



October 8, 2024

Mr. David Williams, Chair  
Zoning Board of Appeals  
9 Cordaville Road  
Southborough, MA 01772  
c/o Lara Davis, Principal Assistant

Re: Peer Review- Civil Engineering and Landscape Architecture- Second Review  
Comprehensive Permit Application  
120 Turnpike Road  
Southborough, Massachusetts, 01772

Dear Mr. Williams and Members of the Board:

**Project Understanding**

Land Design Collaborative (LDC) has completed our Secondary Review of an application for a Comprehensive Permit on a proposed project located at 120 Turnpike Road, Southborough, MA (the Property). The Applicant seeks to subdivide the existing property into three (3) parcels, referred on the site plans as Lot 4A, 4B and 4C. The Applicant proposes to construct a five-story multifamily apartment style building containing 60 dwelling units with associated drive aisles, parking, two- ten vehicle garages, stormwater management systems, utility services, landscaping, dog park, playground, and an on-site sewage disposal system on Lot 4B (the Project). The focus of our review has been on Lot 4B, though we also reviewed the Project's effects on Lot 4A.

**Submittal Documents**

LDC reviewed the following Submittal Documents, provided by you and Ferris Development via email and downloaded from the Town Website:

**Site Plans:**

*"Site Plan of Land At 120 Turnpike Road" in Southborough, Massachusetts prepared by Expedited Engineering, LLC dated October 25, 2023, and most recently revised on September 16, 2024 (34 Sheets);*

*"Sewage Disposal System Plan" prepared by Expedited Engineering, LLC dated August 22, 2024 (2 Sheets);*

**Stormwater Management Report & Plan:**

*"Drainage Report at 120 Turnpike Road, Southborough, MA" prepared Expedited Engineering, LLC dated October 25, 2023, and most recently revised on September 16, 2024 (50 Pages);*

*"Stormwater Report Checklist for 120 Turnpike Road" prepared by Expedited Engineering, LLC dated September 16, 2024 (47 Pages);*

*"Pre and Post Development Drainage Area Plan" prepared by Expedited Engineering, LLC dated July 24, 2024 (2 Sheets);*

*"Postdevelopment Drainage Area Plan" prepared by Expedited Engineering, LLC dated October 25, 2023, and most recently revised on September 16, 2024 (1 Sheet);*

*"Cover Letter for Submission of Revised Site Plans at 120 Turnpike Road" prepared by Azimuth Land Design, LLC and signed by Expedited Engineering dated September 20, 2024 (3 Pages);*

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Comprehensive Waiver List:

*"List of Requested Waivers from Applicable Town of Southborough By-laws and Regulations" (19 Pages) received by LDC via email on 9/20/2024 from George T. Bahman, Esq, Assistant General Counsel, Ferris Development Group, LLC;*

Associated Comprehensive Permit Documents Specific to Civil/Site/Stormwater/Environmental/Landscape Architecture:

*Prior ZBA Decisions, Comprehensive Permit Application Submittal Materials, Related Special Permit Applications, Resident letters to the ZBA, Boards & Committees letters to the ZBA, and Applicant Response Letters;*

Additional Application Materials:

*"Site Plan of Land"; dated October 25, 2023, revised July 24, 2024; prepared by James Tetreault of Expedited Engineering, LLC of Southborough, MA (4 Sheets);*

*Letter Regarding the "Comprehensive Permit Application"; dated July 29, 2024; prepared by Brian R. Charville, Esq., General Counsel, of Ferris Development Group (1 Page);*

*"Emergency Vehicle Swept Path Plan"; dated July 24, 2024; prepared by James Tetreault of Expedited Engineering, LLC; (1 Sheet).*

Letter from the Town of Southborough Conservation Commission:

*Correspondence dated October 4, 2024 and addressed to the Zoning Board of Approvals, Subject: Conservation Commission Review Comments, 120 Turnpike Road – Comprehensive Permit.*

**Findings**

LDC reviewed the Submittal Documents for consistency with the following documents from which the Applicant has requested waivers

- *Town of Southborough Zoning By-Laws (Responses #1-9);*
- *Town of Southborough Wetlands Regulations (Response #1);*
- *Town of Southborough Subdivision Regulations (Response #1-8);*
- *Town of Southborough Stormwater and Erosion Control Regulations (Response #1);*
- *Town of Southborough Comprehensive Permit Regulations and Guidelines (Response #1);*
- *Town of Southborough Charter, General By-Laws (Response #1);*

Our firm also reviewed the Submittal Documents for consistency with Site Plan Review standards, the MassDEP Stormwater Management Standards, and generally accepted engineering practices from which the Applicant has not requested waivers or is a matter of general engineering practices inconsistent with the regulations stated below.

