Memorandum

To: Chairman Robert Levy
Zoning Board of Appeals
Town of Wellesley

Date: May 16, 2018

Project #: 13936.00

From: Wesley Mize, PE
Curtis Quitzau, PE

Re: Stormwater Summary
Fieldstone Way
135 Great Plain Avenue
Wellesley, MA

This memorandum was prepared to provide additional information in response to comments raised by neighborhood property owners about apparent existing flooding issues relating to their residences during the ZBA's Comprehensive Permit hearing on Thursday, April 26, 2018 for the Fieldstone Way condominium community (the Project) planned for 135 Great Plain Avenue in Wellesley, MA (the Project Site). The memorandum provides a brief overview of the proposed stormwater management system and a summary of a field visit completed by VHB; both for the purpose of helping you and the Board better understand the context and the governing State regulations to which the project must comply.

Existing Conditions

The approximately 12-acre Project Site is bounded by residential properties and Great Plain Avenue to the north, the Sudbury Aqueduct to the south, and residential properties to the east and west (Figure 1). Fuller Brook flows northerly around the Wellesley Recycling and Disposal Facility (RDF) through a culvert that passes under the Sudbury Aqueduct and into a small pond located within the Project Site boundaries. Beyond the pond, Fuller Brook continues to flow northerly roughly parallel to Great Plain Avenue and Fuller Brook Road along the rear yards of other residential properties.

Fuller Brook is bounded by wetland resource areas and a FEMA floodplain boundary. The wetland and floodplain boundaries extend onto some of the residential properties on Eisenhower Circle, Fuller Brook Road and Great Plain Avenue where this designation and anecdotal evidence suggests certain of these properties likely experience periodic flooding and standing water after large storm events.

Stormwater Management Summary

The proposed stormwater system associated with the Project has been designed to prevent any adverse impact by managing stormwater in accordance with all ten of MassDEP's Stormwater Management Standards. The overall objective of these standards is to ensure that there will be no adverse impacts to abutting properties and wetland resources including, but not limited to, downstream flooding and degradation of water quality. The Project's Stormwater Report, which was filed in connection with the Comprehensive Permit application is available for download on the Town of Wellesley's website, provides a thorough review and quantitative analysis of existing and proposed drainage conditions in connection with the Project and Project Site. A summary of the Stormwater Management Standards and the Project's compliance with each standard, summarized from our report, is attached to this memo.

Modifications to ground surface cover types as a result of the Project will result in a combination of landscape, impervious materials, meadows and wooded areas under proposed conditions. The potential for downstream flooding associated with increased runoff from the changes in ground surface cover types will be prevented by the collection of stormwater in a conventional drainage system routed to a stormwater management system where water will be

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temporarily detained, infiltrated and/or released off of the Project Site at rates of flow that will be the same as, or below, existing runoff rates.

Prior to detention, infiltration or release, stormwater will be treated to remove pollutants so that the water leaving the Project Site will not degrade groundwater or surface water resources. Treatment is provided through application of best management practices or BMPs. Every site is slightly different, but here the BMPs proposed include deep sump catch basins with oil/debris traps, proprietary sediment capture devices, infiltration, pavement sweeping and a long-term operations and maintenance plan.

Impact on Drinking Water Wells

At the hearing, the property owner of 145 Great Plain Avenue expressed concern about potential impacts on his drinking supply well based upon the distance from the stormwater infiltration system to his well. We evaluated this and determined that the infiltration system is approximately 135 feet from the well, which exceeds the minimum required MassDEP and Town of Wellesley Board of Health 100-foot minimum setback requirement. Additionally, stormwater will be pretreated for water quality purposes prior to infiltration in compliance with MassDEP's water quality standards. Lastly, the infiltration system is located downgradient of the well, meaning that the well will not be drawing from the water infiltrated by the proposed system. This Project will not impact the supply or water quality of this or any other well.

