

June 16, 2022: Responses to PSC's unresolved comments dated May 4, 2022. For reference, PSC's unresolved comments are provided in red. Further updated on June 29, 2022.

Comment #	Comment	Response By	Response
Professional Services Corporation, PC Comment Letter dated January 12, 2022			
PSC 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.	Tetra Tech	As noted in the Stormwater Management Report, the green roof area will be contained by curbs and parapet walls. A waterproof membrane will be provided to contain water within curbs and parapet walls. As shown on the Columbia Green Roof Tray System detail, the bottom of each tray contains drainage holes that allow water to flow in and out and seek its own level within the area contained by the waterproof membranes. The Watt's overflow drains will be placed within the containment areas in the numbers as specified on the plans and connected to internal roof drains. Roof and Plumbing plans detailing the installation will be submitted as part of the Building Permit process.
PSC 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.	Tetra Tech	Oil/Water Separators are required by plumbing code and will be shown on the plumbing plans submitted for Building Permit. A note is included on Sheet C-9 confirming that an Oil/Water Separator will be provided. A typical detail with sizing requirements has been added to the detail sheets for reference.
PSC 3	The setback of Subsurface Recharge Areas 1, 2 & 3 from the primary treated effluent disposal area is greater than the minimum 50-foot 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.	Tetra Tech	<p>The Guidelines for the Design, Construction, Operation and Maintenance of Small Wastewater Treatment Facilities with Land Disposal Table 2 provides a setback requirement between the soil absorption area and an infiltration system of 25 feet.</p> <p><i>Despite the quoted guideline, modeling analyses (to date) continue to demonstrate an adverse interaction between the effluent disposal area and concentrated stormwater infiltration system performance. See further comments on this issue below.</i></p> <p>Please refer to Tetra Tech's May 18, 2022 discussion on "Stormwater Infiltration Basins"</p>
PSC 4	Because the three SRA facilities (stone bottom elevation, 219.5) will be constructed in fill soils on top of existing grades, 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 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.	Tetra Tech	A note has been added to Sheet C-7 requiring the removal of top soil and subsoils where the infiltration systems are constructed in fill. Title V sand or clean, washed crushed stone will be installed in its place. This shall extend 2 feet beyond the limits of the subsurface system on all sides and into the receiving soil layer.
PSC 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.	Tetra Tech	Finished grade at the south end of the infiltration system will be approximately 225.1. Additional spot grades have been added to the final Grading and Drainage Plan.
PSC 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.	Tetra Tech	A note has been added to the Grading and Drainage Plan requiring Deep Sump Hooded Catch Basin in locations where Area Drains are called for. All Area Drains are now labelled as catch basins.

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PSC 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.	Tetra Tech	Labels have been added to the Grading and Drainage Plan that identifies where each green roof area overflows. The roof drain collects all the non-green roof areas associated with the residential building has been split between to outlets with the contributing area noted on the plans. The connection to SRA#3 has been deleted.
PSC 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.	Tetra Tech	Discrepancies have been addressed and have been updated on the plans and in the stormwater report.
PSC 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.	Tetra Tech	Typically the Courtyard will be drained by two deep sump hooded catch basins and will connect to a drain manhole. This is shown schematically on the Grading and Drainage plan.
PSC 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.	Tetra Tech	The Outlet Control Structure has been labeled and a Level Spreader detail has been added to the plans. <small>This comment has been partially addressed. Although plans and details have been revised, the level spreader length (20-ft) and width (2-ft) should be noted on the Detail on Sheet C-20; and see our comments on this issue in response to Patrick Garner question (attached).</small> The length and width for the Level Spreader has been added to the detail.
PSC 11	Provide details and cross-sections to clarify proposed construction of the Stilling Basin. <small>This comment has been partially addressed. See response to PSC 10 above.</small>	Tetra Tech	A detail for the Level Spreader has been added to Sheet C-20. The length and width for the Level Spreader has been added to the detail.
PSC 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. <small>This comment has been partially addressed. See details in our PSC 12 response in the attached List of Discrepancies between plans, details and HydroCAD inputs.</small>	Tetra Tech	A label has been added to the Outlet Control Structure. RCA#1 has been reconciled to match HydroCAD. RCA#3 has an outlet at 219.00 that leads to OCS#3. 217.65 is the invert out of OCS#3. Stormcapture Systems 1 and 2 have been updated on the plans to match HydroCAD data.
PSC 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:	Tetra Tech	The secondary emergency access drive has been revised to show a porous pavement surface. In the event that the Conservation Commission or MADEP does not approve of porous pavement, the Applicant reserves the right to revert back to the bio-swale/rain garden design.
PSC 13.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.	Tetra Tech	See response to comment PSC 13.
PSC 13.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.	Tetra Tech	See response to comment PSC 13.

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PSC 13.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.	Tetra Tech	See response to comment PSC 13.
PSC 13.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.	Tetra Tech	See response to comment PSC 13.
PSC 13.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.	Tetra Tech	See response to comment PSC 13.
PSC 13.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.	Tetra Tech	See response to comment PSC 13.
PSC 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.	Tetra Tech	The intent is not to drain onto the porous pavement. Additional spot grades have been added to the Grading and Drainage Plan for clarification.
PSC 15	The SWHB 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.	Tetra Tech	The project is not considered a land use with higher potential pollutant loads. Routine maintenance of the porous pavement, which includes monthly pavement sweeping is necessary, for the long term success. Additionally, it is recommended that a professional stormwater maintenance contractor, such as Stormwater Compliance, be retained. These contractors are familiar with maintaining porous pavement systems in cold weather climates. Also, excessive wear is not caused by service vehicles (UPS, Amazon, USPS), but rather where tires grind into the porous pavement surfaces, such as parallel parking. Occasional heavy trucks should not create excessive wear, however can damage porous asphalt on very hot days where wheels are stationary and then turned dramatically. Please also note that routine maintenance will utilize vacuum sweepers, as opposed to conventional sweepers.
PSC 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.	Tetra Tech	The porous pavement bed bottoms have been terraced to provide consistent infiltration along the entire length of the sloped driveways. Clay check dams have been added to contain stormwater within the terraced flat base elevations. The weir heights in the HydroCAD model were initially provided to demonstrate that there is no "overflow" during any of the design storms. The standard reservoir course depth is 6-inches. In areas with lower permeability rates, the reservoir course has been increased to 9 or 12 inches. Locations are noted on the Grading and Drainage Plan where a deeper reservoir course is required.

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PSC 17	<p>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-foot 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 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.</p> <p><small>On one hand, we find the proposed porous pavement location to be acceptable given that a 25-ft setback is proposed from the primary effluent disposal area, and given that there is no porous pavement setback requirement within the SWH (see V.2, Ch.2, p.100) from an effluent disposal area that receives treated wastewater under an a MassDEP Groundwater Discharge Permit. However, we note a deficiency in the mounding analysis, which does not account for 100% recharge of rainfall within the porous paved zones (only assumes 50%). This should be revised.</small></p>	Tetra Tech	<p>A meeting was held with PSC, Patrick Garner, the Weston Conservation Agent, Sanborn Head and Tetra Tech on January 15, 2021 to review and discuss the stormwater management. A specific discussion revolved around the limits of porous pavement. Originally porous pavement was proposed over the soil absorption area. It was agreed that porous pavement would be removed over the limits of the soil absorption system and replaced with standard pavement. At the edge of the soil absorption area, pavement was to change back to porous pavement. This revision has been shown since the March 19, 2021 plan submission. The comment is not consistent with the January 15, 2021 meeting. Additionally is should be understood that the groundwater model considers porous pavement and lawn areas identically. As soon as the rain water hits a porous pavement system or lawn area, it is assumed to reach groundwater instantly.</p> <p>Sanborn Head - The groundwater mounding analysis has been completed for multiple mounding scenarios, each of which considers appropriate porous pavement and landscaped area runoff (see Sections 5.1.2.1 through 5.1.2.3 of the Groundwater Model Report, revised March 25, 2022), as well as, impervious stormwater runoff routed through the stormwater system prepared by Tetra Tech. As noted in Section 4.2 of the Groundwater Model Report, revised March 25, 2022, the mounding scenarios are calibrated with consideration of observed site conditions during Tropical Storm Ida and our understanding of how stormwater runoff at the ground surface reaches the groundwater table at depth.</p>
PSC 18	<p>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 respectfully, 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.</p>	Applicant	<p>See the March 3, 2022 Executive Summary of response to comments.</p> <p><small>The latest Stormwater Report provides drawdown analysis for SWH Standard 3 "Minimum Required Recharge Volume" which is only 0.6-inches of rain or less depending on soil classifications at the Site. Because of concerns stated in Comment PSC 18, and to ensure that the three SRA's will be adequate for severe back to back storms, after completing other recommendations noted in the attached response to questions from Patrick Garner, we recommend that the Applicant also provide calculations to demonstrate that the three SRAs will drawdown to provide 4-feet (minimum of 2-feet) separation to seasonal high groundwater within 72-hours of a passing 100-year storm. Also see responses at PSC 25.</small></p> <p>Please refer to Tetra Tech's May 18, 2022 discussion on "Stormwater Infiltration Basins." Also, there is no substance to the comment that, "...once a mounded condition reaches the base of an infiltration area, the rate of recharge is typically reduced by an order of magnitude..." The groundwater model calculates the head in the center if the upper cell layer below the groundwater table. That elevation is consistently below the top of the SRAs, meaning that infiltration still occurs. The reduction of infiltration capacity occurs, but on the order of 50% or less and not ten times as claimed. The groundwater model does not include the horizontal infiltration out of the SRAs, and therefore any reduction in vertical infiltration is more than compensated by the horizontal infiltration from the SRAs.</p>
PSC 19	<p>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.</p>	Tetra Tech	<p>A cross section through the stormwater systems and the wastewater disposal area is included with the Groundwater Mounding Report.</p> <p>This comment has been partially addressed. We continue to recommend evaluation of mounding, including at abutting properties, for the 25-year and 100-year 24-hour rainfall events. Also see PSC 23 and 25 below.</p>

This comment has been partially addressed. We continue to recommend evaluation of mounding, including at abutting properties, for the 25-year and 100-year 24-hour rainfall events. Also see PSC 23 and 25 below.

