

September 12, 2019

Winifred I. Li, Chair
Weston Zoning Board of Appeals
11 Town House Road
Weston, MA 02493

RE: Cover Letter for Peer Review Comments on for Modera Weston

Dear Ms. Li and Members of the Board:

On behalf of Weston BPR LLC (“Applicant”), we respectfully submit the enclosed peer review comment responses, updated plans, and updated analyses in anticipation of our next scheduled meeting with the Board on September 23rd.

The level of detail required to respond to the peer review comments is greater than we are accustomed to undertaking at this point in a 40B application particularly in view of the magnitude of site plan adjustments made soon after our initial application. Nevertheless, a tremendous amount of work has been undertaken over the last many weeks to advance the detailed designs of the development. A substantial portion of the peer review comments have been responded to, and our work will continue as we refine the project over the coming weeks and months.

We look forward to continuing the discussion with you on September 23rd.

Please feel free to contact me if I can be helpful in any manner.

Respectfully submitted,



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CC: Mark Romanowicz, Salt Marsh Design
Debbie Horwitz, Goulston & Storrs



September 12, 2019

Zoning Board of Appeals
Town of Weston
Town House Road
Weston, MA 02493

Re: Modera Weston – 751-761 Boston Post Road, Weston, MA

Dear Board Members:

Howard Stein Hudson (HSH) has received the review comments prepared by MetroWest Engineering, Inc. dated August 7, 2019 (the “Review Letter”) regarding the Modera Weston Project located at 751-761 Boston Post Road. We offer the following responses to the detailed review comments starting on Page 3 of the Review Letter:

GENERAL COMMENTS

Wetland Impacts:

The project proposes extensive work within the 100-foot buffer zone to wetland resources and will require that an Order of Conditions be obtained either from the Weston Conservation Commission (WCC) or, if an appeal of the local order is necessary, the Massachusetts Department of Environmental Protection (MADEP). Of the work in the wetland buffer zone, substantial work is required within 25-feet of the wetland border, with some work as close as 5-feet to the wetland border. The WCC has a policy that no work occurs within the 25-feet of the resource edge and has identified this area as a No Disturb Zone (NDZ). The WCC has been consistent in enforcing this policy on both public and private projects.

The WCC does have a written waiver policy for working in the NDZ, but the present proposal likely does not meet the standards set forth in that policy. Weston does not have a local wetland bylaw, so the policy does not carry the weight of a local regulation and the state wetland protection regulations, 310 CMR 10.00 do not call for a similar NDZ. In the event that the WCC does not grant a waiver from its NDZ policy, the applicant would either have to make significant design changes to receive local approval or seek a Superseding Order of Conditions from MADEP. Should MADEP intervention be sought, a significant delay in permitting process will occur and the MADEP review could result in project changes that require the ZBA to amend any approval that may have been granted. I recommend that this issue be addressed as quickly as possible as it is a critical element for the project as proposed to move forward.



Response: The applicant has made every effort to provide the 25-foot setback or No Disturb Zone (NDZ) defined by the Weston Conservation Commission (WCC) and has provided that setback on nearly all, but not all, of the developed area.

The applicant has requested a waiver of the WCC's NDZ policy. Since the Project is being permitted under M.G.L. c. 40B, the local Conservation Commission's No Disturb Zone policy (as opposed to the state Wetlands Protection Act), the Conservation Commission (in its role as advisor to the Zoning Board of Appeals) and the Zoning Board of Appeals will need to review the merits/facts of the proposal and would have to have scientific reasons specifically related to the Project proposal in order to deny a waiver of this local policy.

Additional Background Information: We think it's important to retrace the evolution of the process leading up to the current proposal. The applicant had initially proposed development on the southerly upland parcel and the north westerly upland parcel including a wetland crossing for access. During the initial conversations with the neighbors, boards and agencies there was some support for development on both parcels (since it would move a portion of the proposed development to the north westerly upland parcel which would reduce the density next to the majority of the direct neighbors). During those initial conversations there was also strong support for development on the southerly upland parcel only. The north westerly upland parcel is adjacent to wetlands and the Town of Weston owned forest land, so it was viewed by many to be an ideal woodland parcel to be protected. During this timeframe there were continued conversations with the Conservation Commission regarding the overall benefits of preserving the north westerly upland parcel and eliminating the wetland crossing. Based on those requests, Mill Creek agreed to preserve the existing woodlands at the north westerly upland parcel, the existing upland field and the wetlands (approximately 80% of the Property Mill Creek is acquiring) without development.

More recently, in response to concerns raised by direct abutters, we have relocated the majority of the amenity programming, particularly the outdoor amenity programming, from its initial position at the southerly portion of the site along Boston Post Road to the area between the two mid-rise buildings located on the northerly side of the development area. That move creates an extensive buffer between the active amenity center and the neighbors. However, relocating the amenity center to this new location did create a pinch-point at a nearby wetland. It should be noted that the wetland area in question was initially a borrow pit for gravel used during the early development of the farm and is "cut off" from the main wetland area by an existing active Cart Road. (See Figures 1 and 2.)



Together, this is a significant impact reduction on the overall property as compared to the initial concept that proposed development on both major upland parcels with a wetland & stream crossing for the access roadway. The proposed project has been designed to avoid adverse impacts to the downgradient Wetland Resource Areas.

