Project Memo

H373095

2024-02-14

To: Mr. Ryan Clapp and Mr. David Morgan, Environmental Planner + Conservation Agent

From: Ross Mullen

cc: Duke Bitsko, Rob Kenneally, and Chris Ghormley

Town of Arlington
Thorndike Place Stormwater Review

Thorndike Place Stormwater Review

Executive Summary to the Conservation Commission

After review of the proposed Thorndike Place stormwater site design relative to the Massachusetts Stormwater Handbook, Hatch has determined the project is in compliance with the following conditions:

1. Permanent establishment of vegetation on the south side of the senior living complex prior to runoff from the roof discharging to the wetland and verification of non-erosive velocities of this discharge.
2. Applicant verifies that at least ten feet of separation is provided between the R-Tank^{XD} features and the townhome basement foundations.
3. Review and, if necessary, resubmission of groundwater mounding analysis of the Stormtrap ST1 infiltration feature to demonstrate compliance. Provide a defensible basis for the selected horizontal hydraulic conductivity and duration of infiltration period. Verify adequate separation is provided between the senior living complex and the mounded groundwater table.
4. If the applicant uses asphalt shingles on the townhomes, to manage the loose grit from the shingles:
    a. The roof drains shall remain disconnected from the Stormtrap ST1 infiltration system until after construction is substantially complete and connected prior to occupancy or
    b. The R-Tank^{XD} systems shall be inspected, and loose grit removed prior to occupancy.

Separately from the Massachusetts Stormwater Handbook, our peer review also included review of the project with respect to the floodplain rules within the Code of Federal Regulations (CFR) and stormwater engineering best practices. These comments are

provided to inform the Conservation Commission of the concerns Hatch has with respect to the CFR and stormwater engineering best practices:

- The window of uncertainty based on the determined groundwater elevations is only 0.02-feet for the proposed design to meet Massachusetts Stormwater Handbook Standards 3 and 4. Infiltration within fill soils and proximal to a wetland is atypical for stormwater site design because these soils are typically saturated and not conducive to infiltration.
- The project should be sequenced so as to comply with the Code of Federal Regulations §60.3 and applicable FEMA floodplain regulations, including, if necessary, completion of a LOMR-F and/or seepage analysis to determine the structure is reasonable safe from flooding. As a member community of the National Flood Insurance Program (NFIP), the Town of Arlington is required to follow the regulatory standards of the NFIP.
- As an industry best practice, dry and/or wet flood proofing of the townhome basements should be secondary to good stormwater and drainage design that limits opportunities for surface and groundwater intrusion into structures. Hatch remains very concerned about both the lateral proximity and vertical offset of the infiltration basins to the townhomes and potential for groundwater intrusion into these structures from both the Stormtrap ST1 and R-Tank^{XD} features. The Town of Arlington's Zoning Bylaws§ 5.8.6.A (2), which were subject to comment during the Comprehensive Permit, are based on similar flood prevention principles and require four feet of separation between the seasonal high groundwater elevation and the low floor.

1. Project Overview

The Town of Arlington contracted with Hatch Associates Consultants, Inc. (Hatch) to complete a third-party stormwater review of the proposed Thorndike Place development on December 19, 2023.

1.1 General Information

Project Location: Dorothy Road between Route 2/Concord Turnpike on the south, existing residential neighborhoods to the north and west, and Thorndike Park to the east within the Town of Arlington, Massachusetts.

Project Purpose: Construct a rental and ownership community of 12-multifamily homes within six duplex buildings and a 124-unit senior-living residential apartment building complex. The construction is proposed on a 17.7-acre parcel with 12-acres proposed to be preserved as open space under a Conservation Restriction.