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PSC 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.	Sanborn Head	This "mounding" is due to the required application of a 10-year storm to the model; the same groundwater response was measured to Tropical Storm Ida, which was a 10-year storm, pre-development.
PSC 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. This comment has been partially addressed. We continue to recommend evaluation of mounding for the 25-year and 100-year 24-hour rainfall events. See PSC 23 below.	Sanborn Head	The groundwater mound formed under the design condition after the addition of stormwater storage does not encroach on building or retaining wall foundation elements. Conclusion: retaining wall foundations and building foundations will have no effect on the groundwater mounding.
PSC 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.	Tetra Tech	No foundation drains are proposed for stormwater or wastewater controls. Underdrains have been incorporated at subsurface recharge areas 1 and 2 and are modelled in the calculations and shown on the Grading and Drainage Plans.
PSC 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.)	Sanborn Head	The groundwater mound formed under the design condition after the addition of stormwater storage does not encroach on building or retaining wall foundation elements. Conclusion: retaining wall foundations and building foundations will have no effect on the groundwater mounding.
PSC 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.	Sanborn Head	Comment is acknowledged. The mound does not breakout above the ground surface at the site under the design conditions required by MADEP. See also response to comments about mounding at the wetland.
	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:		

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PSC 25	<p>“Provided system schematics 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).</p>	Applicant	<p>We continue to request analyses to show that groundwater mounding will not result in the mound extending into the SRA zones, which will dramatically impact the recharge rate that is assumed in HydroCAD. Moreover, if mounding does extend into the SRA recharge systems, then the Applicant needs to prepare additional submittals and/or revised design. Example submittals should include the following: (1) groundwater mounding results to show how soon (in hours) the mound recedes to 4-feet (2-feet min.) below the base stone of the three SRAs, (2) revised mounding to reflect realistic reduced recharge rates once the mound height reaches the base of the SRA zones, (3) revised HydroCAD model to show revised peak flows and volumes released from the SRA system based on realistic reduced recharge rates that become in effect once the mound reaches the base of the SRA base stone, and (4) analyses of the above should include the 25-yr and 100-yr storm events, and also demonstrate lack of breakout above ground surfaces in addition to not impacting the SRA zones. Also, see attachment with response to questions raised by Patrick Garner email of 5.3.22.</p>
	<p>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.”</p>		<p>See the March 3, 2022 Executive Summary of response to comments.</p>
	<p>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</p>		<p>The groundwater model calculates the head in the center of the upper cell layer below the groundwater table. That elevation is consistently below the top of the SRAs, meaning that infiltration still occurs as long as the water level in the SRA exceeds that of the head below: gravity drainage continues. When groundwater mound growth is higher than the bottom of the SRA, a reduction of infiltration capacity occurs, however the system is still infiltrating. The groundwater model does not include the horizontal infiltration out of the SRAs, and therefore any reduction in vertical infiltration is more than compensated by the horizontal infiltration from the SRAs. Documentation of such horizontal infiltration from similar stormwater systems was provided.</p> <p>Also, please refer to Tetra Tech's May 18, 2022 discussion on "Stormwater Infiltration Basins"</p>
PSC 26	<p>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.</p>	Tetra Tech	<p>In order to address this comment completely, input from the Site Contractor who will be selected is critical as this comment gets into means and methods. We would suggest that that this requirement be a condition of approval.</p>
PSC 27	<p>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.</p>	Tetra Tech	<p>The slope stabilization detail calls for North American Green SC 150 matting, which is photodegradable. The note calling for the stabilization mat will be revised as suggested on the final plans.</p>
PSC 28	<p>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 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;</p>	Tetra Tech	<p>All catch basins and other sediment control best management practices are identified on Sheet C-10 and on the SWPPP Plans included in Appendix H. There does not appear to be any catch basins located along the southern side of South Avenue in the vicinity of the project that should have a catch basin insert installed. There is a catch basin on the north side of South Avenue, opposite the Emergency Access Drive. Given that South Avenue is crowned at this location, a catch basin insert is not advisable.</p>

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PSC 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).	Tetra Tech	A stabilized construction entrance/exit is called for at the main Site Drive. At the Emergency Exit, a stabilized construction exit is noted.
PSC 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".	Tetra Tech	The detail for the stabilized Construction Entrance/Exit notes the required maintenance.
PSC 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:		Responses to sub-comments provided below.
PSC 31.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.	Tetra Tech	Recommend that this be included in a condition of approval.
PSC 31.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.	Tetra Tech	Recommend that this be included in a condition of approval.
PSC 31.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.	Tetra Tech	The Construction General Permit dictates the inspection requirements for all sediment controls. The Applicant will advise the Building Inspector and Conservation Agent of changes in construction sequence prior to implementation and could be included as a condition of approval.
PSC 31.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.	Tetra Tech	The SWPPP Plans show a limit of work/construction fence around the perimeter of the entire work area. The construction fence detail calls for a 6' fence with a windscreen.
PSC 31.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.	Tetra Tech	As noted in response 28 above, there do not appear to be any catch basin along the south side of South Avenue. Otherwise, this should be a condition of approval.
PSC 31.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.	Tetra Tech	Construction period stormwater will be managed within the site work area.

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PSC 31.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.	Tetra Tech	Temporary stabilization will be provided to any bare soils that will not be worked for 14 days. Final stabilization will be provided as soon as possible upon completion of a work area, but no later than 7 days. Erosion Control and Sediment Prevention Note 5 on SWPPP Sheet C-11 has been updated to required bare slopes to be temporarily stabilized when 0.5-inches of rain is predicted.
PSC 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.	Tetra Tech	We suggest that the SWPPP be submitted to the Town prior to construction. This could be a condition of approval.
PSC 33	The O&M Plan should include a snow storage plan 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. <i>The revised landscape plan provides for 8 snow storage areas on site and eliminates the storage area located above the retaining wall in the southwest corner of the site. Using the assumptions outlined in Tetra Tech's May 18th letter, approximately 57,300 of compacted snow can be stored, which equates to 11 inches of snow.</i>	Tetra Tech	Snow storage is shown on the landscape plans. This response is not complete. See GWH plans, Sheet L1.01SS dated 11/22/21: (1) Calculations are not provided on the plan for snow accumulation for specific depth of snowfall, and proof of adequate storage for the accumulated snow; (2) 2 of the 4 storage areas are not feasible - blocked by "retaining wal with fence"; (3) garage roof snow storage is not discussed. See additional comments at PSC 65 below.
PSC 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:	Tetra Tech	The project is requesting a Comprehensive Permit, which includes all local permits such as the Major Stormwater Management Permit.
PSC 34.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. Currently the intermittent stream is only partially shown on the Site Plans (for example, see Sheets C-1, C-3 and C-7).	Tetra Tech	The stream is shown 100 feet beyond the southern extent of the project site.
PSC 34.b	"Show the foundation drain. Foundation drain is not to be connected to an infiltration system for stormwater": See Comment 22.	Tetra Tech	No foundation drains are proposed for stormwater or wastewater controls. Underdrains have been incorporated at subsurface recharge areas 1 and 2 and are modelled in the calculations and shown on the Grading and Drainage Plans.
PSC 34.c	"An Erosion and Sediment Control Report shall be prepared in conformance with the Design Standards contained in Section 7.B." See Comment 32.	Tetra Tech	An Erosion and Sediment Control narrative will be included as part of the SWPPP, which will be submitted prior to earth disturbing activities.
PSC 35	The Applicant's submittals meet the Design Standards stated in Section 6.0 of the Towns SECR regulations, except for the following:		
PSC 35.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. 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).	Tetra Tech	As indicated in the project hearing, the stormwater calculations uses a curve number of 98 for porous pavement and the reservoir course has been sized to store and infiltrate all stormwater events. A curve number of 39 has been used for landscaped areas because the stormwater calculations are also being used in the groundwater mounding analysis, which is under MADEP's purview. Therefore, industry standard values must be used.

Comment #	Comment	Response By	Response
PSC 35.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.	Tetra Tech	A note has been added to Sheet C-7 requiring the removal of top soil and subsoils where the infiltration systems are constructed in fill. Title V sand or clean, washed crushed stone will be installed in its place. This shall extend 2 feet beyond the limits of the subsurface system on all sides.
PSC 35.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).	Tetra Tech	No foundation drains are proposed for stormwater or wastewater controls. Underdrains have been incorporated at subsurface recharge areas 1 and 2 and are modelled in the calculations and shown on the Grading and Drainage Plans.
PSC 35.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 respectfully – 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.	Tetra Tech	A drain manhole has been added to the roof drain with a 2-foot sump. In the courtyard, the catch basins will have deep sumps and the drain manhole will have a 2-foot sump. The green roof overflows will be adequately pretreated as the stormwater will flow through the soil media prior to being collected by the Watt's overflow drains.
PSC 35.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.	Tetra Tech	The project is requesting a Comprehensive Permit, which includes all local approvals, including the Erosion and Sediment Control Plan.
PSC 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:	Tetra Tech	Inspection requirements can be indicated as a condition of approval.
PSC 36.a	Pre-Construction Meetings (7.A.1),	Tetra Tech	Inspection requirements can be indicated as a condition of approval.
PSC 36.b	Notice of Construction Commencement (7.A.2)	Tetra Tech	Inspection requirements can be indicated as a condition of approval.
PSC 36.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)	Tetra Tech	This would be an appropriate condition of approval.
PSC 36.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.	Tetra Tech	This would be an appropriate condition of approval.
PSC 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:	Tetra Tech	This would be an appropriate condition of approval.
PSC 37.1	Initial Site Inspection of erosion and sedimentation controls prior to any land disturbance to assess overall effectiveness and functioning to protect resources.	Tetra Tech	This would be an appropriate condition of approval.

