HOWARD STEIN HUDSON

December 20, 2024
Meeting Notes: January 14, 2025

Lara Davis
ZBA Principal Assistant
Zoning Board of Appeals & Conservation Department
Town of Southborough
9 Cordaville Road
Southborough, MA 01772

Re: 250 Turnpike Road / 0 Parkerville Road, Southborough, MA
Civil Engineering Peer Review – 1

Dear Board Members,

Howard Stein Hudson (HSH) is pleased to provide the Southborough Zoning Board of Appeals and Conservation Department with this review of the Site Plan, Stormwater Management Report, Subsurface Disposal System Design, and the Traffic Impact Study prepared and submitted under MGL Chapter 40B. We have received the following documents as part of this review:

At 11:00 on January 14, 2025, a meeting took place between James Tetreault of Expedited Engineers (Applicant) and Patrick Bogle and Katie Enright of Howard Stein Hudson (HSH) to discuss the submitted peer review letter submitted to the Zoning Board of Appeals on December 20, 2024. The following items which were discussed or skimmed through in general agreement have been added to the comments below in red, however I will defer each of these comments to the applicants engineer to formally respond with the associated, or lack of, plan revisions based on the response given:

- Plan set entitled "Site Plan of Land at 250 Turnpike Road in Southborough, Massachusetts" consisting of 19 sheets, prepared for FD 250 Turnpike, LLC by Expedited Engineering, LLC, dated May 28, 2023, and revised through November 20, 2024.
- Report entitled "Drainage Report for Comprehensive Permit Development at 250 Turnpike Road, Southborough, MA" prepared by Expedited Engineering, LLC, dated April 15, 2024 and revised through November 20, 2024.
- "Predevelopment Drainage Area Plan at 250 Turnpike Road in Southborough, Mass." Prepared for FD 250 Turnpike, LLC by Expedited Engineering, LLC, dated July 16, 2023
- "Postdevelopment Drainage Area Plan at 250 Turnpike Road in Southborough, Mass." Prepared for FD 250 Turnpike, LLC by Expedited Engineering, LLC, dated April 15, 2024, and revised through November 20, 2024.

- Massachusetts Department of Environmental Protection Checklist for Stormwater Report signed and dated November 20, 2024.
- "Sewage Disposal System Plan" Prepared for FD 250 Turnpike, LLC by Expedited Engineering, LLC, dated November 20, 2024.
- "List of Requested Waivers from Applicable Town of Southborough Bylaws and Regulations"

The project located at 250 Turnpike Road in Southborough MA is proposing to construct 32 townhouse rental units in a combination of duplex and triplex buildings. The proposed units are located within the Residence A district with an access easement from the Industrial parcel to the north having primary access from the development entering and exiting off of Turnpike Road. All 32 townhouse units will be accessed via a 1,010'± dead end roadway with a proposed private septic system and municipal water which will be fed from the project via a utility easement to Parkerville Road.

HSH has reviewed the above referenced design plans and calculations for good engineering practices, compliance with the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook (Stormwater Handbook), Massachusetts G.L. C.40B Comprehensive Permit Guidelines, Town of Southborough Zoning (Chapter 174), Wetlands Protection (Chapter 170), Stormwater and Erosion Control (Chapter 154), Sewage Disposal (Chapter 223), Southborough Comprehensive Permit Regulations, and Earth Removal (Chapter 85) Regulations.

Based on our review of the referenced documents, HSH offers the following preliminary comments:

Zoning Regulations – Chapter 174

- 174-6 – Applicability. The applicant has requested a waiver from this section due to the zoning district of Residence A not allowing multifamily dwellings. HSH defers to the board for approval of this waiver, however the waiver request seems applicable. A response will be provided by the project attorney, or no response is needed from the applicant at this time.
- 174-8(A) Schedule of Use Regulations. The applicant requests a waiver from this section due to the construction of multifamily dwellings. HSH defers to the board for approval of this waiver, however the waiver request seems applicable. A response will be provided by the project attorney, or no response is needed from the applicant at this time.
- 174-8(B) Schedule of Use Regulations. The applicant requests a waiver from this section due to the non-compliance with the setbacks spelled out within the dimensional standards. Refer to dimensional standard comments below. HSH defers to the board for approval of this waiver. A response will be provided by the project attorney, or no response is needed from the applicant at this time.

- 174-8.2(C) Prohibited Uses. The applicant requests a waiver from this section due to the construction of multifamily dwellings within a district which it is not allowed. HSH defers to the board for approval of this waiver, however the waiver request seems applicable. A response will be provided by the project attorney, or no response is needed from the applicant at this time.
- 174-8.2(D) – RA Residence A District – Development Standards
  - Building unit #1 is located 2 feet from the proposed side property line where 25' is required.

