

Date January 12, 2022
To Weston Zoning Board of Appeals
From Mark S. Bartlett, PE
Thomas C. Houston, PE, AICP
Project Proposed Residential Development, 518 and 540 South Avenue
Weston, MA, Middlesex County
Subject Peer Review of Stormwater Management, Sanitary Sewer System, Water
Supply System and Site Planning Elements

On behalf of the Weston Zoning Board of Appeals, Professional Services Corporation, PC (PSC) has reviewed submittals for the November 22, 2021 revised proposal for the above noted project, which has reduced the number of residential units to 180, and significantly revised the grading and drainage layouts. This review addresses the following Project aspects: Proposed drainage and stormwater management, proposed sanitary sewer system (not the wastewater treatment facility), the proposed water supply system and the proposed site planning elements. PSC previously submitted an overview/summary of the November 22nd project in our memo dated December 14, 2021.

OVERVIEW OF PROJECT REVISIONS

The latest submittal by Hanover RS Limited Partnership (Applicant) proposes 180 residential apartment units, a clubhouse, and amenities, and a wastewater treatment facility with an associated subsurface effluent disposal system. The project Site still combines and reuses two residential lots: A 9.5-acre site that contains a single-family home and former tennis court (518 South Avenue) and a 0.94-acre site that also contains a single family home (540 South Avenue), together hereinafter referred to as the Site. The residential units are still located within a large multi-part building, predominantly a 4-story structure with some 3-story and 5-story parts, with exterior amenities that include a courtyard (enclosed by the residential building), a small playground, an enclosed dog run, and outdoor gathering areas (landscaped patios on the east side of the building, and an area designated for recreation east of the emergency access way. Except for 10 outdoor parking spaces, all resident parking will be provided within a 5-level



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parking garage connected to this residential building, with the top level of parking exposed (no roof), however 14,000-square feet of top-level area is reserved for solar panel installation. Also, 27,800-square feet of Green Roof panels (assembled as Green Roof Areas 1 through 5) are proposed on top of the residential building. The residential buildings, courtyard and garage are now oriented more north to south, and east-west dimensions have been reduced. Also, overall site grades at the buildings and the treated wastewater disposal area have risen by 3-feet or more; and to accommodate this higher grade much of the Site is now contained by a perimeter retaining wall that vary in retained height from 1' to 4' on the west side, by 3' to 6' on the south side, and 8' to 10' on the east side of the building site. The emergency access drive also has substantially more retaining wall along the east side.

The main access road from 540 South Avenue is now proposed to be porous pavement (about 210-ft, 24-ft wide), with the final portion of driveway (about 100-ft) splitting into separate entrance and exit ways (18' wide each) constructed of porous pavers. The emergency access road, which has a separate connection at 518 South Avenue, is still part of the plan and about half (550-ft \pm) of this emergency way will be porous pavement, the remaining to be standard pavement. Also, about 216-ft \pm of the emergency access way located northeast of the building, the sloped sections, will have a grass median strip, and the flat section in this area (115-ft \pm) has a drainage bioswale in the center of the 20-ft. wide road.

Area (yard) drains are proposed to handle stormwater in yard areas adjacent to the porous pavement at the main entrance area; and more yard drains are proposed in areas south and east of the building that are adjacent to the porous emergency drive.

Drainage from paved areas around the building will be collected by standard curb and gutter systems. A total of nine (9) deep sump catch basins¹ are proposed with connecting drain lines (12" and 18" HDPE) , drain manholes, and three (3) water quality treatment units that discharge to one of three (3) Subsurface Recharge Areas (SRA's) located east of the building between the building and the perimeter access drive. The proposed wastewater treatment effluent disposal areas² are located east of the perimeter access drive. Essentially all Site stormwater and treated wastewater effluent are being discharged into the same Site area east of the building that has been identified by additional soil testing to be most favorable for recharge. Combining

¹ The proposed area/yard drains are also presumed to be a deep sump catch basins. The Applicant will need to clarify this on the plans.

² Plans indicate the Subsurface Recharge Areas (SRA's) for stormwater have the following minimum setbacks from treated wastewater Effluent Disposal Area (EDA): SRA-1: 55' from primary EDA, and 34' from reserve; SRA-2: 59' from primary EDA, 38' from reserve; and SRA-3: 75' from primary EDA, and 43' from reserve.



these locations of the subsurface structures takes advantage of the more permeable on-site soils and minimizes potential impacts of infiltration facilities located near the boundary of adjacent residences. However, centralizing the location of these subsurface facilities does not as nearly replicate the predeveloped infiltration which occurs over the entire Site.

Ultimately, stormwater that enters these SRA's is recharged to the ground up to a limit determined by the soil's hydrogeologic capacity to infiltrate, and volumes that exceed this capacity will overflow to a shallow Stilling Basin (about 28' x 7') shown on plan Sheet C-7 east of the retaining wall. The Stilling Basin releases un-recharged stormflow into the wetland area east of the Site. The northeast corner of the Stilling Basin protrudes into the 25-ft No Disturbance Zone, and no details are provided in the plan set for the construction of this basin or how the outlet pipe will pass through the retaining wall.

The revised Project has been submitted to the Weston Zoning Board of Appeals under the state's Comprehensive Permit (MGL Ch. 40B) process. This project would normally require a Special Permit from the Zoning Board of Appeals for the proposed multi-family use, Site Plan Approval by the Planning Board under Town of Weston Rules and Regulations for Site Plan Approval, and a Stormwater Permit from the Town's Stormwater Permit Authority (SWPA)³ under Weston Stormwater & Erosion Control Regulations. The project will also require Conservation Commission approval through a Notice of Intent application for work proposed in the buffer zone to a Bordering Vegetated Wetland (BVW) on the east side of the Site, including work within the Town's "25-foot No Touch Zone".

Submittals Reviewed

- A. "Hanover Weston – Comprehensive Permit Package," dated November 22, 2021 as prepared by Cube 3 (architects) Tetra Tech (civil engineers), and GWH (landscape architects) for the Hanover R.S. Limited Partnership residential project at 518 South Avenue, Weston, MA. The total submittal package consists of 49 sheets. This peer review focused primarily on the 21 sheets prepared by Tetra Tech (which included 3 Existing Conditions plans by MetroWest Engineering revised through November 15, 2021), however all submitted plans have been reviewed.

³ The SWPA consist of (5) five members, four that are permanently the Town Engineer, the Town Planner, the Conservation Administrator, and the Public Health Director, and one (1) member that is a Town resident appointed by the Board of Selectmen.



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- B. “Stormwater Management Report, 518 & 540 South Avenue (Route 30), Weston, MA” submitted to Town of Weston, revised November 22, 2021, prepared for Hanover R.S. Limited Partnership, prepared by Tetra Tech Inc.
- C. “Updated Stormwater Infiltration Data Report, Hanover Weston – 518 & 540 South Ave Weston, Massachusetts” prepared for Hanover R.S. Limited Partnership, prepared by Sanborn Head Associates, revised November 22, 2021.
- D. “Groundwater Model Report, Hanover Weston – 518 & 540 South Ave Weston, Massachusetts” prepared for Hanover R.S. Limited Partnership, prepared by Sanborn Head Associates, revised November 22, 2021.
- E. Letter of Transmittal from the Hanover Company to the Weston Zoning Board of Appeals dated November 22, 2021, including attachment: “A list of requested exceptions to local requirements and regulations, including local codes, ordinances, by-laws or regulations”.

References

- A. Weston Conservation Commission 25-Foot No-Disturb Zone Policy, approved May 14, 1998, amended October 19, 2010 and February 2, 2016
- B. Article XXVII Stormwater and Erosion Control By-Law.
- C. Town of Weston Town of Weston Stormwater & Erosion Control Regulations, May 23, 2019 (SECR).
- D. Weston Planning Board Land Subdivision Rules and Regulations, Weston, Massachusetts (PBRR)
- E. Town of Weston Rules and Regulations for Site Plan Approval, November 19, 1991, as authorized under Section XI of the Zoning By-Law.
- F. Massachusetts Wetlands Protection Act (MGL c. 30, §§ 61 through 62H).
- G. 310 CMR 10.00: Wetlands Protection Act Regulations.
- H. Stormwater Handbook, Massachusetts Department of Environmental Protection. (SWH)

Our review comments on site civil engineering follow. The first part of our review focuses on drainage and stormwater management, and the second part focuses on other site civil designs,



which include the proposed sanitary sewer system (not the wastewater treatment facility), the proposed water supply system and overall site planning elements.

