



October 14, 2021

Ms. Valerie Oorthuys, Town Planner  
Bolton Town Hall  
663 Main Street  
Bolton, MA 01740

Re: Initial Stormwater & Wetlands Peer Review  
Comprehensive Permit Application  
Mallard Lane, Bolton MA

Dear Ms. Oorthuys:

The Horsley Witten Group (HW) is pleased to provide the Bolton Zoning Board of Appeals (ZBA) with this letter report summarizing our initial technical peer review of the residential development proposed along South Bolton Road between Wheeler Road and Spectacle Hill Road in Bolton, MA. Ducharme & Dillis Civil Design Group, Inc. have prepared the Comprehensive Permit Plan set and Stormwater Report on behalf of James Morin (Owner). The proposed development includes eleven detached age-restricted single family residential dwellings with one common driveway. The 4.70-acre undeveloped parcel includes an off-site wetland area as shown on the project plans. HW understands through conversations with the Bolton Conservation Agent that a Determination of Applicability was issued by the Bolton Conservation Commission indicating the need for the Applicant to file a Notice of Intent (NOI) with the Conservation Commission for work proposed within the 100-foot buffer to the wetland area.

As part of this peer review, HW has received the following documents:

- Comprehensive Permit Application, Mallard Lane South Bolton Road, Bolton, MA, submitted by Northeast Classic Builders, dated June 202.
- Email comments from abutters Buchinski, Campbell, and Robinson.
- Town review documents (Hancock Associates letter dated 9/9/21, email comments from the Conservation Commission and Fire Department, Staff Report 9/2/21, and ZBA minutes 8/10/21).
- Information from Redi-Rock Retaining Walls.
- Comprehensive Permit Plan, Mallard Lane, Bolton, MA, prepared by Ducharme & Dillis Civil Design Group, Inc., dated March 11, 2020, which includes:
  - Title Sheet C1.0
  - Existing Conditions Plan C1.1
  - Layout Plan C2.0
  - Grading & Drainage Plan C3.0

- Grading & Drainage Details 1 C3.1
- Grading & Drainage Details 2 C3.2
- Erosion Control Plan C4.0
- Erosion Control Details C4.1
- Utilities Plan C5.0
- Utility Detail Plan C5.1

In addition to the materials above, HW reviewed relevant source data from MassGIS to better understand site constraints and context.

### Site Observations

As part of our review, HW conducted a site visit on October 13, 2021 with the Town and the Applicant/Owner to make general observations of the site and confirm existing conditions. HW understands that South Bolton Road is a scenic roadway and remnants of a stone wall is visible along the frontage. The site includes a gravel roadway that the Applicant informed us was previously used as a construction storage yard and a gravel pit. A large portion of the site has been disturbed and contains minimal vegetation. On both sides of the access driveway the site includes steep slopes with wooded vegetation. Many large trees cover the area of the parcel that was not previously disturbed by the driveway or storage yard.



Photo 1. Stone wall along South Bolton Road.



Photo 2. Gravel access driveway.



Photo 3 and 4. Existing trees along sloped embankments. Photos taken October 13, 2021.

Directly across the street from the parcel to the north is an existing wetland that was documented for a roadway improvement project conducted by the Town of Bolton under MassDEP File No. 112-0683. Offsite of the parcel to the east is a second wetland noted below as an isolated wetland area. A third wetland that was recently flagged was observed in the eastern corner of the parcel.

The wooded area of the site contains steep slopes and the Applicant had placed yellow tape to mark the locations of the proposed walls.

### Wetlands Review

The Existing Conditions Plan indicates that an isolated wetland area is situated entirely on the property located at 31 Spectacle Hill Road with buffer zones extending onto the project site, including the locally regulated 0 to 25-foot Prohibition Area and the 25 to 100-foot "Adjacent Upland Resource Area" (AURA) as regulated under the Bolton Wetland Bylaw (Chapter 233) (see Image 1 and Photo 5).



Image 1. Aerial image of off-site wetland area with jurisdictional buffer zones extending onto the subject project site (MassGIS 2019 aerial photograph).

This area is defined on the plans by a series of flagging stations labeled WF A3 through A19; however, there is no indication within the General Notes as to who performed the wetland delineation, and while possibly an oversight, two of the anticipated flagging stations (A1 and A2) which would be in closest proximity to the property line, are notably missing from the plans.



Photo 5. View of off-site wetland area facing approximately east. Photo taken October 13, 2021.

