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MEMORANDUM

To: Michael Gleba, Jennifer Caira – City of Newton

From: Janet Carter Bernardo, PE, Hannah Carlson, RLA, and Jon Ford, PE

Date: March 10, 2020

Re: Dunstan East 40B Peer Review

The intent of this memorandum is to provide the City of Newton with a peer review of the Dunstan East open space and building massing, sustainability report, and stormwater mitigation. The Applicant is proposing to develop a three-building mixed-use residential and retail area along Washington Street in Newton, Massachusetts.

The existing site is mostly impervious, and is occupied by eleven buildings ranging in footprints from approximately 1,000 square feet (sf) to 16,000 sf. The Project Site is located on 3.4-acres of land with a portion consisting of Bordering Land Subject to Flooding (BLSF). Presently, stormwater is collected by catch basins throughout Kempton Place, Dunstan Street, and Brook Street and is discharged into Cheesecake Brook via a closed drainage system.

The Applicant proposes to demolish all but one existing building, and to construct three mixed-use buildings with footprints of approximately 13,000 sf to 15,000 sf. The proposed development as designed will result in a decrease of roughly 8,900 sf of impervious cover, and therefore qualifies as a redevelopment under the Massachusetts Stormwater Management Standards as detailed in the Massachusetts Stormwater Handbook (MSH). The Applicant proposes to install a new drainage network of catch basins and manholes along Kempton Place and Brook Street. Roof drains are proposed to discharge directly into the closed drainage network, and a sand filter system is proposed to filter ½ inch of runoff prior to discharging into the municipal system on Dunstan Street which discharges into Cheesecake Brook.

HW has received the following documents:

- Application for a Comprehensive Permit, Dunstan East, Newton, MA, submitted to Mass Housing Finance Agency in July 2019;
- Transportation Impact and Access Study, The Dunstan Residences West Newton Development, Newton, MA, prepared by VHB in November 2019;
- Stormwater Report, Dunstan East Mixed-Use Redevelopment, Washington Street, Newton, MA, prepared by VHB on November 26, 2019;

- Presentation to Newton Zoning Board of Appeals, Dunstan East, prepared by Mark Development, presented on January 22, 2020;
- Application to Newton Zoning Board of Appeals for Comprehensive Permit, Dunstan East, Newton, MA;
- Existing Conditions Plan, Dunstan East, Newton, MA, prepared by Mark Investment, Inc. and Control Point Associates, Inc. on June 19, 2017; and
- Civil and Architectural Plans, Dunstan East, Washington Street, West Newton, MA, prepared by VHB and Elkus Manfredi Architects on November 25, 2019, which includes:
    - Legend and General Notes — Sheet C-1.0
    - Site Plan — Sheet C-2.0
    - Grading and Drainage Plan — Sheet C-3.0
    - Utility Plan — Sheet C-4.0
    - Site Details 1 — Sheet C-5.1
    - Site Details 2 — Sheet C-5.2
    - Site Details 3 — Sheet C-5.3
    - Site Materials — L-1.1
    - Existing Site Layout Plan — A001
    - Buildings 1, 2, and 3, Level P2 — A120
    - Buildings 1, 2, and 3, Level P1 — A-121
    - Buildings 1, 2, and 3, Level 1 — A122
    - Buildings 1, 2, and 3, Level 2 — A123
    - Buildings 1, 2, and 3, Level 3 — A124
    - Buildings 1, 2, and 3, Level 4 — A125
    - Buildings 1, 2, and 3, Level 5 — A126
    - Buildings 1, 2, and 3, Level 6 — A127
    - Buildings 1, 2, and 3, Roof Plan — A128
    - Buildings 1 and 2, Elevations — A203
    - Buildings 1 and 2, Elevations — A204
    - Building 3, Elevations — A205
    - Building Sections — A203
    - Existing Conditions — Sheet 1 of 5
    - Existing Conditions — Sheet 2 of 5
    - Existing Conditions — Sheet 3 of 5
    - Existing Conditions — Sheet 4 of 5
    - Existing Conditions — Sheet 5 of 5

HW also met with the Applicant and representatives of their design team to review the design on March 2, 2020. HW has the following comments and recommendations:

General

1. The current neighborhood scale and character varies. The project location is east of the historic West Newton village core, within a quarter-mile (5-minute walk) of the intersection of Washington Street with Watertown Street. The immediate project vicinity generally is comprised of light industrial, retail, and automobile commercial with

dispersed urban form. North of the site, there is a change in character across Cheesecake Brook to the adjacent residential neighborhood. The Massachusetts Turnpike is located across Washington Street to the south.