Impaired Waterbodies within 1 Mile of Proposed Project:

- Little River (MA71-21) for Debris, Water Chestnut, Chloride, Copper in Sediment, Dissolved Oxygen, Enterococcus, E. Coli, Flocculant Masses, Lead in Sediment, Odor, Oil and Grease, PCBs in Fish Tissue, Total Phosphorus, Scum/Foam, Transparency/Clarity, and Trash.
- Clay Pit Pond (MA71011): Chlordane in Fish Tissue.
- Black's Nook (MA71005): Water Chestnut, Nutrient/Eutrophication Biological Indicators, and Transparency/Clarity.
- Alewife Brook (MA71-20) for Debris, Water Chestnut, Chloride, Copper in Sediment, Dissolved Oxygen, Enterococcus, E. Coli, Flocculant Masses, Lead in Sediment, Odor, Oil and Grease, PCBs in Fish Tissue, Total Phosphorus, Scum/Foam, Sediment Bioassay, Transparency/Clarity, and Trash.
- Little Pond (MA71024) for Water Chestnut and Harmful Algal Blooms.
- Spy Pond (MA71040) for Curly-leaf pondweed, Eurasian Water Milfoil, Myriophyllum Spicatum, Water Chestnut, Chlordane in Fish Tissue, DDT in Fish tissue, Dissolved Oxygen, Harmful Algal Blooms, and Total Phosphorus.

TMDLs: None (other reaches of Alewife Brook have been included in TMDL studies).

Contact Information:

Contact Information	Applicant	Applicant's Agent
Company Name	Arlington Land Realty, LLC	BSC Group, Inc.
Attention	Peter Mugar	Dominic Rinaldi, PE
Address	116 Huntington Avenue	803 Summer Street

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Phone	617-459-9587	617-896-4386
Email	psmugar@gmail.com	drinaldi@bscgroup.com

Reviewed Submittals:

1. *Thorndike Place Residential Community Notice of Intent Cover Letter*; prepared by Dominic Rinaldi of the BSC Group, Inc. on behalf of Arlington Land Realty, LLC; dated September 6, 2023.
2. *Thorndike Place Residential Community Notice of Intent;* prepared for Arlington Land Realty LLC by BSC Group; submitted to the Town of Arlington Conservation Commission; dated September 2023.
3. *Stormwater Report* Thorndike Place Dorothy Road Arlington, MA; prepared by BSC Group for Arlington Land Realty, LCC November 2020, revised August 2021, revised September 2023; dated September 5, 2023.
4. *Thorndike Place Notice of Intent* drawing package; prepared for Arlington Land Realty, LLC by BSC Group, dated September 6, 2023.

2. Findings

The following are Hatch's findings on the Thorndike Place stormwater site design based on our professional judgement and in accordance with the Massachusetts Stormwater Handbook and Stormwater Standards (2008).

2.1 General Findings

The following are a list of general findings and observations:

- The applicant proposes to develop a 17.7-acre parcel, disturbing 4.02 acres and create 1.81-acres of impervious surfacing, leaving the remainder of the parcel under a Conservation Restriction (approximately 12 acres).

  No response required.

- 5 infiltration systems, one infiltration chamber, and one bioretention basin/rainwater garden are proposed to provide stormwater treatment/management.

  No response required.

- Alewife Brook runs through the southeast corner of this property. The Alewife Brook corridor includes wetlands, Bordering Lands Subject to Flood, Buffer Zone to Bordering Vegetated Wetlands, and FEMA floodplain/floodway.

  [BSC Group Response; January 24, 2024] Alewife Brook is not located on the property, but rather approximately 800-feet southeast of the property. The wetlands

at the southeast corner of the property are hydraulically connected to the Little River/Alewife Brook via three culverts that run underneath Route 2.

[Hatch response; February 7, 2024] Noted, no additional action required.

2.2 Standard 1: Untreated Discharges

No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Hatch completed a review of the design relative to Standard 1; the following is a list of our findings:

- Stormwater runoff from the eastern portion of the senior living building (approximately 14,800 square-feet) is directed to a rip-rap apron that drains to a nearby wetland. The applicant should verify discharge from this roof, during extreme events, will not cause erosion and sedimentation into the wetland.

[BSC Group Response; January 24, 2024] This rip-rap apron has been sized to accommodate the peak flow associated with the 100-year storm from the outlet pipe for this portion of the roof runoff, such that there will be no erosion or scour. Please see Section 6.04 of the Stormwater Report for the rip-rap apron sizing calculations and Sheet C-202 for the detail of Flared End Section w/Stone Protection (Dissipation Bowl). For reference, the roof drain in question utilized flared end FES2.