Figure 1. Existing Conditions

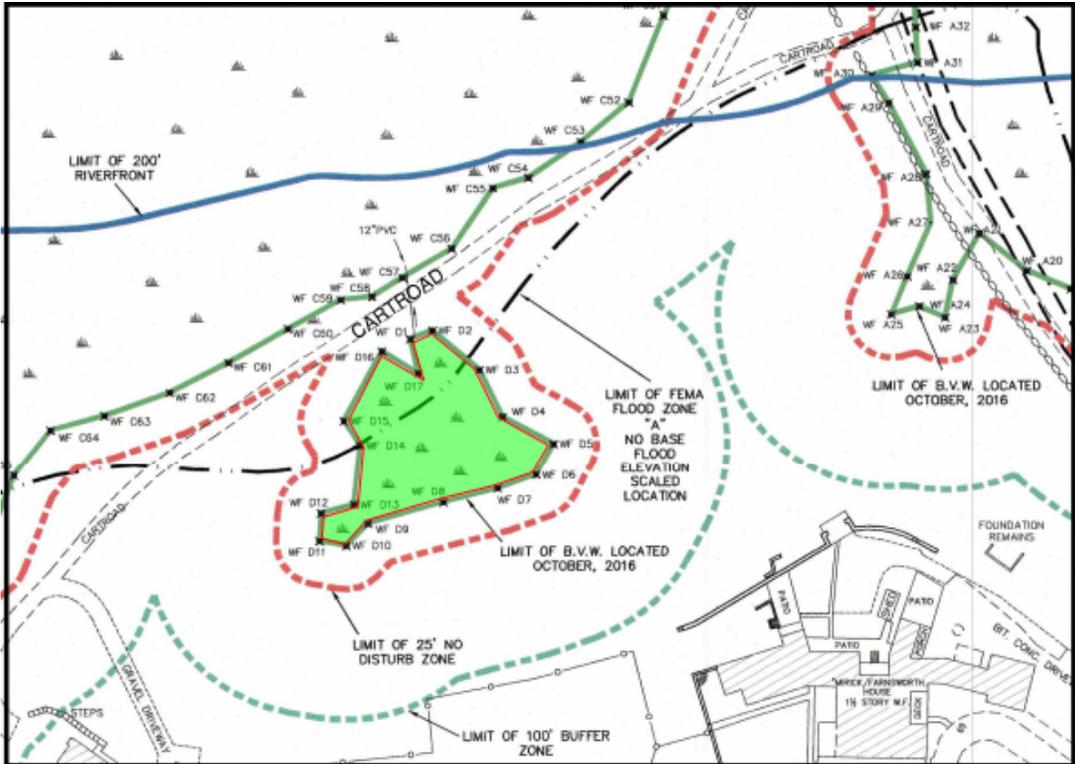
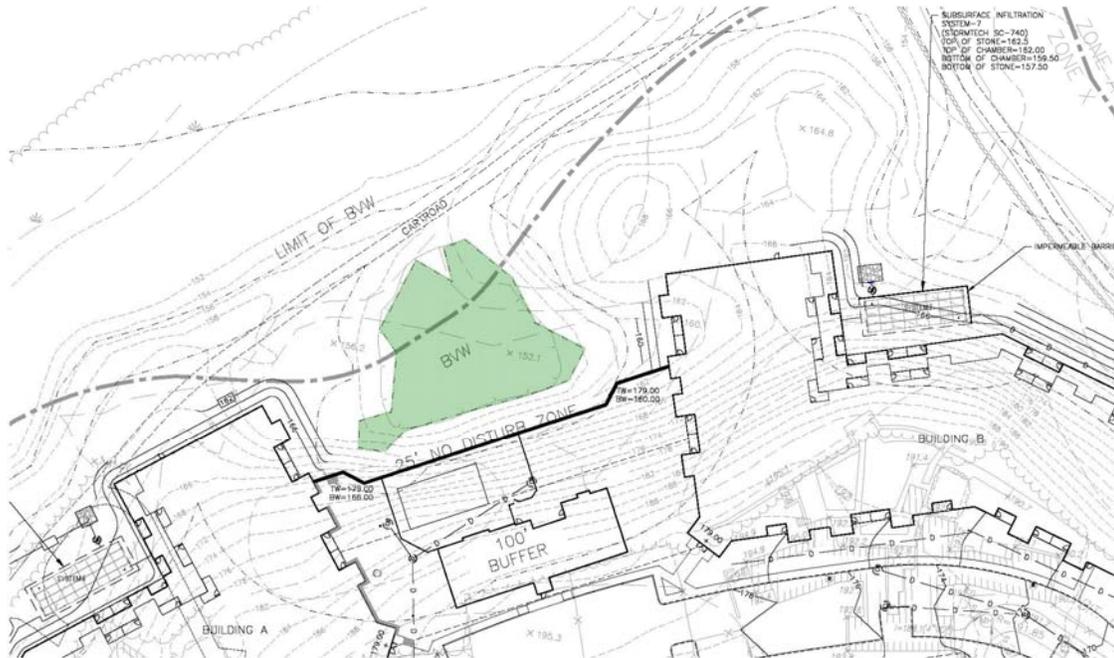




Figure 2. Proposed Conditions



Fire Department Access Review:

The largest of the proposed apartment buildings, Buildings A and B, have emergency access limited to the front of the building, with no emergency equipment vehicular access along the rear of the buildings. The applicant should confirm with the Weston Fire Department (WFD) that the emergency access provided is sufficient. Any requirement for emergency access to the rear of these buildings will result in major design changes.

Response: Over the last several months, the applicant has held multiple meetings with the Weston Fire Department (“WFD”). The WFD has been kept up to date on the project’s design considerations and evolutions, including this final plan. While the WFD’s review is ongoing, the WFD has thus far not indicated that emergency access to the rear of Buildings A and B is required. The applicant’s most-recent meeting with the WFD occurred on the same date as this letter (September 12, 2019), and the feedback received will be incorporated into future minor revisions to the plans.

Elliston Road Emergency Access:

Prior to the current proposal my firm had performed a property survey of the subject property. In performing that survey, we researched the history of Elliston Road at the Weston Town Clerk’s



Office. We found that the full 50-foot width of the road was accepted by the Town to a point about 50-feet to the south of the locus. A 25-foot wide highway easement was also taken by the town on the westerly half of Elliston Road, extending from the accepted portion of Elliston Road to the southerly boundary of the locus. It thus appears that the subject property has rights to extend its emergency access lane only to the west half of Elliston Road, and not to the east half of the road. The applicant's land surveyor and land attorney should review the town acceptance of Elliston Road along with the relevant Land Court Documents and confirm that the emergency access proposed is consistent with the actions of Town Meeting in accepting the road and the easement. I have enclosed a copy of the plan for Elliston Road.

Response: The proposed emergency access for use by Weston safety officials is consistent with the easement and the vote of Town Meeting to accept the road and the easement. The Town took the fee in Elliston Road in the location where it currently exists pursuant to an Order of Taking recorded June 19, 1989, with the Middlesex South Registry District of the Land Court as Document No. 801169. As noted above, as currently constructed, Elliston Road does not abut the Project site; there is an approximately 50-foot area between the locus and Elliston Road (the "Road Easement Area"). On September 25, 1989, the Town accepted an easement over the Road Easement Area to maintain, repair and use the same for all purposes for which streets and ways are used in the Town, in common with the rights of others lawfully entitled thereto. The vote and easement were recorded on November 6, 1989, with the Middlesex South Registry District of the Land Court as Document No. 810328. Having the right to use the easement area for all purposes which ways are used in the Town, includes without limitation, the right to create a road and install utilities.

City of Cambridge Watershed Management Division of Water Department:

Cherry Brook, a tributary to The City of Cambridge Stony Brook Reservoir public water supply, runs through the locus. The applicant should request that the Cambridge Water Department review the project and provide written comments to the Board.