2. The Washington Street Vision Plan identifies the project location as part of an extension of the West Newton village center. The proposed site framework is generally consistent with the Plan vision, with new street connections providing smaller blocks and increased porosity, village-scale buildings fronting Washington Street, a publicly accessible internal block courtyard, and step down in scale from Washington Street towards Cheesecake Brook.
3. The Washington Street Vision Plan Height Principles Diagram identifies the project site as "Medium Heights – Village Character (3 to 6 stories)." The proposed plan is generally consistent with the overall building heights. Additional comments are provided on the following pages regarding more detailed review of massing and scale.
4. Portions of the proposed site are within 100 feet of Cheesecake Brook, which is classified as a Riverine Wetland System according to the US Fish and Wildlife Service National Wetlands Inventory. The Applicant has not indicated the presence of any wetlands. HW recommends that the Applicant clearly document the applicable wetland resource area present including Riverfront Area, bank, and BLSF as well as any buffer zones associated with the resource area.

Open Space, Building Placement and Massing

5. The proposed site framework, especially adding Brook Drive as an extension of Kempton Place, succeeds in breaking up the existing megablock to increase permeability through the site and provide better public access to Cheesecake Brook. This approach is consistent with the Washington Street Vision Plan principles.
6. The design of the proposed landscaped area north of Building 3 adjacent to Cheesecake Brook may complicate a future extension of Brook Drive along Cheesecake Brook to the east with an eventual connection to Cross Street as shown in previous drafts of the Vision Plan (for example, 4.22.19 draft, page 111). The proposed design for the Building 3 landscape area provides compensatory flood storage, which may make it difficult to extend Brook Drive in the future (if desired). HW recommends that the future street extension to the east of Brook Drive, or possibly a pedestrian/bicycle trail, be considered. HW recommends traffic/transportation peer review provide input related to the possible Brook Drive extension.
7. Building 1 and Building 2 massing steps down in scale from Washington Street to Brook Drive. The street grade at Brook Drive is approximately one story lower than the grade at Washington Street, which should help the feeling of scale transition from Washington Street to residential neighborhoods to the north. As proposed, Building 1 appears to transition from 7 stories to 4 stories on Dunstan Street within 20-25 feet of Brook Drive. A more gradual transition in scale from Washington Street to Brook Drive might better meet the City's vision. More information should be provided to demonstrate the

proposed condition at pedestrian level on Dunstan Street as well as the calculation of building heights relative to grade.

8. Compared to Buildings 1 and 2, the location of Building 3 appears to be better suited to the proposed density/scale and not as sensitive to the transition to the neighborhoods north of Cheesecake Brook that is necessary for Dunstan Street.
9. The garage entries from Kempton Place to Building 2 and Building 3 are not aligned. Based on preliminary review of the proposed layout HW does not have an objection to the proposed configuration. HW recommends traffic/transportation peer review provide input related to the proposed alignment and garage access.
10. Pick up/drop off locations are proposed on Washington Street and Kempton Place. More information is required to review the approach to pick up and drop off, especially at Building 3. Pick up and drop off areas should be provided at an intuitive location for each proposed building without blocking vehicular travel lanes.
11. The intent for the Building 3 rear common space and for proposed access to Building 3 from Washington Street east of the existing building to remain (Eastern Insurance) should be clarified.
12. HW recommends that flood plain elevations be added to the building cross sections to clearly review proposed first floor elevations relative to the flood plain elevation for various frequency events.
13. Brook Drive appears to be proposed as a flush shared street condition. HW supports this approach for traffic calming and also to help knit the proposed development and pedestrian connections to Cheesecake Brook. More information is needed to adequately review the proposed street design in conjunction with proposed sidewalk widths, Cheesecake Brook bank restoration, and a proposed linear park in this location.
14. The Applicant has not provided a shadow study. HW recommends that the Applicant provide this for review.
15. HW recommends that the Applicant provide additional information to clarify the division of the space and intended users and programs for the interior courtyard between Buildings 1 and 2, including cross sections. Additional information should also be provided regarding the elevator connection between the courtyard and Brook Drive if it is going to serve as part of the publicly accessible path of travel.
16. HW recommends that the Applicant provide cross sections for all streets (showing horizontal and vertical relationship to existing/proposed buildings on both sides) in order to convey the proposed public realm and scale/character fit with the surrounding neighborhoods.
17. HW recommends that the Applicant select trees with larger height and canopy at maturity to help soften the building edges, and design the sidewalks and tree systems to provide appropriate soil volume.