[Hatch response; February 7, 2024] Based on conversation on February 6, 2024 facilitated by Chuck Tirone between the BSC Group and Hatch, the BSC group will verify that there is not erosion caused by runoff after it has discharged from the riprap apron.

2.3 Standard 2: Peak Rate Control and Flood Prevention

Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for land subject to coastal storm flowage.

Hatch completed a review of the design relative to Standard 2; the following is a list of our findings and recommendations:

- Surficial fill soils were designated as a Hydrologic Soil Group C, and infiltration rates (0.52-inches/hour) were selected to be on the edge of published values for HSG C those soils, based varying composition of sandy loam, fine sandy loam and gravely sandy loam.

  [BSC Group Response; January 24, 2024] No response required.

- FEMA Technical Bulletin 6-93, Below-Grade Parking Requirements for Buildings Located in Special Flood Hazard Areas, clarified FEMA's policy that below grade parking is consistent with their definition of a basement, and that construction of the lowest floor (including basements) below the base flood elevation is prohibited for residential buildings. The FEMA base flood elevation "100-year" is 6.8-feet. As the building is proposed to be used for senior living residences and the proposed floodplain is adjacent to the structure, the proposed underground garage with elevation of 6.0-feet is below the

base flood elevation (plus applicable freeboard and floodway surcharge requirements). Therefore, the proposed garage has a significant flood risk, as identified by FEMA.

[BSC Group Response; January 24, 2024] While the FEMA Technical Bulletin is not specifically applicable to a review under the Wetlands Protection Act and MassDEP's Stormwater Standards, it prohibits "the construction of below-grade parking garages…beneath residential buildings in Zones A1-A30, AE, and AH." Construction of the senior living building includes filling in the portions of the flood plain and, ultimately, altering its limits. The building will be constructed such that it is entirely outside the limits of the 6.8-foot base flood elevation (BFE). Therefore, construction of a garage beneath this building is allowed. A FEMA Elevation Certificate will be prepared for all buildings at the conclusion of construction demonstrating that all buildings are located above BFE. In addition, all below-grade areas in all buildings will be appropriately waterproofed to prevent groundwater intrusion.

[Hatch response; February 7, 2024] The scope of this review was for all facets of stormwater management. Our accepted proposal states that we will review the project based on industry best practices, Wetland Protection Act, and the Massachusetts Stormwater Handbook. Specifically, our accepted proposal also states that we will complete a review as to the Code of Federal Regulations in regards to the floodplain and that will review the FEMA Floodplain/floodway encroachments as well as CLOMR/LOMR/no-rise documents. Further, the Mass.gov webpage lists the Massachusetts Wetland Protection Act as one regulation and practice that is part of floodplain management. As the Town of Arlington participates in the National Flood Insurance Program, it therefore must abide by the applicable rules and regulations stemming from CFR 60.3.

Based on conversation on February 6, 2024 facilitated by Chuck Tirone between the BSC Group and Hatch, fill is being used to raise the existing structure and separate it from the FEMA floodplain .FEMA NFIP Technical Bulletin 10, published in March 2023, "Reasonably Safe from Flooding Requirement for Building on Filled Land" provides guidance on this topic. Our understanding is that the use of any type of fill to remove a building from the Special Flood Hazard Area (SFHA) requires the LOMR-F, instead of a FEMA Elevation Certificate. Further, our understanding is that FEMAs requires the removal of the land from the SFHA before a basement, excavated into fill, is built below the base flood elevation using a LOMR-F process. It is our understanding that the FEMA then also requires a technical analysis showing the basement (garage) is reasonably safe from flooding and the Town of Arlington's designated local floodplain administrator to sign FEMA's Community Acknowledgement Form. The Town of Arlington's continued participation in the National Flood Insurance Program, with the significant benefit of subsidized flood insurance to its residents, requires it to comply with federal standards.