- *General Comments - Town of Southborough Zoning By-Laws (Responses #1-3)*
- *General Comments - MassDEP Stormwater Management Standards (Response #4)*
- *General Comments - Town of Southborough Stormwater and Erosion Control Regulations (Response #5)*
- *General Comments - Stormwater Design and Wetlands Protection (Response #6)*

As previously stated, it is understood the Town's By-laws and Regulations do not strictly apply in the case of a Comprehensive Permit; however, it is customary for an Applicant to provide a list of waivers seeking relief to those specific sections of the local by-laws and regulations, providing justification to the Board for each waiver requested. The application includes the requisite list of waivers from the applicable by-laws and regulations, hence our review. Additionally, local regulations are a guide to accepted practices in a community, and it is beneficial for municipal officials and residents to understand how closely a Comprehensive Permit plan conforms to the local requirements and where it deviates. Unless cited below, we found the Submittal Documents to comply with the applicable By-laws or Regulations.

Below, you will find the comments as noted in our initial review letter. Following each section or comment of the initial review, you will find a secondary review comment (in *italics*) stating whether each item has been resolved, not addressed, or further action is required.

**Comprehensive Waiver List**

Based on our experience, it is incumbent upon the Applicant to cite the location(s) and provide an explanation as to why compliance is not feasible with a by-law or regulation. For your convenience, we've presented the referenced Sections of the By-law or Regulation in "*italics*" and the LDC comment in a conventional font.

**Town of Southborough Zoning By-laws**

1. *§174-6, Applicability* -

*§174-6*

The location of the proposed multi-family development is situated adjacent to business uses and in proximity to single family uses, not uncommon for 40B housing communities.

*Resolved.*

2. *§174-8, Schedule of Use Regulations* -

*§174-8(A)*

The location of the proposed multi-family development is situated adjacent to business uses and in proximity to single family uses, not uncommon for 40B housing communities.

*Resolved.*

*§174-8(B)*

Though a waiver has been requested, the necessity for the waiver is not defined, that is the location(s) and frequency of non-compliance have not been provided in the list of waivers. We suggest the Board ask the Applicant to cite or indicate the specific instances on the plans or in the supporting documents where the non-compliant condition(s) are proposed so the Board can understand the scope and scale of the particular deviation(s) from the Town's local standards.

*Resolved.*

3. *§174-8.5, BH Highway Business District* -

*§174-8.5(D)*

The location of the proposed multi-family development is situated adjacent to business uses and in proximity to single family uses, not uncommon for 40B housing communities.

*Resolved.*

*§174-8.5(E) Development Standards as follows:*

*§174-8.5(E)(2)*

The proposed parcel (Lot 4B) on which the building is proposed contains no frontage. Pursuant to M.G.L, Title VII, Chapter 41, Section 81L – “Such frontage shall be of at least such distance as is then required by zoning or other ordinance or by-law, if any, of said city or town for erection of a building on such lot, and if no distance is so required, such frontage shall be of at least twenty feet.”

*Resolved.*

**§174-8.5(E)(4)**

The maximum allowable height of a building in any district in town is 45-feet, three stories. The Fire Department should be consulted as to whether the proposed building height of 66 feet is acceptable and be accommodated with the apparatus in their fleet. If not already performed, LDC recommends a balloon test be conducted, representing the 66-foot-tall structure at the four main corners of the building. The elevation of each balloon should be calculated and adjusted accordingly based on existing ground grade at each location. The Board may want to also consider lines of sight profiles during winter conditions from abutting properties and public ways that may be visually impacted.

*Resolved.*

**§174-8.5(E)(6)**

The location of the proposed multi-family development is situated adjacent to business uses and in proximity to single family uses, not uncommon for 40B housing communities.