18. Building 2 includes ground floor parking on Dunstan Place, opposite the proposed residential space at ground level in Building 3. More information is needed to review this area and impact on the streetscape.
19. The Kempton Place streetscape would be improved by maximizing the number of street trees. HW recommends that the Applicant consider additional trees in front of Building 3 and potentially in front of Building 2.
20. While bike storage and racks are provided, it is not clear how bicyclist mobility and safety is addressed on Brook Street and Kempton Place. HW recommends that the Petitioner provide more detail regarding the approach to bicycle connectivity through the site and connecting to adjacent streets and neighborhoods.
21. More information is needed to clarify the intent for service, deliveries, trash/recycling, and loading for all three buildings.
22. HW recommends that the Applicant clarify who will be responsible for maintenance of the open spaces and landscaping. HW recommends that the Applicant communicate with the future maintenance entity to ensure that the materials, furnishings, and landscaping choices fall under the umbrella of their capabilities and potential scope of work.
23. As the design progresses, the proposed Washington Street pedestrian realm should be carefully coordinated with City improvements to Washington Street, including potential for curb bump-outs and green infrastructure.

Lighting

24. The Applicant has not provided a site lighting or photometrics plan. HW recommends that the Applicant provide these for review.

Sustainability

25. Proposed mixed-use development in this location is consistent with the City's objectives to encourage walkable, mixed-use village redevelopment in close proximity to transit and reduce single occupancy vehicle trips. HW assumes transportation peer review will provide comment regarding parking requirements in this regard.

26. The project appears to propose a reduction in impervious area, addition of trees and landscaped areas, and an improvement in water quality treatment on the currently highly impervious site. The site has minimal existing tree cover and is currently within a "hot spot" with extreme temperatures as defined by the City Climate Action Plan. Significant opportunity exists to utilize green infrastructure and resilient building design to reduce heat island effect and extreme heat risks. More detailed drainage and landscape design information will be required as design development continues.

27. Additional information is required to review and verify the stormwater design as noted in following comments.

28. Design to meet the standards of an authorized green building rating system is required per Zoning Section 5.12. Additional information is required for review.

29. EV stations are required for 10% of the project parking spaces and provision of an additional 10% of parking spaces to be EV ready. Additional information is required for review.

30. Will buildings have green roofs and/or be solar or solar-ready? Additional information is required for review.

31. The project is partially located within the 100-year floodplain. Additional information is required to review resiliency. More information is required regarding immediate proposed improvements to Cheesecake Brook and collaboration with the Charles River Watershed Association.

32. Investigation of other opportunities to provide green infrastructure practices consistent with the City's Complete Streets Policy is encouraged.

33. HW recommends more information be provided regarding long-term efforts to support neighborhood groups and advocacy organizations regarding environmental improvements as well as EVs, biking, walking, public transit, and shared transportation.

34. The Hazard Mitigation Plan recommends incorporating more stringent stormwater standards and future precipitation projections. The rainfall depths used in the drainage analysis should be based on NOAA Atlas 14 precipitation depths. Additional information is required for review.

35. Undergrounding utilities will provide resilience to wind and storms and should be required within the site and encouraged for existing Dunstan Street and Kempton Place utilities. Coordinating infrastructure design with resiliency to flooding will be required. More information will be required as part of future design development.

36. We encourage a commitment to conducting embodied carbon analyses as part of the design process, and encourage the selection of materials, products, and wall assemblies that minimize the overall embodied carbon and maximize high thermal performance throughout the project.