- The proposed basement elevations of the townhomes (elevation 3.0-feet) are 3.8-feet below the FEMA 100-year flood elevation of 6.8-feet. The proposed separation between these structures appears to be as little as 115-feet. A groundwater mounding analysis of the regional flood along Alewife Brook should be assessed to verify that groundwater intrusion from flooding along the watercourse does not impact the basements of the

townhome structures. Note this is distinct from the completed groundwater mounding analysis of the infiltration basins.

[BSC Group Response; January 24, 2024] A mounding analysis of the regional flood along Alewife Brook is not a requirement under the Wetlands Protection Act and potential basement groundwater intrusion does not fall under the WPA jurisdiction. Additionally, as referenced in our response above, the proposed site work will result in all buildings being located outside the FEMA 100-year BFE and below-grade areas in all buildings will be appropriately waterproofed to prevent groundwater intrusion.

[Hatch response; February 7, 2024] This is a preference comment and can be considered closed.

- Proposed ACF R-Tank^{XD} s between the townhome units are nearly adjacent to the foundations of these structures with basements. The bottom of the chambers of these units are proposed to be at 6.0-feet (with bottom of stone at 5.67-feet), with the basement elevation of the adjacent townhomes at 3.0-feet. When these basins are filled with stormwater runoff, seepage will likely occur adjacent to the basement foundation wall, which will act as a preferential flow path (planar surface) with least resistance downward. Groundwater intrusion flood risk and seepage from these infiltration systems represents a concerning flood risk.

  [BSC Group Response; January 24, 2024] See previous response to comments regarding waterproofing of buildings.

  [Hatch response; February 7, 2024] No further action, the comment may be considered closed. Additional discussion on separation between groundwater elevation and basements is included in the subsequent bullet.

- Test Pit #1 (2023), located at the proposed ACF R-Tank^{XD} between the westernmost two townhome units, measured a point-in-time groundwater elevation of 1.5-feet, while the proposed basement elevations are at 3.0-feet. The Town of Arlington Zoning bylaws Section 5.8.6.A (2) state that for sites within an Inland Wetland District, at least 4.0-feet of separation should be provided between the floor of occupied levels and the seasonal high-water table.

  [BSC Group Response; January 24, 2024] As mentioned in previous comments, the basements of the buildings will be waterproofed to prevent intrusion of groundwater. We also note that project was reviewed and permitted as to local regulations in effect at the date of submittal of the Comprehensive Permit application. This comment references a more recent version of the Zoning Bylaws, and further is not relevant to the stormwater review under the Wetlands Protection Act.

  [Hatch response; February 7, 2024] Based on conversation on February 6, 2024 facilitated by Chuck Tirone between the BSC Group and Hatch, we understand that the Comprehensive Permit application was completed and the basement elevations approved prior to this stormwater peer review. The comment may be considered closed.

As a best practice, FEMA advises against construction of basements below the FEMA flood elevation (see Technical Bulletin #10 above) and established groundwater tables as these structures may be prone to damage by hydrostatic pressures and/or groundwater seepage. and note that construction.

A point of clarification, during the site visit, Hatch staff were informed that groundwater elevations were based on readings from "monitoring locations". We now understand that the groundwater elevations are based on redox methods. As the margin for error is so close between the groundwater elevations and 1. The basement elevations and the seasonal high groundwater table and 2. The required separation between the infiltration feature bottoms and the seasonal high groundwater table, it is incumbent on the Hatch team to thoroughly review the established groundwater elevations as well as any discrepancies.

- Test Pits #2 and #4 pose similar challenges between the proposed basement elevation (3.0-feet) and insufficient separation to the groundwater table, located at 0.8 and 1.5-feet. respectively.

  [BSC Group Response; January 24, 2024] See response to above comments.

  [Hatch response; February 7, 2024] No further action, the comment may be considered closed. Additional discussion on separation between groundwater elevation and basements is included in the previous bullet.

- Test Pits #3 and #5 (2023) measured a point-in-time groundwater elevations (3.5 and 4.0-feet, respectively) above the proposed basement elevations of adjacent townhomes (3.0-feet).