*Resolved.*

4. **§174-10, Site Plan Approval -**

**§174-10(A)**

While relief from this requirement is requested, one element of the requirement that should be demonstrated is that of safety of the public. Though a waiver has been requested, the necessity for the waiver is not defined, that is the location(s) and frequency of non-compliance has not been provided in the list of waivers. We suggest the Board ask the Applicant to cite or indicate the specific instances on the plans or in the supporting documents where the non-compliant conditions(s) are proposed so the Board can understand the scope and scale of the particular deviation(s) from the Town's local standards.

*Not addressed, initial comment stands.*

**§174-10(D)(1)**

Though a waiver has been requested, the necessity for the waiver is not defined, that is the location(s) and frequency of non-compliance has not been provided in the list of waivers. We suggest the Board ask the Applicant to cite or indicate the specific instances on the plans or in the supporting documents where the non-compliant conditions(s) are proposed so the Board can understand the scope and scale of the particular deviation(s) from the Town's local standards.

*Not addressed, initial comment stands.*

5. **§174-11, Signs -**

**Regulation Reference: §174-11(C)(2)(d)**

LDC suggests that the Applicant discuss their justification for illuminated signage on Route 9 with the public safety officials to establish the period in which the sign will be illuminated and whether the Town and/or MassDOT requires lower intensity lighting between 10 PM and 6 AM.

*Resolved.*

**§174-11(D)**

The Applicant should identify on the site plans the location of the additional monument sign, or is the sign meant to be a two sided/bi-directional sign, as well as a detail of the sign for the Board's reference.

*Not addressed, initial comment stands.*

**§ 174-11(E)(1)**

The Waiver List incorrectly references §174-11(C)(2)(d) for this waiver. Though a waiver has been requested, the necessity for the waiver is not defined, that is the location(s) and frequency of non-compliance has not been provided in the list of waivers. We suggest the Board ask the Applicant to cite or indicate the specific instances on the plans or in the supporting documents where the non-compliant conditions(s) are proposed so the Board can understand the scope and scale of the particular deviation(s) from the Town's local standards.

*Resolved.*

6. **§174-12, Parking and Loading Regulations -**

**§ 174-12(C)(2)**

Lot 4A parking stall widths of 9 feet are common in many communities. The proposed site design seeks to convey existing spaces from proposed Lot 4A to proposed lot 4B to increase the total number of spaces for the 40B development. The Applicant should demonstrate that reducing the overall parking total from proposed Lot 4A will not adversely impact the parking requirements for the office uses on the lot.

*Not addressed, initial comment stands.*

**§ 174-12(E)(1)**

LDC suggest that the Applicant provide the board with a breakdown of parking distribution for 1-, 2- and 3-bedroom units and consult with the traffic peer review consultant to offer some perspective on the issue. The Board may consider a visit and monitor similar developments in the area, which may offer some assistance when considering this waiver. The Applicant should also discuss the impacts of the parking totals required for the office uses on proposed Lot 4A with some of those existing spaces now being designated as parking for the proposed 40B development.

*Not addressed, initial comment stands.*

7. **§174-13, Landscaping -**

**§174-13(B)(10)**

The Applicant states that they are in communication with the Board on the subject. Though a waiver has been requested, the necessity for the waiver is not defined, that is the location(s) and frequency of non-compliance has not been provided in the list of waivers. LDC requests the Applicant cite or indicate the specific instances on the plans or in the supporting documents where the non-compliant conditions(s) are proposed so the Board can understand the scope and scale of the particular deviation(s) from the Town's local standards.

*Resolved.*

**§174-13(E)(2)**

The Applicant states that they are in communication with the Board on the subject of landscaping. LDC suggests that the Applicant provide the Board with a concept plan depicting the impacts of landscaped islands on the site circulation and number of parking spaces.

*Resolved.*

8. **§174-13.2, Major Residential Development -**

**§174-13.2(A)(1)**

Though a waiver has been requested, the necessity for the waiver is not defined, that is the location(s) and frequency of non-compliance has not been provided in the list of waivers. We suggest the Board ask the Applicant to cite or indicate the specific instances on the plans or in the supporting documents where the non-compliant conditions(s) are proposed so the Board can understand the scope and scale of the particular deviation(s) from the Town's local standards.