    The property line between the residential development and the contractor's garage is being reviewed to determine if there is a more appropriate way to divide the properties creating more space between the home and property line.
  - Units 30-32 are all approximately 24-26'± from the rear yard setback where 50' is required.
    - The layout of the development was discussed at length given the proposed steep slopes through the development, retaining walls and proximity to the property lines and ultimately the abutters. HSH suggested the applicant review the possibility of condensing units into larger blocks or 4 or 6 units to increase the overall site flexibility which should create larger dimensional buffers and lessen the grading constraints/steep slopes.
  - Provide architectural plans to verify building height in accordance with maximum building height of 35 feet / 2 ½ stories (including basement heights per the definition of story) and maximum floor area ratio of 0.18 to which a waiver was requested. A response will be provided by the project attorney, or no response is needed from the applicant at this time.
- 174-8.9 – WFP Wetland and Floodplain District
  - The proposed development is not located within a FEMA Floodplain so this overlay district is not applicable. No response is needed from the applicant at this time.
- 174-9.1 - Common Driveways
  - Common driveways serving more than two or more detached single-family dwellings shall not be permitted in any district. Since the plan lists this access from Turnpike Road as a driveway serving 32 units, provide an alternative means of access or a waiver is needed from this section. A response will be provided by the project attorney, or no response is needed from the applicant at this time.
- 174-11 Signs

- 174-11(C)(2)d – a waiver was requested from the requirement that no sign may be illuminated between 10:00p.m. and 6:00 a.m. HSH defers to the board for approval of this waiver. A response will be provided by the project attorney, or no response is needed from the applicant at this time.
- 174-11(E)(1) – Special Permit – a waiver was requested from this section however it is unclear if this waiver is required. If a waiver is requested and approved from the bylaw it would be required a by-right use and not fall under a special permit under MGL-40B. If waivers are required for items listed within 174-11 such a height, setback, max number, square feet, etc. the applicant should request them at this time. HSH refers to the board on both the applicability and approval of this and any subsequent waivers. A response will be provided by the project attorney, or no response is needed from the applicant at this time.

- 174-12 – Parking and loading regulations
  - 174-12(C)(2) – Dimensional Requirements for parking – Each parking space shall be at least 9 ½ feet wide and 18' long exclusive of aisles and maneuvering space… unobstructed access to and from a street shall be provided and shall not require backing out and into a street.
    - 174-12(E)(1) – Dwellings: two spaces for each dwelling unit containing one or two bedrooms, three spaces for each dwelling units containing three bedrooms. The project required 68 parking spaces for the 68 bedrooms proposed. 72 parking spaces have been designed including the garage spots for each building. In most instances the parking is in series, one spot in the garage and one behind the garage requiring backing out into the road. Confirm the number of spaces by showing spaces at the appropriate size throughout the development. The applicant will review locations and revise if needed.
    - Confirm that the additional surface spots are located directly adjacent to the 3 bedroom units which require the additional parking spaces with an accessible route to and from the parking arrays. The applicant will provide additional sidewalk for some of the units for access to parking.
    - The proposed driveway for each unit should not include the 5' section for the sidewalk which runs parallel to the proposed roadway to allow for an unobstructed sidewalk. Provide a minimum of 23' from the back of curb to face of building along the side of the roadway where the sidewalk is provided to provide for pedestrian traffic across the drive when a vehicle is parked.

The applicant will review the proposed driveway and sidewalk dimensions and will revise accordingly.

- Provide building architectural plans to verify that the internal parking spaces within the garages are a minimum of 9 ½ feet wide and 18' long. Applicant will provide for review.
- It is noted that the parking provided is reliant on tandem parking for the residents (1 parking within the garage and 1 parking within the driveway). Confirm whether the applicant has considered adding additional visitor parking to avoid people parking on the street for gatherings and holidays. The applicant will review the locations and increase parking if possible. Several locations have been identified and it seemed possible to add several more throughout the development.
- Verify that the garages and building entrances are accessible in accordance with the state regulations for accessible units. Applicant to provide.
- Provide electric charging stations into this layout per new state regulations. The applicant will update the location(s) to meet the required standard.

– 174-12(G)(1) – Egress

- Any Driveway likely to carry more than 200 trips per average business day must comply with the following criteria within this section on Route 9.
    - Confirm and/or provide an unobstructed sight distance at edge of traveled way of 500 feet, driveway centerline separation from other driveways serving 200 plus trips of 300 feet, driveway centerline separation from intersecting street sidelines of 150', maximum driveway width unless greater width justified by engineered design of 24', curb radius of 50', and the additional of an acceleration and deceleration lane. A detail plan will be provided which outlines the revision to the entrance or the current compliance of the existing entrance with this requirement.

- 174-12.1 – Outdoor illumination

– The proposed development is located within the Residence A zone which would be subject to the LZ-1 zoning within 174-12.1(E)(2), however the proposed development does not directly apply to the spirit and intent of the regulations as spelled out within the table of recommended uses. Since the development is a 32-unit rental townhouse development, this is listed within the LZ-2 table of uses within the lighting regulations which would be more applicable for lighting of the proposed development.

