Amanda Urmann

From:	Rick Muehlke <rvmuehlke@gmail.com>
Sent:	Sunday, July 30, 2023 8:03 AM
To:	ZBA
Subject:	Groton Farm, Dillis & Roy Letter of July 21, 2023, 6842, Re Offsite Drainage
Attachments:	6842-ltr-ZBA-072123_(Offsite_Drainage) (2).pdf

Groton Zoning Board of Appeals
173 Main Street
Groton, MA 01450

Dear Members of the Board,

Thank you for your excellent work on this proposed development.

I have read the subject letter (copy attached), and I have two questions:

1. Please explain what "2-year", "10-year", etc terms mean in the tables. Does this mean the *average* single storm event in any 2-year period? Or the *worst* single storm event in any 2-year period? Or does it mean something else?

2. What information are the table numbers based on, in terms of weather/climate forecasts? What is the source of this information? Is it based on more recent science, which projects added rainfall and more severe storms in future years, compared to the past 20-50 years?

Thank you,

Richard Muehlke
109 Common Street
Groton, MA 01450
978-857-6101

DILLIS & ROY
CIVIL DESIGN GROUP

WWW.DILLISANDROY.COM
PH. 978.779.6091
F. 978.779.0260

CIVIL ENGINEERING | LAND SURVEYING | WETLAND CONSULTING

July 21, 2023
6842

Groton Zoning Board of Appeals
173 Main Street
Groton, MA 01450

Re: Additional Information relative to Offsite Drainage
Groton Farms – 500 Main Street
Groton, MA

Dear Members of the Board,

On behalf of the Applicant, 500 MG LLC, Dillis & Roy Civil Design Group, Inc. has prepared this letter to provide additional information relative to the offsite runoff resulting form the project. Specifically, we are providing the below information relative to the existing drainage ditch that begins on the project site and conveys flows to the North onto the abutting property.

Most of the existing site drains in the direction of this drainage ditch. Some of the site directly discharges to the ditch, and other portions of the site flow toward wetland areas on and adjacent to the property and then to the drainage ditch. The Stormwater Calculations provided by the office were setup to compare the pre-developed and post-developed flows at this point. It was indeed established as the design point (Design Point A) for the stormwater calculations.

The stormwater calculations that have been provided document that both the peak **rate** and **volume** of runoff will be reduced at this location as a result of the proposed project. As such, after construction of the proposed project is complete, the flow rates (amount of flow per time typically reported in Cubic Feet per Second) will be reduced, and the volume (typically reported in Acre-Feet) will also be less. The following tables list the comparisons of Rate and Volume respectively:

Table 1: Flow Rate Runoff Summary - Design Point A

	Pre-Developed (ft^3 / sec)	**Post-Developed (ft^3 / sec)**
2-Year	20.88	13.42
10-Year	38.37	27.87
25-Year	53.28	42.05
100-Year	85.26	76.09

Table 2: Volume Summary – Design Point A

	Pre-Developed (acre-feet)	Post-Developed (acre-feet)	Reduction in runoff Volume (acre-feet)
Design Point "A"			
2-Year	3.067	2.596	-0.471
10-Year	5.690	5.043	-0.647
25-Year	7.911	7.202	-0.709
100-Year	12.748	11.979	-0.769

We trust this meets your needs at this time. If you have any questions or require any additional information, please do not hesitate to contact me.

Regards,

DILLIS & ROY
CIVIL DESIGN GROUP, INC.

Gregory S. Roy, P.E.
Vice President

cc: Mr. John Amaral – 500 MG LLC (via email)
Ms. Leslie French – 500 MG LLC (via email)
Mr. Robert Anctil – Perkins & Anctil PC (Applicant's Counsel)