Comment #	Comment	Response By	Response
PSC 37.2	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.	Tetra Tech	This would be an appropriate condition of approval.
PSC 37.3	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.	Tetra Tech	This would be an appropriate condition of approval.
PSC 37.4	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.	Tetra Tech	This would be an appropriate condition of approval.
PSC 37.5	Notes indicating the required inspections are to be added to the Site Plan(s).	Tetra Tech	Inspection requirements should be in the conditions of approval.
PSC 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. <small>Response is partially complete: See Attached List of Discrepancies to be addressed.</small>	Tetra Tech	All drain lines will be a minimum of 12-inches in diameter. Drains are called out to be HDPE, a standard material commonly used on private development sites. Industry standards for HDPE indicate that there should be a 3-foot difference between rim and the highest invert. This condition is met on the Grading and Drainage Plan. All drain lines have a minimum vertical separation of 3' between rim and invert.
PSC 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.	Tetra Tech	The intermittent stream is currently shown 100 feet beyond the southern site boundary.
PSC 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.	Tetra Tech	A narrative of the proposed Wastewater Treatment System will be provided to the Board. A copy of the MADEP approved Wastewater Treatment System can be provided to the Town as a Condition of Approval.

Comment #	Comment	Response By	Response
PSC 41	<p>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.</p>	Tetra Tech	<p>The Weston DPW has indicated that there are no known issues with the 10 water main in South Avenue. No breaks have been noted in the past 10 years. The DPW provided a copy of ISO Fire Flow report. 5,900 gpm of fire flow was reported for the 10" water main in South Avenue. Please see the attached correspondence from the DPW and ISO test results.</p>
PSC 42	<p>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.</p>	Tetra Tech	<p>We suggest that the hydrant flow test be included as a condition of approval.</p>
PSC 43	<p>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.</p>	Tetra Tech	<p>Obtaining the Fire Department's approval of the fire protection systems can be a condition of approval.</p>
PSC 44	<p>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.</p>	Tetra Tech	<p>Electric service is proposed to be placed in an underground duct bank. Should the utility company require an alternative service, such as overhead wires, the Applicant will advise the Board.</p>
PSC 45	<p>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.</p>	Tetra Tech	<p>The Landscape Plan depicts the transformer screening.</p>
PSC 46	<p>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.</p>	Tetra Tech	<p>We concur.</p>

Comment #	Comment	Response By	Response
PSC 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.	Tetra Tech	An updated Landscape Plan will be submitted National Grid completes the gas design and approves meter locations.
PSC 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.	Tetra Tech	Telephone, cable and data services are currently shown as underground duct banks. Should utility providers require an alternative service, such as overhead wires, the applicant will advise the Board.
PSC 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.	Tetra Tech	The list of items submitted will be provided prior the Comprehensive Permit being issued.
PSC 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.	Tetra Tech	The interior design elements of the parking garage are typically detailed as part of the Building Permit process. Providing the Board with a copy of the Building Permit plans could be a condition of approval.
PSC 51	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.	Tetra Tech	Turning movements for Weston's fire truck, a typical garbage truck, a single unit moving truck and a delivery vehicle (Amazon, FedEx, etc.) were submitted previously and reviewed by MDM and the Weston Fire Department. Turning movements were determined to be satisfactory.

Comment #	Comment	Response By	Response
PSC 52	<p>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.]</p>	Tetra Tech	<p>MA DEP is the review and approval granting authority for the Wastewater Treatment Plant and Subsurface Disposal System as well as its ongoing Operation and Maintenance. The Applicant can provide the Town a copy of all approved design plans and the Operations and Maintenance plan, as a condition of approval.</p>
PSC 53	<p>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.</p>	Tetra Tech	<p>A Cut/Fill Plan was provided with the November submission and is attached for reference. Ledge is not expected. Site grading remains consistent with the November submission, therefore a revision is not required. The Cut/Fill Plan has been attached to ensure all consultants have a copy.</p>
PSC 54	<p>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.</p>	Tetra Tech	<p>The Cut/Fill Plan noted above was generated with earthworks calculations from AutoCAD's Civil3D. A description of trucks used for obtaining fill materials and trips per day can be provided once a Site Contractor has been chosen and the source(s) of fill determined. This can be provided to the Board as a Condition of Approval.</p>

Comment #	Comment	Response By	Response
PSC 55	<p>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.</p>	Tetra Tech	<p>A Construction Management Plan was submitted to and presented to the Board on October 13, 2021. Details on specific construction equipment, deliveries, trips, etc. will require input from various trade contractors. Additional details and schedules can be provided to the Board as a Condition of Approval.</p>
PSC 56	<p>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.</p>	Tetra Tech	<p>As noted above, the Construction Management Plan was presented to the Board on October 13, 2021 which addressed items raised in this comment.</p>
PSC 57	<p>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.</p>	Tetra Tech	<p>The sidewalk detail as shown calls for 8 inches of compacted gravel (MassDOT Standard Specification M1.03.0b) with 4 inches of concrete. If the Town prefers a bituminous concrete sidewalk along South Avenue, the Applicant is agreeable. The material used in the sidewalk construction can be specified as a Condition of Approval.</p>

Comment #	Comment	Response By	Response
PSC 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 5-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 534-foot sidewalk (not 4-foot as detailed).	Tetra Tech	The sidewalk along South Avenue is laid out as 5 feet in width, exclusive of the curb. A detailed design of the offsite sidewalk will be provided to the Town prior to construction. It is our understanding that street furnishings such as signs, hydrants or utility poles are allowed provided that there is a minimum accessible path that is 30 inches wide (36 inches preferred). Submission of a design detailing compliance with MassDOT's accessibility requirements can be a condition of approval. Onsite sidewalks will be reviewed by the Applicant's Accessibility Consultant prior to construction. A copy of the their final report can be provided as a Condition of Approval.
PSC 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."	Tetra Tech	Although there is not a subdivision proposed, the clean up requirements could be included as a Condition of Approval.
PSC 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.	Tetra Tech	Please see above.
PSC 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.	Tetra Tech	The 5-foot sidewalk is adequate to provide a 36-inch accessible path, should a vehicle overhang the curb and sidewalk.
PSC 62	Improvements to encourage access for alternative modes should be provided:		
PSC 62.a	A bicycle path should be added between the building and South St.	Tetra Tech	Bicycles will access South Avenue via the driveway and/or sidewalk. A dedicated bicycle lane is not proposed for the site driveway, however bicycles can be accommodated with shared use of the driveway.
PSC 62.b	Bicycle racks should be added at the main building entrance	Tetra Tech	A bicycle rack will be added to the final plan for guest to use at or near the front door.
PSC 62.c	Secure bicycle storage should be added in the garage or other appropriate location for residents.	Tetra Tech	Bicycle storage is provided within the parking garage. Approximately 140 bicycles can be stored in the garage.
PSC 63	Add EV charging stations at the front entrance and in the parking garage.	Tetra Tech	The residents will be offered 16 EV parking spaces within the attached garage.
PSC 64	Provide for proper on-site access and circulation:		
PSC 64.a	Provide a stop line at the stop sign at the principal site entrance.	Tetra Tech	A stop line has been added to the principal site exit.
PSC 64.b	Sign the on-site access drives for "No Parking" (MUTCD R7-1).	Tetra Tech	The onsite property management will be responsible to enforce no parking in the site driveway. The Applicant does not typically provide "No Parking" signage.
PSC 64.c	Provide stop control for the eastbound and westbound approaches to the drop off and turnaround at the main entrance.	Tetra Tech	Stop control is provided for the Westbound approach. Stop control can be provided for the eastbound approach if required by the Board.
PSC 64.d	Provide speed limit signs.	Tetra Tech	Speed limit signs can be provided if required by the Board.

Prior PSC response for 64.e. (March 3, 2022) The total distance from South Avenue around the building and back is approximately 4/10ths of a mile. We consider it unlikely that the school bus would use a route circling the building based on distance. Pragmatically, the school bus will not be able to enter the site. If the school bus stop is on South Avenue, we remain concerned that vehicles will live park on the outbound access drive waiting for the school bus with other exiting vehicles passing the stopped vehicles by driving in the wrong direction in the inbound lane giving rise to likely vehicle conflicts.

The Site Layout Plan has been revised to allow a bus to make a U-turn in front of the residential building.

