

840-846 Massachusetts Avenue & 17 Newman Way – Nitsch Project #16710

Civil Infrastructure Impact Narrative

December 4, 2025

Nitsch Engineering has prepared this memo to discuss the impacts of the proposed project on the sewer, water, and storm drainage municipal systems. The project consists of the construction of a 6-story building on an existing parcel adjacent to the existing building at 840 Massachusetts Avenue which is to remain, and the demolition of an existing 2-family structure and the construction of a 3-story building at 17 Newman Way, and associated site improvements in the public way sidewalk and private site. Both newly constructed buildings will be used for housing, with first floor commercial/office space in the 6-story building.

Sanitary Sewer

The existing 840 Mass Ave site is currently comprised of a residential building which contains 26 bedrooms. The existing 17 Newman Way site is currently comprised of a two-family building which contains 6 bedrooms.

A breakdown of both site's existing sanitary sewer flow rates is as follows:

Existing Sanitary Sewer Flows for 840 Mass Ave (per 310 CMR 15.203)

Use	Unit Sewer Flow Rate (gpd)	Size	Existing Sewer Flow Rate (gpd)
Existing Residential	110 (per bedroom)	26 bedrooms	2,860
Total			2,860

Existing Sanitary Sewer Flows for 17 Newman Way (per 310 CMR 15.203)

Use	Unit Sewer Flow Rate (gpd)	Size	Existing Sewer Flow Rate (gpd)
Existing Residential	110 (per bedroom)	6 bedrooms	660
Total			660

Total for Both Sites			3,520 gpd
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The project proposes the construction of another building on the 840 Mass Ave site, which will contain first floor commercial/office space and an additional 45 bedrooms within the proposed 6 floors. The project proposes demolishing the existing building on 17 Newman Way and constructing a 3-story building with 26 bedrooms. The sanitary sewage from the proposed buildings will be collected in new onsite sewer infrastructure and discharged into the existing 12-inch sewer main in Massachusetts Avenue.

A breakdown of both site's proposed sanitary sewer design flow rates are as follows:

Proposed Sanitary Sewer Flows for 840 Mass Ave (per 310 CMR 15.203)

Use	Unit Sewer Flow Rate (gpd)	Size	Proposed Sewer Flow Rate (gpd)
Existing Residential	110 (per bedroom)	26 bedrooms	2,860
Residential Occupancy	110 (per bedroom)	45 bedrooms	4,950
Commercial/Office Space	75 (per 1000 sf)	1,838 square feet	138
Total			7,948

Proposed Sanitary Sewer Flows for 17 Newman Way (per 310 CMR 15.203)

Use	Unit Sewer Flow Rate (gpd)	Size	Proposed Sewer Flow Rate (gpd)
Residential Occupancy	110 (per bedroom)	26 bedrooms	2,860
Total			2,860

Total for Both Sites			10,808 gpd
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Typically, per 314 CMR 12.00, municipalities require Inflow and Infiltration Mitigation if a project increases the flow to the Town's infrastructure by more than 15,000 gallons per day. Per the calculations above, the proposed project would result in an increase of 7,288 gallons per day, which is under this I/I threshold.

Domestic Water and Fire Protection Service

The Project's water demand estimate for domestic services is based on the Project's estimated sewage generation, described above. A conservative factor of 1.1 (10%) is applied to the estimated average daily wastewater flows calculated with 310 CMR 15.203 values to account for consumption, system losses and other usages to estimate the average daily water demand. The Project's estimated increase in domestic water demand for the new building at 840 Mass Ave is estimated to be 5,597 gallons per day and for the new building on 17 Newman Way is estimated to be 3,146 gallons per day. The project will propose new domestic and fire protection services that connect to the Town water mains in Massachusetts Avenue (existing 12-inch main) and/or Newman Way (existing 6-inch main) in accordance with the Arlington Water Department regulations and requirements. All water service connections will be fully coordinated with the Town Water Department.

Proposed Water Demands

Use	Proposed Sewer Flow Rate (gpd)	Multiplier	Proposed Water Demand (gpd)
New Building at 840 Mass Avenue	4,950+138 = 5,088	1.1	5,597
New Building at 17 Newman Way	2,860	1.1	3,146
Total			8,743

A hydrant flow test will need to be completed to determine pressure in the existing water main. The fire protection system design will be coordinated with the Town Fire Chief.

Stormwater/Drainage

The project will be required to provide mitigation of stormwater runoff from the project site as required by the Town requirements (rate reduction and water quality treatment) per the MassDEP Stormwater Standards and MS4 requirements. Mitigation in the form of bioretention basins, subsurface infiltration systems, proprietary water quality units, and pervious pavements/pavers will be explored. The Project will be designed using environmentally-sensitive site design and LID techniques where possible. This design intent prevents the generation of stormwater and non-point source pollution by considering porous surfaces in place of impervious surfaces, disconnecting flow paths, treating and infiltrating stormwater at its source, planting native vegetation, and protecting natural processes. Stormwater systems will be designed to model natural hydrologic features, including promoting infiltration throughout the site. Overflow from the stormwater management system on-site will connect into the 12-inch drainage main in Massachusetts Avenue.

A Long-Term Pollution Prevention and Operations and Maintenance Plan will be provided to ensure the maintenance of the stormwater management system so that it will function as designed.