Response: The applicant has had three meetings with Jamie O'Connell, Watershed Protection Supervisor and David Kaplan, Watershed Manager of the City of Cambridge Water Department. The Cambridge Water Department will receive notice of the Notice of Intent filing and we expect that it will review and provide any formal comments at that time.



Topographic Survey:

The topographic survey of the Existing Conditions was performed by an aerial survey, which is generally acceptable. There are, however, certain areas of the site that require additional details that is best accomplished by supplementing the aerial survey with an on-ground survey. Specific needs are as follows:

1. An existing catch basin is located on Boston Post Road about 100-feet east of the driveway at 775 Boston Post Road. The catch basin and its outlet should be added to the plan.

***Response:* Additional field survey was performed. The existing catch basin and outlet have been added to the plan.**

2. The above-referenced catch basin discharges flow into a channel that runs over the locus and then over the 775 Boston Post Road driveway. This channel should be located and shown on the plan.

***Response:* The existing channel was field located and added to the plan.**

3. The hydrologic model (discussed later) routes flow through a “southwest depression”. This is not well-documented on the Existing Conditions Plan. Spot grades should be added to verify the depth, lateral extent and storage volume in the depression as well as the length of the overflow spillway, as input into the model.

***Response:* Additional field survey was performed. The additional survey shows that the depression is on the property of 775 Boston Post Road and has a 22-inch culvert that directs flow under the driveway of 775 Boston Post Road. As this depression is located off-site, it has been removed from the hydrologic model. However, the model does analyze the watershed contributing to this depression to ensure that peak runoff flows and volumes will remain at or below existing conditions in the post-development condition.**

4. Spot grades should be added along Boston Post Road between the properties at 741 Boston Post Road and 4 Elliston Road. This data is needed to identify where the high point is along Boston Post Road to determine the contributing watershed to the previously mentioned catch basin and channel near 775 Boston Post Road.

***Response:* Additional field survey was performed and the requested spot grades have been added to the plan.**



5. Additional spot elevations are required around the house and driveway at 751 Boston Post Road to confirm the watershed boundary used in the model. Also, the plan does not appear to identify all of the existing driveway on the east side of the house.

Response: Additional survey information was collected and included in the existing conditions plan.

6. The existing trees within the portion of the project to be developed should be added to the plan so that an assessment may be made of trees to be removed and trees to remain. Additionally, tree along the common boundary lines with the properties at 741 and 745 Boston Post Road and 3 and 4 Elliston Road should be located and shown on the plan, as these trees could potentially be impacted by construction.

Response: The Applicant has agreed to a substantial and extensive effort to lower and regrade the development area in order to respond to abutter, neighbor, and other stakeholder concerns regarding the visual impacts of the project. The Applicant agrees to conducting an appropriate tree survey prior to issuance of the building permit with an effort toward minimizing impacts on existing trees within and abutting the property to extent reasonably practicable.

7. Trees and stonewalls along the Boston Post Road frontage should be shown. Boston Post Road is a scenic road and any removal of trees or stonewall within the right-of-way will require a scenic road permit as part of the Comprehensive permit.

Response: The tree limit, not individual trees, and stone walls are shown on the plan. The limit of tree clearing and stone wall removal will be shown on the Demolition & Erosion Control Plan (not included with this submission).

8. The Existing Conditions Plan should be signed and stamped by a MA Registered Professional Land Surveyor.

Response: The signed and stamped Existing Conditions Plan is included with this submission.

PROPOSED GRADING PLANS:

The proposed grading for the project is shown on Sheets C3.00 and C3.01. I have a number of grading concerns, some serious, as follows:

1. The parking lot grading along the north side of the entrance drive to the wastewater treatment plant (see Sheet C3.00) is in error and contains a two-foot bust in the grading



contours. The plans indicate a back of curb/bottom of curb grade of 202-feet/200-feet at one location and 204-feet/202-feet at another location, indicating a two-foot elevation change at the curb line. Given that the bituminous asphalt curb has a 6-inch reveal, this is not possible.

***Response:* Grading of the area in question was revised per reviewers comment, to eliminate steep grade change.**

2. A more significant grading error is present along the proposed emergency extension of Elliston Road. The grading, as shown on sheet C3.01, shows the existing end of Elliston Road with an elevation of 176-feet. The extension meets the main project road between Buildings TH-8 and TH-9 at elevation 172-feet, plus or minus. The plan shows the emergency road dividing two large landscaping berms, with a road grade of about 174-feet. This is a problem given the toe of the slope of the westerly berm, immediately adjacent to the road, is at elevation 178-feet, four feet higher than the road. There is 4-foot grading error here at a critical location of the project. This is a point where a road crossing, a significant landscaping berm and a major drainage system all converge at a confluence point. It is essential to get the grading issues right at this location.

***Response:* To maintain existing drainage patterns, a depression has been added between the westerly berm and the emergency access road to collect stormwater runoff from the existing swale to the west of the road and convey it to the depression to the east of the road via an 18-inch pipe. The road elevation has been raised in this location from 174 feet± to 176 feet±**

3. The landscaping berm to the east of the Elliston Road extension fills a substantial portion of an existing depression, referred to in the design documents as the “Southeast Depression”. This depression straddles the boundary line between the subject property and property at 6 Elliston Road. At present, this depression serves as a stormwater collection and storage basin for about 3-acres of the locus. More importantly, this same depression collects and stores stormwater for several acres of property that is off-locus, including runoff from Elliston Road, properties at 3, 4 and 6 Elliston Road and properties at 741 and 745 Boston Post Road. All of these properties flow into the “Southeast depression”. The proposed grading plan (construction of the landscaping berm) eliminates about 60 percent of the stormwater storage volume in this depression. This grading scheme therefore has the potential to displace stormwater from the locus and onto the property at 6 Elliston Road, thereby damaging that property. This topic will be discussed in greater detail in the section of this report that discussed the hydrologic model and hydrologic impacts.