The Conservation Agent has submitted comments to the ZBA recommending that the property needs a wetland delineation, ideally submitted under an Abbreviated Notice of Resource Area Delineation (ANRAD). In these comments, and based upon HW's conversation with the Conservation Agent, we understand that the Applicant had filed a Request for Determination of Applicability (RDA) and received a "Positive 2A" Determination, acknowledging the presence of this wetland area. We understand that there may be additional wetland area(s) on or adjacent to this property which would also confer jurisdictional buffer zones onto this project site (Photo 2). We further understand that the Applicant has not yet approached the Bolton Conservation Commission with an application filing.



Photo 6. Other off-site wetland area(s) located to the southeast. Note blue flagging circled in the background. This wetland area and any jurisdictional buffers are not shown on the project plans.

1. Given the lack of definitive information and missing flagging stations and missing wetlands on the plans, HW recommends that the Applicant at a minimum, seek to have the boundaries of all wetland areas established by a wetland professional and survey located on to the existing conditions plan, and file an ANRAD with the Conservation Commission to confirm the wetland boundary and any other resources that may affect the jurisdictional status of this site under the Massachusetts Wetlands Protection Act and/or the Bolton Wetland Bylaw.
2. Based on HW's calculations from the PDF plans, the isolated wetland area is approximately 10,900 SF (0.25 ac). As part of the wetland resource area determination, the Applicant should also seek to confirm the jurisdictional status of this area as an Isolated Land Subject to Flooding (ILSF).

HW notes that the isolated wetland area has been identified by the Massachusetts Natural Heritage and Endangered Species Program (NHESP) as a Potential Vernal Pool (PVP #2912) (Image 2).

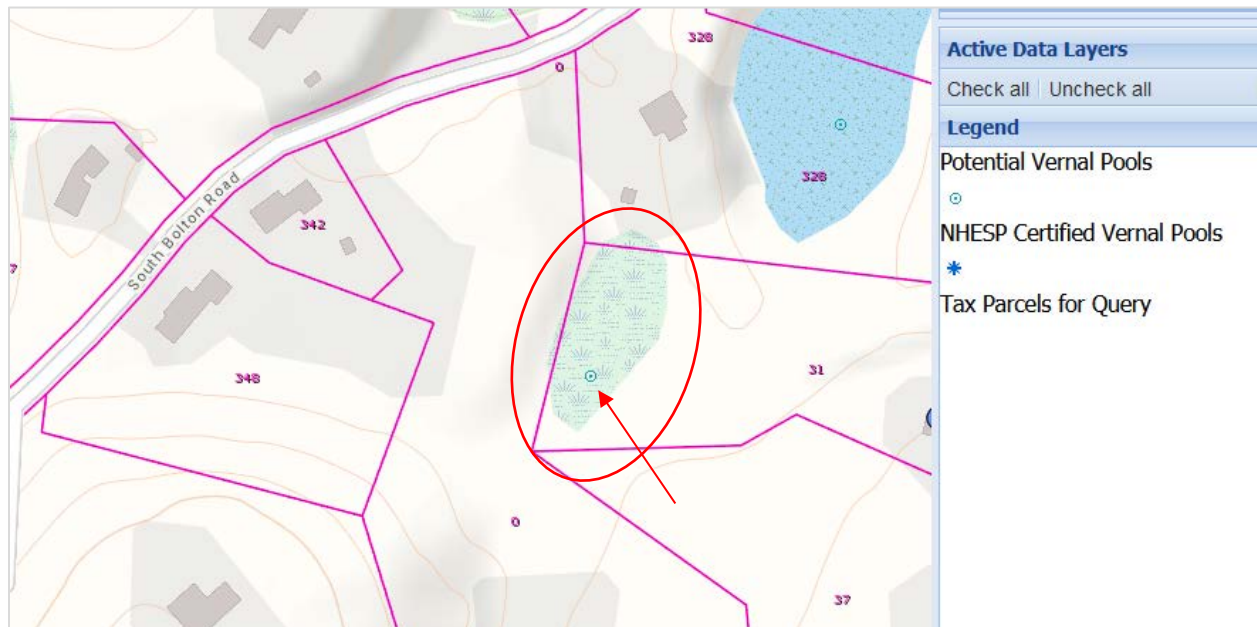


Image 2. Screenshot of MassGIS data indicating that the isolated wetland is identified as a Potential Vernal Pool (PVP).