- The lighting plan shows that the proposed lights will leave significant dark spots throughout the site with only 8 proposed lights for over 1,000 feet of road and 32 units. Almost the entirety of the sidewalk is unlit which will significantly decrease pedestrian safety. See below.
- The plan calls out driveway light fixtures, but each fixture only seems to illuminate a small corner of a single driveway and a small section of the abutting roadway while leaving the majority of the other residential driveways without being lit. See below.
- As these units will be utilized as rental properties, additional lighting should be incorporated into the design in the form of streetlights for pedestrian safety, front porch lights, etc. See below.

– 174-12.1(F)Provide a total site lumen limit calculation per table 1. See below.

– Provide the appropriate calculations per table 2: Lighting Limits for residential uses. See below.

– Provide information in compliance with 174-12.1(G-R) to verify compliance with these regulations.

- The applicant agreed that the lighting will need to be revised and improved upon given that the development is fully residential rental property and the sidewalks and roadway should be property lit for safety and security. Special care should be taken to make sure the improved lighting is not shining into the abutting properties.

- Landscape plan comments have been provided under a separate cover by James Emmanuel, RLA LEED AP from James K. Emmanuel Associates. The applicant discussed with our Landscape Architect at a separate time.
- 174-13.1 – Concept Plans
  – 174-13.1(A) – Applicability. Any use which is designated in 174-8 as being subject to this article required concept plan approval by town meeting prior to being acted upon for special permit approval. It is recommended that the applicant request a waiver from this section. A response will be provided by the project attorney, or no response is needed from the applicant at this time.
- 174-13.1 – Major Residential Development
  – 174-13.2(1) – Applicability. Major residential development, that is, the creation of eight or more lots or construction of eight or more dwelling units within an eight-year period from or on a property or set of contiguous properties in common ownership. It

is recommended that the applicant requests a waiver from this section. A response will be provided by the project attorney, or no response is needed from the applicant at this time.

- 174-13.3 Lower Impact Development
  - 174-13.3(C) – Applicability. This bylaw shall by applicable to all new development and redevelopment… that will result in an increased amount of stormwater runoff or pollutants flowing from a parcel of land, or any activity that will alter the drainage characteristics of a parcel of land.
    - Provide compliance with criteria spelled out within 174-13.3(E)(2) and detail how each criteria has been met.
    - These bylaws focus on non-structural vegetative stormwater treatment for treatment, increasing vegetation, and reducing heat island effects. Please explain how non-structural stormwater practices have been included in this stormwater design and or why they cannot be utilized.
  - A response will be provided by the project attorney, or no response is needed from the applicant at this time.

Wetland Protection Regulations

- 170-2 – Jurisdiction. The applicant has requested a waiver from this section siting that the proposed development will disturb areas within the 20' no disturb buffer of the resource area. It is also noted within the footnote of this waiver that the applicant has filed a Notice of Intent with the Conservation Commission and intends to comply with other applicability sections of chapter 170. HSH notes that waiving the jurisdiction section of the bylaw would allow all items spelled out within the jurisdiction section by right. It would be appropriate to alter the language relative to the specific alteration being requested and where it is being altered within the site within the request to avoid a blanket alteration of the 20' no disturb buffer during construction. The applicant should explain why it is necessary to infringe on the local 20 foot no disturb and how the values of the onsite resource areas are protected by this proposal. Individual waivers will be requested instead of the blanket waiver previously requested.

Subdivision Regulations

- 244-4 – Plan Requiring approval. The applicant is requesting a waiver from this section since the Zoning Board of Appeals is the permit granting authority within all Chapter 40B applications. This waiver request is appropriate.

- 244-6 – Limit on dwelling on a lot. This proposal is to construct 32 townhouse units on a single parcel of land, and this would require planning board approval. The applicant is requesting a waiver from this section since the Zoning Board of Appeals is the permit granting authority within all Chapter 40B applications. This waiver request is appropriate.
- 244-8(B) – Standards of Adequacy. Provide the following information to confirm that the proposed roadway is in compliance with these standards for pavement width, maximum grade, sight distance, etc. The applicant will provide this information within a revised plan set..
- Per 4.1.3.1, all plans submitted shall conform to the requirements of the town subdivision rules and regulations 244-10.
  - 244-10(B)(13) – provide existing and proposed profiles of the proposed private road since over 1,000 of roadway with a complex set of roadway utilities and drainage are being proposed. The applicant will be provide Roadway Profiles within a revised plan set.
    - There are significant utility crossings throughout the roadway for the various water and sewer mains and services. Provide a crossing analysis to verify that 10' horizontal and 18" vertical separation between the outside of the pipes have been achieved throughout the site. Verify that 5' minimum cover has been achieved for the water mains. A crossing analysis will be produced by the applicant in a revised plan set.
  - 244-10(B)(15) – Water mains and drains
    - Confirm the adequacy of the town water system for the 32 units which will require 7,480 GPD of water usage. The applicant will provide a letter from the water department showing or agreeing to adequacy of the water system.
    - Provide evidence that water line flushing can occur without erosion or flooding to abutters per 244-10(B)(15)(b).
      - Coordination with the town departments regarding the capacity for water within the development is ongoing. The plans should be shared with the departments to verify both capacity and water main layouts.
  - 244-10(B)(19) – Provide compliant cross sections per town standards. The applicant will provide on a revised plan set.
  - 244-12(A)(2) – Design criteria. Provide evidence that the criteria spelled out within these sections has been adhered to within the proposed design. Provide a cut-fill analysis for review. A cut-fill calculation will be provided

244-13(A)(4) – Dead-end streets. Dead-end streets shall not exceed the lesser of 1,000 feet or the length needed to accommodate 12 lots. Please revise the design or request a waiver. A response will be provided by the project attorney, or no response is needed from the applicant at this time.