PART 1 - STORMWATER REVIEW

This first part of our review memorandum focuses on drainage and stormwater management. PSC has reviewed previous Site Plan submittals for drainage and stormwater in a memorandum to the Conservation Commission dated January 15, 2021, and our second memorandum that assessed Tetra Tech's replies to our January 15, 2021 memorandum was issued to the Zoning Board of Appeals on May 15, 2021. Some basic drainage design issues have not significantly changed from prior plan submittals to present; however, many stormwater management issues have changed significantly. Any relevant prior issues that were resolved as a result of Tetra Tech responses to our prior reviews are not discussed below. Only new or unresolved drainage and stormwater management issues are discussed below.

The Proposed Project continues to be subject to the Massachusetts Wetlands Protection Act (MGL c. 30, §§ 61 through 62H) and subject to Article XXVII, Town of Weston Stormwater and Erosion Control By-Law and associated regulations (unless waived by the ZBA). Compliance with Massachusetts DEP Stormwater Management Standards (310 CMR 10.05(6) (k)) and with the Massachusetts Stormwater Handbook (SWH) is also still required.

This peer review also checks project compliance with Weston's Stormwater and Erosion Control By-Law, and with applicable drainage / stormwater provisions of Weston's Site Plan and Land Subdivision Rules and Regulations as typically referenced during local Site Plan or Special Permit approvals. Such Town stormwater requirements will be applicable unless waived through the Weston ZBA or through the Commonwealth's Housing Appeals Committee (HAC).

Comments on the Proposed Project Stormwater Design:

The revised project plans and Stormwater Report present the strategy for management of stormwater generated by increased impervious area from the buildings' roofs, driveways, and the outdoor top deck of the multistory parking garage. The project submittals indicate that total impervious area is 4.62-acres, an increase in impervious area of 3.85-acres over the existing condition which has two single family house lots that are predominantly undeveloped woodland (0.77 acres of impervious).

The stormwater management strategy relies on infiltration of stormwater to preserve pre-existing site hydrology, however as noted, the location of recharge areas is centralized east of the proposed building, and this does not as nearly replicate the predeveloped infiltration which



occurs over the entire site. Previously five subsurface recharge areas were proposed. Now three are proposed, and the revised recharge areas are as follows:

- SRA-1 occupies an area 45' x 139', and it receives stormwater from catch basins CB-1 through CB-6 plus area drains AD-1 through AD-4. This flow will enter at the north end of SRA-1 and be pretreated via Water Quality Unit (WQU) STC-1; and flow from catch basins CB-7 & CB-8 will enter at the south end of SRA-1 and be pretreated via WQU STC-2.
- SRA-2 occupies an area 41' x 134', and it receives overflow from the south end of SRA-1, flow from the courtyard drainage system (undefined), flow from "Green Roof Overflow East", flow from a Roof Drain on the east side (un-numbered), and flow from the Subsurface Detention Area located on the west side of the building.
- SRA-3 occupies an area 46.25' x 47', and it receives overflow from the south end of SRA-2, plus drainage from catch basin CB-9 and area drains AD-5 through AD-10, and flow from another Roof Drain (un-numbered) near the southeast corner of the building. SRA-3 overflows to the wetland area via a stilling basin located to the east (noted below).
- Drainage collection for the covered parking lot is not defined, but a "Garage Roof Drain" is shown discharging to a Subsurface Detention Area under the access drive on the west side of the parking garage, and this detention area is preceded by a water quality treatment unit. Flow from the Subsurface Detention Area is directed to SRA-2.

Porous pavement continues as a stormwater strategy for the south and southeast portions of the emergency access way, and the revised proposal now also includes porous pavement and porous pavers for the main entrance drive from South Avenue up to intersection with the access drive surrounding the building. In addition, as noted, a bioswale is proposed for a level portion of the emergency access way that is near 518 South Avenue.

The comments which follow address the adequacy of the Stormwater Design, the Stormwater Report and the hydrology calculations, and these comments are organized under the following six subheadings:

- Submittal Errors, and Needs for Additional Design and Details;
- Porous Pavement Design;
- Groundwater Mounding and Impacts on Stormwater System Performance; and



- Construction Period controls and mitigation.

Submittal Errors and Needs for Additional Design and Details

1. Provide a new sheet, or more detail on Sheet C-18 to explain and illustrate how the green roof components will be connected – e.g., connections between trays filled with growth media and connections to the Watts GRD-640 Green Roof Drain(s) to be located within “curb and parapet walls” lined with a waterproof membrane to contain green roof drainage overall. Confirm how many Watts roof drains will be provided for each of the five green roof areas, and generally show how flow from the Watts drains will be aggregated to flow to the two downflow pipe locations noted on Sheet C-7, on the east and west building sides respectfully: The HydroCAD model indicates that 11 Watts drains are required for GR-1, 3 drains for GR-2, 7 drains for GR-3, 4 drains for GR-4, and 3 drains for GR-5. Please confirm and show on a plan how these will be collected and directed to the final downflow pipes. Also, the green roof description in the Stormwater Management Report is incomplete - it does not address flow that will be directed to the west side of the building.
2. We understand from a response to an earlier review that drag-in water and snow melt from the covered garage levels will be collected in garage floor drains; and that the floor drains will be directed to an Oil and Gas separator and then discharged to the sanitary sewer system for treatment at the on-site wastewater treatment facility. Please confirm if this is still the case and show the proposed location(s) of the proposed Oil and Gas separator(s) and how separators will be connected to the on-site sewer system.
3. The setback of Subsurface Recharge Areas 1, 2 & 3 from the primary treated effluent disposal area is greater than the minimum 50-feet recommended in the SWH for septic system absorption fields (as a comparable reference). However, the setbacks of Subsurface Recharge Areas 1 & 2 from the reserve effluent disposal area are only 34-feet and 38-feet respectfully. Please defend the adequacy of the less than 50-foot setback given the interaction between effluent disposal and stormwater recharge reported in the latest mounding analysis.
4. Because the three SRA facilities (stone bottom elevation, 219.5) will be constructed in fill soils on top of existing grades⁴, the Applicant needs to add specifications to the Site Plans to require the removal of top and sub-soils below these systems and require the

⁴ Existing Grades at the SRA facilities are as follows: at SRA-1 elevations vary from 219 to 224, at SRA-2 elevations vary from 218 to 220, and at SRA-3 elevations vary from 217 to 218.



use of Title-5 sand for replacing unsuitable soils and for raising grades under the recharge systems and areas along the sides of the recharge systems.