*Not addressed, initial comment stands.*

9. *§174-13.3, Lower Impact Development -*  
§174-13.3(C)(1)  
§174-13.3(C)(2)  
§174-13.3(C)(3)

Though a waiver has been requested, the necessity for the waiver is not defined, that is the location(s) and frequency of non-compliance has not been provided in the list of waivers. We suggest the Board ask the Applicant to cite or indicate the specific instances on the plans or in the supporting documents where the non-compliant conditions(s) are proposed so the Board can understand the scope and scale of the particular deviation(s) from the Town's local standards.

*Further action required. The Applicant states "the Applicant is adhering to the regulations of this section to the extent they are able to as this is a redevelopment development project." We concur with this statement as it relates to the redevelopment within the footprint of the existing parking area, however, land disturbance is proposed in an undeveloped area south and east of the parking area, which constitutes new development.*

Town of Southborough Wetlands Regulations

1. Chapter 170, Wetland Protection

§170-2, Jurisdiction

The Applicant states that compliance would incur significant hardship and expense. LDC suggests that Applicant revisit the layout to explore an option that would reduce the impacts with the 20-foot no disturb zone. The pond is a resource area being utilized as a stormwater management basin with collected stormwater directed to it as point source discharges, which is not allowed under the provisions of the Wetlands Protection Act and Wetland Protection Regulations without proper supporting calculations for water quality and erosion prevention. At a minimum, calculations for riprap sizing/stability and outlet velocities should be provided.

*Partially addressed, with respect to the riprap sizing/channel stability. The portion of the comment with respect to the 20-foot no disturb zone remains.*

Town of Southborough Subdivision Regulations

Chapter 244, Subdivision of Land

1. §244-4, Jurisdiction

Pursuant to M.G.L, Part 1, Title VII, Chapter 41, Section 81L - Such frontage shall be of at least such distance as is then required by zoning or other ordinance or by-law, if any, of said city or town for erection of a building on such lot, and if no distance is so required, such frontage shall be of at least twenty feet. Conveyances or other instruments adding to, taking away from, or changing the size and shape of, lots in such a manner as not to leave any lot so affected without the frontage above set forth, or the division of a tract of land on which two or more buildings were standing when the subdivision control law went into effect in the city or town in which the land lies into separate lots on each of which one of such buildings remains standing, shall not constitute a subdivision.

*LDC understands that Town Counsel has provided an opinion on this matter.*

2. §244-6, Limit one dwelling on a lot  
3. *LDC understands that Town Counsel has provided an opinion on this matter.*

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4. *§244-8 Access Agency –*  
§244-8(A)  
*LDC understands that Town Counsel has provided an opinion on this matter.*

§244-8(C)  
*LDC understands that Town Counsel has provided an opinion on this matter.*

5. *§244-9 Preliminary Plan –*  
§244-9(A)(1)  
Pursuant to M.G.L Part I, Title VII, Chapter 40B, Section 21 – The Zoning Board of Appeals “shall have the same power to issue permits or approvals as any local board or official who would otherwise act with respect to such application.” Pursuant to 310 CMR 15.211, Minimum Setback Distances (1), All systems must conform to the minimum setback distance for septic tanks, holding tanks, pump chambers, treatment units and soil absorption systems, including reserve area, measured in feet. Where more than one setback applies, all setback requirements shall be satisfied.

*Further action required. The Applicant states “the Applicant seeks a waiver from this section as the proposed location of the recirculating sand filter will be within 100 feet of a BVW to a Surface Water Supply, the Sudbury Reservoir. The Applicant states that the recirculating sand filter is already located within 100 feet of a BVW to a Surface Water Supply. It should be noted that the Massachusetts Department of Environmental Protection approved the existing location of the recirculating sand filter, a location within 100 feet of a BVW to a Surface Water Supply.” Regardless of the prior approval, the Applicant should seek MassDEP approval for the new location.*

§244-9(A)(2)  
*Not addressed, refer to Comment #1 [§244-9(A)(1)].*

§244-9(C)  
*Not addressed, refer to Comment #1 [§244-9(A)(1)].*

6. *§244-10, Definitive Plan –*  
§244-10(A)  
*Not addressed, refer to Comment #1 [§244-9(A)(1)].*

7. *§244-13, Streets –*  
§244-14(A)  
*Not addressed, refer to Comment #1 [§244-9(A)(1)].*

7. *§244-14 Open Space –*  
§244-14(A)  
The Applicant is proposing a playground and dog park as amenities to the residents and should include the percentage of gross area of the entire property consumed by the dog park and playground for the Board's reference. The Board may want to consider requiring the Applicant, in the future, file a Modification to the Comprehensive Permit should there be changes to these amenities.

