
APPENDIX C

UTILITY AND FLOOD PLAIN MEMOS



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February 7, 2020

Mr. Paul Finger
President
Paul Finger Associates
14 Spring Street
Waltham, MA 02451

RE: Nitsch Project #13067
Existing Utilities Assessment
91 Hartwell Avenue
Lexington, MA

Dear Mr. Finger:

Nitsch Engineering has conducted an existing utilities assessment for the proposed redevelopment project located at 91 Hartwell Avenue (the Project) in Lexington, MA. The assessment was performed per Chapter 176 Section 9.8 of the Town of Lexington Planning Board Zoning Regulations to determine if the existing municipal sanitary sewer and water mains around the development site (the Site) have any known deficiencies and the capacity to meet the demands of the new development. All runoff generated from the Project will discharge to the adjacent wetland and not to the municipal drainage system. The assessment was based on record information and feedback provided to us by the Town of Lexington Engineering Department and the topographic survey performed by Precision Land Surveying, Inc.

The record drawings and topographic survey indicate the existence of a 12-inch cast iron cement lined (CICL) water main in Hartwell Avenue and a 10-inch CICL water main in Hartwell Place. The 10-inch water main in Hartwell Place provides domestic and fire protection service to an existing office building and to numerous hydrants located around Hartwell Place and the Site. The Town Engineer, John Livsey, made Nitsch aware that the 12-inch water main in Hartwell Avenue has been recently replaced by a new 16-inch water main. It was noted that the new 16-inch water main has good water pressure and should have sufficient capacity to meet the new buildings water demands. A new domestic and fire protection service will connect to the existing 16-inch water main in Hartwell Avenue.

There is an existing 10-inch asbestos concrete (AC) sewer main located in Hartwell Place and an existing 12-inch AC sewer main located in Hartwell Avenue. The 10-inch sewer flows by gravity in Hartwell Place to the sewer main in Hartwell Avenue where flow is then conveyed from north to south and ultimately to the Massachusetts Water Resources Authority (MWRA) owned Deer Island Sewage Treatment Plant. There are no known deficiencies with the existing sewer mains in and around the project Site. Based on the size and intended use of the building there aren't any capacity concerns. A new sewer service will connect to an existing sewer manhole in Hartwell Place.

We hope the above information is helpful. Please contact us at your convenience if you have any questions or require additional information.

Very truly yours,

Nitsch Engineering, Inc.

Joshua Soares, PE
Project Manager

JMS/mtb

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Mr. Paul Finger
President
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14 Spring Street
Waltham, MA 02451

RE: Nitsch Project #13067
Civil Engineering Services
91 Hartwell Avenue
Lexington, MA

Dear Mr. Finger:

Nitsch Engineering offers the following information regarding the proposed redevelopment project at 91 Hartwell Street (the Project) relative to floodplain conditions. The majority of the development site (the Site) is located within Bordering Land Subject to Flooding (BLSF), i.e., the 100-year floodplain, and within the associated 10-year floodplain. According to the July 6, 2016 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Community Panel Number: 25017C0384F, corresponding FEMA Flood Profile Data, and a topographic survey completed by Precision Land Surveying, Inc., the Site lies within floodplain Zone AE, designated at elevation 118.5 (datum: NAVD88). The associated 10-year floodplain is designated at 117.25.

The Project includes construction of new buildings within the floodplain, representing a loss of floodplain storage volume. Compensatory storage volume is proposed for flood storage volume that will be lost as a result of the Project within the BLSF in accordance with 310 CMR 10.57(4)(a)1. Compensatory storage greater than the filled floodplain volumes is proposed incrementally at 1-FT elevation intervals, up to and including the 100-year flood elevation, and with an unrestricted hydraulic connection to the existing floodplain.

The proposed buildings include a lab/office building and a parking garage. The support structure of the lab/office building will be elevated on concrete piles 1 foot above the BLSF elevation (el. 119.5), and its first-floor elevation will be set at elevation 123.00. The multi-level parking garage will be constructed within the BLSF with its lowest level set at elevation 117.50, slightly above the 10-year floodplain elevation of 117.25. Positioning the lowest level of the garage at this elevation complies with the Lexington Wetland Protection Code prohibition of vehicle parking below the 10-year floodplain elevation.

The area beneath the lab/office building support structure and the area within the lowest level of the parking garage (for the 100 yr event only, and not the 10 yr event) have been designed to allow temporary inundation of flood waters during storm events as part of the strategy to provide compensatory storage volume per 310 CMR 10.57(4)(a)1. During a major storm event, flood water will move beneath the lab/office building and into the parking garage. Following the event, collected flood water will passively recede from these areas.

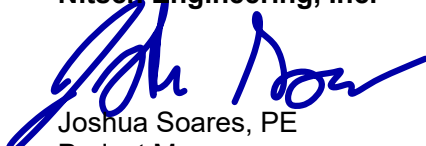
Nitsch Engineering has completed an analysis of the existing and proposed incremental floodplain storage condition at the Site. The analysis included a comparison of existing and proposed digital surface models at 1-foot increments. It is important to note that volumes of structural components within these inundated building areas have been accounted for and removed from the calculated storage volumes at each interval. The analysis indicates that the Project exceeds the performance standards related to the BLSF by providing compensatory flood storage volume in excess of storage volume lost by filling at all elevation intervals. As shown in the table below a total of 2,459 cubic yards of additional flood storage will result from the construction of the Project.

COMPENSATORY FLOOD VOLUME SUMMARY			
Elevation	Existing Incremental Volume (cy)	Proposed Incremental Volume (cy)	Net Incremental Volume (cy)
115.00			
	1,638.1	3,184.0	1,545.8
116.00			
	4,888.9	5,205.4	316.5
117.00			
	7,123.3	7,515.0	391.8
118.00			
	4,239.4	4,444.1	204.7
118.50			
TOTAL	17,889.7	20,348.5	2,458.8

We hope the above information is helpful. Please contact us at your convenience if you have any questions or require additional information.

Very truly yours,

Nitsch Engineering, Inc.



Joshua Soares, PE
 Project Manager



JMS/mtb