  [BSC Group Response; January 24, 2024] See response to above comments.

  [Hatch response; February 7, 2024] No further action, the comment may be considered closed. Additional discussion on separation between groundwater elevation and basements is included in the bullet two above.

- Note that the seasonal high groundwater table may be higher than the 2023 point-in-time measurements and increase flood risk. Additionally, construction of a sump pump system, to mitigate flooding/groundwater intrusion, at any of these residences could lower the regional groundwater table.

[BSC Group Response; January 24, 2024] See response to above comments regarding waterproofing of basement areas. Use of or need for sump pumps has not yet been determined. Should sump pumps be proposed, they will be included in final plans and building permit plans submitted in accordance with the Comprehensive Permit for the Project.

[Hatch response; February 7, 2024] No further action. Comment may be considered closed.

2.4 Standard 3: Recharge to Ground Water

Loss of annual recharge to ground water shall be eliminated or minimized through the use of infiltration measures, including environmentally sensitive site design, low impact development

techniques, best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from the pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Hatch reviewed the proposed infiltration systems for Standard 3: Recharge to Ground Water, below are our findings and recommendations:

- Test Pits #7 and #8 (2023) measured point-in-time groundwater elevations of 0.5 and 2.2, respectively. These test pits lie beneath the proposed Stormtrap infiltration system with a proposed bottom elevation of 6.0-feet. Massachusetts Stormwater guidelines state that at least two feet of separation shall be provided between the *seasonal high groundwater elevation* and the bottom of an infiltration structure. Based on our understanding from the site visit, the 2023 groundwater elevations were collected in May. We recommend collection of additional groundwater information, especially during the spring, to verify this standard is met.

  [BSC Group Response; January 24, 2024] The highest estimated groundwater elevation on site was found to be 3.98 and was based on the highest observed redoxomorphic features in the soil, which were found in Test Pit #5. All infiltration systems on site were designed with a bottom elevation of 6.0 to provide a minimum of 2-feet of separation to this estimated seasonal high groundwater elevation (ESHGW). The test pits were conducted in Spring (May) of 2023 in coordination with the Town of Arlington Engineering and Conservation Departments and accepted practice under the Wetlands Protection Act, and consistent with the groundwater testing window set out within the Comprehensive Permit. It has been confirmed from USGS that streamflow conditions were within the normal range and that there were not drought conditions in this area at that time. Test pit logs and groundwater elevations can be found in the Stormwater Report. Locations of test pits are shown on the Site Grading and Drainage Plan.

  [Hatch response; February 7, 2024] The groundwater of the Stormtrap ST1 infiltration device should be reviewed. Based on simplified methods, Hatch expects approximately 2-3 feet of groundwater mounding beneath this basin for the design storms.

- Additional comments regarding groundwater connectivity, infiltration, and recharge can be found in the section of this review on Standard 2.

No response required.

2.5 Standard 4: 80% TSS Removal

Stormwater management systems must be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:

- *Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan and thereafter are implemented and maintained.*

- *Stormwater BMPs are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and*
- *Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.*

Hatch reviewed the proposed infiltration systems for Standard 4, below are our findings and recommendations:

- Point-in-time groundwater measurements were provided for review and incorporated into the design to provide at least 2-feet of separation between the bottom of the infiltration structure and the ground water table. The applicant should provide and review the *seasonal high groundwater elevation*, as is required by the Massachusetts Stormwater Handbook, to determine if adequate separation between the groundwater table and the structures is available.

  [BSC Group Response; January 24, 2024] Please see above comments relating to the determination of the estimated seasonal high groundwater elevation and the elevations that were used for the infiltration systems. The Massachusetts Stormwater Handbook notes in Volume 3, Chapter 1 that "Depth to seasonal high groundwater may be identified based on redox features in the soil." Where redox features were found to be higher than the observed groundwater in the test pit, the elevation of the redox features was taken to be the estimated seasonal high groundwater elevation to ensure that suitable separation to infiltration practices was provided. Test pit logs and groundwater elevations can be found in the Stormwater Report.