In speaking with the Conservation Agent, we understand that a local school group has collected sufficient data to certify this wetland area as a state-recognized Certified Vernal Pool. However, in accordance with Section 3.07(3)(e), the Conservation Commission may recognize and regulate vernal pool habitat regardless of its NHESP certification status.

Section 3.07 of the local wetlands regulations defines vernal pools as follows:

*(...) Vernal pools are found across the landscape where small woodland depressions, swales or kettle holes collect spring runoff or intercept seasonally high groundwater tables. They may not be connected to other wetlands. Any wetland resource exhibiting these characteristics can be considered a vernal pool and may or may not be certified.*

Section 3.07(2) contains a rebuttable presumption:

*Where a freshwater wetland's physical characteristics conform to those defined for vernal pool habitat, the Conservation Commission shall presume the existence of a vernal pool and vernal pool habitat. This presumption is unconditional and shall be made notwithstanding certification or lack thereof by the Massachusetts Division of Wildlife and Fisheries and notwithstanding the site might not be located within another Resource Area.*

Based upon this, and the information from the Conservation Agent, it is HW's professional opinion that this wetland area meets the presumption under the local regulations as a vernal pool. The Grading & Drainage Plan indicates that portions of the proposed access road, portions of three of the proposed structures, installation of a sewer line, site grading, and construction of a structural retaining wall in closest proximity to the wetland area (i.e., just outside of the 25-foot wetland buffer as shown). Additional work may occur within jurisdiction of the other wetland area (Photo 6). Finally, the project site entrance will result in grading within the buffer zone to the wetland across South Bolton Road to the north.

3. As the performance standards for work within 100-feet of a vernal pool are more stringent and include a limitation on the removal of trees within 100 feet of a vernal pool, we recommend that the Applicant at a minimum file an ANRAD with the Conservation Commission to confirm the wetland boundary as recommended above, and quantify the removal of trees in this area as well as the amount of disturbance within vernal pool habitat, such that the Town may better understand the environmental implications of the extent of work proposed within the 100-foot buffer. Similar calculations should be presented for the project work within the buffer zone to the other wetland areas.

Given the proximity of proposed work within 25 feet of the isolated wetland area, the wetlands regulations under Section 3.02(3) grant discretion to the Conservation Commission to seek mitigation commensurate within the scope of the project.

4. Should the Town determine that the project has met its burden for avoiding and minimizing impacts to resource areas and the AURA, we recommend that the Town consider appropriate mitigation measures for this project site.

Once the Applicant has provided this additional information to the Town, HW may have additional comments regarding the protection of wetland resource areas and specifically on the local interests protected under the local wetlands bylaw and regulations.

### Relief Sought from Local Wetlands Bylaw and Regulations

5. HW recommends that the Applicant specifically state if it is seeking relief from the local bylaws as part of the Comprehensive Permit application, including under §233 – Wetlands to allow for alterations within the adjacent upland resource areas (AURA).

The local wetlands bylaw requires that the Applicant consider project alternatives:

*Where the presumption set forth in Section 1.18.2 is not overcome, the Applicant shall prove by a preponderance of the evidence that there are no practicable and substantially equivalent economic alternatives to the proposed project with less adverse effects on the interests identified in Section 1.18.1. Further, the Applicant shall prove that the work including proposed mitigation will have no significant adverse or cumulative adverse effect on the resource areas or resource interests.*

6. HW recommends that the Town take into consideration the need for the Applicant to demonstrate to the satisfaction of the Conservation Commission that all efforts have been made to avoid and minimize resource area and local buffer (AURA) alterations when reviewing the Comprehensive Permit application.

### Stormwater Review

The proposed stormwater management includes a closed drainage system consisting of deep sump hooded catch basins, drain manholes, and proprietary treatment units, and two (2) subsurface infiltration chamber systems. The proposed disturbance is greater than one acre and within the 100-foot buffer zone of a BVW. HW based our review on the MassDEP's Stormwater Management Standards, and standard engineering practice.

After reviewing the documents listed above, HW offers the following comments concerning the stormwater management design per the standards of the Massachusetts Wetlands Protection Act (310 CMR 10.00) and the Massachusetts Stormwater Handbook (MSH) dated February 2008. Below are comments relating to the standards as presented in the MSH:

1. *Standard 1 states that no new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands of the Commonwealth.*
  - a) Approximately 1,500 square feet (sf) of the roadway entrance appears to flow untreated into South Bolton Road, and ultimately into the wetland across the street. The calculations show that the peak runoff rate will be less under proposed conditions than existing however, the entrance is located very close to Infiltration Area A and it appears that runoff from the entrance could be captured in catch basins and piped to the proposed closed drainage system fairly easily. HW recommends that the Applicant consider this as an option.
  - b) HW recommends that the Applicant confirm that any stormwater runoff flowing into a wetland resource area will be treated and will not cause erosion into the wetland including the resource area across South Bolton Road.