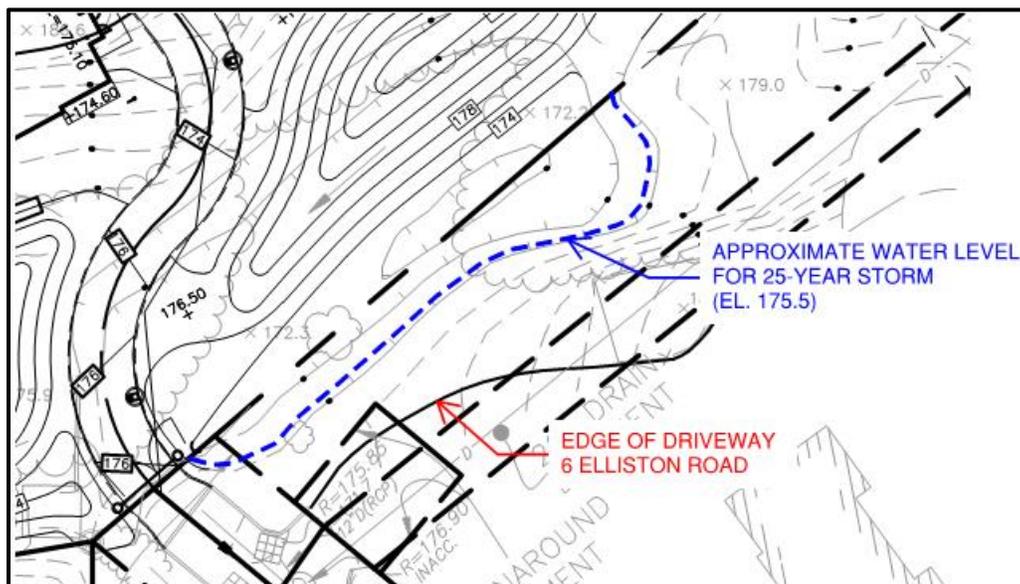


Response: The calculations have been revised to include off-site areas. The low point of the depression overlaps the property line between the Project Site and 6 Elliston Road. The peak elevation in the depression increases slightly in proposed conditions for the 2, 10, and 25-year storm events, but water levels remain near the property line and do not reach the driveway of 6 Elliston Road (see Figure 3). We are continuing to evaluate this area to further improve conditions.

The peak elevation in the depression decreases slightly in the proposed conditions for the 100-year storm event. This is the result of setting the overflow from the depression at Elevation (EL.) 175.50'. This overflow is directed to the wetlands within the Project Site.

The emergency access has been re-graded to include a high point between Elliston Road and the proposed Townhomes so major storm events will not back up from the depression and flow towards the Townhomes.

Figure 3. Water Level at Depression



4. A significant landscaping berm is also proposed along the entrance driveway, adjacent to the property at 745 Boston Post Road (BPR). The natural topography at the 745 BPR property is such that under present conditions, stormwater flows from 745 BPR and onto the subject property, before eventually reaching a swale on property located at 741 BPR. The proposed landscaping berm will alter this natural flow pattern by creating a new slope along the boundary between the locus and 741 BPR. This will channelize flows to a greater degree



than exists now and has the potential to create a distinct drainage channel where none now exists. This could in turn create long-term erosion and sedimentation issues and may impact the health of mature trees on the property at 741 BPR. The applicant should quantify the flow expected along the joint property boundary and assess the potential for adverse impacts. An arborist should be consulted with to evaluate the potential long-term impact of the grading and drainage alterations to the health of mature trees on the property at 745BPR.

Response: This area has been re-graded to maintain a 10 foot offset between the property boundary of 745 Boston Post Road and the toe of the berms as recommended. This change moves the flow of the swale onto the Project Site until it reaches the existing swale that travels along the backside of the property at 745 Boston Post Road. The entire flow to the existing swale, including but not limited to the portion along the westerly property line of 745 Boston Post Road, is only 0.14 cubic feet per second (cfs) and would not be considered erosive, particularly after the area is stabilized with landscaping.

The applicant consulted with an arborist as requested. The modification to the grading adjacent to 741 and 745 will not have an adverse effect on the tree growth. There are two mitigating factors: (1) the abundance of well drained soils on the property and surrounding properties, and (2) the fact that the existing swale on 741 Boston Post Road provides a positive drainage not allowing any ponding of surface water.

5. Similar to the above discussion, the proposed landscaping berm behind the properties at 741 and 745 BPR will direct runoff from the south side of the berm onto those properties. The toe of slope for the berms adjacent to abutting properties should be adjust so that it does not reside right at the property boundary. A ten-foot offset between the property boundary and the toe of slope of berms along abutting properties should be maintained. Additionally, the engineer should assess whether the newly formed swale along the common property boundaries will convey greater flow than in the existing condition.

Response: The area has been re-graded to keep proposed grading 10-feet from the property line, except at the depression created on the Project Site at the emergency access road. The existing flow pattern has been maintained, but the area contributing runoff to the natural swale running along the property line has been reduced with the introduction of the proposed berms. Currently area denoted as Ex-3 on the “Existing Drainage Areas” plan is contributing runoff to the swale and post development an area denoted as Pr-20 on the “Proposed Drainage Areas” plan will be contributing runoff to the swale. Stormwater runoff



to the swale and depression along the common property boundaries will be maintained or reduced in the proposed conditions. This is the result of grading and drainage for the proposed main entry, townhomes and berms cutting off a significant area that used to drain to the swale and depression.

6. The grading shown on Sheet C3.00 is incomplete in the vicinity of the west end of building TH-3. The proposed building is located just outside of the NDZ. The first-floor elevation is 177.12-feet and the elevation 30-feet to the west is 160-feet, a difference of 17-feet. It is unclear how this grading will be accomplished without intrusion into the NDZ. I also note that the plan calls for grading within 60-feet of a vernal pool. The Conservation Commission may raise concerns over the proximity of work to the vernal pool.

***Response:* Existing and proposed contours have been added in this location. This Townhome has a walk-out basement at elevation 166.45 feet. The grade difference (i.e. elevation 177.12 to 166.45) is made up along the westerly wall of the building. The grading is kept outside of the NDZ. The grading is within 70 feet of the vernal pool. However, there is no state regulation prohibiting this.**

7. Similarly, incomplete grading is shown on the north (rear) sides of Buildings TH-3 and Th-4. The plans should be revised to indicate the full extent of required grading and any additional intrusions into the NDZ.

***Response:* Existing and proposed contours have been added to this area to clarify the extent of grading. The grading is kept outside of the NDZ**

8. It is unclear whether the proposed grading for the proposed stormwater infiltration system behind buildings TH-5 and A can be completed without disturbing the wetland. Additional detail is required.