  [Hatch response; February 7, 2024] No further comment, this comment may be considered closed. Additional discussion regarding the type of groundwater measurements is included in Section 2 section.

  - Near the existing wetlands, the lowest surveyed elevation shown in the drawings is 3.0-feet. The water surface elevation of the wetland should correlate to the groundwater elevations observed in the test pits. The measured groundwater table varies locally by as much as 4.5-feet between measurements, which is concerning for infiltration as a stormwater management strategy.

    [BSC Group Response; January 24, 2024] While the measurements of the groundwater table varied in elevation across the site, the highest estimated seasonal groundwater elevation (3.98) was used for the conservative design of all of the infiltration systems. This ensures that 2-feet of separation to groundwater will be provided at a minimum across the site. This elevation corresponds well to elevations at the bordering vegetated wetlands (BVW) and observed conditions in the BVW.

    [Hatch response; February 7, 2024] No further comment. The comment may be considered closed.

- Infiltration as a stormwater practice is challenging for many stormwater site designs near wetlands due to high groundwater tables. Therefore, establishing the seasonal high groundwater table is extremely important.

  [BSC Group Response; January 24, 2024] As noted in previous comments, the estimated high seasonal groundwater elevations were determined in accordance with the Massachusetts Stormwater Handbook.

  [Hatch response; February 7, 2024] No further comment. The comment may be considered closed.

- The water surface elevation and regulatory water levels of the wetland should be labeled on the plans and in the Stormwater report.

[BSC Group Response; January 24, 2024] This information is not required under the Wetlands Protection Act and does not provide any discernable value to determining groundwater elevations. In addition, the term "regulatory water levels of the wetland" are not defined or included in the Wetlands Protection Act, so it is not clear what would be noted on the plans. As noted in responses above, groundwater elevations were determined in accordance with the requirements of the Stormwater Handbook in the Spring of 2023, and the most conservative value found was utilized for all infiltration systems on site.

[Hatch response; February 7, 2024] No further comment. The comment may be considered closed.

2.6 Standard 5: Higher Potential Pollutant Loads (HPPL)

For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific stormwater BMPs determined by the Department to be suitable for such use as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

We concur with the applicant's stormwater report that Standard 5 is not applicable to the project site as the site use is not consistent with a land use with higher potential pollutant load (LUHPPL).

[BSC Group Response; January 24, 2024] No response required.

2.7 Standard 6: Critical Areas

Stormwater discharges to a Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or any other critical area require the use of the specific source control and pollution prevention measures and the specific stormwater best

management practices determined by the Department to be suitable for managing discharges to such area, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters or Special Resource Waters shall be set back from the receiving water and receive the highest and best practical method of treatment. A "stormwater discharge," as defined in 314 CMR 3.04(2)(a)1. or (b), to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of the public water supply.

The Massachusetts DEP has not identified the project site as a(n):

- Outstanding Resource Water,
- Public water supply (Zone Is, Zone IIs and Interim Wellhead Protection),
- Bathing beach,
- Cold-water fishery, or a
- Shellfish growing area.

We concur with the applicant's stormwater report that Standard 6 is not applicable to the project site.

[BSC Group Response; January 24, 2024] No response required.

2.8 Standard 7: Redevelopment Projects

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

We concur with the applicant's stormwater report that Standard 7 is not applicable to the project site as the project is a new development.

[BSC Group Response; January 24, 2024] No response required.

2.9 Standard 8: Erosion, Sediment Control

A plan to control construction-related impacts, including erosion sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan), must be developed and implemented.

Hatch completed a review of the construction drawings, including applicable notes, SWPPP sheet, and Section 3 of the Stormwater Report in accordance with the *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Area*s. Based on our review, we recommend the following:

- Street cleaning, such as street sweeping or shoveling, should be included to periodically to remove sediment that may have been tracked out of the project site, beyond the

construction access. Street cleaning will be especially important following the saw cuts on Dorothy Road.

[BSC Group Response; January 24, 2024] The Construction Period Pollution Prevention Plan included in the Stormwater Report has been revised to include street cleaning at the end of each day as a requirement during construction.