5. There is a grading issue south of SRA-3: The top of stone at SRA-3 is elevation 224.6, and therefore the proposed rim elevation of AD-6, only 30-ft away, is also elevation 224.6. Please explain or reconcile grading in this area and show proposed finished grades at the south edge of SRA-3.
6. For enhanced protection of the subsurface recharge areas, we recommend adding a note to the Grading & Drainage Plans, Sheets C-6 & C-7 that all Area Drains shall also be constructed as 4-ft diameter, precast concrete catch basins as detailed on Sheet C-12.
7. Provide identifying labels for the two un-numbered roof drains, one connected to SRA-2, and one connected to SRA-3, and explain how much roof area each of these captures.
8. Check and revise the Conduit Table in Appendix G of the Stormwater Management Report regarding four discrepancies: The 12-inch drain invert into DMH-3 does not agree with the invert noted on Sheet C-6 of the plans; AD-3 and AD-4 are noted in reverse order (AD-3 should be the start node); STC-2 and RCA-1B are noted in reverse order (STC-2 should be the start node); and the 12-inch drain invert into DMH-5 does not agree with the invert noted on Sheet C-6 of the plans.
9. Provide a schematic or plan to describe the proposed courtyard drainage system, including pre-treatment to be provided prior to storm flow discharge to SRA-2.
10. Provide a cross-section detail of the 12-inch drain that discharges overflow from SRA-3 into the Stilling Basin east of the proposed retaining wall. The cross-section should illustrate this pipe from the point where it exits an un-labeled overflow control structure (OCS), through the retaining wall (base elev. 217.5) and into the stilling basin at inv. elev. 217.0.
11. Provide details and cross-sections to clarify proposed construction of the Stilling Basin.
12. Provide information on the un-labeled OCS noted in Comment 5. Call out an identifier for this OCS, and indicate the proposed pipe sizes and invert elevations, and any overflow control weir configurations and elevations.
13. We do not recommend inclusion of the proposed changes in the emergency access drive, where the originally proposed porous pavement drive of single width (20') is now proposed as a double-barrel road with two paved lanes scaling as only 7.5-ft wide each,



with a 5-ft wide grass median in sloped areas and 5-ft wide rain garden / bioswale in the flat area. Some issues of concern include the following:

- a. In order to use the emergency access drive, large emergency vehicles will have to straddle the grass median and bioswale. The grass median could be reinforced to accept the vehicle load; however, the bioswale, which details (Sheet C-18) show to be 6-inches deep with an additional 6-inch depth of soft soil/filter layer at the bottom, will not support vehicle loads. An emergency vehicle that fails to straddle the bioswale with a wheel(s) entering the bioswale will damage the bioswale, and of greatest concern – the vehicle is likely to become disabled precluding an effective response to the emergency and potentially injure the vehicle's occupants.
- b. The MA SWH provides requirements for rain gardens or bioswales that will infiltrate stormwater runoff. Rain gardens/bioswales receiving any storm flow (other than roof or yard runoff) must be preceded by adequate pre-treatment, which is not provided in this case.
- c. Rain gardens require careful landscaping and maintenance for them to continue to function with the intended purpose of improving water quality and providing recharge. Procedures are provided in the O&M Plan, but rain gardens require extra attention and landscaping input, and they are often not properly attended to by property owners.
- d. A rain garden located in a roadway medial would be subject to damage from winter snow plowing and de-icing treatments, and as noted, from vehicle damage when deviating from the paved surface with no curb controls.
- e. It is unclear from the plans if the rain garden is to contain plantings, and if such plantings would be appropriate for the proposed feature. The detail on Sheet C-18 indicates planting with grass, however the Landscape Plan Sheet L1.06 indicates that this median area is proposed as a "gravel strip". Please clarify.
- f. In the unlikely case that other issues noted above could be resolved, the rain garden / bioswale should have an overflow drain set at the lowest road grade to prevent flooding of the emergency access drive, and this overflow would need to be directed toward the wetland to the east.



Porous Pavement Design

14. Porous paving should not receive stormwater from other drainage areas (especially areas that are not fully stabilized). The yard area east of the porous pavement in the southeast corner of the Site should not drain to and run-on to the porous pavement as indicated, and yard drains should be included to prevent this flow.
15. The SWH⁵ advises that porous pavement is “*not appropriate for high traffic areas*” and “*do not use porous pavement in areas of higher potential pollution loads, because stormwater cannot be pre-treated prior to infiltration. Heavy winter sanding will clog joints and void spaces.*” We strongly recommend against the use of porous pavement and pavers for the entrance road because these high traffic areas are subject to vehicle wear and tear and pollution, and during winter months, even if not applied to the driveway directly, sand will be tracked in from vehicular travel on adjacent roadways. Moreover, heavy and large delivery vans and moving trucks that enter and exit to serve the residents will cause excessive wear to the porous pavement, which is intended only for light duty applications.
16. There are eight (8) sloped porous pavement areas that are designed such that the storage bed bottoms are kept level to provide the same effective storage as would exist for a flat location. However, the detail for porous pavement shown on sheet C-12 needs to be revised to provide material and/or means (other than the filter fabric shown) to prevent the migration of storm flow from an upgradient porous pavement zone to a downgradient porous pavement zone. Also, the HydroCAD model should be revised to provide a consistent primary overflow weir definition for all porous pavement zones. Several, but not all of the porous pavement “pond” zones have weir heights of 0.75’ above base grade, and some have heights of 0.5,’ and some zones have no weir at all. Please revise and/or explain.
17. Massachusetts’ SWH specifies a 50-foot setback for stormwater infiltration practices from Septic Effluent Disposal (in this case, the wastewater facility Effluent Disposal Area): The Applicant needs to review the location of porous pavement at the southeast corner of the Site, and reduce the placement of porous pavement within 25-feet of the primary effluent disposal area, and 5-feet from the reserve disposal area; or propose standard paving in these areas as was done in response to this question on a prior site layout. Ultimately, regardless of mounding analysis results the long-term design capacity of an effluent disposal area will be affected, and the long-term storage and

⁵ See SWH vol.2, ch.2, page 120



recharge capacity of the porous pavement in such area will be reduced. Porous pavement is not the hydrological equivalent to natural soil structure with grass cover: Porous pavement is more transmissive, whereas natural / vegetated soils will retain stormwater better, and promote surface runoff when sloped. In our opinion, placement of porous pavement above or near an effluent disposal area is inappropriate and not good engineering practice.

Groundwater Mounding and Impacts on Stormwater System Performance

Although review of wastewater design, including effluent disposal system design and the associated required hydrogeologic modeling are not part of PSC's scope of work for the Town, we have commented in our past reviews on the interaction of groundwater mounding (predicted by the Applicant's mound analysis model) with stormwater management system performance. Therefore, we offer the following comments, stormwater related, on the latest Groundwater Mounding Report, while also respectfully deferring to other experts employed by the Town (or abutters) for their detailed review of Site hydrogeology and groundwater mounding model submitted by the Applicant:

18. Results presented in the Groundwater Mounding Report (Figures 10 & 11) indicate that a ground water mound estimated using the more conservative model inputs, results in ground water rising above the recharge base of the three Subsurface Recharge Areas: A rise of between 6" and 24" at SRA-1 and SRA-2 respectively, and a rise of between 18" and 36" at SRA-3. Such mounded conditions would significantly reduce the recharge effectiveness, and the defeat the purpose of these systems to control peak flow and runoff volume (in fact, once a mounded condition reaches the base of an infiltration area, the rate of recharge is typically reduced by an order of magnitude). Given these findings, the Applicant should provide a detailed drawdown analysis for the three SRA facilities to show that these SRAs will fully drain within 72-hours (per the SWH requirement) and that 4-feet of separation from the residual water table will be restored. Also, see additional concerns noted in Comment 25 below.
19. Provide detailed cross-sections through the areas of stormwater and effluent disposal recharge. Provide at least two north-south sections - one through the stormwater recharge and one through the effluent disposal area with both of sections extending say 50-feet through the retaining walls that are north and south; and at least two east-west sections – one through SRA-2 and the effluent disposal area, including from the building foundation through the retaining wall and sloped area into the wetlands; and one through SRA-3, including from the building foundation through the retaining wall and



the sloped area into the wetlands. These cross-section views should depict all structures and final proposed surface grades, proposed stormwater and effluent disposal systems, proposed porous pavement strata, the retaining wall (exposed and buried sections), grades into the wetlands east of the wall, grades into abutting properties north and south, seasonal high groundwater levels, and mounded high groundwater levels.