***Response:* The infiltration system has been redesigned and does not require grading within the wetland.**

9. A recreation center is proposed between Buildings A and B. The north edge of the recreation center is buttressed by a massive retaining wall with a height approximately 22-feet above existing grade. The north face of this wall is proposed to be as close as 9-feet from the wetland resource, an issue that will undoubtedly raise concerns with the Conservation Commission, notwithstanding the fact that the wall is well within the previously discussed NDZ. It is likely that excavation for the footing or wall support base will extend even closer than 9-feet to the wetland. The plans provide for a generic detail of a precast, modular block wall, but given the mass of the load that this wall will retain, it is very likely that this detail is not



representative of what the final wall design will require. Given the sensitivity of the wall location, a detailed design, prepared by a structural engineer, should be provided to the ZBA so that the full impacts of its construction may be ascertained. Also, given the height of the wall and its location on the south side of the wetland, the wall has the potential to adversely impact the health of the wetland due to shading and root intrusion. The potential impact on the wetland should be assessed.

***Response:* The plan has been revised relocating the proposed retaining wall to the south creating a larger setback to the wetland. The wall will be a modular retaining wall and the limit of work has been added to the plan.**

10. A three-foot tall wall is shown at the edge of pavement around the cul-de-sac by Building TH-3. The applicant should confirm that this wall will not interfere with the turning movements of fire equipment, as the fire truck chassis will overhang the wheels as it maneuvers around the cul-de-sac.

***Response:* The wall does not interfere with the turning movement of the fire truck. See Exhibit E.**

HYDROLOGIC MODEL AND POTENTIAL IMPACTS:

There are several issues, some significant, with the hydrologic analysis and hydrologic impact assessment as discussed below:

Curve Number Selection:

The model, for both existing and proposed conditions, considers the grass and woods on the premises to be in “fair” condition, thereby assigning a higher curve number to these areas. During my site inspection, I noted very few areas that were not densely vegetated. The model should consider the existing state of vegetative cover as in “good condition” and select an appropriate runoff curve number for the model based on that designation. Appropriate curve numbers are 25 for woods in good condition, 30 for meadow in good condition and 39 for lawn in good condition. Lawn, meadow and woods should be calculated separately in the analysis of runoff curve numbers, and a weighted average assigned within each sub-watershed.

***Response:* We have revised the model to reflect areas in good condition with a lower curve number. We agree with the other curve numbers suggested, and the updated analysis reflects these adjustments.**



Analysis of runoff to abutting property at 775 Boston Post Road (775BPR)

The watershed delineation along the boundary with property at 775 Boston Post Road is inaccurately depicted in both the existing and proposed watershed maps and in the hydrologic analysis. The model shows all runoff headed towards 775BPR as flowing through a “southwest depression”. In reality, only a small portion of the watershed, WS-4 in the existing conditions model and WS-4B in the proposed condition model, flows through into this depression. As noted earlier, additional survey data is needed to define this basin. Also, WS-4 includes property that is actually on the 775BPR property and is downgradient of the locus. This inclusion is inappropriate as it adds the impervious area of the 775BPR driveway to the existing condition model, masking impacts of the proposed development. Also, drainage from Boston Post Road bypasses the depression and flows overland toward the driveway at 775BPR.

The watershed delineation should be revised to subdivide watershed WS-4 into three smaller basins. One basin should include the flow from Boston Post Road to the catch basin; the second basin should include the area that flows into the “Southwest depression”, while the third basin should include the portion of the basin to the north of the 775 BPR property that flows overland. None of the 775BPR property should be included in the delineation.

The engineer should also clarify, by identifying the area on the watershed delineation plans, the impervious areas being used in the model. The figures used in the existing conditions model seem high and should be verified by depicting the areas clearly on the watershed delineation plan.

Based on the issues with the watershed delineation and the model, I cannot opine on whether or not the 775BPR property will be impacted on the project. Hopefully the revised information will allow me to better assess what impacts, if any, the project may have on the 775BPR property.

Response: Additional on-the-ground survey was obtained and the design and calculations have been revised. The additional survey shows that there is a depression on 775 BPR property with a 22-inch culvert that directs flow under 775 BPR’s driveway. It also shows that the catch basin in Boston Post Road directs flow towards this culvert.

The watershed delineations have been revised. One subcatchment includes the area that flows to the 22-inch culvert. This includes a portion of the Project Site and the catch basin in Boston Post Road. A second subcatchment includes the area that flows overland from the Project Site to the north of 775 BPR.

The 775 BPR property has been removed from the analysis as requested.



Watershed WS-1 runoff curve numbers (Existing and Proposed Model)

The curve numbers selected for the both the existing and proposed hydrologic models indicates that the majority of this watershed consists of “grass in fair condition” (9.3-acres in existing model, 4.8-acres in proposed model). My site inspection, as well as a cursory review on Google Earth, indicates that most of this area is actually in a wooded condition and should be assigned a lower curve number. Clarification from the modeler is requested.

***Response:* The hydrologic model for existing and proposed conditions has been updated to separately indicate areas of grass and wood and use a curve number appropriate to the various states of vegetative cover.**

Watershed WS-2 runoff curve numbers (Existing and Proposed)

The curve numbers selected for both the existing and proposed hydrologic model indicates that the majority of this watershed is in a wooded condition but with Hydrologic Group D (very poorly drained) soils. While this assumption is somewhat supported by the Middlesex Country Soil Survey, the modeler should add the Soil Survey lines to the delineation map to demonstrate that all soils within this sub- watershed belong in the Hydrologic Group D classification.

***Response:* The outlines of the areas with different types of soils on site were added using the USDA web soil survey as a source. The pre and post development plans contain the existing and proposed watersheds and the different soil types present within each watershed. The location of Soils belonging to Hydrological Group D have been confirmed as recommended.**

Analysis of Hydrologic Impacts to Elliston Road Abutters, Watershed WS-3 Delineation and Hydrologic Model

The analysis of Watershed WS-3 is significantly flawed in several respects and the result is a drainage analysis and design that is erroneous and has the potential to create both on-site and off-site flooding and damage. There are several issues in play, as described below.

First, watershed WS-3 flows to a closed depression (Southeast Depression) that straddles the property line between the subject property and properties at 741BPR, 745BPR, 3 Elliston Road and 6 Elliston Road. Water stored within this depression has the potential to impact all these properties. The grading as presently proposed will construct a tall landscaped berm within a



significant portion of the depression of the subject property and thereby reduce the available stormwater storage capacity within the depression.

The first significant flaw in the applicant's analysis is the failure to recognize that a significant area of offsite property, including significant portions of the 741BPR, 745BPR, 3 Elliston Road, 4 Elliston Road and 6 Elliston Road all flow into the depression. The watershed delineation and hydrologic model fail to account for this contributing flow area and underestimate the stormwater volume flowing into the depression. Even without including this area, the existing condition model shows that the depression fills up to elevation 176-feet, which is essentially full capacity. Above elevation 176-feet, the abutting property at 6 Elliston Road will experience driveway and lawn flooding. I have attached a watershed delineation plan using the town's GIS system to identify the unaccounted-for area. While Elliston Road does have a drainage system that will divert some flow beyond the depression, the system likely does not have the capacity to convey larger storm events, as street drainage systems are typically designed for smaller storm events. Any future analysis will have to account for flows in larger storm events that will bypass the drainage system in Elliston Road.