[Hatch response; February 7, 2024] This comment is considered closed.

2.10 Standard 9: Operation and Maintenance Plan

A long-term operation and maintenance plan must be developed and implemented to ensure that stormwater management systems function as designed.

Hatch completed a review of the Operation and Maintenance Plan; based on our review, we recommend the following:

- Per Massachusetts Stormwater Standards, an estimate of the annual O&M budget shall be provided in Section 4.0 *Long-Term Pollution Prevention & Operation and Maintenance Plan* of the Stormwater Report.

  [BSC Group Response; January 24, 2024] An estimated O&M budget has been added to the Long-Term Pollution Prevention and Operation and Maintenance Plan included in the Stormwater Report.

  [Hatch response; February 7, 2024] This comment is considered closed.

- If using asphalt shingles on the townhomes, the loose grit be collected and disposed of, following construction, and prior to 6" roof drains being connected to infiltration basin.

  [BSC Group Response; January 24, 2024] A note has been added to the Construction Period Pollution Prevention Plan included in the Stormwater Report (Section 3.7) that specifies that roof drains shall be connected to the infiltration basins after the area has been cleaned to prevent loose material from the shingles from entering the drainage system.

  [Hatch response; February 7, 2024] This comment is considered closed.

- Long term operation and maintenance for the on-site infiltration basins (both Stormtrap and R-Tank^{XD} systems) must be provided. The O&M plan should include the following provisions:

  - maintain an operation and maintenance log for the last three years, including inspections, repairs, replacement and disposal (for disposal, the log shall indicate the type of material and the disposal location).
  - make this log available to MassDEP and the Conservation Commission upon request; and
  - allow members and agents of the MassDEP and the Conservation Commission to enter and inspect the premises to evaluate and ensure that the responsibility party complies with the Operation and Maintenance Plan requirements for each BMP.

- As the stormwater BMPs serve more than one lot, the applicant shall include with the Notice of Intent a mechanism for implementing and enforcing the Operation and Maintenance Plan. The applicant shall identify the lots or units that will be serviced by the proposed stormwater BMPs. The applicant shall also provide a copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of stormwater BMPs.

[BSC Group Response; January 24, 2024] The provisions noted above have been added to the Operation and Maintenance Plan included in the Stormwater Report. Please note that O&M provisions for the infiltration systems were already in the O&M Plan under "Underground Infiltration System". In addition, it should be clarified that all of the buildings in the Project (the 62+ building as well as the town homes) will be located on the same lot with ownership structure as condominiums. The responsible party for maintenance will be the condominium association. Upon establishment of the association, specific contact information can be provided.

[Hatch response; February 7, 2024] This comment is considered closed.

2.11 Standard 10: Illicit Discharges

All illicit discharges to the stormwater management system are prohibited.

The review has not identified any proposed illicit discharges. We concur with the applicant's stormwater report that Standard 10 is not applicable to the project site.

[BSC Group Response; January 24, 2024] No response required.

An unsigned Illicit Discharge Compliance Statement was provided in the Notice of Intent. The Illicit Discharge Compliance Statement should be signed prior to this issuance of permits.

[BSC Group Response; January 24, 2024] The Illicit Discharge Compliance Statement included in the NOI will be signed by the property owner prior to the issuance of an Order of Conditions.

[Hatch response; February 7, 2024] This comment is considered closed.

2.12 Miscellaneous Comments

The following is a list of stormwater review comments that do not fit within the Massachusetts Stormwater Standards and do not require response from the applicant.

- Arlington Land Realty address report on the title page of Thorndike Place Notice of Intent drawing package is inconsistent with the address for the same reported in the other reviewed submittal packages.

  [BSC Group Response; January 24, 2024] Addresses provided on the Site Plans reference an old address for Arlington Land Realty while all other documents reference the current address. If required, a final set of Site Plans with the current address can be provided prior to issuance of an Order of Conditions.

N[Hatch response; February 7, 2024] o resubmittal to address this comment is required, comment is considered closed.

Ross Mullen

RM:RM