- 244-13(A)(7) – Provide grading for the revised entrance out to Route 9 and confirm that this requirement has been meet. The applicant states that the existing entrance is not being altered in terms of grading.
- 244-13(B)(2) – Confirm that at a minimum, the curb cuts for the proposed units are at least 10' in width with a 3' radius flare for the pavement entrances. The applicant will provide.
- 244-15(A) – Easements. Expand the proposed 20' utility easement to 30' per this section or request a waiver. The applicant will increase and show on revised plan.
- 244-16(B) – Drainage System.
  - The HydroCAD modeling is lacking significant level of detail and modeling to verify that the proposed drainage network will work as proposed. Pipe and manhole routing and modeling has not been quantified within the HydroCAD model. Please provide a drainage analysis of the pipes to verify that they can pass the 100-year storm event including the effects of tailwater per this section, 7.6(k)(1) of the Stormwater Regulations and 6.10 of the Comprehensive Permit Regulations. The applicant will provide the HydroCAD modeling to reflect the above information.
  - The wetland system between units 29 and 30, and the stream on the eastern side of the access road have been hydraulically disconnected with the proposed road. Provide a cross culvert with supporting calculations to verify that the culvert will pass the 100-year storm event in accordance with this section. Provide a culvert design in compliance with 244-27(D). HSH and The applicant discussed the connection of the western and eastern wetland systems. The applicant discussed that within the field there may be a hydraulic disconnection between the two systems. A stream channel exists within the eastern wetland system which would suggest larger flows or a possible overflow from the western system. It was recommended that significant evidence be provided which shows the topographical and or wildlife disconnection or the comment above should be adhered to.
  - The pipes as currently proposed appear to be undersized and do not meet the minimum pipe size of 12" per 244-16(B)(2). The applicant will adjust to the appropriate size after revising the calculations per the updated HydroCAD.
  - The top 8" outlet for the Retain-it structure is noted to be capped within the plan details. If this is the case, remove this out of the HydroCAD model for the system as

these are shown to both be flowing full within the 100 year storm event. This was potentially a system detail callout typographical error. The applicant will provide a detail to better depict how this system works.

- 244-17 – Water Supply and Fire Hydrants.
  - Several hydrant locations do not meet the required separation requirements to the proposed sewer infrastructure. Please adjust. The applicant will update.
  - The waterline is proposed with a "Y" layout and two dead end stubs. This will lead to frequent purging of the waterline. Please provide a water loop to prevent this. The applicant will review the water system with the town departments to determine if the proposed system is adequate and provide HSH will evidence. If building location and layouts are adjusted, it is suggested that the water line placement try and loop the water line to maximum extent practicable.
- 244-22 – Curbs and Berms. Curbing shall be straight or radial granite curbing with a seven-inch initial reveal from exposed face above gutter line. Revise details. The applicant suggested the Conservation Commission was interested in using sloped granite curbing in lieu of straight due to the potential for wildlife crossing. HSH has no issue with the use of sloped granite curbing but the Applicant would be required to request a waiver from this section.
- 244-27 – Special Construction Details. Retaining walls shall be constructed whenever the slope of land adjacent to the street would be too steep for the stability of soil [generally in excess of one (1) foot vertical to two (2) feet horizontal] or would require grading for more than thirty (30) feet back to meet the existing grade at a slope of one to two (1:2).
  - Significant retaining walls are proposed around the exterior of the development adjacent to the bordering vegetated wetlands. Where retaining walls are not proposed, 1:1 slopes are proposed directly adjacent to property lines or local no alteration zones adjacent to BVW. Section 244-20F – maximum slope shall not exceed two (2) horizontal and one (1) vertical in fill. It is advised that the slope be revised to 3:1 which is a mow-able and maintainable slope with exceptions for 2:1 in circumstances where the grade is unavoidable in compliance with the regulations. Anywhere the slope is equal or greater than 2:1 erosion control blankets or geotextiles shall be used to maintain vegetation. The applicant to review the layout of the buildings to allow for additional space to create less slope between the proposed project and property lines. Where 3:1 is not practicable and slopes continue at 2:1 or greater, erosion control blankets shall be specified and plantings revised to aid in the stability of the slope. Plantings on 2:1 and greater slopes are not maintainable and therefore shall be reviewed for their aesthetic and proximity to units.