2. *Standard 2 requires that the stormwater management systems be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

- a) The Applicant provided the HydroCAD model for the 2-year, 10-year, 25-year, and 100-year storm events. The precipitation rates utilized are not comparable to the NOAA Atlas 14, the Cornell Extreme Precipitation, or the Technical Paper-40 (TP-40) rates for Worcester County. HW recommends that the Applicant clarify where the precipitation rates used were derived from and adjust to use the higher values from the commonly used references mentioned. HW understands that MassDEP is in the process of revising the Massachusetts Stormwater Handbook and will likely be requiring the use of the NOAA Atlas 14 depths of precipitation.

<b>Storm event</b>	<b>Applicant's values inches</b>	<b>TP-40 values inches</b>	<b>NOAA Atlas 14 inches</b>
2-year	3.10	3.0	3.25
10-year	4.50	4.5	4.98
25-year	5.40	5.3	6.05
100-year	7.00	6.5	7.71

- b) Pipe sizing calculations were not included in the submittal, HW recommends that the Applicant provide sizing calculations for a 25-year storm event using the rational method.
- c) A proposed tree line is not shown on the plans making it difficult to verify the types of cover used in the calculations. HW recommends that the proposed tree line be added to the plans.
- d) There appears to be an error for the rim elevation for DMH-2. HW recommends that the Applicant review and revise as needed.
- e) There appears to be only 2.5-feet of cover over several pipes. HW recommends that the Applicant confirm that this is adequate for loading under pavement and that the drainage structures will be able to be constructed with inverts at the proposed elevations.
- f) The proposed roofs are directed towards the closed drainage system and through the proprietary treatment devices prior to infiltration. Roof runoff is considered "clean" and could be infiltrated directly from the downspouts. HW recommends that the Applicant investigate this option to decrease the amount of flow through the proprietary treatment device.
- g) As currently shown, there is a maximum of nine feet of cover over Infiltration Area A. The grading appears off, the proposed grades tie back to the existing grades however the entire area will need to be cleared and excavated to install the subsurface system. HW recommends that the Applicant revisit the proposed grading over Infiltration Area A and confirm that the amount of cover is suitable over the proposed structures.
- h) The plans illustrate an existing leaching catch basin off South Bolton Road that is close to the proposed Infiltration Area A. During the site visit it was confirmed that this basin



has been recently replaced by the Town to be a catch basin with a beehive grate that pipes stormwater under South Bolton Road towards the wetland across the street. HW recommends that the Applicant confirm that construction in this area will not impact the existing catch basin.

- i) There is no emergency overflow for the infiltration chambers. The 100-year storm peak elevation is only four-inches below the flood elevation of the chambers for Infiltration Area B. HW recommends that the Applicant include an emergency overflow should there be a clog or failure in the future.
  - j) The calculations provided refer to a sediment forebay but it does not appear that a sediment forebay is proposed. HW recommends that the calculations be revised as needed.
  - k) HW recommends that the Applicant consider adding an isolator row to the subsurface infiltration chambers to extend the life expectancy of the system.
3. *Standard 3 requires that the annual recharge from the post-development site approximate the annual recharge from pre-development conditions based on soil type.*
- a) The Applicant has indicated that the hydrologic soil group (HSG) is A, B, and B/D as listed on the Natural Resources Conservation Services (NRCS) soil survey. Subsurface test pits were conducted on-site specifically for the proposed subsurface wastewater treatment system, but these locations are not shown and soil logs were not provided. It does not appear that any test pits were performed for the proposed subsurface stormwater system. In accordance with Volume 2, Chapter 2, page 97 of the MSH the Applicant is required to conduct a minimum of two test pits within each infiltration system. HW recommends that the Applicant conduct additional testing as required in the MSH.
  - b) The separation distance to estimated seasonal high groundwater (ESHGW) is not clear from the information provided, and the Applicant is proposing to infiltrate the stormwater entering the systems from a 100-year storm event. HW recommends that the Applicant determine the elevation of the ESHGW and provide a mounding analysis in accordance with Volume 3, Chapter 1, page 28 of the MSH if applicable.
4. *Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids (TSS) and to treat 0.5-inch of volume from the impervious area for water quality.*
- a) The Applicant has provided the required water quality calculations to verify compliance with Standard 4 in Appendix F of the Stormwater Report. The calculations as presented appear reasonable. However, HW recommends that the Applicant confirm that the proprietary device has adequate capacity for the bypass flow during larger storm events.
5. *Standard 5 relates to projects with a Land Use of Higher Potential Pollutant Loads (LUHPPL).*
- a) A residential development is not considered a LUHPPL; therefore, Standard 5 is not applicable to this site. No further action required.