Comment #	Comment	Response By	Response
PSC 64.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.	Tetra Tech	It was the Applicant's initial understanding that buses would pick up and drop off from South Avenue. However the Applicant will allow buses to pull into the site and circulate around the building as suggested by MDM Associates at the February 15, 2022 Public Hearing.
PSC 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.	Tetra Tech	The snow storage areas will be updated on the final Landscape Plan. Snow storage area #4 will be relocated.
PSC 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.	Tetra Tech	Tetra Tech has been coordinating with MBO Precast, the local representative for Stone Strong Retaining Walls. MBO Precast has reviewed the site retaining walls with their desingner, Civil Connection. Civil Connection has developed three retaining wall sections to demonstrate wall constructability. A section has been cut near the northeast corner of the building, in the largest fill area. A section has also been cut at the southwest corner of the building, in the largest cut. Finally, a section has been cut adjacent to the porous pavement. As shown in the sections, all walls can be constructed as gravity walls, without the need for reinforcing. <small>The revised plans do not demonstrate feasibility of wall construction, e.g., feasible setback from the 25-ft no touch zone on east side, from sections of porous pavement, and from property lines. Also, wall Sections SK1, SK2 and SK3 included with the response matrix are not shown on details Sheet C-14. Details should dimension proposed wall and block heights and depths (face to back) and all dimensions from the aforementioned features. Also, provide a detail of fence installation at the walls.</small> Please refer to Tetra Tech's May 18, 2022 discussion on "Retaining Walls".
PSC 67	Provide a detail showing guardrail installation for retaining walls capable of resisting horizontal impact loads.	Tetra Tech	These are details that will be developed as part of the retaining wall design and will be submitted with the Building Permit for the retaining walls. However, MBO Precast, the local Stone Strong Retaining Wall Representative, has provided 3 key retaining wall sections, developed by their design Engineer, Civil Connection. Two of the retaining wall sections include guardrails. The guard rail post will be sleeved through the hollow cores of the retain wall blocks. Please refer to SK1-3.
PSC 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.	Tetra Tech	Relief from local zoning setbacks has been requested.
PSC 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.	Tetra Tech	The five-level parking garage is a stand-alone structure accessed by a ramp system, which has 50% open to the outside to meet open air requirements. This design is in accordance with Massachusetts Building Code and was selected with the specific intent to ease residential access, protect their vehicles from the elements while naturally ventilating the entire structure via a 10' areaway. None of the units that wrap the garage have a direct connection and their windows open away from the garage. The configuration is common for multifamily housing, and it is not known for having any air quality issues for nearby units.
PSC 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.	Tetra Tech	See response above.
PSC 71	The mechanical engineer's statement should also address whether a generator is required to operate the garage ventilation system during power outages.	Tetra Tech	The parking garage is designed to be "open air", meaning mechanical ventilation will not be required.
PSC 72	Review the design requirements for the garage fire suppression system with the Fire Department:	Tetra Tech	The fire suppression system for the parking garage will be developed with the Building Permit plans.

Comment #	Comment	Response By	Response
PSC 72.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.	Tetra Tech	This comment will be addressed as part of the building permit submission.
PSC 72.b	The design of the fire suppression system must accommodate exposure to freeze/thaw conditions.	Tetra Tech	This comment will be addressed as part of the building permit submission.
PSC 72.c	Document agreement with the Fire Department on the type and on the performance standards for the fire suppression system.	Tetra Tech	This comment will be addressed as part of the building permit submission.
PSC 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.		<p>The project includes 10 surface parking spaces at the front entrance for visitors to the leasing office and service vehicle use, together with a 283-space garage for residents and their guests. The garage is access controlled, with fobs issued to registered users.</p> <p>The 10 surface spaces are first come, first served with signage indicating "Future Resident Spaces" for leasing office visitors, and remainder spaces unmarked for general, short-term use. Building management will monitor and manage use of these spaces, with time limits imposed if necessary. Live parking along driveways is strictly prohibited, with "no-parking" signage throughout. Handicap parking is provided for both surface spaces and in the garage, per code. All garage vehicular and pedestrian entrances are monitored by security cameras. Certain spaces are equipped with electric vehicle (EV) charging capability.</p> <p>All residents register their cars with management at the time of lease and are issued fob(s) and a sticker to be affixed to their vehicle, at move-in. Management carefully controls the number of registered cars permitted to ensure garage capacity is not exceeded, and oversized vehicles and trailers etc. are generally prohibited. All garage spaces are numbered, with signage posted for reserved spaces.</p> <p>Residents seeking parking for visitors arrange through the management office (or online) and a fob is issued upon arrival and check-in. Penalties accrue for unreturned guest fobs, and any fob can be de-activated by management.</p> <p>Move-ins/move outs are scheduled through the management office (or online) with truck parking provided near the loading dock</p> <p>A further detailed set of garage rules & regulations are made part of the resident's lease, included in their welcome package, and posted in the garage.</p>
Patrick C. Garner Company, Inc. Comment Letter dated January 14, 2020			
	Massachusetts 40B regulations do not waive the MassDEP WPA regulations. The ConCom (not the Zoning Board) retains permitting authority under the WPA regulations.	Tetra Tech	The project is designed to meet MADEP regulations.

Comment #	Comment	Response By	Response
	<p><u>Protected Resource Areas</u> The Hanover-Weston project site contains the following state-protected wetland resources:</p> <ul style="list-style-type: none"> ·Bordering Vegetated Wetlands (BVW); ·A stream within the BVW (the stream is a tributary to Bogle Brook. Bogle Brook itself lies approximately a half mile (> 3,000 feet) to the south and on the other side of the Mass Turnpike. Bogle Brook runs into Nonesuch Pond, some two miles from the site); ·Bank, associated with the stream; and ·Land Under a Waterbody, also associated with the stream. 	Tetra Tech	Please note that the stream onsite has been determined to be Intermittent by the Weston Conservation Commission and MADEP.
	<p><u>Buffer Zone</u> The project, as it applies to ConCom jurisdiction, is for work in the 100-foot buffer zone beside BVW. Note that under the regulations the buffer zone is not a no-build zone, but rather an area that triggers a filing with the ConCom when work is proposed therein. Further, any stormwater system outside of the 100-foot buffer that drains or terminates within that 100-foot buffer is under the ConCom's jurisdiction (which is the case for this project). The Weston ConCom encourages applicants to avoid all work within 25-feet of a resource area; this is a policy only, and not a town bylaw or state regulation. Under the current Plan, work would occur in the 25-foot buffer to BVW, and extensive site alterations are proposed 25 to 100-feet from the BVW edge.</p>	Tetra Tech	A new Notice of Intent will be filed with the Weston Conservation Commission at the conclusion of the Comprehensive Permit process.
	<p><u>Stormwater Regulations</u> As noted, MassDEP Stormwater Regulations are also administered by the ConCom. The Hanover-Weston project is not exempt from these and must comply with state stormwater provisions.</p>	Tetra Tech	The Stormwater Management System has been designed to comply with the MADEP Stormwater Policy.
	<p><u>FEMA Floodplain</u> The project is not within a FEMA-designated floodplain.</p>	Tetra Tech	We concur.
	<p><u>Endangered Species</u> Endangered species have not been identified on or near the site.</p>	Tetra Tech	We concur.
	<p><u>Stormwater</u> The stormwater design has changed significantly since the project was filed in mid-2020. The current Plan makes significant revisions to almost all design components. Revisions include extensive fill throughout much of the site (averaging three-feet), reduction in units to 180, extensive use of retaining walls, expansion of porous pavement, redesign of stormwater infiltration and relocation of the septic effluent leaching area.</p>	Tetra Tech	Revisions have been made to the Stormwater Management System in coordination with the onsite Wastewater Disposal System in accordance with MADEP requirements.

Comment #	Comment	Response By	Response
	<p>Mounding Mounding calculations are required to determine if groundwater elevations will rise, potentially impacting abutting properties and resource areas. At this date, the accuracy of the revised mounding calculations is questionable. For instance, the calculations do not account for the impact of retaining walls and building foundations. Regardless, the Applicant's current submission indicates that groundwater levels will rise on abutting properties. Further, levels will unacceptably rise at the wetland boundary and within the wetlands. Groundwater elevations are projected to rise at the wetland boundary by two-feet or more. Until the accuracy of the mounding calculations is resolved, precise impacts to resources cannot be quantified.</p>	Sanborn Head	<p>On the basis of updated model simulations, and assuming a design condition of 80% treated wastewater loading for 90 days plus the addition of a 10-year storm event at day 90 added to the Estimated Seasonal High Groundwater (ESHGW) table, a groundwater seepage face will form at the wetland boundary and will dissipate over a few days' time. This is the same seepage condition predicted by the model for the pre-development condition if Tropical Storm Ida had occurred during seasonal high groundwater. Further, The current groundwater model demonstrates no material rise in groundwater under the neighbor's basements due to post-development conditions that is different than pre-development conditions.</p>
	<p>Alteration: Wetland, Stream and Associated Water Resources Impacts The project wastewater treatment system would discharge over 33,000 gallons per day (gpd) of effluent. This quantity is at least 53 times greater than the volume generated by a typical single family home in Weston. Further, combined wastewater and stormwater discharge is 45,350 gpd. Unlike stormwater discharges, wastewater represents additional volume on site; the underlying groundwater becomes the receptor of this new volume. Mounding calculations indicate higher groundwater elevations will occur in both upland and wetland areas on site.</p>	Sanborn Head	<p>Groundwater mounding beneath wastewater leaching fields is a normal response and is allowed by MA DEP as long as the mound doesn't encroach within 4 feet of the base of the leaching field. The design has incorporated greater than four feet of separation. See also above response regarding the wetland.</p> <p><i>Additionally, the average wastewater flow is 22,000 gallons per day. Previous wetland hydrology analyses (Ballestero, 25 March 2022) were provided that demonstrated the additional flows represented by the wastewater at this site is an increase of 4% over the present wetlands hydrology. No documentation has been discovered that indicates that such a small change to the wetland hydrology results in quantifiable adverse consequences.</i></p>
	<p>The WPA and Title 5 prohibit alteration of protected resources. Regulations in 310 CMR 10.04 (the WPA), define alter as follows (emphasis is mine): Alter means to change the condition of any Area Subject to Protection under M.G.L. c. 131, § 40. Examples of alterations include, but are not limited to, the following: (a)the changing of pre-existing drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns and flood retention areas; (b)the lowering of the water level or water table; (c)the destruction of vegetation; (d)the changing of water temperature, biochemical oxygen demand (BOD), and other physical, biological or chemical characteristics of the receiving water. Based on the current Plan, pre-existing drainage patterns and flushing characteristics may be altered by increased wastewater volume [310 CMR 10.04 subsection (a)]. Further, mounding from both stormwater and effluent volume may alter wetlands by substantially raising groundwater at the wetland boundary and within the wetlands, which MassDEP does not allow. In addition, "physical, biological or chemical characteristics of receiving water" [subsection (d)] are likely to be changed by the introduction of wastewater.</p>	Tetra Tech	<p>Please refer to the commentary in the March 3, 2022 cover letter.</p>