- A 1:1 slope is proposed directly off the side of the foundation and edge of driveway adjacent to unit 1. Please detail how this will be constructed and maintained within this close proximity to the property line. The applicant to review the unit proximity to the property line and propose response to this issue.
- Several of the area drains behind units 11-3 are located within sections of 1:1 slopes. This could lead to undermining of the pipes within this area. It is suggested that these drain lines be adjusted out of this section of steep slopes and the slopes be revised. The applicant clarified that the majority of these drains are cleanouts only and are meant to connect the drain system and not provide surface collection, however the undermining issue of the pipes still remain. The applicant will be adjusting within the following plan revisions.
- A 1:1 slope is proposed off the driveway from unit 2 which then drops 6 feet to the wetland. Provide guardrail and slope stabilization through this section. The applicant will review the slope and provide guardrail and slope stabilization.
- A retaining wall is proposed approximately 1 foot away from the existing property line which abuts the abutter noted as 5 Sarsen Stone Way. Please provide a guardrail for vehicular safety and detail how this wall will be constructed with allowance for erosion control and room to construct the wall. This guardrail should extend along the section of 1:1 slope and along the wall abutting unit 20.
    - Significant discussion was had regarding the site slopes and how to adjust the design to eliminate and or minimize these issues. The applicant will work on the site slopes to try and adjust them as shallow as possible. Possible adjustments to buildings can help to remedy the slopes as well as other layout and grading options discussed.
- Unit 26 directs water 17.5' down a 1:1 slope directly at units 27 through 29. Please revise to remove the flooding concern for these units. Grading and slope adjustments along with area drains were discussed for these units to help alleviate the concern with these units. The applicant will revise.

Stormwater and Erosion Control Regulations

- 154-3 – Applicability. The applicant has requested a waiver from the entirety of the Stormwater and Erosion Control Regulations. HSH does not believe that this is appropriate as it is the applicant's duty to work with the municipality to determine which of the sections within the bylaw can be complied with and which would pose a significant hardship on the applicant over and above the state regulations. It is requested that the applicant review the regulations and provide individual waivers from sections that would be required to be

waived. A blanket waiver is not recommended. The applicant and project attorney will provide individual waivers so that the board may understand items being requested.

- 7.6(i)(viii) - The existing conditions plans list 23 "official deep observation holes", however information associated with the project show only test pits #21, 22, and 23 have been included in the submission package. Please provide the soil logs for the remainder of the test pits performed onsite. The applicant will provide the testing in full to HSH for review.
- 7.6(l)(1) – provide detailed cut and fill calculations. The applicant will be provide.
- 7.6(o) – Stormwater and Erosion Control Management Plan. Provide a stormwater and erosion control plan in accordance with 7.6(o)(3-4). The applicant will be provide.
- 8.1(g) – Post-Development Stormwater Management Criteria for New Developments. Revise stormwater calculations to comply with this section. The applicant believes that this may already be designed in accordance with these requirements. The updates to the stormwater calculations will incorporate this section.

Comprehensive Permit Regulations

- 4.1.2 – The applicant requests a waiver from a complete financial pro forma, detailing the projected costs and revenues of the proposed project. HSH refers to the board for approval of this waiver. A response will be provided from the project attorney
- 4.1.3.8 – Provide electric and/or gas lines through the development. The applicant will provide within the plans.
- 4.1.3.13 – A waiver has been requested from the requirement to show the location and results of soil, percolation and water table tests using the Department of Environmental Protection Soil Evaluation procedures under Title V. As previously noted, there as several test pits missing or not displayed within the development which make the review of the stormwater systems and drainage design incomplete. It would provide a better understanding of the soil conditions of the site for the soil logs relative to the 23 test pits to be provided for review. The applicant will be provide.

- 4.1.5 - Provide building architectural plans per this requirement. The applicant will be provide.
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- 4.1.6 – Provide this traffic analysis, neighborhood plan, etc.
  - A paragraph has been added to detail sheet 4 of the site plans which gives limited detail regarding the traffic for the site. Please expand upon this traffic information to

discuss how the increased traffic along with the potential contractor's yard to the north will interact with the traffic along Route 9. The applicant is currently working on the submission of a traffic study that will provide this information.

  - A complete Traffic Impact Report shall be provided and submitted in accordance with 4.1.14.
  - The applicant is currently working on the submission of a traffic study that will provide this information.
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- 4.1.12 – Prepare and provide an "Environmental Analysis" in accordance with this section for review. The applicant will provide.
- 4.1.15 – Prepare a long term monitoring plan per this section. The applicant will provide.
- 6.5 – Access – To assure reasonable standards of public safety, there shall be adequate means of access to a comprehensive permit development. Typically, this means at least two means of access to the property if eleven (11) or more dwelling units are proposed or otherwise recommended by the fire chief and or other emergency services. Please provide information on the single entrance and exit provided for this 32-unit development and how this satisfies this requirement.
  - Provide a swept path analysis of the largest fire truck for the town through the proposed development to determine the vehicle's ability to access all units. The applicant will provide.