Flooding Concerns and the Sudbury Aqueduct Culvert

A number of area residents at the hearing expressed concerns with flooding and mentioned existing problems that seem to be getting worse. We noted these issues were specifically raised by several residents on, or near Eisenhower Circle. Since the Sudbury Aqueduct lies between the Project Site and these nearby properties, VHB conducted an on-site assessment on May 3, 2018 of the culvert that regulates the flow of Fuller Brook from the upstream (Eisenhower) side to the downstream (Project Site) side of the aqueduct. We observed that debris (primarily leaves and wood) accumulated at the upstream and downstream grates is restricting flow and causing water levels upstream to be higher than those downstream. The upstream flooding, which this Project does not, nor will not affect in any way, is most likely caused by this restricted flow through the culvert. Refer to photo numbers four and six in the attached photo log to see the debris we observed at the grates.

VHB recommends that the Wellesley DPW and the culvert owner, MWRA, be made aware of these concerns in order for the accumulated debris to be removed from the grates. We have copied the Wellesley DPW on this memo so that they are aware of this issue.

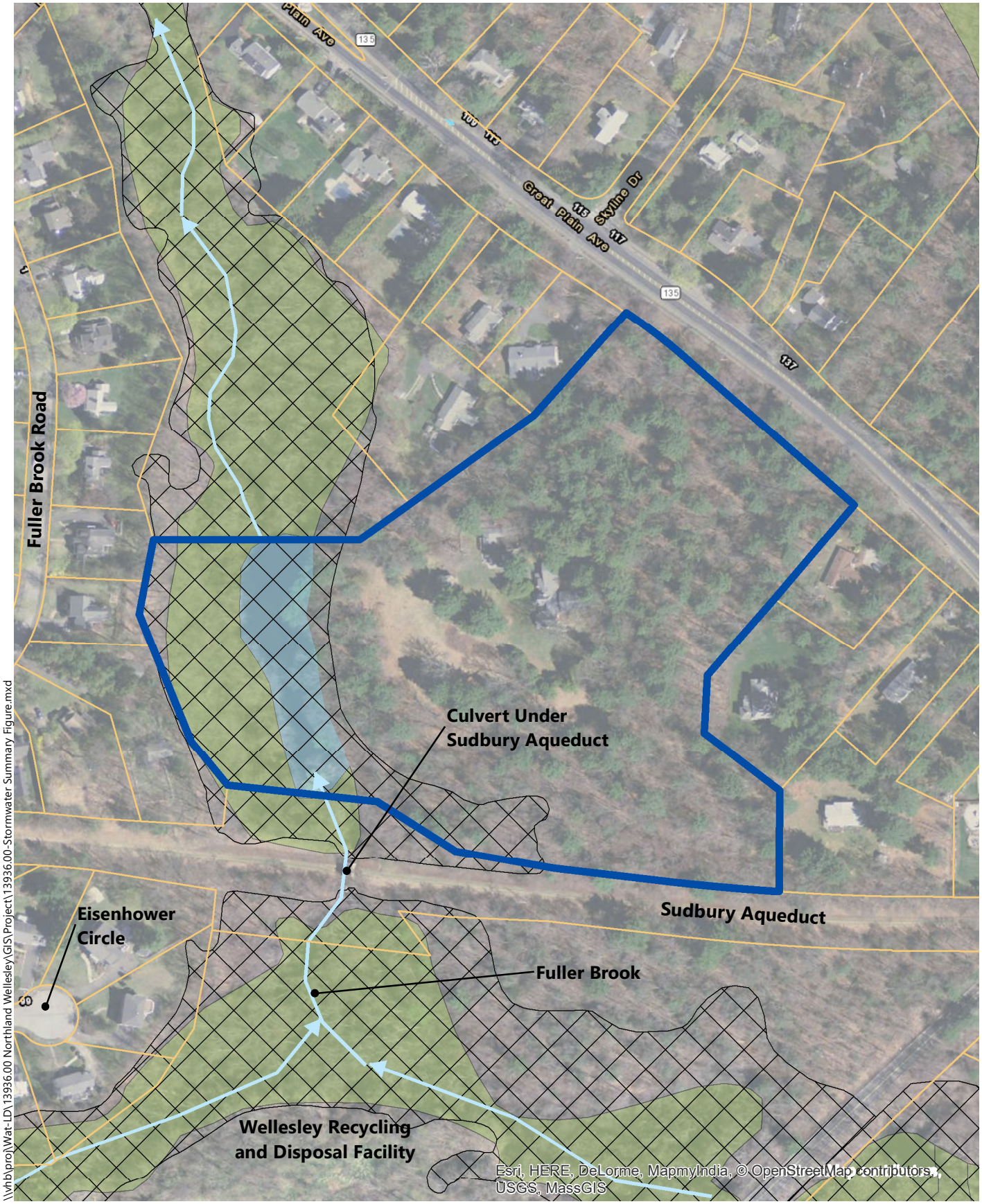
Closing

The Project has been designed to fully comply with MassDEP's Stormwater Management Standards, and, therefore, will have no impacts to abutters including off-site flooding or degraded water quality concerns. It is our understanding that the stormwater design is being peer reviewed by the Wellesley DPW, and to the extent that any substantive issues are identified with our methodologies, measurements, or interpretation of applicable DEP regulations VHB will resolve those issues collaboratively with DPW. Additionally, the existing flooding concerns of residents on Eisenhower Circle

are not issues that will be affected by the Project for the fact that these occur upstream of the Project Site and the Project will comply with applicable stormwater regulatory standards.

Attachments

- Figure 1: Locus Map
- Regulatory Compliance Section from Stormwater Report
- Sudbury Aqueduct Photographic Log