*Resolved.*

§244-14(B)  
Though a waiver has been requested, the necessity for the waiver is not defined. We suggest the Board ask the Applicant to cite or indicate the specific instances on the plans where 10% of permanently protected open space can be achieved.

*Not addressed, the Applicant has requested a waiver from this section to the extent 10% of the gross area of the proposed development is not set aside to remain open space in perpetuity.*

8. *§244-16, Drainage –*

*§244-16(A)*

The Applicant indicates that they will own and maintain Lot 4A and therefore grading and drainage interference with the lot is not of great concern. LDC suggests that easements be created and recorded in the event either lot is sold in the future. The Board should note the following:

- The presentation of the Drainage Report (an analysis solely based on Subcatchments) makes it difficult to determine the extent to which the Project would impact the new Lot 4A as the lots are analyzed as one area.
- Soil conditions in the area of proposed infiltration have not been confirmed by field testing, nor has an O & M plan been provided for the permeable pavers to ensure that the proposed permeable surface treatment remains functional.

*Resolved, however, we suggest the Board discuss the need for a Condition that the Applicant review the stormwater management system and address any concerns prior to sale of the down gradient property. Refer to additional comments below.*

We suggest the Applicant provide additional documentation, including routing of flows through the site to the outlet/discharge points, so the Board (and Conservation Commission) can better understand downstream impacts.

*Resolved.*

*Southborough Stormwater and Erosion Control Regulations – Chapter 154*

1. *§154-3, Applicability.*

Though a waiver has been requested, the necessity for the waiver is not defined, that is the location(s) and frequency of non-compliance has not been provided in the list of waivers. We suggest the Board ask the Applicant to cite or indicate the specific instances on the plans or in the supporting documents where the non-compliant conditions(s) are proposed so the Board can understand the scope and scale of the particular deviation(s) from the Town's local standards. We cite a few specific deviations below.

*Not addressed, refer to initial comment.*

*Town of Southborough Comprehensive Permit Regulations and Guidelines*

1. *§4.0 Filing, Time Limits and Notice –*

*§4.1.2*

LDC's review does not include this section.

*Resolved.*

*§4.1.3.13*

Deep test hole and percolation test data is shown on the sewage disposal system plan. LDC understands that this plan was included in this filing more for reference by the Board to better understand how the sewage disposal system is situated on the site. The plan will be subject to the approval of the Board of Health who may require additional soil testing due to the size of the primary and reserve disposal areas. Deep test pits should be observed in areas proposed for stormwater infiltration.

*Resolved.*

**§4.1.3.16**

This waiver request should be further discussed between the Board and the Applicant as the situation warrants. We note the proposed use does not constitute an obvious threat to groundwater or source of hazardous or toxic materials.

*Resolved.*

**Town of Southborough Charter, General By-Laws**

1. *Charter and General By-laws.*

This waiver request is a broad and sweeping all-inclusive request and should be carefully discussed between the Board, town staff and town counsel.

*Not addressed, refer to initial comment.*

**General Comments**

**General Comments - Town of Southborough Zoning By-Laws**

1. *§174-8.5 BH Highway Business District -*

*§174-8.5(C)(10)*

The proposed site plan depicts 2 private garages intended for 10 cars each. This would require a Special Permit within the BH district. No waiver has been requested from this section.

*Not addressed, refer to initial comment.*

2. *§174-12 Parking and Loading Regulations -*

*§174-12(G)(1)*

The site access driveway is located on Route 9 where there is no existing or proposed acceleration or deceleration lane provided. Furthermore, Route 9 narrows from 3 lanes to 2 in front of the driveway. During a site visit, we had trouble exiting the site due to the speed of vehicles travelling eastbound in the decel lane. Based on subsequent site visits, it is apparent many drivers use the decel lane as a through lane and the short merge just past of the site driveway effectively means three lanes (decel lane, site driveway, and outer/southern travel lane) merge just east of the site driveway. We understand Route 9 is within MassDOT's jurisdiction, so this comment is simply meant to be informative for the Board.

*Not addressed, refer to initial comment.*

3. *§174-13 Landscaping -*

*§174-13(B)(4)*

There is no note on the Landscape Plan stating that the shrubs to be planted on-site are to be 36" in height at the time of building occupancy. No waiver has been requested from this section.