Comment #	Comment	Response By	Response
	<p><u>Potential Wetland Impacts</u> An on-going issue with the project design has been whether changes to groundwater levels within the wetland may change the diversity and type of vegetation within the wetland, constituting an alteration. Mounding calculations indicate such an alteration is likely. Further, effluent discharge may change the chemical characteristics of groundwater. Stream water quality changes may affect amphibians, reptiles and other animals within the wetlands. Last, due to the added volume of effluent discharge, the stream itself is likely to flow for longer periods, constituting a further alteration.</p>	Sanborn Head	See above response regarding mounding at boundary of wetlands.
	<p><u>Scott Horsley memo</u> Horsley focuses on project compliance with MassDEP stormwater regulations, concluding that Standard 3 is violated, given that base flow and groundwater discharge are substantially altered. He further notes that although peak flow is mitigated, the amount of stormwater volume will more than double due to increased impermeable areas on site.</p>	Tetra Tech	Standard 3 sets a minimum recharge volume that a project must meet, not a maximum as Mr. Horsley incorrectly suggests.
	<p>Horsley observes that mounding will increase groundwater levels. His analysis indicates that groundwater elevations at the wetland edge will rise by 2.4 to 2.8 feet, and that this rise will result in groundwater breakout both above and within the wetlands, which he states is in violation of the WPA and the MassDEP Stormwater Handbook. Horsley concludes that the stream is a headwater tributary to Bogle Brook, Nonesuch Pond and other downgradient resources. He notes that the proposed wastewater system may discharge effluent in violation of MassDEP and EPA drinking water standards. My opinion is that the Horsley comments are substantive and persuasive. The Applicant should address the issues Horsley raises point-by-point.</p>	Sanborn Head	<p>On the basis of updated model simulations, and assuming a design condition of 80% treated wastewater loading for 90 days plus the addition of a 10-year storm event at day 90 added to the Estimated Seasonal High Groundwater (ESHGW) table, a groundwater seepage face will form at the wetland boundary and will dissipate over a few days' time. This is the same seepage condition predicted by the model for the pre-development condition if Tropical Storm Ida had occurred during seasonal high groundwater.</p> <p>Please also note that the effluent from the wastewater treatment plant shall meet MADEP guidelines prior to infiltration.</p>
Chessia Consulting Services LLC Comment Letter dated December 16, 2021			
	<p>The revised plans still violate required setback distances with the infiltration areas 35-40 feet from the soil absorption system for effluent disposal, and the effluent disposal area remains 50 feet, not the required 100 feet from the wetlands. Issues with mounding impacts are being reviewed by others, but that analysis cannot be completed accurately if the infrastructure shown on the revised plans is situated in the wrong location.</p>	Tetra Tech	The recommended setback between a Soil Absorption System and an infiltration system is 25 feet per the Guidelines for the Design, Construction, Operation, Maintenance of Small Wastewater Treatment Facilities with Land Disposal. The setback from wetlands and a Soil Absorption System is 50 feet.
	<p>This area continues to be ignored as a confined low point despite the obvious closed contours in the area indicating a low area that would trap runoff. Correcting this error will reduce overall runoff to the low point on # 526 South Avenue in the existing case.</p>	Tetra Tech	Tetra Tech visited the site during a heavy rainfall in November 2020 and no ponding was observed.

Comment #	Comment	Response By	Response
	<p>The revised calculations use a "Weighted-Q" feature in HydroCAD. This calculates runoff from each different cover type and sums the values. Although this could be more accurate in some cases, it ignores the fact that, in smaller storms in particular, runoff from a paved surface or roof would be absorbed by pervious surfaces. Common observations of rainfall events demonstrate that not every drop of runoff from a splash pad at a roof downspout flows across a yard to a wetland area, in particular in cases where the soils are highly permeable and/or have a layer of leaf litter and organic materials such as a woodland. This feature may be appropriate where impervious surfaces are piped to a wetland or other control point but are not appropriate for the existing conditions model. Again the analysis has been modified to over-estimate existing runoff.</p>	<p>Tetra Tech</p>	<p>The "Weighted-Q" feature is recommended for use in watersheds with wide ranging curve numbers, which is the case for this site. Curve numbers for wooded and landscaped areas are in the 30's, while gravel surfaces, sidewalks and driveways have curve numbers in the 90's.</p> <p>Please also note that from NEH 630 Part 630 Chapter 10, "<i>The method of weighted Q always gives the correct result.</i>" The most accurate method for runoff estimation was employed for all calculations. Using an inferior method, as suggested, is not in the Town's best interest.</p>
	<p>The prior revision of the model included infiltration as a component of discharge in the low point on # 526 South Avenue. This has been eliminated in the current model but likely there would be some infiltration, in particular in smaller storms. Again this aspect over-estimates existing runoff. The effect of overestimating existing runoff would be to overstate the amount of runoff allowed post-development, which should be corrected in the design.</p>	<p>Tetra Tech</p>	<p>Significant portions of the low point at 526 South Avenue consists of bituminous and gravel surfaces, which limits infiltration ability. Therefore infiltration has not been considered in this area for both the pre-development and post-development analysis.</p>
	<p>This issues is not addressed in the revised plans. Although porous pavement has been eliminated next to the wetlands at the emergency access roadway, this issue would still apply for the porous pavement along the southern part of the site. The DEP Specifications do not include an impervious barrier as proposed in the revised plans.</p>	<p>Tetra Tech</p>	<p>The MADEP Stormwater Handbook provides design and planning considerations for the various best management practices (BMP's) contained within the Handbook. These considerations are not specifications.</p>
	<p>Porous pavement provides peak rate control for small storms. This is for a 2 year or lower rainfall based on the DEP Handbook. The design assumes all storms including the 100 year storm would be controlled by the porous pavement and does not comply with the Regulations. Not addressed.</p>	<p>Tetra Tech</p>	<p>The stone reservoir course under the porous pavement has been designed to store and infiltrate the volume of runoff from storm events up to and including the 100 year event. Please note that it is the stone reservoir course, not the porous pavement, that is sized to manage larger storm events. Please also note that the infiltration capacity of porous pavements far exceed the 100-year storm rainfall intensity and therefore all direct rain will infiltrate the porous pavement.</p>
	<p>Not addressed, the porous pavement is now within 5 feet of the proposed soil absorption system reserve area and still does not meet the required setbacks.</p>	<p>Tetra Tech</p>	<p>The groundwater mounding analysis takes into account the porous pavement in the locations shown on the site plans.</p>
	<p>The southeastern section of the porous pavement access loop is within 100 feet of the wetlands in violation of the setback required by the regulations.</p>	<p>Tetra Tech</p>	<p>The setback is considered a planning consideration.</p>
	<p>The access along # 526 is no longer porous pavement but the southerly porous pavement access is still within 10 feet of the property line in violation of the required setback.</p>	<p>Tetra Tech</p>	<p>The setback is considered a planning consideration.</p>
	<p>This issue has not been fully addressed as there are still some areas that would drain into the porous pavement from adjacent surfaces.</p>	<p>Tetra Tech</p>	<p>Design guidance from the University of New Hampshire's Stormwater Center indicates that porous pavement can accept run-on from an surface areas equal to approximately 50% of the porous pavement surface area.</p>

Comment #	Comment	Response By	Response
	<p>The revised design raises a new issue because it includes the high volume section of roadway at the entrance to the site as porous pavement. This is not consistent with the DEP Regulations. Page 119 of Volume 2 Chapter 2 of the Handbook, previously provided, specifies that this BMP is restricted to specific areas "Most appropriate for pedestrian only areas, low volume, low speed areas such as overflow parking areas, residential driveways, alleys and parking stalls. In this case the porous pavement is for the main access with a reported trip generation of 980 vehicles per day. This is clearly not an appropriate application of this BMP. In addition, it is unlikely that much runoff would flow into the small gaps in the paver section based on the Architectural rendition of the access drive.</p>	Tetra Tech	<p>The project is not considered a land use with higher potential pollutant loads. Porous pavement is proposed only along relatively straight portions for the site drive, which will only be subject to low speed, residential traffic. Porous pavement is an appropriate use.</p> <p>As presented in various ZBA meetings, porous pavement and overlays are routinely used on high volume roads such as Interstate highways and the Maine Mall Road in South Portland, ME.</p>
	<p>It is clear that clogging of the pores in the porous pavement reduces efficiency and effectiveness of porous pavement. The plans have a low area approximately 30 feet from the property line at South Avenue in the porous pavement. Anyone with a paved driveway understands that sand from winter roadway operations will be tracked onto a driveway just from normal vehicle operations. This site fronts on a state numbered route with heavy traffic, this combined with the high vehicle usage proposed will quickly render this area ineffective due to clogging. As a low point there would then be ponding right at the entrance which would create a safety issue. The use of porous pavement in this location is inappropriate and inconsistent with DEP Regulations for use of this BMP.</p>	Tetra Tech	<p>Routine maintenance of the porous pavement includes monthly pavement cleaning with a high efficiency vacuum sweeper. Furthermore, has been recommended that a professional stormwater maintenance contractor such as Stormwater Compliance be retained to conduct routine inspections and maintenance. Stormwater Compliance has extensive experience in maintaining porous pavement.</p> <p>The routine maintenance cited in the Long Term Operations and Maintenance Plan will keep the porous pavement from losing it's infiltration capacity.</p>
	<p>The project design continues to ignore the Regulations and present a design that is not compliant with the requirements.</p>	Tetra Tech	<p>We respectfully disagree. Mr. Chessia cites guidance documents as regulations, which is incorrect.</p>
	<p>The revised submission includes a new, ill conceived, design element in the center of the proposed emergency access drive. There are two sections of proposed grass swales potentially considered "bio-swales" that would discharge to a "raingarden" all are in the center of the roadway. The proposed design is not safe or practical as an emergency vehicle will have to straddle the center strip. The grass swales and raingarden are 5 feet wide +/- and six inches deep with unspecified side slopes. If a vehicle tracks into these areas it could get stuck as a rain garden is loose compost fill. I note that the width between the tires of a typical Fire Truck is 6 feet. That leaves just six inches of space on either side of the swale to the inside edge of the tire, which offers minimal room for error. There is no detail of the grass swale sections and the detail provided for the raingarden section is lacking in sufficient dimensional data.</p>	Tetra Tech	<p>The Weston Fire Department has reviewed the revised emergency access drive and has provided their approval in writing.</p>
	<p>Raingardens and bio-retention areas are not listed as rate control BMP's as modeled in the Report. Raingardens are also not to be used without pretreatment. In this case there is no specific pretreatment BMP's proposed and the system would have a limited service life. How would the roadway be plowed without damage to this system? The system would flood and overflow in storms greater than the 2 year storm according to the calculations. The overflow would be down a 2:1 slope just seven feet from the wetlands.</p>	Tetra Tech	<p>The Stormwater Handbook provides general guidelines and considerations for designs. In the case of the emergency access drive the design of the bioswale has been adapted to its use, which is an emergency access drive that will only receive traffic from first responders. Therefore there will not be the pollutants that might typically be associated with a roadway or driveway. Also, similar to the porous pavement, the stone reservoir course beneath the bioswale is design to store and infiltrate stormwater. The bioswale has been designed overflow only it's eastern edge. Maximum flow depths of one-eighth of an inch are anticipated.</p>