20. The results presented in the Groundwater Mounding Report (Figure 11) indicate that a 2 ft. high groundwater mound will extend across the entirety of abutting properties at 534 and 546 South Avenue which if accurate is not acceptable. The Applicant should provide possible solutions for avoiding, minimizing or mitigating for the impact of a mounded water table on abutting properties.
21. Given that mound conditions noted in Comments 18 and 20 above were derived from an analysis that included a 10-year, 24-hour storm event, we recommend that these same analyses that utilized the more conservative inputs for treated effluent and annual precipitation, etc., be combined with a 100-year, 24-hour storm event to check for surface breakout conditions at the Site, at the wetland boundary, and at abutting properties.
22. The prior project submittals have indicated the proposed use of foundation drains. Please confirm that such drains are no longer being proposed. If proposed, please explain in detail and show the underdrains and the mechanism for recharging intercepted groundwater on the drawings.
23. The Groundwater Model Report should be revised to check for barrier effects of building foundations and proposed retaining walls in proximity to the three stormwater SRAs and the wastewater Soil Absorption System (SAS). In order to prevent breakout through the face of the proposed retaining walls near to the recharge areas, a poly barrier/sand wick system must be installed along the retained soil side of the walls to stop the horizontal spread of a ground water mound, and the retaining walls in combination with buildings will increase the height of mounding, and therefore such effects should be carefully reviewed. (See other concerns about retaining walls at Comment 66 below.)
24. The Groundwater Model Report should be revised to include topographic figures that combine predicted groundwater mound height with the modelled high ground- water elevations, to show resultant groundwater contours during a mounding event in comparison to proposed finished Site topography at and around the recharge zones. This will facilitate checking for possible points of surface break out of treated effluent



and/or stormwater near abutting wetland areas and abutting private property. For example, informal overlay of mound report Figures 10 and 11 indicates that mounded groundwater break out will occur at the ground surface near wetland flag #6 and near wetland flag #11.

25. Related to our concerns noted in Comments 18 and 20 above, we have reviewed comments offered by the hydrogeology firm McDonald Morrissey Associates, LLC in their memo dated January 3, 2022, and we concur with the following excerpts (see last two paragraphs on page 4 their memo) regarding Site stormwater facilities design:

“Provided system schematics⁶ state the following: “This system is designed for a groundwater table below system invert. Engineer of record to verify that the design groundwater table is below invert of precast.” This condition appears to be violated where mounded groundwater rises above the bottom of a proposed stormwater infiltration structure and compromises the intended (i.e., gravity-drained) functionality of the device, as is being predicted by SHA’s MODFLOW model during the 10-year precipitation event scenario. Meanwhile, for the same event scenario, the HydroCAD model documented within the Tetra Tech Stormwater Report appears to suggest the proposed stormwater infiltration areas will continue to function free of groundwater interference (i.e., as if the groundwater mound remains well below the system bottom).

These observations highlight a critical disconnect between the stormwater and groundwater mounding analyses and indicate additional information and/or analysis should be provided in order to demonstrate the proposed stormwater system will operate properly and in a manner consistent with how it is represented within applicable HydroCAD and MODFLOW models.”

The Applicant needs to address this “disconnect” between the stormwater HydroCAD model and Modflow predicted mounding under the SRA areas. Mounded groundwater that comes in contact with the bottom of, or enters into the storage zones of the SRA recharge facilities will significantly reduce the performance of the SRA’s during extreme

⁶ Identified under “Notes to Reviewing Engineer” entries under schematics for Subsurface Recharge Areas #1, #2, and #3, Detail Sheet C-16 contained within the *Hanover Weston Comprehensive Permit Package*, dated November 22, 2021.



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storm events, and brings into question the predicted control of post-development peak flow and volumes represented in the latest Stormwater Management Report.

Construction Period Precautions

See our comments under Stormwater Management Standard 8, below.

Massachusetts Stormwater Management Standards:

This section of the review memo discusses project compliance with Massachusetts' ten Stormwater Management Standards. The Applicant's Stormwater Management Report includes an evaluation of compliance with the Stormwater Management Standards as presented in the Massachusetts Stormwater Handbook (SWH). Our view of the Project's compliance with Stormwater Management Standards are addressed for each standard below:

Standard 1: No New Untreated Discharges or Erosion to Wetlands. Compliance with this standard has been partially demonstrated. However, our concerns regarding construction period controls need to be addressed in order to be sure that uncontrolled releases or erosion potential does not exist, (see comments under Standard 8 below).

Standard 2: Peak Rate Attenuation. Compliance with this standard has been partially demonstrated in that the current design proposal complies with Standard 2 and the current post-development peak flows do not exceed the pre-development runoff rates. However, design changes could occur: Such as new infiltration facilities to replace proposed porous pavement or bioswale area; or further analysis of the detrimental interactions between the stormwater recharge facilities and predicted mounding could require re-design of stormwater recharge facilities. Should there be design revisions, the HydroCAD model would have to be revised and reviewed to confirm compliance with Standard 2. Also, see Comments 18, 23 and 25 above.

Standard 3: Stormwater Recharge. The intent of Standard 3 is to ensure that the infiltration volume of precipitation into the ground under post-development conditions is at least as much as the infiltration volume under pre-development conditions. Compliance with this standard has been generally demonstrated. However, the same compliance concerns apply to this standard as are noted above for compliance with Standard 2.

Standard 4: Water Quality. The Stormwater Report and design plans generally demonstrate that stormwater runoff from all paved areas will be collected and directed through adequate pre-treatment and contained infiltration, however we defer on issuing an opinion on full compliance with this Standard until the other issues noted above have been addressed.



Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs). The previous project qualified as a “Land Use with Higher Potential Pollutant Loads” (LUHPPL, per SWH V.1: C.1: p.14) because of a “*parking lot with high-intensity-uses (1000 vehicle trips per day or more)*”⁷; and this also qualified the Site as a “Hotspot” under the Weston Stormwater Regulations (SECR definitions Appendix A). However, the latest revised (downsized) project submittals indicate that there will no longer be 1,000 or more vehicle trips per day, therefore Standard 5 and the Weston Hotspot requirements do not apply.

Standard 6: Critical Areas. The Project Site does not fall within a Critical Area and compliance with this standard is not required.

Standard 7: Redevelopment Project. The Site is entirely altered and there is a substantial increase in impervious area, therefore the entire site development must be categorized as a new development, and full compliance with the Massachusetts Stormwater Policy is required (see SWH: V.1, C.1, item 2 under Standard 7, p. 23). Compliance per Standard 7 is not relevant.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation

Controls: The Applicant has provided plans and instructions for control of erosion and sedimentation in the Site Development Plans (see sheets C-10, C-11 and C-17), and a draft set Stormwater Pollution Prevention Plans are included in Appendix H of the Stormwater Management Report (to later be included with a prepared SWPPP). However, we have recommendations regarding the submittals on construction period erosion control, as follows:

26. Provide supplemental plan(s) and narrative to explain the proposed sequence of work to manage stormwater during the Site construction. Provide details and narrative to explain how stormwater will be directed and maintained within the Site disturbance limits during construction, for example through sequenced placement of temporary diversion swales, temporary sediment traps/basins, etc. Keeping stormwater as close as possible to the source of generation is the preferred approach and allowing Site stormwater to accumulate at one collection point is not preferred.
27. Modify the note that calls for stabilizing any new exposed slope areas with erosion control matting as soon as the grading is completed to add that it will be preferable for the erosion control matting to include mulch, grass seed and fertilizer, and be organic so as to degrade over time without removal.
28. Update Sheet C-10 and an appropriate SWPPP plan (stormwater report Appendix H) to specifically identify each of the various catch basins and BMPs, and add a note on these

⁷ See Vanasse Associates traffic impact report for the project



plans to call for installation of silt sacks at each catch basin that could receive drainage during the construction period, including any catch basins that may be located downgradient of entrances to the Site within South Avenue;

29. Two locations of construction vehicle Site access, via a Stabilized Construction Entrance, are noted on the Sheet C-10 and the draft SWPPP plans. These should be segregated and clearly marked as either "entry or exit only." There is no need to clean vehicles that enter, and vehicles entering an exit zone will degrade the exit zone by compaction. Add a note to Sheet C-10 to require the contractor to establish designated separate entry and exit points at the site for installation of the stabilized construction vehicle zones and require that the Site exit must employ the Tire Wash Practice as detailed on Sheet ESC-11 (stormwater report Appendix H SWPPP plans).
30. We recommend adding a note to the construction stabilization exit zone that reads "Monitor and maintain the 'Stabilized Construction Entrance / Tire Wash zone' to ensure that this zone is cleaned and functioning correctly to prevent tracking of sediment by construction vehicles that exit the Site".
31. The draft SWPPP erosion control plans (Appendix H) should include the following additional procedural notes to help ensure that the Project contractor is informed of procedures that will be important to the Town and its Conservation Commission, and so that construction activity minimizes erosion and associated impacts:
 - a. Prior to any alteration of the site, an on-site meeting between the owner's representative, the construction supervisor, and the Conservation Agent shall occur. The Owner and the Agent may invite other individuals needed. Similar meetings will occur once erosion control measures are in place and thereafter on a monthly basis unless otherwise agreed to by all parties.
 - b. The inspection of erosion control devices adjacent to the buffer zones will be done by the Applicant's Engineer and once determined to be accurate the Engineer will send a letter to the Conservation Commission attesting to accuracy and describing any potential changes.
 - c. The plan needs to state how often the Project Construction Supervisor will inspect the Site and the erosion controls. Also, the owner shall submit any changes to sequence or timing of construction or inspections to with the Commission prior to implementation.