*Resolved.*

*§174-13(B)(5)*

Staking is shown on the planting detail, but no note is provided stating removal of the staking after one full growing season. No waiver has been requested from this section.

*Resolved.*

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**§174-13(B)(6)**

No note stating that “the Property owners are to ensure the survival and health of required trees. If any plant material life expires, the property owner must replace it within 180 days” is shown on the Landscape Plan. No waiver has been requested from this section.

*Resolved.*

**§174-13(B)(9)**

No permanent water supply system or method is provided for planting areas. No waiver has been requested from this section.

*Resolved.*

**§174-13 (D)**

Grading is proposed within the 10-foot buffer strip required to side and rear property lines located behind the private garages. No planting is proposed on the slope. No waiver has been requested from this section.

*Resolved.*

**§174-13(E)(1)**

Applicant should tabulate the required number of shade trees to be placed on-site at a rate of two shade trees or three ornamental trees for every 10 spaces or fraction thereof to demonstrate compliance. No waiver has been requested from this section.

*Not addressed, refer to initial comment and Comment 7 (above) regarding the Applicant’s waiver request from section 174-13(B)(10).*

**Stormwater Management Review**

The Applicant requests a waiver from Chapter 154-3 of the By-law (Stormwater and Erosion Control, section on Applicability) asking for relief from “this section to the extent the proposed development shown on the Plans is not in compliance” with the Town’s Stormwater and Erosion Control Rules & Regulations.

LDC reviewed the Submittal Documents for compliance with *MassDEP Stormwater Management Standards* as well as generally accepted engineering/design practices (the Guidance Documents). Unless noted below and excluding an extensive review of the design’s compliance with the *Town of Southborough’s local Stormwater and Erosion Control Rules and Regulations*, we found the Site Plans and Stormwater Management Report to satisfy the requirements of the Guidance Documents and Standards.

**4. General Comments - MassDEP Stormwater Standards 310 CMR 10.05(6)(k)**

The Applicant has not provided the MassDEP ‘Checklist for Stormwater Report’ as part of the submittal materials. At a minimum, a completed checklist should be provided. Should the Board decide not to grant waivers to the Stormwater By-laws, then the Applicant will be required to complete and submit the Town of Southborough’s ‘SMP Eligibility Worksheet’ and ‘Stormwater Management Application Checklist’.

*Resolved.*

The following are the 10 Stormwater Standards from the Massachusetts Stormwater Handbook and LDC’s comments as to how the proposed plan addresses The Standards.

**Standard 1:** The Project proposes two new outfalls directing and discharging 'clean' rooftop and overland (woodland) runoff toward the existing pond directly north of the Project area, not requiring treatment. Stormwater is conveyed toward these outfalls via varying methods consisting of pipes, French drains, or riprap drainage swales, with only a portion of the upland runoff conveyed to the pond, as the other portion is collected and diverted toward an existing drainage swale. This swale drains to an existing catch basin located north of wetland flags A-1 and A-33 and piped to a headwall discharging to an intermittent stream. To mitigate the increased impervious cover, porous pavers are proposed. It appears much of the stormwater management system in the existing parking lot will remain unchanged except for the relocation of a catch basin to a location beyond the proposed porous pavers. It is unclear in the Drainage Report if the stormwater conveyances will have the hydraulic capacity to adequately accommodate the stormwater flows.

*Resolved.*

**Standard 2:** The Stormwater Management Report documents that the post-development rates of runoff for the 2-, 10-, 25-, and 100-year storm events have been reduced. The Project complies with this Standard, to the extent the following assumptions are valid. The Applicant correctly classifies the various Hydrologic Soil Groups (HSG) providing the Pre- and Post- development drainage maps, and soil testing results for the proposed stormwater management system(s), except where permeable pavers are proposed. The soil conditions should be verified at this location to confirm a three-foot separation to estimated seasonal high groundwater or two feet to refusal. The Applicant uses pre- and post- Subcatchments as their means of analysis. This method does not quantify the impact the proposed porous pavers will have in mitigating the rates and volumes. The Applicant rationalizes the performance of the 22-inch-deep porous pavers by estimating a volumetric storage (40% void ratio). Should a waiver not be granted, the Applicant should perform the hydrologic calculations using the NOAA-14 rainfall data to comply with the local requirements. for all analyzed storms to comply with the local requirements