Comment #	Comment	Response By	Response
	<p>The calculations assume that the stone is higher than the bottom of the open area in the raingarden and double count the volume. In addition, the growing media depth is not specified and would have less void space than stone. A raingarden should have at least 30 inches of growing media, which has not been provided.</p>	Tetra Tech	<p>Six inches of growing media is specified on Detail Sheet C-18. The detail has been adapted for the intended use of the driveway, which is an emergency only drive, only used by first responders. The emergency drive will not be subject to pollutant loading that the main site driveway would.</p>
	<p>The overflow outlet for the subsurface recharge systems has been moved to within 5 feet of the southerly property line and would discharge onto the abutting property. It is generally not allowed to create a new discharge point to an abutter without suitable easements, in particular where there is currently no concentrated flow. The Board should require this outlet be relocated to further within the site.</p>	Tetra Tech	<p>The level spreader has been located to minimize work within 25 feet of the wetland. The level spreader will only receive flow for storm events in excess of the 25 year storm. The level spreader is design to evenly dissipate stormwater flow so that it is not concentrated and to reduce velocity. The flow velocity for the 100 year storm event is calculated to be 0.05 feet/second, well below erosive velocity.</p>
	<p>The revised plans reduce the design flow by 5,000 GPD (13%), but locate the reserve directly adjacent to the primary area on the east side of the site.</p>	Tetra Tech	No response required.
	<p>The Site Plans do not comply with setback requirements set forth in DEP's WWTF Guidelines included with this letter. Since wastewater disposal is a health and safety issue, full compliance with the WWTF Guidelines should be required. The Applicant has continually stated that DEP approved the location of the system based on what has been demonstrated is a flawed model. Further, the revised design would further impact the model that has been submitted to DEP. A revised groundwater model as discussed in the PSC letter should be required and it should also be a requirement of the Board that DEP fully review the revised model. We request that the Board require that the Applicant comply with the minimum setbacks listed in the WWT Guidelines of 100 feet. The submittal continues to ignore this setback issue.</p>	Tetra Tech	<p>The Site Plans respect the setbacks suggested in the Guidelines for the Design, Construction, Operation, Maintenance of Small Wastewater Treatment Facilities with Land Disposal.</p>
	<p>The plans include extensive retaining walls essentially surrounding the site. The few details provided are generic and based on a review the retaining walls would interfere with other proposed features depending on the location and height of the walls. The Applicant expressed at the public hearing on December 14, 2021 that they have extensive experience with construction of retaining walls. The design engineer also indicated that he is familiar with the design parameters of these walls. The Board should require the Applicant to supply actual cross sections at specific areas where parameters such as height, proximity to porous pavement, fill or cut section, etc. around the entire site. There were inconsistencies in the presentation by the Applicant relative to the types of walls proposed in various locations versus the labels on the plans. It is unclear where an impervious barrier is proposed and it is my understanding that this was not a consideration in the groundwater mounding analysis although it was represented at the hearing that there would be a barrier along the wall near the wastewater effluent leaching area. The Board should require that this aspect be completely designed and detailed with the actual dimensions of the proposed walls determined to understand if they are even feasible as proposed. Additional details are also required to model the effect of the retaining walls on groundwater mounding.</p>	Tetra Tech	<p>These are details that will be developed as part of the retaining wall design and will be submitted with the Building Permit for the retaining walls. However for reference, we have attached typical details from Stone Strong that fence and guard rail installation with the retaining walls. We have also included a detail for a 42 inch base block that can be used in gravity retaining walls up to 7.5 feet in height. These blocks would be used along the west property line. Mounding effects associated with the retaining walls are addressed in responses to MMA's and Mr. Davis's comments.</p>



May 18, 2022

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

**Re: 518 and 540 South Avenue Comprehensive Permit
Response to Comments**

Dear Chair and Board Members:

On behalf of Hanover R.S. Limited Partnership, Tetra Tech (Tt) has prepared the following responses to Civil Engineer comments raised during the May 10, 2022 public hearing by the Board's Peer Review Consultant, PSC and Chessia Consulting Services.

Stormwater Infiltration Basins – The Seasonal High Groundwater Elevation beneath the three infiltration basins has been established in the field by MADEP Title-5 certified Soil Evaluators. This evaluation was witnessed by Patrick Garner, one of your peer review consultants. The bottom of the stone infiltration bed beneath each basin provides a minimum offset of four feet of separation between the bottom of the basins and the Seasonal High-Water Table. Based on the MADEP Stormwater Management Handbook, Volume 3, Chapter One, Page 28, no Groundwater Mounding Analysis is required for these infiltration basins. To the extent that a mounding analysis was required, and again it is not, the analysis need only demonstrate that the water level within the basin does not breakout above the ground surface over the basin, and that the basin can drain within 72-hours of the cessation of the storm (there is no requirement for the groundwater mound to recede to a level of 2 or 4 feet below the base of the infiltration basin). Moreover, the analysis need not utilize complex three-dimensional models such as Modflow, but can utilize simplified, two dimensional, on-line calculators applying the Hantush method. The design of the stormwater basins fully complies with the MADEP Stormwater requirements. Moreover, the Town of Weston Stormwater Bylaw and its adopted regulations do not require a mounding analysis for stormwater infiltration systems. In the absence of local regulations, your board has no authority to require a groundwater mounding analysis beyond what is required by MADEP. The analysis requested is simply never performed, either in Weston or state-wide. If this analysis was routinely performed, it would show that a groundwater mound will develop within nearly all infiltration systems that are designed to attenuate larger storm events. If we did provide this analysis your Board would be in the position of evaluating or interpreting the results without the benefit of defined performance standards, as no such standards exist.

Retaining Walls: Retaining walls near the perimeter of the property are fundamental to the project design and will not be eliminated, reduced in height, or relocated. Adequate design detail, sufficient to prove the feasibility of the wall construction, has been provided during the ZBA process, including updated key retaining wall sections with dimensions of wall blocks, offsets to property lines and pavement. A fully engineered design will follow during the building permit process. Most of the walls will not be visible from neighboring properties. The applicant is willing to provide landscape screening on abutting properties for those abutters concerned about the visual aesthetics of the wall. However, the regional need for affordable housing outweighs any local concern over the visibility of retaining walls. Finally, the groundwater mounds developed under wastewater and stormwater disposal areas do not intrude into the wall footings, so they do not impact the structural stability of the walls.

Snow Storage: Snow storage locations have been identified on the Landscape Plan. For the purpose of estimating the approximate snow fall that can be stored prior to moving snow offsite, it has been assumed that snow could pile to height of 10 feet in storage areas 1, 2 and 3 (a pile height of 6' was suggested by Mr. Bartlet in his presentation, however piles can routinely achieve heights of 10' when using loaders to remove and pile snow). Snow storage area 4, which is above a retaining wall at the southwest corner of the site, has been assumed to be

able to pile to a height of 4 feet. A 1:1 side slope has been assumed for each area. Based on these assumptions, the following volumes are available for snow storage:

Area 1:	8,744 CF
Area 2:	4,101 CF
Area 3:	3,730 CF
Area 4:	<u>2,640 CF</u>
Total:	19,215 CF

Please note that this calculation does not consider any compaction of the snow when piled. Compaction will allow for actual snow storage volumes to increase by 2 or 4 fold depending on the nature of each snow event. Using a conservative assumption that the snow will compact by 2 fold when piling, the available uncompacted snow storage volume is 38,430 CF.

There is approximately 61,500 square feet of driveway surfaces that will require snow removal. This suggests that approximately 7.5 inches of snow can be stored prior to removing snow offsite.