6. *Standard 6 relates to projects with stormwater discharging into a critical area, a Zone II or an Interim Wellhead Protection Area of a public water supply.*

- a) The project site does not appear to discharge into a critical resource area; therefore, Standard 6 is not applicable to this site. No further action required.

7. *Standard 7 relates to projects considered Redevelopment.*

- a) The proposed development is considered new development; therefore, Standard 7 is not applicable to this site. No further action required.

8. *Standard 8 requires a plan to control construction related impacts including erosion, sedimentation or other pollutant sources.*

- a) HW recommends that the Applicant include a tree protection detail and clearly illustrate on the plans any specific trees to be protected and the proposed tree line. HW further recommends that trees greater than 10-inch diameter be located on the existing conditions plan and trees within the Town right of way be clearly documented.
- b) HW recommends adding construction fence surrounding the infiltration areas during construction to protect from compaction due to equipment. Adjustment of the construction sequence may be required for the infiltration area underneath the cu-de-sac.
- c) A note on the ESC Detail Sheet (B5) indicates that dewatering will be provided as needed. HW recommends that a detail for dewatering be provided along with proposed locations.
- d) Note C5 mentions that stockpiles are to be protected. HW recommends that stockpile locations be indicated on the plans and that these areas be located outside of the buffer zones as well as away from any proposed infiltration areas.
- e) Notes under Section D of the ESC Details contain conflicting depths for loam and specifications for erosion control blankets. HW recommends that these notes be reviewed for consistency. HW also recommends that all slopes that require erosion control blankets be indicated on the plan.
- f) Snow storage areas are noted to be away from wetlands but are not clearly indicated on the plans. HW recommends adding locations for snow storage to the plans.
- g) The property will be disturbing more than 1 acre of land and will therefore be required to develop a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Program. The Applicant has noted on that it will provide the Town of Bolton with a copy of its SWPPP prior to construction.

9. *Standard 9 requires a Long-Term Operation and Maintenance (O&M) Plan be provided.*

The Applicant has provided an O&M plan for this project in the Stormwater Report. HW has the following comments:

- a) Subsurface infiltration areas are noted to be maintained “regularly” this should be modified to state twice per year per the MSH.

- b) The O&M Plan should clearly document who is responsible for the long-term maintenance of the stormwater practices.
- c) A simple figure should be attached to the O&M Plan noting the location of the various stormwater practices.

10. *Standard 10 requires an Illicit Discharge Compliance Statement be provided.*

- a) To comply with Standard 10 an Illicit Discharge Compliance Statement signed by the property owner must be provided to the Town prior to the discharge of stormwater.

11. *Water and Wastewater Comments:*

- a) The Applicant is utilizing a flow of 150 gallons per day per two-bedroom unit for the wastewater flow. Floor plans submitted clearly show three bedrooms for all three proposed home styles. HW recommends that that Applicant revise the design flow to reflect 110 gallons per day per bedroom. Typically, the 150 gallons per day per two-bedroom unit is reserved for apartment style/nursing home buildings, not single family detached homes. The Applicant has stated that it has documentation from MassDEP stating that these detached houses can each be considered one unit. HW recommends that this documentation is provided to the ZBA prior to a decision.
- b) The Applicant has proposed a single location for the septic tanks for all 11 homes. HW recommends providing tanks closer to the homes to allow for solids to settle prior to discharging down the entire length of the roadway. The Applicant informed HW that the wastewater design will be changed to provide individual septic tanks for each house. HW recommends that a revised plan be submitted illustrating the locations of the septic tanks.
- c) HW recommends that the Applicant add the proposed drainage pipe, sewer gravity pipe as well as the sewer force main to the road profile on Sheet C3.2 with pipe sizes and manhole structures clearly labeled. There is approximately 1,500 feet of sanitary pipe proposed to be installed and there appear to be alternative designs that may be preferable. Long lengths of sewer pipe increase the likelihood of clogs.
- d) It is unclear if the well should be considered a community water service based on the number of people served. This should be clarified by the appropriate Town Department and MassDEP. HW recommends that formal documentation approving this well as a community well be provided to the ZBA prior to a decision.