The proponent proposes to reduce the effective storage (elevation 176-feet and below) capacity in the depression by 58-percent by construction of the landscaping berm. This reduction, coupled with the error in the watershed delineation, has the potential to displace stormwater onto the abutting properties and create significant flooding issues.

The second significant flaw lies in how the model analyzes the hydraulic conveyance of stormwater during intense storms. The proposed condition model assumes that an overflow spillway, to serve as an emergency outlet, will be constructed at elevation 175.0-feet. The overflow spillway is assumed in the model to have a crest length of 25-feet and will allow flows to pass into the wetlands on the east end of the property. This spillway would thus keep water levels in the depression at a maximum elevation of about 175-feet for the 100-year storm event. The proposed grading plan, however, shows the crest elevation of the emergency outlet set at elevation 176.5-feet. While this elevation is reasonable based on the existing contours, it will result in flood water rising to elevation 176.5-feet, again flooding the property at 6 Elliston Road.

A third, and even more significant flaw in both the analysis and design is the grading of the emergency access extension of Elliston Road. The emergency access road, constructed adjacent to the depression and between the two landscaping berms, will slope from elevation 176-feet at the existing end of Elliston Road to elevation 172.5-feet at its intersection with the driveway between buildings TH-8 and TH-9. The road is graded with a constant pitch, meaning there is neither a sag nor a crest along the road.



The issue with this grading scheme is that the road grade is actually lower than the emergency spillway elevation. The road near the depression is at elevation 174-feet, 1.5-feet lower than the spillway elevation of 176.5-feet. As the water level rises in the depression during a storm event, water will begin to flow over and along the emergency access road at elevation 174-feet. Stormwater will follow the emergency road and then spread out across the project driveway and landscaping areas, potentially flooding the buildings TH-9 and TH-10.

Any overflow from the depression that does occur will ultimately flow into Watershed WS-2 and then into Cherry Brook. The hydrologic model does not account for this flow.

It is clear that the design and analysis of the interaction of the stormwater depression with both the abutting properties and the subject property has significant issues would have benefited from closer review by the applicant's engineer.

Response: The calculations have been revised to include off-site areas. The low point of the depression overlaps the property line between the Project Site and 6 Elliston Road. The peak elevation in the depression increases slightly in proposed conditions for the 2, 10, and 25-year storm events, but water levels remain near the property line and do not reach the driveway of 6 Elliston Road (see Figure 3). We are continuing to evaluate this area to further improve conditions.

The peak elevation in the depression decreases slightly in the proposed conditions for the 100-year storm event. This is the result of setting the overflow from the depression at Elevation (El.) 175.50'. This overflow is directed to the wetlands within the Project Site.

The emergency access has been re-graded to include a high point between Elliston Road and the proposed Townhomes so major storm events will not back up from the depression and flow towards the Townhomes.

Proposed Watershed WS-8

The proposed watershed plan and hydrologic model indicates that all of WS-8 is directed to Infiltration system S-M-1. However, a portion of the project driveway discharges to a water quality catch basin, WO-3. This basin then discharges to a surface outlet near the NDZ to the north of building TH-10. This drainage design is inconsistent with the hydrologic model. Either the basin must be re-directed, or the model must be adjusted.



Response: The design has been revised and the model updated. Drainage areas have been renamed and in some cases drainage patterns altered from the initial submittal, per reviewers' recommendations and this comment is no longer relevant.

Impacts on Cherry Brook and Downstream Abutters

Given the numerous analysis and design errors contained in the submittal, the values reported in the analysis cannot be relied upon. However, even assuming the analysis and design was error-free, the Stormwater report indicates that flooding in Cherry Brook will increase significantly as a result of the project. The analysis indicates, as stated in Appendix C of the Stormwater Report, that peak flows in Cherry Brook will increase, for the 100-year storm event from 57-cubic feet per second (CFS) in the existing condition, to 66 CFS in the proposed condition. Total runoff volume into Cherry Brook will increase, for the 100-year event, from 4.4 acre-feet (AF) in the existing condition to 5.9 AF in the developed condition. These values represent increases in peak discharge rate and runoff volume of, respectively, 16 percent and 34-percent. Increases in runoff volume to Cherry Brook are also reported for the 10-year event (29%) and the 25-year event (30%). These are significant increases and may lead to an increase in flooding along Cherry Brook, downgradient of the project.

Response: The design has been revised. The revised hydrologic analysis indicates that proposed peak discharge rates to Cherry Brook will be less than existing peak discharge rates for the 2, 10, 25, and 100 year storm events. Although MassDEP Stormwater Management Standards do not require post-development volumes be maintained at or below existing conditions, the proposed runoff volume from the Project Site to Cherry Brook will be less than existing conditions for the 2, 10 and 25-year storm events.

DRAINAGE COLLECTION, CONVEYANCE AND DISPOSAL SYSTEMS:

The following comments are specific to the drainage design system layout and details:

1. System specific details are required for each infiltration system (a generic detail is provided). If "isolator rows" are proposed to trap sediment prior to infiltration, they should be sized and depicted on individual details for each infiltration system.

Response: In lieu of providing a detail for each system, the number and layout of the chambers in each system is shown on the plans and drawn to scale. The system components and quantities are indicated in narrative form on the details.



2. A soil evaluation to establish the seasonal high-water table and infiltration capacity is required at Infiltration System S-M-4.

Response: Boring GZ-16 is located about 100 feet away from this system and indicates a groundwater level 22 feet below grade (approximately elevation 160'). It is likely that the groundwater level is sufficiently deep to allow the installation of this system, but we agree it should be confirmed prior to construction. We request that the Board considers allowing the applicant to perform a test pit/soil evaluation at a later date but prior to issuance of the building permit, which is common practice and will allow the Board sufficient opportunity to ensure technical compliance.

3. Will the wastewater treatment plant have roof drains connected to the infiltration system? The drawings are unclear.

Response: The wastewater treatment plant will have roof drains conveying water into a collector pipe behind the building that will connect to infiltration system 12.

4. The plans indicate that drainage components will be located closer than 10-feet to some of the wastewater treatment tanks. MADEP design standards for the separation between wastewater treatment tanks and storm drains is 25-feet.

Response: Adjustments will be made to the drainage components in conjunction with the final design of the wastewater treatment facilities and associated Groundwater Discharge Permit.