Approximately 50% of the upper level of the parking garage will be covered with solar panels, which will hold snow until it melts, similar to a roof. The remaining surface area of the parking garage will be subject to snow fall. Typically snow would be piled in the corners of the parking garage. Assuming two corners of the garage would be used for snow storage, each measuring 18' x 18', 1,950 CF of snow storage would be available. Again, assuming a 2 fold compaction ratio for the piled snow, this would allow approximately 3,900 CF of uncompacted snow or 3.5 inches of snow from 50% of the upper level of the garage to be stored.

Chessia Consulting Services Comments: Mr. Chessia provided three new comments in the May 10, 2022 Public Hearing that have not been previously responded to. First, Mr. Chessia indicated that the low area located on 526 South Avenue did not consider infiltration. The low area is shown to contain bituminous concrete and gravel parking surfaces for a significant portion of the low area. Bituminous concrete is impervious. Gravel parking areas become very well compacted from years of use and therefore infiltration potential is low. The intent of the analysis was to show that there would not be an adverse impact to the property in the post development condition. By analyzing both the pre and post condition without infiltration, a maximum water surface elevation could be computed for both. In the existing condition, a peak water elevation in the low area was determined to 217.12 for a 100-year storm event. In the proposed condition, the peak water elevation was reduced to 217.06 for the 100-year storm. It is our opinion that this analysis was the most conservative approach, when considering possible impacts to abutting property.

Mr. Chessia provided commentary that the porous pavement near the southwest corner of the building would be constructed in the groundwater table. Please see Test Pits 308, 401 and 402 in the Infiltration Data Design Report. These test pits were excavated to elevations ranging from 216 to 224 without any indication of groundwater. These test pits were witnessed by the Town's peer review consultants, Mr. Garner and PSC.

Mr. Chessia also commented that the calculations are utilizing the "Weighted Q" method, which is correct. The "Weighted Q" method calculates runoff for impervious and pervious surfaces within a subcatchment area and then combines the flows to generate runoff for the entire subcatchment. This methodology is noted to "improve runoff accuracy" by HydroCAD, which is the most prevalent stormwater modeling software in the region.

Furthermore, as indicated in the National Engineering Handbook Part 630 Chapter 10 (<https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17752.wba>), there are two methods to estimate runoff with the curve number method: weighted-CN and weighted-Q. Mr. Chessia prefers the former, and the latter was employed for the applicant's site. Directly quoted from NEH 630 Part 630 Chapter 10, "*The method of weighted Q always gives the correct result ...*" and "*The method of weighted CN is easier to use with many complexes or with a series of storms. However, where differences in CN for a watershed are large, this method either under- or over-estimates Q...*" and "*...although the weighted-Q method gives the correct result in terms of the given data, it takes more work to develop. The differences between the two methods are greatest in*

watersheds that have widely differing curve number values and lower rainfall amounts.” The 518 South Avenue site soils are very permeable compared to the impermeability of impervious surfaces. Because of this great variability which then dramatically changes the runoff curve numbers on the site, the weighted-Q approach was employed per the guidance of NEH Part 630, and Mr. Chessia’s recommendation is rejected.

We trust we have addressed the comments raised by during the May 10, 2022 public hearing satisfactorily. Should the Board of Appeals or Staff have additional questions, please feel free to contact me.

Very truly yours,
Tetra Tech, Inc.

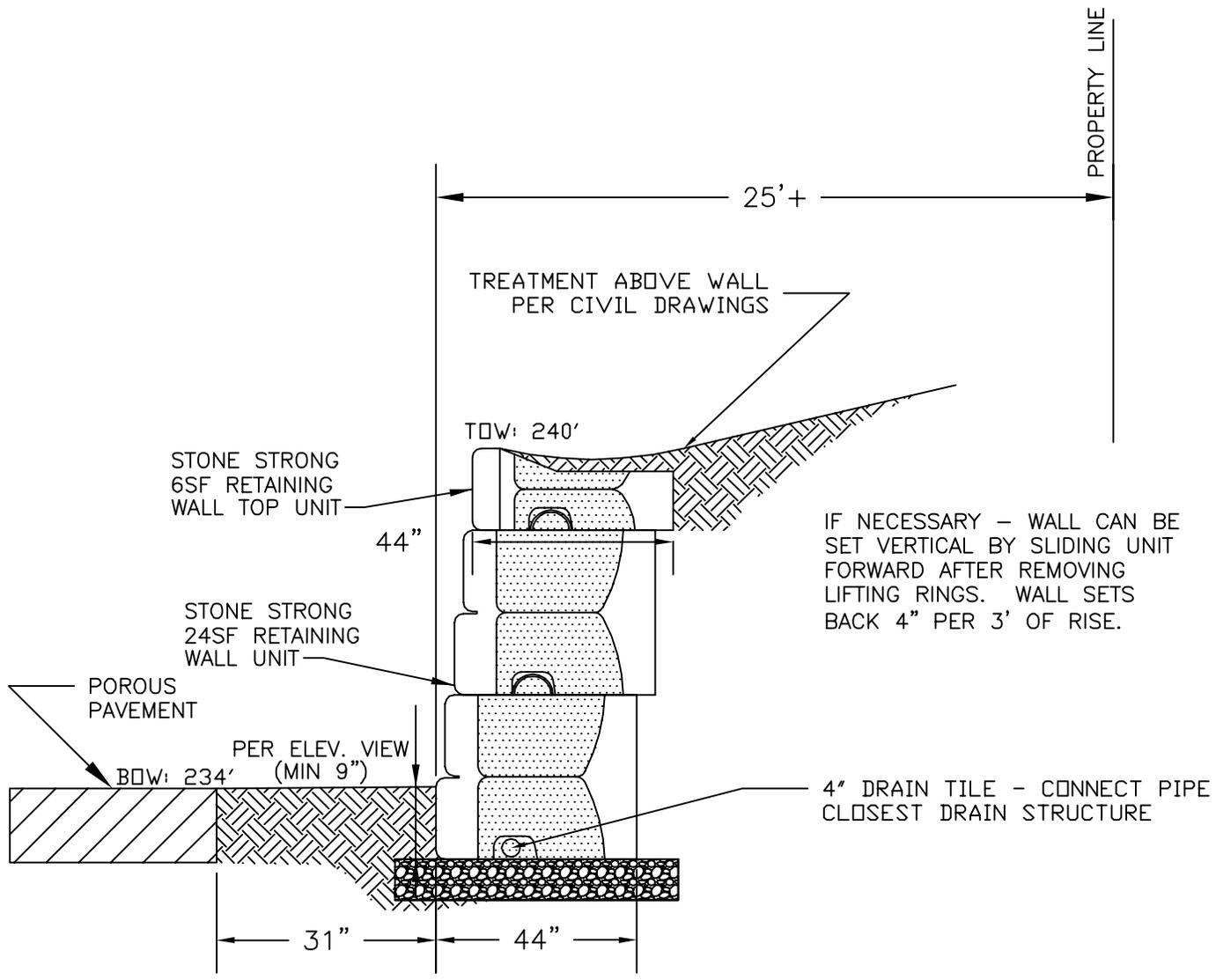


Nathan H. Cheal, PE
Senior Project Manager

Enc.: Revised Retaining Wall Sections
Retaining Wall Fence Sleeve Detail

Cc: Thomas J. Denney, R.S. Hanover Limited Partnership
Jonathan Buchman, 518 South Ave, LLC
James Ward, Esq.

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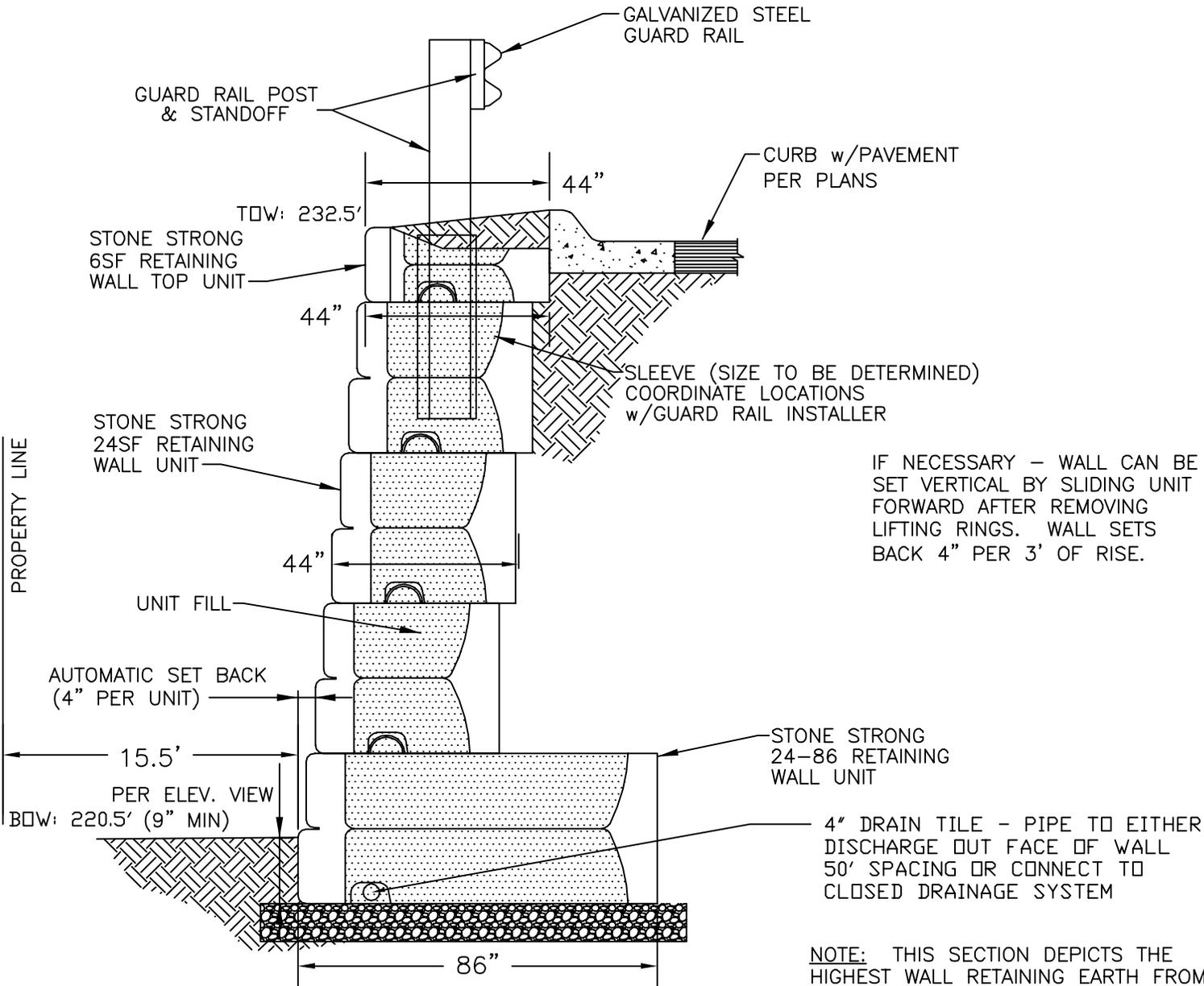