Sewage Disposal Regulations

- 223-6(D)(1-10) – provide elevations and dimensions per this section. Certain items appear to be missing. The applicant will provide.
- 223-29(E) – Leaching Area Requirements – utilizing a design percolation rate of 20 minutes per inch the factor associated with this rate would be 0.50 sf/gal vs the 0.53 rate that was utilized within the design. Please revise the calculations. A response will be provided from the applicant's attorney regarding a new waiver request.
- 223-29(E) – Leaching Area Requirements – the bottom area of the trench will not be considered without prior approval of the Board of Health. Please provide approval or revise the design calculations. A response will be provided from the applicant's attorney regarding a new waiver request.
  - Verify that garbage grinders are not allowed within the rental development per note #6 or revise the system in accordance with 310 CMR:15.240(4) and request a waiver per this bylaw. The applicant will provide.

- Per 223-32 and 15.211 Title 5 minimum setback distance requirements, the project is located within the outstanding resource water of the watershed associated with the reservoir which would be subject to a 100' setback from the soil absorption system from wetlands which border or are tributary to a surface water supply. Revise the septic field location to be outside of this setback from the adjacent wetland systems shown approximately 50' away.
  - The applicant has emailed proposed justification as to why they believe that this regulation would not apply to the wetlands within the project site. This comment was also brought up by the conservation commissions peer review engineer. HSH will review and prepare a response based on the information provided.
  - 15.211 Minimum Setback Distances - Provide a minimum of 20' between the soil absorption system and unit 15 due to basement separation requirements. The applicant will provide.
  - 223-54 – Capacity. A septic tank shall have an effective liquid capacity of not less than 150% of the design flow estimated. The applicant will provide.
  - 223-58 – Tanks in Series. The capacity of the first compartment is at least equal to the requirements in 223-54 or at a minimum the criteria spelled out within 15.224 of the Title 5 regulations. Revise the tank size and/or provide calculations to support the minimum hydraulic detention times required. The applicant will provide.
- Revise outlet tee below flow line per the requirements of 223-62. The applicant will provide.
- 223-70 – Confirm that the invert elevation of the outlet from the septic tanks is at least one foot above the SHWT elevation. The applicant will provide.
- 223-73 – Alternation. Dosing shall alternate when the total volume of waste to be disposed of exceeds 5,000 gallons per day. Alternating siphons and pumps shall discharge to separate disposal areas of equal size. Revise the design to accommodate this. The applicant will provide.
- 223-74 – Capacity. Confirm that the dosing tanks have the capacity to discharge a volume adequate to cover the dosed leaching area to a depth of at least one inch in not over 15 minutes. The applicant will provide.
- 223-87 – Standby power. Provide location and callouts for backup generation, panels, fuel, etc. for when emergency power is needed. The applicant will provide.
- The 2" lateral inverts are noted as being at elevation 309.00. Please confirm this is a typographical error. The applicant will provide.
- The finish grade is called out as 310.50. Please confirm this is a typographical error. The applicant will provide.

- The 1/8" perforations are listed within the notes as 4' spacing but depicted within the diagram as spaced "5' typ" confirm spacing. The applicant will provide.
- Confirm construction and stone standards have been complied with per 223-119 and 223-120. The applicant will provide.
- 223-123 – confirm the grade above and adjacent to the leaching trench slopes at a minimum of 2%. The applicant will provide.
- Provide test pit #11 information as it is located within the proposed septic system. The applicant will provide.
- The force main pipe size is called out as two different dimensions between the plans and the septic profiles. Please confirm pipe size and material. The applicant will provide.

310 CMR 15.00 Title 5 Regulations

- 15.212(2) - Depth to groundwater. For systems with a design flow of 2,000 gpd or greater, the separation for high groundwater as required by 310 CMR 15.212 (1) shall be calculated after the effects of groundwater mounding to the high groundwater elevation as determined pursuant to 310 CMR 15.103(3). Please provide a mounding analysis and revise the design of the system accordingly. The applicant will provide.
- 15.220(k) - Provide the location of every water supply, public and private.
  - The abutter at 258 Turnpike Road is noted via the well drillers report as having a domestic well on the property. Please locate and depict on the plan. The applicant will provide.
- 15.221(7) - The top of all systems components, including septic tanks, distribution box, pump chambers, dosing chamber, and soil absorption systems shall be installed no more than 36" below finish grade. The proposed design shows the top of the system approximately 45" below finish grade. Please revise. The applicant will provide.
- Provide sewer service callouts in conformance with 310 CMR:15.222 The applicant will provide.
- 15.231 – Dosing Chambers and Pumps. Per the calculations with sheet 2, it is noted that the volume below the pump on is 3,234 gallons however note 5 calculates the total volume within the system which would need to be held per 15.231 is 3,251 gallons. The emergency gallons calculated is within 10 gallons of the requirement. Please increase the pump chamber to accommodate the additional gallons required. The applicant will provide.
- Confirm venting criteria meets the items spelled out within 15.241 The applicant will provide.