5. Overflow outlets from all infiltration systems should be directed to stone-protected level spreaders and that discharge at a maximum rate of 0.1-cfs per linear foot at maximum design discharge.

Response: The plans have been revised to indicate riprap aprons/level spreaders at all proposed outlets. All proposed riprap aprons are 10 feet wide except the apron at infiltration system 7 that is 14 feet wide. Design provides for more than a linear foot of width per 0.1 cfs of design flow calculated at a 10-yr storm.

6. There are two stormwater treatment units labeled as WQU-4. Please clarify.

Response: The treatment units have been relabeled.



7. All water quality treatment units should be designed and configured in an “off-line” configuration to allow high flows, those in excess of one inch of runoff, to bypass the treatment unit to avoid the re-suspension of sediments.

Response: The water quality treatment units being used do not require an off-line configuration. They are designed so they can bypass excessive flows during large storm events without washing out captured pollutants.

8. The roof drainage from buildings Th-1 and TH-2 should not discharge directly into the water quality unit. An additional manhole should be added down-gradient of the WQU to allow the roof drainage to flow into the conveyance system.

Response: The roof drainage from buildings TH-1 and TH-2 have been revised so they go directly to a subsurface infiltration system and avoid the proposed WQUs.

9. The roof drainage from building TH-4 is being discharged into a water quality unit. This drainage must bypass the unit.

Response: The roof drainage has been redirected so it goes directly to an infiltration system and avoids the water quality unit.

10. A roof drainage manhole is located between buildings Th-3 and TH-4. This manhole is connected to a street catch basin, CB-23. This connection is not permissible, as the roof drainage needs to bypass the catch basin.

Response: The roof drainage from TH-3 and TH-4 has been redirected to subsurface infiltration systems located in front of the buildings. The drainage connection was eliminated.

11. DMH-17 needs to be a Water Quality Inlet to treat runoff from the street prior to infiltration.

Response: The plan has been revised. CB 23, CB 24 and DMH 17 have been removed from the design.

12. The design of Infiltration system S-M-2 requires more detail. It is not clear what the two small rectangular elements on either end are for. Also, roof drain inlets should connect beyond isolator rows, whereas connections from street drainage components should be fed into isolator rows.

Response: The infiltration system has been reconfigured. Also, the plans now show the system components. Isolator rows are not currently proposed.



13. The trench drain leading from the garage bay at Building A should discharge into a sump prior to connection into the infiltration system.

Response: The trench drain has been rerouted so flows from it discharge into a water quality unit prior to reaching an infiltration system.

14. Soil Boring number GZ-3, located at Infiltration System S-M-2 recorded a water table at elevation 161.0-feet. The bottom of infiltration system is proposed at elevation 160.0-feet, or a foot below the water table. MADEP Stormwater management regulations require a minimum of two feet of separation between the bottom of the infiltration system and the high-water table. As such, this infiltration system will have to be raised a minimum of three feet. Additionally, if the system has less than a four-foot offset to the water table, a hydraulic mounding study must be submitted. I also note that raising this system may have additional wetland impacts, increasing the disturbance within the NDZ and possibly encroaching into the actual wetland resource area.

Response: This system was originally intended to be a detention system, which would not require separation from groundwater. However, we have changed this to a shallower system to promote additional stormwater infiltration and treatment. A hydraulic mounding study will be submitted as part of the Notice of Intent application.

Since the system is shallower than originally proposed, the system has not been raised. The system has been moved further from the wetland to avoid grading within the NDZ.

15. The overflow outlet for Infiltration System S-M-2 needs to be a level spreader placed at the bottom of the fill slope.

Response: A level spreader has been added at the end of the outlet pipe.

16. A sub-surface stormwater detention basin, S-M-1, is proposed under the landscaping berm to the south of Building TH-10. I have several serious concerns related to this system. First, the system is proposed under the landscaping berm. In places there will be as much as 14-feet of fill over the plastic chambers. The berm will also have trees and other vegetation on its surface. Access to the system for inspection and maintenance of the system will be impossible. This is contrary to accepted and sound engineering practice. Also of concern is the depth of the system relative to the water table. No soil testing has been conducted within the confines of the proposed system to the depth required to confirm whether or not the system will have the proper offset to the water table to allow it to function properly. While



the MADEP mandated testing has not been performed at this location, testing at other locations suggest that the water table may be found at elevations near 160-161-feet. If so, this places the bottom of the system at or just above the water table. The engineer will need to provide testing, by a MADEP certified soil evaluator, within the confines of the system and to a depth a minimum of four feet below the proposed bottom of the system. Should the proposed bottom of the system be located less than four feet above the water table, a groundwater mounding study must be conducted. My opinion is, however, that the system should not be located under the landscaping berm. I suggest that an alternative location for this detention basin be considered. One possible location is to the rear of the west wing of Building B. I would also recommend that the engineer consider an open bio-retention basin or rain garden. Such a system offers the advantages of easier inspections, simplified maintenance, increased biodiversity and enhanced wildlife habitat.

Response: This system has been eliminated. Several smaller infiltration systems have been added to the design instead.

17. Appropriate means to inspect, access and clean all stormwater infiltration systems is needed.

Response: The plans have been revised to indicate the location of the inspection ports for the infiltration systems.

18. Calculations should be provided for the sizing of storm drains for both the street and roof drainage conveyance systems

Response: Calculations to size all drainage pipes on site were performed. Calculations are based on the rational method and are added as attachment to this response.

DEMOLITION AND EROSION CONTROL PLAN:

The proposed project will require major earth moving activities including significant cuts and fills. The project will likely require several years to complete and during that period there is the potential for erosion and sedimentation issues to both sensitive resource areas such as wetlands, vernal pools and public water supplies, and to abutting properties. Such a project requires a well-planned construction- sequencing plan as well as a detailed plan to control erosion, sediment, dust and water runoff during construction. At this time, no such plan has been forwarded as the information provided on Sheets C1.00 and C1.00 can at best be considered placeholders and not representative of any real effort to define the construction process and potential impacts related to the site work. Given the rudimentary state of the plans, I will refrain from commentary until such time as a serious attempt is made to address the potential impacts and develop realistic mitigation measures. Such a



plan should consider earthwork moving requirements, material stockpile and stabilization areas, worker parking and worker sanitation facilities, project phasing, truck deliveries and truck exports, among the numerous other factors that must be considered when managing a large construction project within a developed neighborhood.

I will note that the proposed construction entrance requires an alteration of the stonewall along a scenic road.

