed cannabis facility construction. The existing greenhouse structures on site are removed. The Conceptual sketch (figure 1) shows the onsite existing structures and intended location for cannabis facility. 3 Existing structures identified on the sketch are estimated to be 42' x 62', 45' x 70' and 45' x 23'.
The proposed development will consist of construction of 598.87 sq. m cannabis facility. The proposed building will be warehouse with a loading bay. A 6.0m driveway will provide access to the proposed warehouse building and parking lot with 9 parking spaces and one loading area.
Client confirmed that site will have 1 staff on site at all times and 2 part-time staff that assist every other Saturday (2days a month).

The existing septic system on site will remain and will keep services the existing buildings. No upgrades or no alterations are being made to existing septic systems.
New septic system is being proposed for the warehouse building.
Below sections summarizes the Septic System Sizing:

Daily Design Sewage Flow:

Cannabis Facility

Warehouse Space: with 1 Loading Bay, 2 washroom, 3 sinks

Per Water Closet	950 L/day (OBC Table 8.2.1.3.B)	Number of Water Closets = 2
Per Loading Bay	150 L/day (OBC Table 8.2.1.3.B)	Number of Loadings Bays = 1

Total Daily Design Flow: 2 x 950 L/day + 1 x 150 L/day

= **2050 Litres/day**

Septic Tank Sizing:

Tank Multiplier	**3**				OBC 8.2.2.3(1)
Minimum Tank Capacity	**6150**	**L**	**1625**	**US Gal**	OBC 8.2.2.3(1a,b)
Minimum Chamber 1 Capacity	2665	L	704	US Gal	OBC 8.2.2.3(3)(a)
Minimum Chamber 2 Capacity	1332.5	L	352	US Gal	OBC 8.2.2.3(3)(b)

Filter Bed Sizing:

The following are the design recommendations as provided in the "Hydrogeological Assessment Report by Cambium". Figure 2 of the HydroG report shows the test pit locations and Table 5 provides the T-time for the test pits.

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Native Soil Percolation Rate (T-time): 25 min/cm

Filter Bed Area (m^2)	**27.3 m^2**	5	x	5.5	OBC 8.7.5.2 (3)
Filter Bed Contact Area (m^2)	**60 m^2**	7.6	x	7.9	

						Table 8.7.4.1.		
Soil Type						Item	Column 1	Column 2
Filter Media Sand	T-time =	**8**					Percolation Time (T) of Soil, min	Loading Rates, (L/m^2)/day
Native	T-time =	**25**				1	1 < T ≤ 20	10
Loading Rate ((L/m2)/Day)	8				OBC	2	20 < T ≤ 35	8
Area (m^2)	**256 m^2**	10.4	x	24.6	8.7.5.2(2)	3	35 < T ≤ 50	6
						4	T > 50	4

The Proposed Filter bed shall be constructed per OBC 8.7.5.3:

1. The lines of distribution pipes shall be evenly spaced over the surface of filter medium. Maximum spacing of 1.2m between the centerlines of pipes in accordance with Table 8.7.5.3 (Appendix A)
2. Filter medium shall have a minimum depth of 750mm below stone layer.
3. The base of filter medium shall extend to a thickness of 250mm with an area of 256m^2.
4. Stone layer shall not be less than 900mm above high-water table, bed rock or soil with percolation rate more than 50minutes.

The Details for the proposed septic system design are shown on C102 attached to this design brief.

We trust this project description meets your approval. If further information is required on the design, please contact the undersigned.

Submitted by,

Three Hills Engineering Ltd.