Generic Plan Comments

- Existing Conditions Plan Comments:
  - Existing conditions plan does not appear to be printed at the scale shown on the plans. Please review the existing conditions sheets and provide updated plans which reflect the scale listed on the plans. The applicant will provide.
  - Confirm that the existing conditions plan shows the current layout of the property lines between Lot A and Lot B. Currently the drainage easement is shown crossing over both parcels and the pre- and post- development drainage maps depict an older property line. The applicant will provide.
- Site Layout Plan comments:
  - The proposed industrial development is noted as not being included within this development. However, the site plans, stormwater design, drainage calculations and narrative, all study this industrial development and multifamily development as dependent on one another for the stated outcome.
    - The development of the 40B should be isolated from the development of the contractors' yard within the industrial parcel as they are two different permitting paths and it cannot be anticipated that they will be constructed at the same time. The site plans and the drainage design will be separated out or phased within the subsequent submissions.
  - Existing drainage pipe from the industrial parcel outlets to an existing drainage basin and drainage easement on the proposed parcel. Proposed building units #1 and #2 are depicted on top of this drainage system. Please show how this drainage system connection can be maintained. The applicant will provide.
  - Per Massachusetts Building Code, a pedestrian safety fence on top of a retaining wall greater than 30" must be a minimum of 42" from the top of the wall for pedestrian fall protection. Please add a safety fence where required. The applicant will provide..
- Grading, Drainage and Erosion Plan Comments:
  - Several buildings appear to have basement elevations multiple feet within the groundwater table as evidenced by the adjacent wetland elevation. It is recommended to have a basement elevation at least 2 feet above the groundwater table based on good engineering practices. Some of the basements will be removed and slab construction proposed due to the proximity to the SHWT.
  - Sections of the proposed driveway/sidewalk exceeds ADA running slope maximums of 5%. Please detail the proposed sidewalk in compliance with ADA accessibility

standards. The sidewalks will be adjusted by the Applicant to meet this requirement.

- The infiltration drywells behind unit 24 and unit 10 show testing in the area but this testing has not been provided to determine SHWT, soil texturing, etc. Please provide soil testing evidence to support this determination. It appears that additional testing has been completed. All logs will be provided to HSH.
- The infiltration drywell behind unit 21 does not show testing near the system yet denotes a SHWT elevation within the detail callout. Provide evidence to support this determination. The applicant will provide.
- Provide roof drainage inverts into the infiltration drywells so that the HydroCAD calculations can verify that these systems do not backup the inverts. The applicant will provide.
- Provide top and bottom of retaining wall elevations. The applicant will provide.
- The proposed limit of work is located outside of the proposed property line. Reduce the limit of work to be located within the property limits. The applicant will provide.
- The erosion and sediment control plan depicts what looks like haybales as the primary source of erosion control. It is preferred that the straw wattle with silt fence backing be the primary source of erosion control on the site. The applicant will provide.
- The erosion control notes state that the entirety of the project including the site entrance and utility work will surpass 5 acres. A phased construction management plan will need to be developed per the Construction General Permit as part of a Stormwater Pollution Plan (SWPPP) filing under MEPA requirements. The applicant will provide prior to construction.

- Detail Plan Comments:
  - It is recommended to expand the site exit construction mat detail to a minimum of 24' in width to accommodate two-way traffic in and out of the site. The applicant will provide.
  - Provide test pit information for the drywell infiltration chambers located behind units 10, 24, and 21. Provide a mounding analysis for these systems where less than 4' separation to SHWT and/or ledge is noted from the most restrictive test pit within or near the system. The applicant will provide.
  - Per the stormwater manual, table IB.1, one soil sample for every 5,000 ft of basin area is recommended with a minimum of three samples are required for each

infiltration basin. HSH meant this comment is for the larger systems as discussed. The infiltration dry well basins would be sufficient with a single pit as they will also be verified in the field by the design engineer with bed bottom inspections prior to the system being installed to verify that the soil meets the design assumptions.

- The most restrictive test pit (TP 23) for the Retain-it infiltration chambers shows 40" down from an elevation of 320 yielding a SHWT elevation of 316.67'. Provide a mounding analysis for this system. The applicant will provide.
- Provide overflow outlets for each of the infiltration drywell chambers in case of clogging or other soil restrictions so the system does not only have to rely on infiltration as the primary outlet. The applicant will provide.
- Area drain A is shown as taking a large section of water from the rear of the townhouses 12-17, however the contours depict that the water will be directed mostly at the rear of the units. Revise the grading to reflect the design intent and provide calculations to support this drainage runoff. The applicant will provide.