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0 50 100 200 Feet

135 Great Plain Avenue | Wellesley, MA

Project Site
Parcels
Perennial Stream
FEMA Floodplain
Wetland
Pond

Locus Map

Regulatory Compliance

Massachusetts Department of Environmental Protection (DEP) - Stormwater Management Standards

As demonstrated below, the proposed Project fully complies with the DEP Stormwater Management Standards.

Standard 1: No New Untreated Discharges or Erosion to Wetlands

The Project has been designed to fully comply with Standard 1.

The Best Management Practices (BMPs) included in the proposed stormwater management system have been designed in accordance with the Massachusetts Stormwater Handbook. Supporting information and computations demonstrating that no new untreated discharges will result from the Project are presented through compliance with Standards 4 through 6.

All proposed Project stormwater outlets and conveyances have been designed to not cause erosion or scour to wetlands or receiving waters. Outlets from closed drainage systems have been designed with flared end sections and stone protection to dissipate discharge velocities.

Computations and supporting information for the sizing and selection of materials used to protect from scour and erosion are included in Appendix A.

Standard 2: Peak Rate Attenuation

The Project has been designed to fully comply with Standard 2.

The rainfall-runoff response of the Site under existing and proposed conditions was analyzed for storm events with recurrence intervals of 2, 10, 25 and 100-years. The results of the analysis, as summarized in Table 4 below, indicate that there is no increase in peak discharge rates between the existing and proposed conditions for all storm events.

Computations and supporting information regarding the hydrologic modeling are included in Appendix B.

Table 4
Peak Discharge Rates (cfs*)

Design Point	*2-year*	*10-year*	*25-year*	*100-year*
Design Point 1: West Abutters				
Existing	0.4	2.1	3.6	6.3
Proposed	0.4	1.2	1.8	2.8
Design Point 2: Fuller Brook				
Existing	1.4	7.3	12.1	20.5
Proposed	1.1	5.7	9.4	20.4

Standard 3: Stormwater Recharge

The Project has been designed to fully comply with Standard 3.