Cheesecake Brook

37. The Charles River Watershed Association (CRWA) is working on a project to restore and naturalize Cheesecake Brook. There is an opportunity for this project to remove or step the wall containing Cheesecake Brook on the side of this development. The proposed

landscaping includes a boardwalk and grading to accept flood waters that would work well with a naturalized and restored area brook edge. By bringing the Brook into the site, there are additional educational opportunities to teach about restoration. HW recommends that the Applicant continue to coordinate with CRWA to remove the wall and integrate the Brook into the landscaped areas, as well as coordinate enhancements to the existing 48-inch drainage outfall.

38. The boardwalk maximizes the potential flood storage and restoration planting area. Large wooden boardwalks can be expensive. If needed, an alternative but similarly beneficial solution should be considered in the event the wooden boardwalk gets value-engineered out of the design (alternative materials and/or possible stepping/tiers to the Brook).

39. The Site Materials Plan does not have representative species for the “Naturalized Planting Bed at Brook Edge and Northeast Open Space”. HW recommends that the species be adaptable to varying water levels and to generally use native species in order to enhance ecological communities and increase value for native birds and other wildlife.

40. HW recommends that the Applicant consider planting occasional trees between the boardwalk and the Brook to increase the number of trees planted and help the City’s efforts to improve climate resiliency by adding trees to improve stormwater quality and sequester carbon.

41. For maintenance and longevity, HW recommends that the transition from lawn to naturalized plantings in the northeast corner of the site be indicated or simplified for maintenance and longevity. If the Cheesecake Brook wall is removed or stepped down, then the area could be tiered to make room for lawn versus distinguishable naturalized areas along the water’s edge.

Stormwater Management and Phosphorus Removal

42. The Applicant has not provided Stormwater Analysis or Calculations to verify the performance of the proposed stormwater management system. Although it is a redevelopment project, analysis is necessary to demonstrate that the Water Quality Volume (WQv) or Water Quality Flow (WQF) can be captured by the proposed sand filter system to provide adequate stormwater treatment. HW recommends that the Applicant provide analysis to verify that the WQv or WQF will be routed through the proposed treatment train without bypassing stormwater practices.

43. The Applicant has proposed an open space/flood storage area at the northeast corner of the site (bordering Cheesecake Brook). Based on proposed grading, it appears that the Applicant’s design would increase available 100-year flood storage volume by up to 12,000 cubic feet. However, in accordance with 310 CMR 10.57(4)(a)1. “Compensatory storage shall mean a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of flood water at each elevation up to and including the 100-year flood elevation, which would be displaced by the proposed project.” HW recommends that the Applicant provide a table illustrating the existing and

proposed volumes available for flood storage for elevations 34-39 within the property boundaries.

44. HW has the following comments pertaining to the proposed stormwater sand filter system:
    a. Based on the Sand Filter Sizing Calculations provided by the Applicant, it appears that the sand filter was sized based on a hydraulic conductivity of 20 feet/day. HW recommends that the Applicant revise the sizing of the sand filter using a maximum hydraulic conductivity of 4 feet/day (2 inches/hour) per MSH Volume 2, Chapter 2.
    b. According to the Sand Filter Detail on Site Details 3 (C-5.3), no material is proposed as separation between the sand and gravel layers of the sand filter. HW recommends that the Applicant revise the detail to include a layer of geotextile or filter fabric between the sand and gravel to prevent sand from infiltrating into the gravel or underdrain, per MSH Volume 2, Chapter 2.
    c. Note 7 on the Sand Filter Detail specifies that the bottom of the practice “shall be open to allow for infiltration.” The detail does not appear to have an opening at the bottom of the sand filter system, and a leader calls out that the system has a “close bottom chamber.” HW recommends that the Applicant either revise the detail to appear as an open bottom chamber and conduct a test pit to verify that infiltration is feasible based on the estimated seasonal high groundwater (ESHGW) elevation at the sand filter location, or the Applicant remove Note 7 from the detail.
45. The Applicant has not provided product information for the proposed proprietary Water Quality Structure (WQS). If a specific product is intended for the stormwater management system, HW recommends that the Applicant provide product information from the WQS manufacturer to verify that 70% Total Suspended Solids (TSS) removal can be achieved by a unit and that the WQF is treatable. If no specific product is intended, HW recommends that the Applicant note on the plans the required WQF capacity and TSS removal rate intended for the WQS.
46. The Applicant has specified the pipe diameters for all drainpipes except for the pipe connecting DMH 9 to DMH 7. HW recommends that the Applicant add the diameter of the drainpipe to the Grading and Drainage Plan.
47. The Applicant has proposed several erosion controls in the Erosion and Sedimentation Control Measures section of the Stormwater Report. However, none of the erosion controls are included in the plans, and only catch basin protection is included in the Site Details. HW recommends that the Applicant include all proposed erosion controls in the Site Details and specifically mark the location of erosion controls on the plans.
48. In the Stormwater Operation and Maintenance (O&M) Plan, the Applicant states that catch basins shall be inspected and cleaned on an annual basis. Per MSH Volume 2, Chapter, HW recommends that the Applicant revise the O&M Plan to call for catch basins to be inspected and cleaned four times every year.

