

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: Dr. Sarah Slaughter, Cambridge resident, CEO, Built Environment Coalition

Date: November 27, 2017

Re: 55 Wheeler Street Permits, and all permits in Fresh Pond and Alewife Brook area

Additional data collection and analysis of the Alewife area are needed for the City of Cambridge to develop and assess effective and cost-efficient adaptation strategies that protect the lives and property of Cambridge residents.

I respectfully submit that the City of Cambridge Planning Board, Community Development Department, and Department of Public Works should declare a moratorium on all construction permits (for new building construction, major renovation, and infrastructure) for at least two (2) years in the Alewife areas, particularly those areas near Fresh Pond Reservoir, the Little River, and Alewife Brook. In particular, I request that the Planning Board deny all permits for the proposed residential development at 55 Wheeler St. in the Alewife quadrangle.

The Cambridge *Climate Change Preparedness and Resilience: Alewife Preparedness Plan* delays “watershed-scale flood storage” until 2050 (CCPR, Draft Nov. 15, 2017, p. 32), at which point essentially all of the currently low-density areas within the 500-year floodplain will be filled with high density residential buildings. Acquiring land for large-scale flood storage will be prohibitively expensive at that time, and will entail massive expenditures for demolition of existing buildings and removal of all below-grade structures (such as the parking garages for the apartment buildings).

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.

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.¹

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.

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.

The U.S. Geological Survey conducted the geo-hydrologic analysis of the Fresh Pond area in 1959.² 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.

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

² 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>)