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- d. To keep unauthorized grading machine traffic to a minimum, install a four-foot high, high-visibility limit-of-work (LOW) fence to enclose the work site and any non-active work areas.
- e. Catch basins (on Site and South Avenue) shall be covered until all surfaces in the watershed of the catch basin are stable and the stormwater management areas are fully constructed. If catch basins are required to be operational, these shall be protected by silt sacks as detailed on the plans, and these shall be checked weekly and following any storm event and cleaned if more than 1/4 full.
- f. Stormwater must be managed in the work area and not allowed to impact erosion control devices, nor be discharged outside of the Site work area.
- g. All grades or bare soil within the buffer zone, and any slopes or areas potentially draining near to a proposed infiltration practice or off site must be stabilized within 48 hours, and no discharge of sediment is to leave the Site.

The Stormwater Management Report correctly states that the Project will result in the disturbance of greater than one (1) acre of land and requires coverage under the U.S. EPA National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Construction Activities (CGP). The Applicant has indicated that prior to commencement of earth disturbing activities, a project-specific Storm Water Pollution Prevention Plan (SWPPP) will be prepared, and a Notice of Intent will be submitted to the EPA. However, as noted in comment 32 below, a SWPPP must be submitted along with a signed copy of EPA's NOI and approval letter as part of a Town of Weston Stormwater Management Permit (SWP) application. The Town's Stormwater & Erosion Control Regulations (SECR) allow a SWPPP that meets requirements of the NPDES General Permit to be equivalent to the Erosion and Sediment Control Plan that is required as part of their SWP application. Therefore:

- 32. We recommend that the Applicant prepare a SWPPP now and submit it with a completed SWP as required by the Town's Stormwater & Erosion Control Regulations. The SWPPP is a document that can always be updated in the future should contractor means and methods change from those proposed by the engineer.

The Applicant has also indicated in the Checklist for Stormwater Report that a Construction Period Pollution Prevention and Erosion and Sedimentation Control has not been included in the Stormwater Report but will be submitted before land disturbance begins. However, because of the Towns SECR noted above, we have recommended this be addressed now (see Comment 32 above).



Standard 9: Operation and Maintenance Plan. A long-term Pollution Prevention and Stormwater Operation and Maintenance Plan (O&M) has been submitted as part of the Stormwater Management Report (Appendix F). This plan needs to be amended as follows:

33. The O&M Plan should include a snow storage plan⁸ to show operators where snow storage should occur during winter storms. In addition, the Applicant should submit calculations that document the amount of snow accumulation that will be gathered during a typical snowstorm event from paved areas, and the amount of plowed snow storage that will be provided by the recommended snow storage zones.

Standard 10: Prohibition of Illicit Discharges. An Illicit Discharge Compliance Statement has been submitted, and this Standard has been met.

Status of the Proposed Project per Town Stormwater Rules:

As noted in the first part of this letter, this peer review checks project compliance Weston's Stormwater and Erosion Control By-Law, and with applicable drainage / stormwater provisions of Weston's Site Plan and Land Subdivision Rules and Regulations as typically referenced during local Site Plan or Special Permit approvals. Town stormwater requirements will be applicable unless waived by the Weston ZBA or by a Commonwealth authority (e.g., HAC). See comments below.

Weston Stormwater Regulations (SECR):

The Applicant's submittal does not include an evaluation of compliance with the Weston Stormwater Management Rules and Regulations. In our review, we have found several points of non-compliance with Weston SECR and an associated need for Applicant Response.

34. The Applicant may need to file for a Major Permit per Section IV.2, and a Major Stormwater Management Permit application needs to meet the requirements stated in the Town's 2-page application checklist. In reviewing the requirements of this, we find that the Applicant's existing submittals will probably meet all submittal requirements except for the following deficiencies:
 - a. "*Locations of all existing bodies of water*": The Applicant needs to show the intermittent stream in its entirety past the last intermittent stream flag shown (near wetland flag 1) to a point parallel to the southern extent of the Project Site.

⁸ We note that a Snow Storage Plan has been provided with the Landscape Architect's plans. This plan information could be replicated on the O&M Site Plan, as long as supporting calculations are provided to justify the sizes of the snow storage zones.



Currently the intermittent stream is only partially shown on the Site Plans (for example, see Sheets C-1, C-3 and C-7).

- b. *“Show the foundation drain. Foundation drain is not to be connected to an infiltration system for stormwater”*: See Comment 22.
- c. *“An Erosion and Sediment Control Report shall be prepared in conformance with the Design Standards contained in Section 7.B.”* See Comment 32.

35. The Applicant’s submittals meet the Design Standards stated in Section 6.0 of the Towns SECR regulations, except for the following:

- a. SECR Section 6.A.2.e. – *“Non-typical curve numbers (CN) will be as follows”*:
 - i. *CN 80 must be used for porous pavement* - the Applicant has used 98 per the Massachusetts SWH and this would need to be discussed with the Town Stormwater Permitting Authority.
 - ii. *“The curve numbers that are applicable for Woods in Poor Condition....shall be used for new landscaped areas, based on the applicable Hydrologic Soil Group...”*: In the Applicant’s case, it appears that the CN value of 45 would be required for new landscaped areas and the HydroCAD model should be revised accordingly (the Stormwater Management Report lists a CN value of 39 for landscaped areas).
- b. SECR Section 6.A.2.ii.c. – *“Unsuitable material is to be removed and replaced with suitable granular material for a distance of 2-ft. horizontally in all directions from the infiltration system; at a minimum, the A and B horizons shall be removed. The excavation for the infiltration system is to extend into the C-layer a minimum of 6-inches.”* See Comment 4 above.
- c. SECR Section 6.A.2.ii.f. – *“Foundation drains will not be allowed to connect to infiltration systems that were designed for stormwater.”* See Comment 22. It is not clear if foundation drains are still proposed (Applicant should clarify).
- d. SECR Section 6.A.2.ii.g. – *“A cleanout with a sump or other structure with a minimum 2-ft. sump will be installed before all new infiltration systems.”* The purpose of this requirement is to provide basic pretreatment and maintenance access prior to subsurface recharge facilities. The proposed designs of SRA-1, SRA-2, and SRA-3 provide for adequate pretreatment of stormflow from the pavement and most yard areas. However, the Applicant should confirm that pretreatment is



provided for the following three areas of stormflow: Flow from the 12-inch yard drain from the courtyard that discharges to a manhole between SRA-1 and SRA-2; and flow from the two roof drains that flow to SRA-2 and SRA-3 respectively – for these roof drains, we recommend installing some form of pre-screening manhole to prevent wind-blown debris and sediment that collects on the flat roof areas from entering the subsurface chambers.

- e. SECR Section 6.B. – *“Approval of an Erosion and Sediment Control Plan by the SWPA is required prior to any site altering activity.”* See Comment 32.

36. SECR Section 7 – Inspections - The Applicant’s project plans need to include notes that refer to the inspection requirements listed in SECR Section 7. Refer to the following:

- a. Pre-Construction Meetings (7.A.1),
- b. Notice of Construction Commencement (7.A.2),
- c. A copy of the approved and signed plans and permits for a SMP shall be kept on the construction site at all times (7.A.3),
- d. The SWPA or its designee shall be granted the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. The SWPA, its agents, officers, and employees shall have authority to enter upon privately owned land for the purpose of performing their duties under this Regulation and may make or cause to be made such examinations, surveys, or sampling as the SWPA deems necessary, subject to the constitutions and laws of the United States and the Commonwealth.