IF NECESSARY – WALL CAN BE SET VERTICAL BY SLIDING UNIT FORWARD AFTER REMOVING LIFTING RINGS. WALL SETS BACK 4" PER 3' OF RISE.

NOTE: THIS SECTION DEPICTS THE HIGHEST WALL RETAINING EARTH FROM OFFSITE. THE MINIMUM DIMENSION REQUIRED TO INSTALL THE WALL BETWEEN POROUS PAVEMENT AND THE PROPERTY LINE IS 5 FEET. AT THE CLOSEST POINT, THE POROUS PAVEMENT IS SET 6.5 FEET FROM THE PROPERTY LINE.

GRAVITY WALL CROSS SECTION
ADJACENT TO PROPERTY LINE

<p>GRAVITY SECTION ADJACENT TO PROPERTY LINE</p>	<p>CIVIL CONNECTION, LLC 38 EDWARDS DRIVE GILMANTON IW, NEW HAMPSHIRE 03837 TEL. (603) 393-9842</p>	
<p>HANOVER PROJECT WESTON, MASSACHUSETTS</p>	<p>Drawn By: reb Checked By: reb File Name: c:richard Sections.hanover</p>	<p>Date: 3/2022 Scale: NTS Project No.: PRELIM</p>
<p>Figure No. SK1</p>		

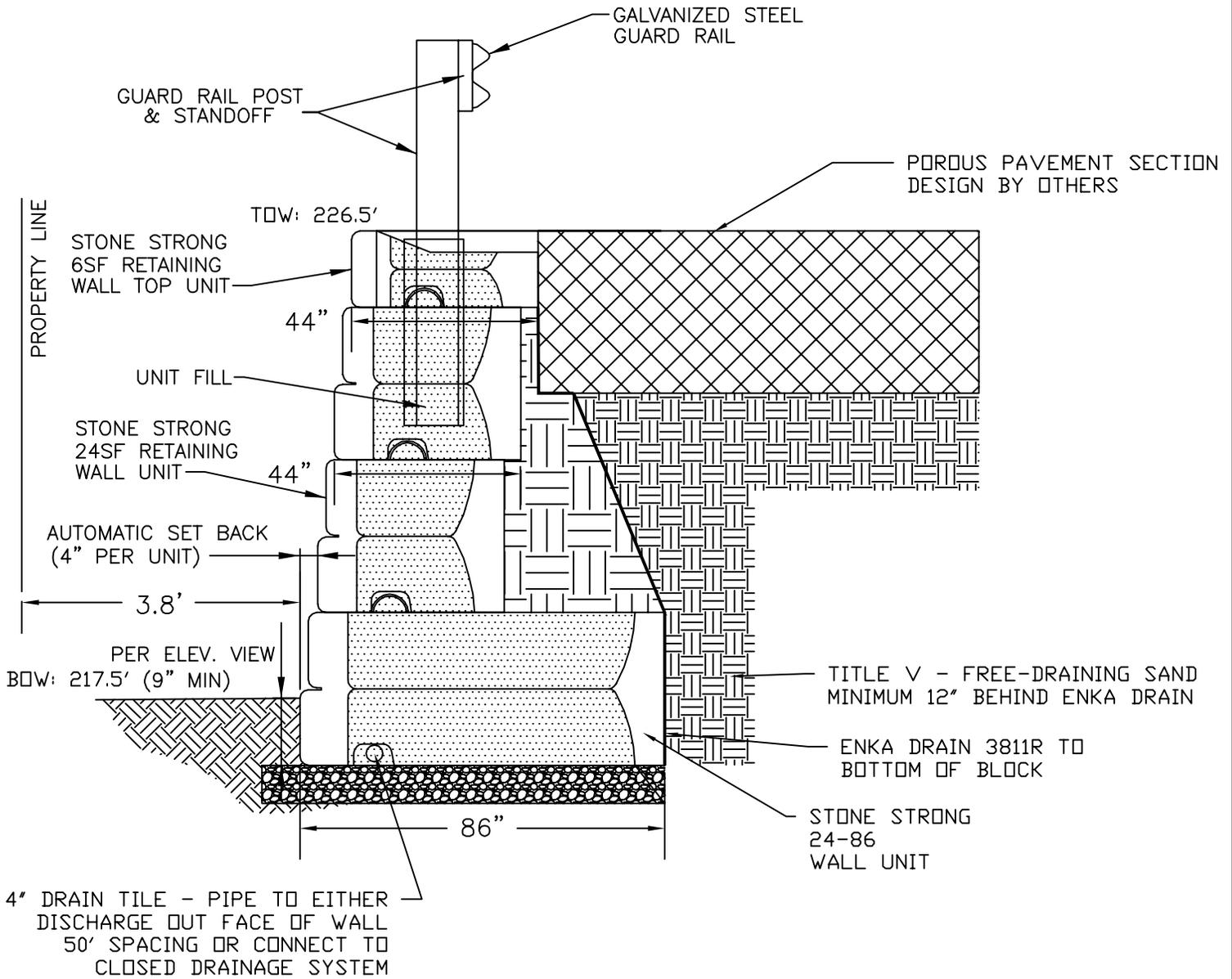


**GRAVITY WALL CROSS SECTION
WITHIN FILL AREA W/GUARDRAIL**
NOT TO SCALE

IF NECESSARY – WALL CAN BE SET VERTICAL BY SLIDING UNIT FORWARD AFTER REMOVING LIFTING RINGS. WALL SETS BACK 4” PER 3’ OF RISE.

NOTE: THIS SECTION DEPICTS THE HIGHEST WALL RETAINING EARTH FROM ONSITE. THE MINIMUM DIMENSION REQUIRED BETWEEN THE FACE OF WALL AND THE PROPERTY LINE IS 1’.

GRAVITY SECTION WITHIN FILL AREA W/GUARDRAIL POST	CIVIL CONNECTION, LLC 38 EDWARDS DRIVE GILMANTON IW, NEW HAMPSHIRE 03837 TEL. (603) 393-9842	
	HANOVER PROJECT	Drawn By: reb Date: 3/2022 Checked By: reb Scale: NTS File Name: c:richard Sections.hanover Project No.: PRELIM
WESTON, MASSACHUSETTS	Figure No. SK2	



GRAVITY WALL CROSS SECTION
WITHIN POROUS PAVED AREA

NOT TO SCALE

**GRAVITY WALL CROSS SECTION
 WITHIN POROUS PAVED AREA**

CIVIL CONNECTION, LLC

38 EDWARDS DRIVE GILMANTON IW, NEW HAMPSHIRE 03837

TEL. (603) 393-9842

HANOVER PROJECT

WESTON, MASSACHUSETTS

Drawn By: reb

Date: 3/2022

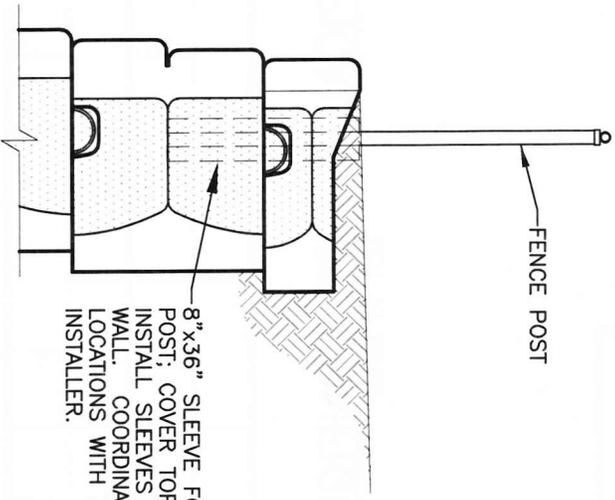
Checked By: reb

Scale: NTS

File Name: c:\richard
 Sections.hanover

Project No.: PRELIM

**Figure
 No. SK3**



8" x 3/6" SLEEVE FOR
 POST; COVER TOP.
 INSTALL SLEEVES WITH
 WALL. COORDINATE
 LOCATIONS WITH FENCE
 INSTALLER.

FENCE SLEEVE

NOT TO SCALE

DISCLAIMER:

These typical details are preliminary and conceptual in nature. They are provided for general information purposes only. Anyone making use of these details and related information does so at their own risk and assumes all liability for such use. Site specific design should be performed by a licensed Professional Engineer based on actual site conditions, materials, and local practices.

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PROJECT

TYPICAL DETAILS
 STONE STRONG SYSTEMS

DATE: 6/29/18

FILE: 33_6sf.FenceSleeve