*The Applicant has addressed some of our initial comments by providing soil test pit data in and around the proposed areas of infiltration. While Deep Holes 12 and 13 do not raise concerns, Deep Hole 14 is within roughly 15' of the upper pond and infiltration is proposed within 50' of the pond and within 100' of a surface water, which is not allowed per Volume 2, Chapter 2 (V2C2) of MassDEP's Stormwater Management Guidelines. The pit (Deep Hole 14) was excavated to a depth of 48" with groundwater weeping observed at 36". Given the presence of sandy loam in the area of the test pits, we contend the depth to groundwater should be the driver for design rather than the elevation of groundwater found in a given pit. Working from that premise, the Porous Pavers between the building and the pond do not have adequate separation to groundwater per the design considerations for Porous Pavers as sited in V2C2, which requires 36" of separation. Some of the Porous Pavers north of the building could in theory be in groundwater in worst case conditions. Given the system does not comply with the required offset to groundwater per V2C2 for Porous Pavers and does not meet the horizontal offset to wetlands and surface waters cited in V2C2, this portion of the stormwater management system requires redesign/reconfiguration. We also note per V2C2, "the use of porous pavers for stormwater attenuation or groundwater recharge is not effective especially when the area is sloped." Intense rainstorms will result in runoff from the Porous Pavers, creating bypass flows that would be unattenuated and untreated.*

In some instances, the Applicant uses a Time of Concentration (Tc) of under three minutes. TR-55 states the minimum Tc should be 0.1 hrs. (or 6 minutes) (210-VI-TR-55, Second Ed., June 1986; Pg. 3-5).

*Resolved, though we note several instances remain where Tc values below those recommended in TR-55 are utilized, however, we consider the analysis to be conservative as a result.*

The Applicant proposes drainage swales and connections to an existing 24" RCP. To ensure these drainage features can handle the given flow rates and volumes received during the various storm events, the Applicant

should model these drainage features and provide supporting documentation. This would also help determine if the proposed riprap and existing pipes will adequately accommodate the proposed flows.

*Resolved.*

**Standard 3:** The Project is a combination of redevelopment and new development; groundwater recharge is required for any increase in impervious surfaces from the pre- and post- site conditions. Although, it is likely the Applicant will more than meet this requirement with the proposed stormwater management system, the Applicant should provide the recharge volume calculations to quantify and demonstrate this Standard is met. The Applicant should also provide additional information to take credit for 80% TSS removal for the porous pavers with the bed retaining the 1-inch Water Quality Volume, while draining within 72-hours. The Applicant should provide the recharge and water quality calculations to confirm the system(s) will recharge the required water quality volume for the additional impervious area.

*Partially resolved, though concerns remain as cited in our Standard 2 comment.*

**Standard 4:** The Stormwater Management Report does not include documentation for TSS removal, specifically what level of TSS removal the proposed permeable pavers would provide. At best, permeable pavers provide 80% TSS removal, but only when certain criteria are met and maintained. As previously mentioned, permeable pavers need to be designed to hold the requisite water quality volume and drawdown within 72 hours. The Applicant should provide a thorough and complete O & M plan to ensure that system is properly maintained, and functions as designed.

*Partially resolved, as the Applicant has provided documentation of the TSS removal rates for the various parts of the system. Though calculations have also been provided for the water quality volume, concerns cited in our Standard 2 comment remain. We also note page 9 of the September 2014 NJCAT report on CDS units establishes a TSS removal efficiency of 50% across the CDS product line.*

**Standard 5:** This Standard is not applicable for the Project.

*Resolved.*

**Standard 6:** This Standard is not applicable for the Project.

*Given the Conservation Commission's position that the existing ponds are wetland resource areas and are to be regarded as ORW's, our original comment is inaccurate, and the stormwater management system must be designed to provide proper treatment for TSS and water quality volume. Additional documentation is required to demonstrate compliance with this Standard.*

**Standard 7:** A portion of the Project constitutes redevelopment and partially complies with this Standard meeting the requirements of Standard 2. The Applicant should provide the information referenced under Standards 3 & 4 in order that compliance with Standard 7 is demonstrated. Standards 5&6 are not applicable.