37. SECR Section 8 – Construction Inspections - The Applicant’s project plans need to include notes that refer to Section 8 construction inspections requirements, as they are restated from Section 8, below:

“The SWPA may require the submission of periodic inspections and reporting by the Applicant as dictated by site conditions.

The SWPA may inspect the project site at the following stages, at a minimum:

1. *Initial Site Inspection of erosion and sedimentation controls prior to any land disturbance to assess overall effectiveness and functioning to protect resources.*



2. *Stormwater Management System Excavation Inspection: An inspection will be made of the excavation of the stormwater management system to ensure depth to ground water and presence of approved soil type.*
3. *Stormwater Management System Inspection: An inspection will be made of the completed stormwater management system, prior to backfilling of any underground drainage or stormwater conveyance structures.*
4. *Final Inspection*
 - i. *After the stormwater management system has been constructed, all applicants are required to submit actual "as-built" plans of any stormwater management facilities or practices after final construction is completed. As-built plans must be submitted both in hard copy and electronically as either AutoCAD drawings or PDF documents.*
 - ii. *The SWPA shall inspect the system to confirm its "as-built" features. If the inspector finds the system to be adequate, he/she shall so report to the SWPA which will issue a Certificate of Completion.*
5. *Notes indicating the required inspections are to be added to the Site Plan(s)."*

Planning Board Rules and Regulations as Applicable for Stormwater (PBRR):

The Applicant's submittals do not include an evaluation of compliance with Weston Planning Board Rules and Regulations regarding stormwater and drainage. For drainage and stormwater, the applicable sections of the PBRR are ARTICLE IV. DESIGN STANDARDS, Section 4.19 Drainage; ARTICLE V. CONSTRUCTION STANDARDS, Section 5.09 Drains, Catch Basins, etc. In our review of the foregoing sections, we have found that the Applicant's submittals would be in compliance, except for lack of compliance with the following:

38. The Applicant should address the following requirement of PBRR Section 5.09: *"Drains shall be at least 12 inches in diameter and shall be of good quality reinforced concrete. A minimum of 3 feet of cover will be required over all pipes.*

Town of Weston Rules and Regulations for Site Plan Approval

The Applicant's submittals do not include an evaluation of compliance with Weston's Rules and Regulations for Site Plan Approval regarding stormwater and drainage issues. Our review of the



applicable sections of these rules (for stormwater and drainage) finds that the Applicant's submittals would be in general compliance, with the following exception:

39. Subsection 4.05 NATURAL SITE CHARACTERISTICS states: *"The plans shall show location of water resources including ponds, lakes, brooks, intermittent streams, vernal ponds, streams, flood plains and all proposed changes to these features."*

The Applicant needs to show the intermittent stream in its entirety past the last intermittent stream flag shown (near wetland flag 1) to a point parallel to the southern extent of the Project Site. Currently the intermittent stream is only partially shown on the Site Plans (for example, see Sheets C-1, C-3 and C-7). See Comment 34.a above.

PART 2 – COMMENTS ON PROPOSED SEWERS, WATER SYSTEM, AND SITE PLANNING ELEMENTS

This part of our review focuses on other site civil designs, which include the proposed sanitary sewer system (not the wastewater treatment facility), the proposed water supply system and overall site planning elements as represented by the latest project plans. PSC has reviewed previous Site Plan submittals for the above noted aspects in our memoranda to the Board dated May 15 and June 29, 2021. Some design issues have not significantly changed from prior plan submittals to present, and other issues have changed. Some prior issues that were resolved as a result of Tetra Tech responses to our prior reviews are not discussed below. Only new or unresolved issues are discussed here.

Sanitary Sewer System

There are no specific requirements stated within the Town of Weston References A, B and C (see footnote)⁹ regarding sanitary sewer systems. However, the Massachusetts Department of Environmental Protection (MADEP) has rules and regulations regarding sewers that are stated in 310 CMR 15 (Title 5). MADEP also publishes *Guidelines for the Design, Construction, Operation, and Maintenance of Small Wastewater Treatment Facilities with Land Disposal*, which would be relevant for this Project. In addition, sewer designs should generally comply with guidance provided by the New England Interstate Water Pollution Control Commission's

⁹ Weston Rules and Regulations References per PSC May 15, 2021 memorandum:

- A. Zoning Bylaws, Section XI. Site Plan Approval, subsection F. Standards & Criteria
- B. Rules and Regulations for Site Plan Approval, Nov. 19, 1991, authorized per Section XI of Zoning By-Law: Section 4 – Content of Submission, and Section 5.01 – Site Walk and Public Hearing (RRSPA)
- C. Planning Board Land Subdivision Rules and Regulations, Weston, Massachusetts (PBRR), Article I. General Requirements, and Article IV. Design Standards, as applicable.



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Guides for the Design of Wastewater Treatment Works commonly known as TR-16 (short for Technical Report #16). Our prior review found the proposed sewer layout to be acceptable, however more design needs to follow, and many changes are possible, therefore we recommend the following:

40. Sewer and Wastewater Management Plans: Although the proposed wastewater treatment plant, and sewer system (including sewer pumping) and effluent disposal system locations are noted on the plans, the Applicant will need to prepare substantially more detailed engineering plans and reports for submittal to the Massachusetts Department of Environmental Protection (MADEP) to obtain approval of design and to obtain a Groundwater Discharge Permit (GWDP). Therefore, should this project be approved by the ZBA, we recommend that the Board request that the Applicant provide a copy of all interim and final sewer design plan & profile drawings, all wastewater treatment and effluent disposal designs, and all design reports, when the plans and reports are submitted to MassDEP to obtain a GWDP. Also, we recommend that any favorable Decision by the Board include provisions for the Applicant to fund review of such future wastewater plans by an outside consultant if deemed necessary by the Building Inspector.

Water Supply System

The Applicant's proposed water system is presented on Utility Plan Sheets C-8 and C-9 and Detail Sheet C-14. An 8-inch cement lined ductile iron (CLDI) water main is proposed to connect to the Town's 10-inch water main in South Avenue opposite the main driveway entrance. The proposed water line enters along the driveway to provide split domestic water and fire protection service connections on the east side of the wastewater treatment plant building and there is a proposed fire hydrant on the entrance drive that is across from the treatment plant. The water line continues south to a three-valve tee connection in front of the north side the residential building where water lines split into east and west branches. The west branch extends along the west side of the building leading to two (2) proposed fire hydrants: One on the left side of the parking garage entrance, and another at the south end of the building in the southwest corner of the Site. This water line from the west continues to loop around to the east side of the building, providing connections to two more hydrants, one at the southeast corner, and one off the northeast face of the building before it joins back into the east branch water line. The east branch provides split domestic water and fire protection service connections to the north side of the residential building, and continues around the northeast corner of the building to a junction with the west branch, then turning northeast, extending back to South Avenue along the proposed emergency access drive. There is a hydrant proposed



at the emergency drive/South Avenue intersection, and a second connection to the 10-inch Town water main in South Avenue, thus providing a looped water line service to the Site with two connections to South Avenue. The Applicant needs to provide the following:

41. In a prior review, we recommended that South Avenue 10-inch water main material, age, and adequacy be discussed with the Weston DPW, Water Department and Fire Department, and the Applicant indicated willingness to coordinate with these Departments, however it is not clear if the Board has received the Departments' approval. Therefore, the Applicant should obtain and provide approval in writing from both the Water Department and Fire Department and provide such to the Board.
42. In a prior review, we recommended that a static pressure and fire flow test should be conducted at the South Avenue water main in front of the Site to check for compliance with *PBRR §4.22 Water Supply*, and to ensure adequate domestic and fire protection flows. Tetra Tech's prior response was that Hydrant flow testing be conducted within six months of applying for Building Permit, and if adequate pressure is not available, booster pumps will be provided. PSC continues to recommend that these tests be done now, so that if pressure and/or supply are not adequate, it will be known by the Board now, prior to any Board decision.
43. In a prior review, we recommended that the adequacy of proposed fire protection services at the Site be discussed with the Weston Fire Department, and that a summary memorandum concerning Fire Department approval should be provided to the ZBA. Tetra Tech's prior response was that Fire protection services are typically reviewed during the Building Permit process. PSC continues to recommend that these discussions take place and be reported to the Board via Fire Department memorandum, even if additional final discussion will be required prior to obtaining building permit(s). Please note the highly specialized fire protection requirements for the parking garage,
Comment

Private Utilities

An underground electric line is shown on Utility Plan Sheets C-8 and C-9 as for prior submittals. It is proposed to start at the northwest side of the entrance drive, from a connection at utility pole #118 on South Avenue. The underground electric service continues to the Site under the west side of the access driveway. An electric service branches off to a transformer on the west side of the proposed wastewater treatment building; and the main service continues up to a proposed primary switch and two (2) transformers at the southeast corner of the proposed garage. A standby generator, which the Applicant indicates will be natural gas fired, is shown



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for the wastewater treatment plant building, but not at the residential building. The residential building will not have a standby generator.