In accordance with the Stormwater Handbook, the Required Recharge Volume for the Project is 4,886 cubic feet.

Recharge of stormwater has been provided through the use of an underground infiltration system, which has been sized using the Static method. This infiltration BMP has been designed to drain completely within 72 hours. Table 5 below provides a summary of the proposed infiltration BMPs utilized for the Project.

Table 5
Summary of Recharge Calculations

Infiltration BMP	*Provided Recharge Volume (cubic feet)*
Underground Infiltration BMP	35,712
Total Provided Recharge	35,712
Total Required Recharge	4,886

Soil evaluations, computations, and supporting information are included in Appendix C.

Standard 4: Water Quality:

The Project has been designed to fully comply with Standard 4.

The proposed stormwater management system implements a treatment train of BMPs that has been designed to provide 80% TSS removal of stormwater runoff from all proposed impervious surfaces. Computations and supporting information, including the Long-Term Pollution Prevention Plan, are included in Appendix D.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

The Project is not considered a LUHPPL.

Standard 6: Critical Areas

The Project will not discharge stormwater near or to a critical area.

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable

The Project has been designed to fully comply with all ten of the Stormwater Management Standards.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Controls

The Project will disturb approximately eight acres of land and is therefore required to obtain coverage under the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit. As required under this permit, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and submitted before land disturbance begins. Recommended construction period pollution prevention and erosion and sedimentation controls to be finalized in the SWPPP are included in Appendix E.

Standard 9: Operation and Maintenance Plan

In compliance with Standard 9, a Post Construction Stormwater Operation and Maintenance (O&M) Plan has been developed for the Project. The O&M Plan is included in Appendix D as part of the Long Term Pollution Prevention Plan.

Standard 10: Prohibition of Illicit Discharges

Sanitary sewer and storm drainage structures remaining from previous development which are part of the redevelopment area will be removed or will be incorporated into updated sanitary sewer and separate stormwater sewer systems. The design plans submitted with this report have been designed so that the components included therein are in full compliance with current standards. No statement is made with regard to the drainage system in portions of the site not included in the redevelopment project area. The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges.

PHOTOGRAPHIC LOG

Client Name: Northland Residential	**Project:** Fieldstone Way, 135 Great Plain Avenue, Wellesley, MA	**Project No**: 13936.00

Photo No. 1 **Date:** 5/3/18	
Description: Photo from Sudbury Aqueduct (Wellesley RDF/South (Left), Project Site/North (Right))	

Client Name: Northland Residential	**Project:** Fieldstone Way, 135 Great Plain Avenue, Wellesley, MA	**Project No**: 13936.00

Photo No. 2 **Date:** 5/3/18	
Description: Fuller Brook Looking South Towards RDF from Sudbury Aqueduct	

PHOTOGRAPHIC LOG

Client Name: Northland Residential	**Project:** Fieldstone Way, 135 Great Plain Avenue, Wellesley, MA	**Project No**: 13936.00

Photo No 3	**Date:** 5/3/18

Description:

South (Upstream) Headwall Looking North

Client Name: Northland Residential	**Project:** Fieldstone Way, 135 Great Plain Avenue, Wellesley, MA	**Project No**: 13936.00

Photo No. 4	**Date:** 5/3/18

Description:

Culvert Grate at South (Upstream) Headwall Looking North

PHOTOGRAPHIC LOG

Client Name: Northland Residential	**Project:** Fieldstone Way, 135 Great Plain Avenue, Wellesley, MA	**Project No**: 13936.00

Photo No 5 **Date:** 5/3/18	
Description: Fuller Brook Looking North Towards Project Site from Sudbury Aqueduct	

Client Name: Northland Residential	**Project:** Fieldstone Way, 135 Great Plain Avenue, Wellesley, MA	**Project No**: 13936.00

Photo No. 6 **Date:** 5/3/18	
Description: Culvert Grate at North (Downstream) Headwall Looking South	