49. In the Long-Term Pollution Prevention Plan (LTPPP), the Applicant includes a section on Permeable Paver maintenance. As permeable pavers are not called out in the Civil Plans, HW recommends that the Applicant verify whether permeable pavers are proposed to be used on this project. If they are, HW recommends that a permeable paver detail be added to the Site Details and that the permeable paver areas be noted on the plans.
50. The Applicant has not provided calculations to demonstrate that the proposed drainage network is adequately sized. HW recommends that the Applicant provide calculations to verify that the proposed drainpipes have the capacity to carry flow based on a design storm of 8.78 inches in 24 hours (per Newton Department of Public Works Requirements for On-Site Drainage).
51. HW has the following comments pertaining to the phosphorus removal calculation:
    a. The Applicant has analyzed the phosphorus loading from High Density Residential land uses as having a phosphorus load export rate (PLER) of 1.78 pounds/acre/year. HW recommends that the Applicant revise the loading analysis to use a PLER of 2.32 pounds/acre/year, per Appendix F of the Massachusetts MS4 General Permit.
    b. The Applicant has analyzed the phosphorus removal of the stormwater management system as having a phosphorus removal rate of 98%. HW recommends that the Applicant revise the removal rate to 58.5%, based on the BMP Performance Curve of a Biofiltration practice capturing half an inch of runoff in Appendix F, Attachment 3 of the Massachusetts MS4 General Permit. If a higher depth of runoff is to be used for the load reduction calculation, stormwater analysis should be provided to demonstrate that a greater volume can be captured by the proposed sand filter without bypass.
    c. HW recommends the Applicant revise the Phosphorus Removal Calculations provided in Appendix C of the Stormwater Report. In accordance with the MS4 permit, the City of Newton is required to reduce its phosphorus load to the Charles River by 50%, of which Cheesecake Brook is a tributary. Furthermore, the CRWA prepared a technical report (CN 272.0) for MassDEP, “Total Maximum Daily Load for Nutrients in the Upper/Middle Charles River, Massachusetts”, dated May 2011. The document established targeted percent annual phosphorus load reductions for High Density Residential land uses to be 65%.

Grading and Utilities

52. The Applicant has indicated proposed grading for Kempton Place, Dunstan Street, and Brook Street, as well as the proposed green space/flood storage area. The Grading and Drainage Plan appears to generally follow the existing grading of Kempton Place and Dunstan Street, and roads are proposed at slightly less steep grades. Proposed grading does not extend into the proposed courtyard between Buildings 1 & 2. HW recommends that the Applicant provide proposed contours within the courtyard, including spot grades

for high points and low points. Further, HW recommends that the Applicant provide spot grades for proposed high points and low points on the roads and site features such as walls.

53. Additional grading detail is required to review the grading approach for Dunstan Street, as any street regrading to adjust longitudinal slope will still require meeting existing grade on the west side of the street.
54. Based on the Utility Plan, it appears that the Applicant has proposed water and sewer lines within 5 feet of each other on Kempton Place near the intersection of Kempton and Brook Street. HW recommends that the Applicant revise the Utility Plan to provide a minimum of 10 feet of separation between the water and sewer lines.
55. The Applicant has proposed a number of connections to existing water lines but has not provided details related to water line connections. HW recommends that the Applicant provide a detail of a connection to an existing water line.