Regarding electric utility designs, the Applicant has agreed to, but not yet provided additional information, as follows:

44. Provide details of the underground electric conduit after coordinating a design from Eversource. This may require a Board condition for future action, as it appears that Eversource will not open a work order and begin the service design process until local permitting process is complete.
45. Provide to the Board a landscape plan for proposed transformer locations after the electrical service design has been completed with Eversource. This may require a Board condition for future action, so that the Landscape Plan can be updated to provide screening in accordance with Eversource and Board requirements.
46. As agreed by the Applicant in a prior review, the standby generator(s) for the Site need to be designed to operate in compliance with local and state noise ordinances; and the standby generator(s) will need to be exercised in accordance with the manufacturer's recommendation. This should be a condition of approval should the Board approve the Project.

A gas service line (unknown size and material) is shown on Utility Plan Sheets C-8 and C-9. It is proposed to connect to an existing 12-inch gas main (material not noted) within South Avenue. The new gas service line enters along the access drive, provides a service line (tee connection) to the wastewater treatment building, and continues to the north side of the residential building where there will be a tee connection to another gas line (unknown size and material) that will loop around the residential and garage buildings. Two gas meter locations are noted, one at the south end of the building, and one at the northeast corner of the building. The Applicant needs to provide the following:

47. The size and adequacy (safety) of the existing gas main in South Avenue, the proposed gas service to the Site, and all building meter connection(s), should be confirmed with the gas utility; and meter locations need to be shown on the plans for both the treatment plant building and the residential building with appropriate landscape screen. Tetra Tech has indicated that details of the natural gas services require a design from National Grid, that will not be available until after local permitting is complete. This may require a Board condition for future action, so that gas locations can be finalized and so



that the Landscape Plan (for screening of the gas meters) can be updated to provide screening in accordance with National Grid and Board requirements.

An underground telephone/cable line is noted on Utility Plan Sheets C-8 and C-9: It starts at utility pole #118 (northwest side of the entrance drive) on South Avenue. These service lines continue to the Site under the access driveway, pass in front of the north side of the residential building and then down along the east side of the buildings, where the lines enter the southeast corner of the garage building.

48. The Applicant needs to provide a detail of the proposed conduit to be used to carry the underground cable/data lines. Tetra Tech has indicated that details of telephone, cable and data services will not be available until after local permitting is complete. This may require a Board condition for future action, for the Applicant to provide these systems' final layout and design.

Site Planning Elements

The Applicant's submittal does not include a summary of conformance with Town of Weston Rules and Regulations for Site Plan Approval (RRSPA) or conformance with applicable requirements of the Weston Planning Board Rules and Regulations (PBRR) which serve as site construction standards. Our review of project submittals indicates general compliance with many of the standards. However, we note the following exceptions and suggestions that require a response:

RRSPA Section 4 – Content of the Submission:

49. RRSPA §4.02 List of All Items Submitted: This section requires the Submission to include a separate titled "*List of Items Submitted which shall number and identify each document, plan, drawing or other item that is submitted by the Applicant*". The Applicant needs to submit this list and be sure that "*any item that is added to the Submission during the course of the site plan approval process shall be added to the List...*" In a prior response, Tetra Tech has indicated intent to submit this list, but PSC is not aware of it being submitted to the Board.
50. RRSPA §4.07 Site Improvements requires: "*Proposed parking structures must contain the above information as well as: dimensions of the structures; means of ingress and egress; internal traffic circulation; lighting and access to the principal structure.*" Information has been provided for external parking, and internal garage parking spaces including means of ingress and egress to adjacent floors, internal traffic circulation,



pedestrian areas, and proposed access points to the residential structures. However, the Applicant needs to submit information on proposed lighting inside the garage.

51. RRSPA §4.07 Site Improvements requires: *“All driveway entrances shall be shown with dimensions; and sight distances at the driveway intersection shall be provided. The weight, turning radius length and height of the largest truck expected to use the site shall be noted. All the driveways and entrances must be designed to accommodate trucks as well as fire apparatus which must be able to maneuver freely. Service areas, truck loading areas and utility buildings shall be shown.”*

The Applicant still needs to submit the following: (a) the weight, turning radius length and height of the largest truck expected to use the site, and (b) a turning movement plan to demonstrate that the Weston Fire Department vehicles and their proposed firefighting apparatus (per consultation with the Fire Chief) can maneuver freely to, from and within the Site. Also, see Comment 13.a above.

52. RRSPA §4.09 Waste Disposal requires: *“The location of the area which is capable of supporting on-site sewage disposal from the proposed project shall be shown. Design, operating and maintenance details of the proposed disposal facility shall be explained.”* The Applicant has clearly noted the areas of proposed wastewater treatment and effluent disposal. However, the Applicant still needs to submit design, operating and maintenance details for these facilities. See Comment 40 above.

[Although MADEP will be the review and approving authority for the Wastewater Treatment Facility, pursuant to RRSPA §4.09, the Board is still entitled to receive from the Applicant an explanation of the design, operating and maintenance details for the proposed wastewater treatment facility that will serve the Site.]

53. RRSPA §4.10 Earth Removal/Fill requires: *“Indicate areas where earth removal, blasting, or filling is proposed and the approximate volume in cubic yards, along with the rationale for proposed removal of vegetation, trees, soil and for any grade change.”*

The Applicant has stated that site grading will result in a net export of soils; and that their preliminary calculations indicate exports will amount to approximately 6,000 cubic yards; and that blasting for rock removal is not currently anticipated. However, those prior estimates on cut and fill were based on the prior design; and the latest design calls for a substantial rise in grade at and around the proposed buildings. Therefore, the Applicant still needs to provide a cut & fill plan as required by RRSPA §4.10 to illustrate for the Board’s understanding the proposed areas of cut and fill, and include proposed



volumes of earth (or rock) involved from each area of cut and fill that will add up to the Applicant's total revised estimate of net soil import or export.

