

October 4, 2022

Shrewsbury Planning Board
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**Subject: 701 Boston Turnpike
Site Plan Review**

Dear Planning Board Members:

We received the following documents in our office on September 14, 2022:

- Plans entitled Proposed Automobile Dealership, 701 Boston Turnpike, Shrewsbury, Massachusetts dated August 22, 2022, prepared by Thompson-Liston Associates, Inc. for Boch Shrewsbury-Worcester, LLC. (20 sheets)
- Plans entitled Patrick Subaru, New Building, Shrewsbury, CT dated September 2, 2022, prepared by Harrison French & Associates, LTD. (4 sheets)
- Plan entitled Patrick Subaru, Shrewsbury, MA dated September 6, 2022, prepared by Reflex Lighting (1 sheet)
- Bound document entitled Stormwater Report for Proposed Automobile Dealership, 701 Boston Turnpike, Shrewsbury, Massachusetts dated September 6, 2022, prepared by Thompson-Liston Associates, Inc. for Boch Shrewsbury-Worcester, LLC. Included in the report are Plans entitled Pre-DA-Plans and Post-DA-Plans (one sheet each) dated August 22, 2022

Graves Engineering, Inc. (GEI) has been requested to review the plans and supporting materials for compliance with the Rules and Regulations Governing Special Permits & Site Plan Review with amendments through September 7, 2017; Zoning Bylaw, Town of Shrewsbury, Massachusetts with amendments through October 18, 2021; Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook, and standard engineering practices. As part of this review, GEI visited the site on September 30, 2022.

Our comments follow:

Rules and Regulations Governing Specials Permits and Site Plan Review

1. The plans must identify the abutting land uses. (Article IV §1.g(4))
2. The abutter's information must include the street addresses. (Article IV §1.g(7))
3. The topographic contours need be clearly labeled on plans. The existing topographic contours were not labeled on the existing conditions plans nor on Sheet C2.2 (the proposed grading plan). (Article IV §1.g(8)).
4. Top and bottom of wall elevations need to be provided at appropriate locations for all retaining walls. (Article IV §1.g(8)).

5. On-site traffic management signs (e.g., stop signs, “no left turn sign” at Boston Turnpike exit) need to be include on the plans. (Article IV §1.g(16))
6. No structural information or table listing the drain manhole rim elevations; drain pipe invert elevations; drain pipe size, material, length or slope was included on the plan set. The plans must be revised to include this information. (Article IV §1.g(18))

Zoning By-Law

7. GEI has no issues relative to compliance with these By-Laws except as noted in the following comment.
8. The Zoning Summary Table on Sheet C1.2 of the plans indicates that 55 parking spaces are required based upon “All other” (non-residential uses) at a rate of one space per 1,000 squared feet of gross floor area. A requirement of 55 parking spaces for employee, sales, parts, and service parking seems low. GEI defers to the Town of Shrewsbury whether the requirement of “retail stores and personal service shops” (one space per 250 square feet of gross floor area) is required for automobile dealerships. (VII.D.2i & n)
9. GEI understands the proposed site work will be incidental to the issuance of a building permit and therefore and Earth Removal Permit is not required. Nevertheless, the plans show substantial earth cuts (up to 27 feet deep at the base of the earth slope located at the northwest section of the site, approximately eleven feet deep through the middle of the building) and some earth fills at the terraced parking east of the building. The Planning Board may wish to inquire of the applicant the net earth cut or fill that will be removed from or brought to the site.

Hydrology & Stormwater Management Review

10. GEI reviewed the hydrology computations and found them to be in order provided that the following five comments are addressed:
11. The boundary between Subcatchments 2S and 3S needs to shifted farther to the east; as observed during my site visit, runoff from the east side of the depression to the culvert (likely a livestock crossing associated with the former Boston-Worcester trolley system) that crosses Boston Turnpike originates from the existing driveway at 701 Boston Turnpike.
12. The hydrology computations indicate a swale for Reaches 1R (discharging to the proposed pond by Boston Turnpike) and 2R (discharging to CB 36) are to be constructed on the upgradient side of the rear parking lot. The grading for these swales need be shown on the grading plans. As currently proposed, the topographic contours indicate that the runoff will be directed to the pavement in the parking area.
13. The configuration of Pond 11 must be clarified to be consistent between the HydroCAD calculations and the plans as follows: The plan scales 64’ long x 32’ wide with no outlet. The HydroCAD calculations indicate 66’ long x 36’ wide with a 6” outlet 6’ long.
14. The configuration Pond 21 must be clarified to be consistent between the HydroCAD calculations and the plans as follows: The plan scales 76’ long x 60’ wide. The HydroCAD calculations indicate 46’ long x 32’ wide. Both the plan and HydroCAD calcs indicate a 6” outlet.