- Drainage Comments:
  - Subcatchment 7, 8 and 9 are analyzing watershed patterns which are external to the project analysis. Each of these watershed areas will have an intricate system of pipes, manholes, and basins which would need to be quantified to verify if any of the water does in fact make its way into the proposed development drainage network. The applicant will review these watershed areas.
  - The LiDar imagery located within the pre- and post- watershed maps does not corroborate the detail of pond storage and outlet detail that is modeled within the existing HydroCAD pond nodes 7P and 8P. Provide additional detail on where this information was obtained. The applicant will provide.
  - The pre-development and post-development watershed maps are difficult to read and hard to understand where the information is coming from. The reaches/analysis points identified within the HydroCAD should be labeled within the Pre- and Post-development watershed maps for clarity. The applicant will provide.
  - Please provide pre- and post- analysis points for the abutters to the south and east comparing the existing runoff to the proposed runoff from the new untreated grass areas, roof and reduction of woodland per 154-9(A)(6). The applicant will provide.
  - Revise the soil and cover information for the existing site wetlands to reflect soil group D and water surface.
  - Provide a soil listing printout for both the pre- and post- development HydroCAD.

- The area listing depicts a large portion of Subcatchment 7S as HSG D whereas the Wed Soil Survey soils depict this soil as group B. This was discussed and given the soil type it would make more sense within the modeling to utilize a soil group of B for the systems which do not have wetlands or ledge outcroppings within the mapped soil group of B/D. Applicant to provide.
- Another approximately half-acre of area is depicted as HSG group D within the pre and post development HydroCAD. Please provide determination for utilizing this group instead of group B or group C as shown within the NRCS Map for the site.This was discussed and given the soil type it would make more sense within the modeling to utilize a soil group of B for the systems which do not have wetlands or ledge outcroppings within the mapped soil group of B/D. Applicant to provide.

- Massachusetts Stormwater Standards and Stormwater Checklist:
  - These were broadly agreed upon that they would be updated per the comments below.
  - A Notice of Intent (NOI) Application was not included within the provided material.
  - It is noted that the project is minimizing disturbance to existing trees and shrubs, however the project appears to be cutting the majority of the upland located within the project site including that which exits within the town no disturbance buffer. Please explain how the resource areas will be protected from erosion and sedimentation control and the interests of the Wetlands Protection Act be protected by this project in close proximity to the resource areas.
  - Standard #1
    - Revise the calculations within the Stormwater Checklist in accordance with Volume 3, Chapter 1, Page 2 of the Massachusetts Stormwater Handbook.
      - Provide updated Rip-Rap calculations for each outlet for the revised drainage design.
  - Standard #2
    - Standard 2 includes the proposed design for the industrial parcel to the north. As stated above, the 40B rental development should have a drainage design and Site Plan design which stands on its own separate from this development in the event that one or the other is not permitted or constructed at the same time. Revise the calculations provided per the above comments.
  - Standard #3

- In general, the site appears that each system which is being utilized for infiltration is being captured into a Contech CDS Filtration Unit prior to discharging into the system.
- Provide the required calculations per the Massachusetts Stormwater Handbook to quantify that the site meets the 44% TSS requirement prior to entering an infiltration practice and provide additional calculations to support the additional drywell systems being utilized for recharge within the site. Provide additional drawdown calculations for the other three drywell systems within the site.

– Standard #4

- Provide calculations weighted over the site and various treatment trains per the above comments relative to 90% TSS and 60% TP.
- Provide BMP specific water quality calculations to verify that each system is treating the required amount that is being directed to that system.
- The CDS flow-based sheets are noted to be attached to the document but cannot be located, only the sheets relating to operation and maintenance. Supply information from the supplier that details the removal efficiency for the given flow rates through the pipes for each unit.
- The box should be checked within the stormwater checklist to show soils with rapid infiltration rates are being utilized.

– Standard #5

- The Post drainage maps show that drainage from the proposed contractors yard development within the industrial land to the north flows into the property and into the site's wetlands. It is listed within standard #5 that the proposed residential development is not a land use with higher potential pollutant loads but verify that the proposed industrial development to the north which contributes to the drainage of this site is also not a land use with a higher potential pollutant load.
- It is noted that the Stormwater Pollution Prevention Plan (SWPPP) was included within the stormwater report. Please provide a draft copy for review.

– Standard #6

- Appropriate BMP's have been used within the proposed design to satisfy this criterion.

– Standard #7

- This project is not a redevelopment as stated within the submittal documents.

– Standard #8

- The proposed grading and drainage plans depict retaining walls and grading approximately 1' from the side lot lines. The proposed erosion control is proposed at a width of approximately 1.5' with additional space needed to install these measures. Please detail how these measures can be installed in concert with the proposed site features and grading.

– Standard #9

- Provide all six items listed within the Massachusetts Stormwater handbook Volume 1, Chapter 1, page 23 within the operation and maintenance plan.

– Standard #10

- An illicit discharge statement has been provided.

Thank you for this opportunity to assist the Southborough Zoning Board of Appeals and Conservation Department in their review of this project. Please contact me at (978) 844-5263 or pbogle@hshassoc.com or Katie Enright at (978) 844-5251 or kenright@hshassoc.com, if you have questions or comments

Sincerely,
Howard Stein Hudson

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