



City of Cambridge
Department of Public Works

Owen O'Riordan, Commissioner

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December 12, 2016

TO: Planning Board

FROM: Katherine F. Watkins, PE
City Engineer

RE: MXD Infill Development Concept Plan

We are in receipt of the Infill Development Concept Plan Special Permit materials for MXD Infill Development, dated August 9, 2016, and the Revisions, Dated November 10, 2016, submitted by Boston Properties Limited Partnership. We have reviewed the materials and have presented below some comments related to the interests of the Department of Public Works.

Generally, based on the provided documentation and concept level narratives, the DPW does not anticipate the project having any issue meeting all of the requirements of our Department. The DPW has also met with the Applicant, Boston Properties, and their consultants to review the proposal for the proposed infill project. The Applicant's team have demonstrated an understanding our Department's requirements for developments and have continuously expressed willingness to work with the DPW to meet the requirements and to address our concerns.

As the project is further advanced, DPW will work with the applicant to ensure that the requirements noted below are addressed. Formal complete engineering review will be undertaken by the DPW at each phase of the development, at the time of the Building Permit Application, to confirm that all DPW Standards have been met.

Project Phasing and Construction:

- For multi building phased development projects, like the proposed MXD Infill Development, the DPW would support creative design solutions to help the infill project meet the standards of the DPW. Opportunities for shared utility infrastructure, or over compensation on one phase to support a deficiency on another would be considered provided that:
 - Upon completion of the entire MXD Infill build-out all DPW standards have been met.
 - Phased construction be sequenced in a manner that has all DPW standards met at the completion of each phase of the project. Potentially requiring utility work to be completed in advance of occupancy of some of the buildings that the infrastructure will support.

- The DPW respectfully requests that the Applicant consider construction logistics and operations of each phase of the project early in the design development. Redevelopment and infill projects can be significantly impactful to the abutting properties and rights-of-way. Considerations in this busy neighborhood will need to be made to minimize the impacts to the greater community including all modes of transportation (vehicles, bikes and pedestrians), street trees, and adjacent buildings and operations. The Applicant has acknowledged this requirement in the submission materials.

Public Infrastructure:

- As the development progresses through the Design Review and Building Permit process, we will review the site and utility design related to DPW standards and requirements. The DPW reserves the right to establish appropriate mitigation measures, related to impacts to public utility infrastructure and the public right of way (streets and sidewalks), throughout the process as the design presents the full scope of these impacts. These may include vibration monitoring; deflection monitoring of existing utilities; pre and post construction videoing; and resident engineering services on the City's behalf, depending on the phasing of the projects.
- All proposed work in the Public Right of Way, including subsurface utilities and street and sidewalk surface work, shall be constructed to meet City Standards. This includes materials and construction quality.
- The proposed buildings will be constructed to the property line; which will require the use of the public right-of-way for an extended duration to facilitate construction. In addition to standard permit fees, the Applicant will be required to reconstruct the streets and sidewalks impacted by construction. For example the building at 145 Broadway will require the use of both Galileo Galilei Way and Broadway frontage. The Applicant will be required to repave both streets and reconstruct the sidewalks. The exact limits will be determined during the Design Review and Building Permit process, but will include at a minimum the length used for construction staging and transitions.
- The Applicant has indicated a number of street trees to be removed, including significant London Plane trees on Galileo Galilei Way, which are indicated as being in good condition. A tree removal hearing for significant street trees that are in good condition solely to facilitate construction is unlikely to be successful. The Applicant must coordinate with the City Arborist and the Engineering Division to significantly reduce the proposed impacts on healthy street trees.
- The Applicant shall coordinate all water services and connections with the Cambridge Water Department.

Stormwater Management:

- Under the City Land Disturbance Regulations, the Applicant will need to obtain a Stormwater Control Permit from the Department of Public Works, prior to the start of construction of each phase. The permit requirements cover the design standards and long term operation and maintenance of a management system for the project site, as well as the construction phase erosion and sedimentation control plans. The permit requirements also include the standard to mitigate the stormwater runoff from the site from the proposed 25-year storm to a rate below the pre-redevelopment 2-year storm event. The Applicant has acknowledged this requirement in the submission materials.
- The project is located within the Charles River Watershed for which a Total Maximum Daily Load (TMDL) has been established for Phosphorous, the pollutant of concern. In response to the TMDL the City requires that projects within the watershed treat stormwater to reduce the Phosphorous load by 65% from the existing condition. The Applicant has acknowledged this requirement in the submission materials.
- The Applicant indicates that to meet the above stormwater standards, the design will rely heavily on the infiltration of stormwater for both quality and quantity mitigation. The DPW supports the use of infiltration but will require a detailed engineering review of the infiltration systems and the suitability of conditions at each proposed location to support the systems, at the time of Stormwater Control Permit Submissions.

Sanitary Sewer:

- The Applicant presents an estimated sewer flow generation of 134,973 gallons per day from the full development buildout. This is a net increase of 124,368 gallons per day from the existing design flows to the system under pre-redevelopment conditions. In order to understand the impact that the added flow will have on the capacity of the City infrastructure, the Applicant should anticipate undertaking a capacity study, which includes a metering program, to evaluate current flow conditions in the system. The DPW will work with the Applicant to determine the scope of the study and the specific information that should be evaluated. The Applicant has acknowledged this requirement in the submission materials.
- The proposed sewer flow is tributary to the City's combined sewer system and therefore will be required to provide mitigation for the additional flow by reducing the inflow and infiltration (I&I) into the system at rate of 4:1. Based on the estimated flows presented, the I&I removal requirement is estimated at 497,472 gallons per day. The Applicant acknowledges this requirement in the Application

Materials. The DPW will work with the Applicant to evaluate opportunities to address this mitigation requirement.

- The project is proposing a sewer connection to a combined system that is prone to surcharging. To provide building occupants with uninterrupted sewer service in instances of a surcharged system the City requires that a storage tank be provided with the capacity to detain the peak 8 hours of flow from the site. The Applicant acknowledges this requirement in the submission materials. The DPW will work with the applicant on the design and operating procedures for this piece of infrastructure.

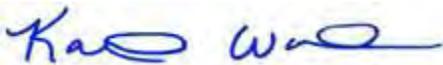
Climate Change and Resiliency:

- The project area has been identified in the November 2015 *Climate Change Vulnerability Assessment* as an area that can expect to see an increase in the inland flooding as a result of Climate Change. Projects located in these areas should be considering long term resiliency of the development. The Applicant will be required to provide information related to the following:
 - a. How the development has been designed to mitigate the potential for impact to the site from surface flooding to the anticipated 2030 100-year storm-event flood depths.
 - b. How the development will recover from a surface flooding event consistent with the potential 2070 100-year storm-event flood depths.

The Applicant had been provided the preliminary anticipated flood elevations for the projects sites and has acknowledged the requirements above in the Application Materials.

We look forward to working with Boston Properties and other City Departments on this project. Please feel free to contact me with any questions or concerns related to the comments or information provided above.

Sincerely,

A handwritten signature in blue ink, appearing to read "Katherine F. Watkins".

Katherine F. Watkins, P.E.
City Engineer