15. Detention Pond 1 contour labeling appears incorrect (i.e., 541 contour most likely is meant to be 542). Engineer to confirm and correct as necessary. Additionally, the hydrology computations indicate a peak water surface elevation of 583.82 but the top of berm elevation is approximately 543.0. The unusual peak elevation in the computations is likely due to under-sizing of the pond and storage extrapolation by the software. The pond and computations must be revised to provide meaningful peak water surface elevations.
16. The post-development drainage areas map is difficult to read due to text size and drainage area boundary line conflicts/overlaps at the parking areas.
17. Compliance with the MassDEP Stormwater Handbook is reasonable except as noted in the following two comments.
18. There will only be 0.17 feet of freeboard (as measured from the peak water surface elevation to the top of the berm) in Detention Pond 2 during a 100-year storm event. A minimum freeboard of at least one foot is required.
19. The open stormwater basins were labeled "infiltration/detention" and "infiltration/retention." The labels should be consistent with MassDEP Stormwater Handbook nomenclature (e.g., infiltration, detention, or retention).

General Engineering Comments

20. Vehicle guard rails need to be provided at the top of the retaining walls.
21. The plans propose an on-site sidewalk system that ends at South Street. The proponent should provide a crosswalk in South Street and accessible curb cuts at each end of the crosswalk to connect the project's sidewalk system to the sidewalk on the east side of South Street.
22. The plans need to show the Pond 3 "Infiltration/Detention Basin", its grading and its outlet pipe system in their entirety. Sheet C2.2 shows only a portion of the basin.
23. Sheet C2.2 is missing the symbols for off-site catch basins (labeled "inlets" and drain manholes in South Street and Boston Turnpike).
24. Sheet 1 of the Existing Conditions Plans shows a catch basin in the South Street travel lane at the proposed driveway. However, the catch basin is located along the curb line. (See Photo 1 at the end of this letter). The plans propose a connection from the site to the South Street drainage system. The proposed connection will have to be modified to avoid a conflict with the catch basin and the catch basin's inlet grate and curb inlet will have to be modified to accommodate driveway traffic. Whereas the curb inlet stone will have to be removed, GEI recommends that the plans include a gutter inlet (to replace the curb inlet's hydraulic capacity) along the South Street curb line up-gradient of the new driveway and that the curb inlet be connected to the existing catch basin for sediment storage.
25. The Stormwater Report narrative indicates the use of CDS devices (identified by a drain manhole symbol with a "C" in the legend) for TSS removal compliance. Elsewhere on the plans the intended structures are labeled HS1 – HS4. The engineer should verify and correct

as necessary. Further, there is no construction detail for any proprietary stormwater treatment units.

26. Pertaining to Sheet C3, the design engineer should clarify whether the roof drain is supposed to tie into the Pond 31 Infiltration BMP.
27. On Sheet C3, an overflow outlet should be provided for the Pond 11 Infiltration BMP.
28. GEI recommends that the applicant engage a geotechnical consultant to design any slopes steeper than 2H:1V (e.g., the 1.5H:1V slope located at the northwest section of the site).

General Comments

29. GEI understands the Shrewsbury Department of Public Works Water & Sewer Division will review the proposed water and sewer infrastructure.
30. Boston Turnpike is under MassDOT jurisdiction. As such, GEI understands that the proposed driveway at Boston Turnpike and any other work (e.g., earth excavation) within the Boston Turnpike layout will be reviewed by MassDOT. The plans propose a 3H:1V (downward) slope in the shoulder of Boston Turnpike where an upward slope currently exists.
31. GEI did not review for compliance with 310 CMR 10.00 (The Massachusetts Wetlands Protection Act Regulations). Nevertheless, as indicated by note 8 on Existing Conditions Plan sheet 1, the wetland flagging shown on the plans was identified by a survey conducted in 2008; the flagging is outdated.
32. GEI did not review the components associated with the vehicle fuel storage system. Such a review is beyond the scope of this site plan review.

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Principal



Photo 1: Catch basin at the proposed South Street driveway entrance.