12. *Additional Comments:*

- a) Signatures/stamps are missing from the Stormwater Management Checklist and the Stormwater Report Form. HW recommends that these documents be signed/stamped.
- b) The Applicant states in the narrative that the project has been laid out in a manner that works with the existing topography. During the site visit the Applicant stated that the cut/fill for the site was balanced by the design engineer. It appears that there may be a significant amount of earthwork (both cut and fill) for the proposed roadway and throughout the site. Several steep slopes (2:1) and a retaining wall 12-feet in height at one point are proposed. HW recommends that the Applicant revisit the proposed

grading, provide slopes at 3:1 to the maximum extent practicable and provide cut/fill calculations. Furthermore, HW recommends that the Applicant estimate the number of truck trips required for the proposed grading (either fill or soil removal).

- c) There are several discrepancies in the document submitted, the number of bedrooms varies in different locations in the documents and the plans do not reference the site being permitted as an over 55 development. The existing conditions narrative does not mention the gravel drive and states that most of the development occurs outside of the 100-foot buffer zone however there is a retaining wall proposed just outside of the 25-foot buffer zone. HW recommends that the Applicant revisit the narrative and revise as applicable.
- d) The Applicant states that the cul-de-sac has been designed to meet the Subdivision standards, but it does not appear that the outside pavement diameter meets the requirement of 120-feet (100-feet proposed) or the center island diameter of 50-feet. As designed, the entire cul-de-sac is paved. Increasing the outside diameter to the minimum requirements should allow for adequate emergency vehicle access. HW recommends that the Applicant review the design with the applicable town departments including the Fire Department and the Department of Public Works. A pervious inner island would allow opportunity for infiltration while also decreasing the proposed impervious surface.
- e) The proposed retaining wall appears to range in height from one to twelve feet and is located just a few feet from the pavement edge. HW recommends that the Applicant consider a guard rail barrier at the edge of the roadway.
- f) It is unclear what will happen to the portion of the existing gravel drive located outside of the property. HW recommends that the Applicant consider contacting the adjacent property owner to see if this area could be restored to protect the wetland buffer as part of this project.
- g) There are a few areas on the plan where grading appears to be incomplete (behind homes 1, 3, 8, and 9 and Infiltration Area A). Additionally, there are a few areas on the plan where existing topography is missing (behind homes 2 and 3 and Infiltration Area A). HW recommends that the Applicant revise the plans to include grading for these areas.
- h) HW recommends that a Landscape Plan be provided. At a minimum, a proposed tree line should be indicated on the plans to show any existing trees to remain and to provide buffers to neighboring properties.
- i) HW recommends that existing and proposed grades be added to the roadway profile and that the scale for the profile be comparable to the site layout. Additionally, pipes (water, sewer, drainage, etc.) should be shown on the profile to check for conflicts.
- j) It is unclear if the proposed development will have above ground or underground electric, telephone, and cable. Locations for anticipated services should be added to the plans to determine conflicts with other below ground utilities, and to ensure there is

adequate room for utility poles or manholes/transformers to be placed given the proposed grading/retaining walls.

- k) In accordance with the Federal Highway Administration, stopping sight distance to an intersection should be 200 feet from a road posted at 30 miles per hour. HW recommends that the Applicant confirm the available sight distance for exiting the site. It appears that the sight distance to the east on South Bolton Road may be adequate however the stopping sight distance to the west may be short. HW further recommends that no plantings are proposed within the sight distance triangle in either direction.

### **Conclusions**

HW recommends that the Bolton Zoning Board of Appeals require that the Applicant provide a written response to address these comments as part of the permitting process. The Applicant is advised that provision of these comments does not relieve him/her of the responsibility to comply with all Commonwealth of Massachusetts laws, and federal regulations as applicable to this project. Please contact Janet Carter Bernardo at [jbernardo@horsleywitten.com](mailto:jbernardo@horsleywitten.com) or at 508-833-6600 if you have any questions regarding these comments.

Sincerely,

**Horsley Witten Group, Inc.**



Janet Carter Bernardo, P.E.  
Associate Principal



Amy M. Ball, PWS, CWS  
Senior Ecologist