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September 3, 2021

Bare Bones Distillery
705 Closson Road
Hillier, ON
K0K 2J0

Attention: Jason Clarke

**Re: Closson Road Distillery
Bare Bones Distillery, 705 Closson Road, Hillier, ON
GGG Project # 21-3-8425**

Dear Mr. Clarke,

We have concluded our review of the fire protection water supply for the proposed distillery at 705 Closson Road, Hillier, ON.

Background;

The Greer Galloway Group was retained to complete an assessment of the water required to be stored on site for the purposes of fire protection at the proposed development of the Bare Bones Distillery at 705 Closson Road in Prince Edward County, Ontario. The 31.6 ha Property is located 0.4 km west of the intersection of Closson Road and Chase Road in Hillier, Ontario. The legal description of the property is Lot 7 and 8 of Concession 3, 46R-3899, Hillier Ward in the County of Prince Edward.

The proponents propose to rezone land use of the property to a distillery. There is an existing barn (which is to be converted into a distillery), farm building, shed, and single-detached dwelling on the north edge of the Property. South of the structures is field area, with a treed area covering the northern end of the Property.

Assessment

Building Characteristics:

For the purposes of this report, the protection of the distillery building is under consideration. The existing single detached dwelling to the east and the existing shed are greater than 13 m from the proposed distillery and will not impact the calculations. The existing farm building to the southwest is of sufficient size and proximity to factor into the calculations.

The proposed zoning and building use are F-1 – High Hazard Industrial
The total building area after construction will be 425 m².

All buildings shall be one (1) storey

Building Exposures:

Closson Road is treated as nominally east-west for the purpose of this evaluation.

North: >12 m to the property line

South: < 2 m to adjacent structures

West: < 2 m to adjacent structures, approximately 10 m to parking area

East: > 12 m to adjacent structures

Site parameters

The building falls within Part 3 of the Ontario Building Code

The building area is greater than 200 m² and is not an F-3 occupancy



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Existing water supply

The property is not serviced by municipal sources. Water on the premises is provided by a well with an evaluated yield of 18 L/min.

Required water supply

Under *OFM-TG-03-1999 Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code* there are four (4) categories of buildings to consider for the amount of fire protection required:

- 1) Buildings not requiring on-site fire protection water supply;
- 2) Sprinklered buildings;
- 3) Buildings requiring on-site fire protection water supply; and
- 4) Additions to existing buildings.

The category selection is based on an elimination basis. The building is not served by municipal water or a conforming transportable water supply according to the requirements of category 1. In accordance with the OBC (3.2.2.66), the building does not require sprinklers and does not fall in category 2. As the building is subject to a change of use, it does not strictly conform to the requirements of category 4. Therefore, the building will require an on-site fire protection water supply under category 3.

The equation for fire protection water quantity is:

$$Q = K V S_{Tot} \text{ (Equation 1)}$$

Where

Q = Minimum supply of water in litres (L)

K = water supply coefficient

V = total building volume in cubic metres

S_{Tot} = total of spatial coefficient values from property line and building exposures.

As a building with F-1 occupancy (high hazard industrial) with non-combustible construction (cement block) without fire-rated separations and in accordance with Table 1 of the OFM document, **the value of K is 37.**

The total floor area of the building is 425 m².

The entire building is a single storey with a nominal ceiling height of 3.3 m (11 ft).

To accommodate the process equipment, an increase in ceiling height of 1.8 m is contemplated at one corner of the building over an area of 30 m²

The total building volume (V) after the contemplated construction is 1458 m³.

The S_{Tot} equation is :

$$S_{Tot} = 1.0 + [(S_{Side1}) + (S_{Side2}) + (S_{Side3}) + \dots + (S_{SideN})]$$

Where N is the number of exposures to be accounted. On North and East exposures, the distance to an adjacent structure or property boundary is 12 m or greater. In accordance with Figure 1 of the OFM document these exposures do not increase the S_{Tot} factor. The South exposures to the adjacent building is less than 2 m and adds a factor of 0.5 to S_{Tot}. The West exposure to the adjacent building is less than 2 m and approximately 10 m to the parking areas The more restrictive distance is evaluated and adds 0.5 to S_{Tot}.

The final value of S_{Tot} is 2. This is the maximum value for this coefficient.

Using the derived values in Equation 1, Q = 107,859 litres.

Following the procedure from *OFM-TG-03-1999* a minimum volume flow for 30 minutes is required. According to Table 2, because Q < 108,000 L, the flow to be maintained is 2700 L/min. At a 30 minute draw, **the minimum prescribed water supply is 81,000 L.**

Based on the above assessment and the OFM Guideline, the volume of on-site water available for fire suppression should not be less than 81,000 litres (21,400 US Gal). Typical commercial water storage systems for this application are available in 37,800 L (10,000 US Gal) and 94,635 L (25,000 US Gal) capacities. A 94,635 L (25,000 US Gal) tank will provide the required water storage with an added factor of safety.



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Recommendation

It is recommended that a fire protection water volume of 94,635 L (25,000 US Gal) be made available on site at Bare Bones Distillery, 705 Closson Road, Hillier, ON to meet the requirements of the Ontario Building Code.

We trust this brief letter is sufficient for your present requirements, if you have any questions or point that require clarification, please contact the undersigned at your convenience.

Best Regards,

**THE GREER GALLOWAY GROUP INC.
CONSULTING ENGINEERS**

**Peter Zandbergen, P. Eng.
Mechanical Engineer**

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