***Response:* It is the applicant's experience that for 40B developments the mitigation measures outlined above are typically detailed as part of the SWPPP in conjunction with the site work contractor**

UTILITY PLANS:

At this time, I have not performed an extensive review of the submitted utility plans, Sheets C4.00 and C4.01. I would generally expect that any utility-related issues can be resolved relatively easily, especially compared to the more complex grading and drainage issues. I do recommend that the applicant obtain written comments from both the water department and the fire department on the proposed water system.

***Response:* The applicant has met with DPW Director, Town Engineer and Water Department Supervisor to present the plans as the designs progressed and expect once detailed utility plans are finalized they will be provided to the DPW and its water supply engineering consultant.**

SITE DETAILS:

Similar to my comments on the Utility Plan, I have not reviewed the construction details very closely, as I expect many will change as the project is revised to address my comments. As such I will offer only the few comments below, reserving the right to provide additional comments as revised plans are provided:

1. The details for the water quality treatment devices show one inlet pipe and one outlet pipe. The site plans depict water quality inlets with as many as three inlets and one outlet. The engineer should confirm with the supplier of these proprietary devices that such configurations are feasible and revise the details accordingly.

***Response:* Configurations have been discussed with the supplier and revised to decrease the number of connections and the alignment of inverts in and out of the Water Quality Unit structures.**



2. As discussed earlier, customized details are required for each infiltration system.

Response: The plans have been revised to show the configuration and layout of the infiltration system components.

3. As discussed earlier, the generic modular block wall detail proposed for the 22-foot tall retaining wall seems unlikely to be sufficient. A structural engineer should review this wall and provide a detail specific to this wall.

Response: The final design will be subject to review by a structural engineer.

LONG TERM OPERATION AND MAINTENANCE (O & M) PLAN:

The submitted long term O & M plan needs refinement. As submitted the plan is generic and short on specifics. No consideration at all is given to the inspection and maintenance of infiltration systems, which is the primary means of stormwater control proposed for this project. I will refrain from additional commentary until such time that a more robust plan is provided. I do note that this is a topic that should be coordinated with the Conservation Commission.

Response: The O&M Plan will be updated as part of the Notice of Intent process.

STORMWATER REPORT AND CHECKLIST:

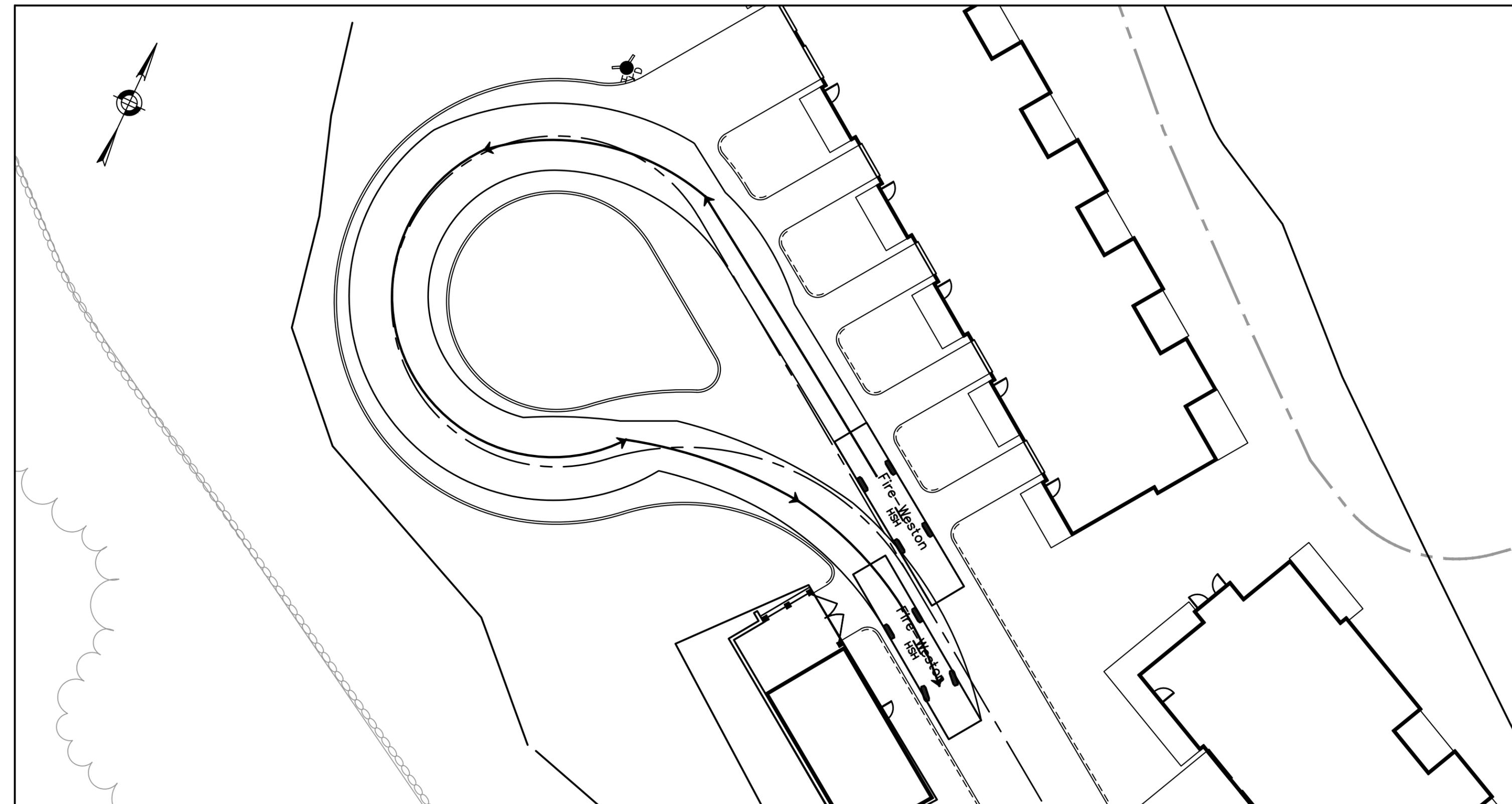
This entire document will require revision when revised plans with a workable drainage system are provided. The final report will require certification by a Professional Engineer.

Response: The Stormwater Report Checklist will be completed and stamped by a Professional Engineer as part of the Notice of Intent process.

Please contact me at (617) 348-3305 or rlatini@hshassoc.com if you have questions or comments.

Sincerely,

Richard Latini, P.E., LEED Green Assoc.
Associate Principal



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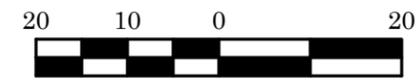


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