

To: City of Cambridge Planning Board, Chair H. Theodore Cohen and all members City of Cambridge Community Development Department, Iram Farooq, Asst. City Manager City of Cambridge Department of Public Works, Owen O'Riordan, Commissioner City Manager, Louis DePasquale

From: Ellen Mass, President, Friends of Alewife Reservation Date: November 26, 2017  
Re: 55 Wheeler Street Permits including Little River/Fresh Pond : Mystic River Watershed.

More watershed testing and assessment is needed related to a MEPA review and subsequent Environmental Impact Review (EIR) which, when buildings are assessed cumulatively, more water storage and major open space is required from city permitting standards and from developers. Quantity of units of 2000 should be reduced by half. To comply with FEMA and state standards for floodplain (whether 100 year or 500 years), and city and state infrastructure according to Dr. Slaughter's engineering analysis should be followed as well as a 2 year freeze. Major flooding in other sections of the country such as Houston, Texas should serve as a cautionary message to Cambridge, Massachusetts when permitting on a floodplain during rapid climate change.

The Charles River Watershed Assoc. planning has already included hundreds of acres of upstream water storage in marshes and wetland areas in order to protect flooding in Cambridge and Boston. Climate change requires more storage around our low lying watersheds, especially in north Cambridge's Little River and Alewife Brook which includes 5 Ponds, streams, and outfalls, not thoroughly or well assessed over time.

Because the water quality testing status is failing in Cambridge's Little River assessed publicly by the US-EPA as well as Belmont, and has been failing varying between a D and D- for 8 years, according to MWRA and Mystic River Watershed Association (MyRWA) tests in the area, an expected surge or sea rise or occurrence of severe precipitation events, now expected, will further contaminate hundreds of watershed acres which affect Belmont, Arlington, Cambridge Somerville as far as Medford, when these likely water rise events will occur.

<https://www.epa.gov/arc-x/city-boston-plans-adaptation>

Army Corps of Engineers, Boston Harbor Association, and Boston Adaptation Report all suggest that this watershed can expect thorough inundation by and likely before 2030. Cambridge's own 2014 official Climate Vulnerability Assessment Study of 2014 states inundation earlier. Objective study from noted Hydrology Firm, Horsley and Witten states projected total flood likelihood.

<http://friendsofalewifereservation.org/2012-02-29-Horsley-and-Witten-Technical-Analysis-of-Upper-Alewife-Brook-Basin.pdf>

According to Dr. Slaughter, “A more fiscally prudent and effective strategy would be to establish the “watershed-scale flood storage” now, based on a detailed hydrologic and geomorphological study of the current state of the Fresh Pond/Alewife watershed.”

Attached is the Hydrological Study by Bruce Jacobs of projected precipitation and Hydrology Study of the Belmont-Cambridge border area, once a forested area of the region which was an important adaptation feature of this area.

<http://friendsofalewifereservation.org/SMF-2014-10-08-Bruce-Jacobs-reformat-J413%20drainage-calcs-review-report-1.pdf>

*According to Dr. Slaughter:*

*“1. Benefits Greater Than Costs”*

*“The US Army Corps of Engineers conducted a cost-benefit economic analysis of the Natural Valley Storage for the Charles River, including purchasing land from private owners and re-establishing wetlands for watershed-scale flood storage. The Army Corps study concluded that costs associated with creating and maintaining the Natural Valley Storage (including land acquisition and wetlands restoration) was approximately 15% of the cost of constructed flood control measures, and the benefits (which included expected increases in flood damage as well as recreational and environmental benefits) were far greater than the costs.<sup>1</sup>*

*A similar analysis should be conducted for immediate watershed-scale flood storage in the Alewife area, particularly given the increasing value of property in the Alewife area, and the increasing risks of flooding from changes in precipitation and sea-level rise from climate change.”*

*According to Slaughter,*

*2. “Current Hydrology of Fresh Pond/Alewife Area May Be Changing”*

*“The majority of the freshwater flow into Fresh Pond is underground from the area to the northwest (that is, the Quadrangle, and what used to be the Great Swamp). Additional data collection and analysis are needed to determine the potential threats to water quality in Fresh Pond Reservoir and lifeline services due to the current geo-hydrologic conditions, given the rapid construction of deep foundation buildings within this area over the past 5-10 years. As noted in the Planning Board public meeting on September 5, 2017 related to 55 Wheeler Street, there appears to be high (and potentially increasing) hydrostatic pressure in the area to the north and northwest of Fresh Pond.”*

During the FAR Hotel Dispute carried through by Ma. DEP, Dr Lovison presented an analysis of heavy “Blue Clay” soils development limitations in the Alewife region, especially near the Quad. north of Fresh POND. Today, 95 Fawcett St. already permitted, proves the high water table and impervious clay soil. The soils composition increases flood dangers in this watershed area.

*Slaughter continued to explain infrastructure impact:*

*“The U.S. Geological Survey conducted the geo-hydrologic analysis of the Fresh Pond area in 1959.<sup>2</sup> That study concluded that a deep bedrock valley filled with sediment extends from the Town of Wilmington southward to Fresh Pond (running under the Aberjona River, Mystic Lakes, and Spy Pond), and the majority of groundwater flow into Fresh Pond is through the sand and gravel sediment on the northwest side of Fresh Pond.”*

*“Increased hydrostatic pressure, and potential future flooding from precipitation and sea level rise (including saltwater and brackish water), may increase the transport of toxic waste and contaminants into the Fresh Pond Reservoir through groundwater flow. In addition, the pressure and future flooding may also cause irreparable damage to the below-grade main utility lines that cross the Alewife area, including City of Cambridge water and sewer mains, MWRA water and sewer mains, gas mains, and telecommunications main lines. This damage would impair critical “lifeline services” not only for Cambridge residents but also for major population centers in the Boston metropolitan area. A comprehensive analysis of the Fresh Pond/Alewife current hydrologic conditions is required to develop effective climate change adaptation strategies.”*

<sup>1</sup> U.S. Army Corps of Engineers New England Division (1993). Massachusetts Natural Valley Storage Investigation - Section 22 study.

<sup>2</sup> Chute, N.E. (1959). “Glacial geology of the Mystic Lakes-Fresh Pond Area Massachusetts,” U.S. Geological Survey Bulletin, Report: B 1061-F.

<https://pubs.usgs.gov/bul/1061f/report.pdf>

Development restriction analysis on adjacent land

<https://docs.google.com/document/d/18PVqdRvOt6RML3TETfdGtw1GMqVgOvaCGKMxLg22IV8/edit>