Dheeraj Thamatam, M.Eng, P.Eng

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Three Hills Engineering Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

233 FRONT St
Belleville, ON K8N 2Z4

HYDROGEOLOGICAL ASSESSMENT
TOM SU
4309 Highway 62
Ameliasburgh, Ontario
LEGEND
Test pit
Monitoring Well
Test Well
Site (approximate)
Notes:
- This document contains information licensed under the Open Government Licence – Ontario.
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map is not to be used by navigation or legal purposes. It is intended for general reference use only.
194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742-7900 Fax: (705) 742-7907
www.cambium-inc.com
CAMBIUM
TEST PIT AND TEST WELL LOCATION PLAN
Project No.: 19059-001
Date: December 2023
Rev.:
Scale: 1:2,000
Projection: NAD 1983 UTM Zone 18N
Created by: DBB
Checked by: KH
Figure: 2
N
0 15 30 45 60 75 m
MW1
MW2
TW1
OLD CHEESE FACTORY ROAD
HIGHWAY 62
TP101-23
TP102-23
TP103-23
TP104-23

Dheeraj Thamatam

From: Kyle Horner <Kyle.Horner@cambium-inc.com>
Sent: December 22, 2023 1:06 PM
To: Tom Su
Cc: Lisa Colton
Subject: FW: 4309 Highway 62 - HydroG info needed
Attachments: 2023-12-05 FIG 2 - Test Pit and Test Well Location Plan.pdf

Good morning, Tom,

Please see Natasha's email, below for a summary of the soil and t-time values from our test pits. Happy to discuss if you have any questions.

Regards,
Kyle

Kyle Horner, Ph.D., P.Geo.
Senior Hydrogeologist/Senior Project Manager
Cambium - Kingston
613.876.4516
866.217.7900
cambium-inc.com

Happy Holidays From Cambium!
Our offices will be closed from December 25 - January 1.
We look forward to working with you in 2024 and hope you have a safe and happy holiday season.

Environmental | Building Sciences | Geotechnical | Construction Testing & Inspection

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From: Natasha Augustine <Natasha.Augustine@cambium-inc.com>
Sent: Thursday, December 21, 2023 4:11 PM
To: Kyle Horner <Kyle.Horner@cambium-inc.com>
Subject: RE: 4309 Highway 62 - HydroG info needed

All test pits encountered moist, light brown sand and silt layer with gravel and cobbles, some boulders, and some rootlets. No groundwater was observed to depths of termination. Below is a table identified bedrock depth (if encountered), as well as T-time results. The figure illustrating test pit locations is attached for further reference.

Table 4 Summary of Test Pit Termination Depths

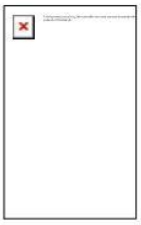
Test Pit	Termination Depth (mbgs)	Termination Material
TP101-23	2.00	Overburden
TP102-23	1.31	Presumed Bedrock

1

TP103-23	1.22	Presumed Bedrock
TP105-23	0.91	Presumed Bedrock

Table 5 Grain Size Distribution Analysis Results

Test Pit	Depth (mbgs)	Description	% Gravel	% Sand	% Silt	% Clay	T-time (min/cm)
TP101-23	0.00 – 2.00	Silty Gravelly Sand trace Clay	28	34	29	9	25
TP102-23	0.00 – 1.31	Sandy Silty Gravel trace Clay	35	30	26	9	25



Natasha Augustine, M.Sc.
Environmental Scientist
Cambium - Kingston
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From: Natasha Augustine <Natasha.Augustine@cambium-inc.com>
Sent: Thursday, December 21, 2023 2:37 PM
To: Kyle Horner <Kyle.Horner@cambium-inc.com>
Subject: Re: 4309 Highway 62 - HydroG info needed

Everything for tests pits should be in the report already, but I'll take a look and can send you the relevant details this afternoon

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From: Kyle Horner <Kyle.Horner@cambium-inc.com>
Sent: Thursday, December 21, 2023 12:27:03 PM
To: Natasha Augustine <Natasha.Augustine@cambium-inc.com>
Subject: FW: 4309 Highway 62 - HydroG info needed

FYI, let me know what we have from the test pits that we can provide.