*Not addressed, pending responses to several comments above.*

**Standard 8:** The Site Plans provide erosion control measures as shown on sheet ESC1-ESC4 and a Pollution Prevention Plan on sheet D4. The Project complies with this Standard. The plans should be revised to include inlet sediment traps for the catch basins located throughout the existing parking lot.

*Not addressed, refer to initial comment. Applicant should also provide a detail of an inlet sediment trap.*

**Standard 9:** An O & M Plan and an LTPPP for the proposed components of the Stormwater Management system are not provided and should be added to the plans or stormwater management report.

*Partially Resolved, as the Applicant provides Operation and Maintenance, short- & long-term plans; however, items cited in the Conservation Commission letter dated October 4, 2024 require attention.*

**Standard 10:** An Illicit Discharge statement is not provided in the Stormwater Management Report and should be provided.

*Resolved.*

**5. General Comments - Town of Southborough Stormwater and Erosion Control Rules & Regulations**

The following are some key local regulations/requirements for which a specific waiver has not been requested by the Applicant:

- a) Rainfall data from NOAA Atlas-14 should be used in the stormwater calculations.

*Resolved.*

- b) Provide flow velocities to ensure that conveyances are being protected to MassDEP's standards.

*Resolved.*

- c) At a minimum, removal rates of, Total Phosphorous (TP) (60%) and Nitrogen (N) (30%) loading. The proposed porous pavers do not receive any credit for removal of these pollutants.

*Partially Resolved. The Applicant has provided documentation demonstrating appropriate TSS removal. LDC agrees porous pavers are a method of infiltration, and that other infiltration BMP's receive credit for removal of TP and N. Per V2C2, there is not yet sufficient data to verify these removal rates may be attained using porous pavers. TP and N removal will not be required if a waiver to this Town regulation is granted.*

- d) SMP Eligibility Worksheet and local Stormwater Checklist to help the Board better understand the Project.

*Partially Resolved. The Applicant notes that these documents will be completed and provided.*

**6. General Comments on Stormwater Design and Wetlands Protection**

V.2 C. 2: Structural BMP Specifications for the Massachusetts Stormwater Handbook

- a) (Pg. 121) cites an additional design consideration for permeable pavers, that is the installation of perforated pipes along the bed bottom to assist in the distribution of the collected stormwater throughout the system. The Applicant does not propose a piped underdrain.

*The Applicant asserts that according to the New Jersey guide for Design of PICP's does not require a perforated pipe as the porous pavers are intended for infiltration. Concerns remain as cited in comment above regarding Standard 2.*

Mr. David Williams, Chair  
Southborough Zoning Board of Appeals  
October 8, 2024

b) Page 97 of the V2C2 document states that infiltration should occur a minimum of 150' (downslope) or 100' (upslope) of any water of the Commonwealth. The permeable pavers propose infiltration within roughly 25' of such waters.

*Not addressed, refer to initial comment.*

c) Page 97 of the V2C2 document states that infiltration should not occur within 150' of a slope greater than 20%. We have seen this criteria applied to retaining walls. The design of the wall must account for the additional stormwater infiltration, or some means of removing the water from behind the walls must be added.

*Resolved, although we note that the Applicant states "We now call for this wall to be made of large Conigliaro Block pieces and to have an impermeable liner on its south side." The final wall design should account for the hydrostatic pressure generated by the infiltration system.*

d) We suggest the Applicant inventory, clean and inspect the existing drainage structures for compliance with the Stormwater Standards to bring non-compliant components into compliance with current stormwater design. This would include replacing catch basin structures without sumps and adding hoods to catch basins that lack hoods.

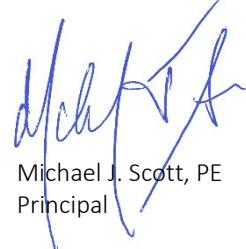
*Resolved.*

We appreciate the opportunity to provide this review to the Town of Southborough Zoning Board of Appeals and trust the information contained herein represents a fair and accurate assessment of the Submittal Documents. Please call LDC at 508-952-6300 should you have any questions regarding our comments/findings.

Sincerely,

LAND DESIGN COLLABORATIVE

Wayne M. Belec  
Principal



Michael J. Scott, PE  
Principal

cc: Mr. George T. Bahnan, Esq., Assistant General Counsel, Ferris Development Group, LLC  
Mr. James L. Tetreault, PE, Expedited Engineering, LLC