54. RRSPA §4.10 Earth Removal/Fill requires: *“Precise calculations for determining the total amount of earth removal or fill will only be required when the development will require earth materials to be obtained or removed off site. If the amount is over 30 cubic yards, a removal/fill schedule will be required which shows size of trucks, gross vehicle weight, estimated number of trips per day for each vehicle, travel routes to be taken, and hours of operation, and certification that fill is free of hazardous materials.”* As a supplement to their response to Comment 53 above, the Applicant should provide their proposed estimated schedule of truck trips including all details as requested in RRSPA §4.10.
55. RRSPA §4.14 Traffic Study: A traffic study is required encompassing all roads and intersections within 500 ft. of the site as well as all roads and intersections impacted by site generated traffic. The Planning Board (in this instance the Zoning Board of Appeals acting in lieu of the Planning Board) is authorized to define requirements for the traffic study. The Town has engaged MDM Transportation Consultants to conduct a peer review of the Traffic Impact and Access Study (TIAS) prepared by Vanasse & Associates, Inc. (July 2019). In order to avoid duplication, we will not perform a detailed analysis of the submitted TIAS. However, it should be noted that the submitted TIAS does not comply with the requirement of Section 4.14 to identify and evaluate construction phase traffic impacts. The TIAS should address construction equipment and heavy truck trips, particularly those generated by earthwork, foundation, and building structure tasks. The TIAS should also identify total construction phase trips based upon the overall project schedule. The TIAS should identify truck routes and traffic management measures coordinated with Police Department requirements. A draft Construction Management Plan should be provided to minimize overall construction trips particularly single occupant vehicle trips. PSC is unaware of receipt by the Board of a Construction Management Plan, and receipt of a revised TIAS that fully complies with the requirements of RRSPA §4.14 including the construction phase traffic impacts noted in Comment 56 below.
56. RSPA §4.15 Impact and Mitigation requires: *“Analysis shall be provided of impacts during construction including days and hours of operation; provisions for employee and equipment parking; traffic, noise, dust vibration; impacts on wildlife habitats; demand for and effects on character of the community. Any proposed mitigation of negative impacts shall be provided and shall be consistent with the Standards and Criteria set forth in Section XI, Subsection H. of the Weston Zoning By-Law.”* The Applicant needs to



provide this required analysis including a proposed construction schedule. Also see Comment 55 above.

PBRR Article V – Construction Standards

57. PBRR §5.08 Paving of Sidewalks requires the following: *“Sidewalks shall be brought to subgrade by the necessary excavation and filling and shall receive a coat of selected gravel at least 8 inches in thickness, free of all stone over 1 inch in diameter and free from loam, clay, and other foreign matter. Thereafter, each sidewalk shall receive a two-course bituminous paving at least 2 1/2 inches in total thickness after compaction.”* The Applicant should confirm with the Town’s DPW that the sidewalk detail shown on Details Sheet C-13 will satisfy their requirement and the requirements of PBRR §5.08 Paving of Sidewalks.
58. The Applicant’s Site plans call for a 5-foot-wide concrete sidewalk within the Site, and also along the south side of South Avenue heading east from a point about 100- feet west of the Project entrance until reaching Wellesley Street. MassDOT requires a minimum sidewalk width of 5 ft. exclusive of curb and clear from obstructions such as hydrants, signs, and utility poles. A minimum width of 5½-ft. including curb with spot widening if obstructions are to be installed in the sidewalk is mandatory along South Avenue (Route 30) and is recommended throughout the site to ensure that the accessible route is maintained. Massachusetts Highway Department, Project Development and Design Guide 2006 §5.2.1. In addition, the Applicant needs to correct the detail shown on Sheet C-13 to call for a 5½-foot sidewalk (not 4-foot as detailed).
59. PBRR §5.13 Cleaning Up requires the following: *“Upon completion of the work, the Subdivider shall clean up any debris thereon caused by street construction, installation of utilities, and other operations of the subdivider. All areas within a right of way or foot path destroyed, damaged, or altered in construction operations shall be restored to vegetation or other finish satisfactory to the Board. Any areas which are used for the disposition of excess fill, stumps, rock, and similar materials which may have accumulated during the prosecution of the work shall, as soon as practicable (and no later than the time of completion of the work), be excavated and then recovered,*



graded, and landscaped by the Subdivider. The Subdivider shall leave the subdivision area in a neat and orderly condition."

60. The Applicant should add a note to the Site plans that will require the Project construction to comply with the intent of PBRR §5.13 Cleaning Up.

Other Site Planning Comments

61. The walk at the head of perpendicular parking spaces should be increased to 7 ft. in width to maintain 5 ft. clear exclusive of bumper overhang.
62. Improvements to encourage access for alternative modes should be provided:
- a. A bicycle path should be added between the building and South St.
 - b. Bicycle racks should be added at the main building entrance
 - c. Secure bicycle storage should be added in the garage or other appropriate location for residents.
63. Add EV charging stations at the front entrance and in the parking garage.
64. Provide for proper on-site access and circulation:
- a. Provide a stop line at the stop sign at the principal site entrance.
 - b. Sign the on-site access drives for "No Parking" (MUTCD R7-1).
 - c. Provide stop control for the eastbound and would be approaches to the drop off and turnaround at the main entrance.
 - d. Provide speed limit signs.
 - e. Confirm that school busses will not enter the site. Provide a pullout lane at the main entrance to accommodate parents waiting for school bus pickup or drop-off.

Snow Management: The Applicant has shown proposed snow storage areas on their Landscape Plans; however the following additional submittal is required:

65. Revise the stormwater management O&M plan to show proposed snow storage zones (see Comment 33 above); and include calculations (based on a stated snowstorm accumulation) that justify the areas that have been selected for snow storage after plowing, and identify the storage volume provided at each specific area on the plan.



And, because snow amounts that exceed available storage shall require disposal offsite, add a note to the O&M Plan to this effect.

Retaining Walls: The latest Site design has proposed 3-feet or more fill above existing grades in combination with the installation of retaining walls at most every part of the Site perimeter. It appears this has been done to increase the separation to ESHGW¹⁰ and improve functionality of the subsurface recharge structures (both stormwater and wastewater) during groundwater mounding. Moreover, to prevent groundwater flow through the retaining wall face, 20 mill poly barriers with sand wicks are proposed. These large segmental masonry block retaining walls will in some cases require guard rails, and wall height will vary from 1-foot to 10-feet. In addition to our concern about the walls' impact on groundwater mounding, see Comment 23 above, we offer the following additional comments:

66. The proposed retaining walls need to be designed by a Massachusetts registered Structural Engineer. Calculations for factor of safety against overturning, sliding and bearing capacity are required for any section over 4-feet in height, and the proximity of wetlands and conditions of high groundwater and groundwater mounding should be factored into the design. If the structural plans are provided by a wall manufacturer, then the Board should require that the plans be based on site specific geotechnical information and they should not accept plans that are qualified by requiring further determination of geotechnical conditions after issuance of the signed and sealed structural drawings.
67. Provide a detail showing guardrail installation for retaining walls capable of resisting horizontal impact loads.
68. The Zoning Board of Appeals will have to determine the acceptability of these retaining walls from an aesthetic and zoning aspect, especially considering the walls as structures are not compliant with yard setbacks.

Parking Garage: The Project proposes a 4.5 level parking garage with 283 parking spaces. Two walls of the garage abut adjacent residential buildings and an additional wall of the garage and part of the fourth wall of the garage are located within approximately 10 feet of residential buildings. The garage will require mechanical ventilation and a fire suppression system. Absent proper design of the ventilation system, units could be uninhabitable if carbon monoxide concentrations or other pollutant concentrations exceed air quality standards. The design of the fire suppression system must consider that fire apparatus cannot enter the garage due to

¹⁰ Estimated Seasonal High Ground Water



vertical clearance and the position of the residential buildings preclude Fire Department access to the exterior walls of the garage. The fire suppression system must also be designed for the unheated garage space that will expose the fire suppression system to freezing conditions.

69. Submit a report from an air quality consultant detailing measures required to ensure that the surrounding residential structures do not experience concentrations of carbon monoxide or other pollutants from vehicle emissions exceeding air quality standards.
70. Submit a statement from a mechanical engineer generally outlining the mechanical ventilation system required to control vehicle exhaust including carbon monoxide. The mechanical engineer's statement should specifically address the location of the system exhaust.
71. The mechanical engineer's statement should also address whether a generator is required to operate the garage ventilation system during power outages.
72. Review the design requirements for the garage fire suppression system with the Fire Department:
 - a. The design of the fire suppression system will be highly specialized given that fire apparatus cannot enter the garage due to vertical clearance and the position of the residential buildings preclude Fire Department access to the exterior walls of the garage. Accordingly, we recommend as a Condition of Approval, that the Applicant compensate the Town for the cost of review of the fire protection requirements for the parking garage.
 - b. The design of the fire suppression system must accommodate exposure to freeze/thaw conditions.
 - c. Document agreement with the Fire Department on the type and on the performance standards for the fire suppression system.
73. Submit a parking management plan for the garage setting forth regulations that include controlling the number of vehicles the residents can park on-site, visitor parking, and service vehicle parking.