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May 17, 2024

Marc Resnick
Director of Land Management
Town of Manchester-by-the-Sea
10 Central Street
Manchester-by-the-Sea, MA 01944

RE: Response to Peer Review
Cell Signaling Technology
Proj. No: 25770

Dear Mr. Resnick,

In response to Weston and Sampson comment memorandum dated April 12, 2024, the design team offers the following documentation and responses in bold.

The following documentation is included in this response:

1. Revised Traffic Impact, Access, and Parking Study– Dated May 8, 2024
2. Traffic Management Component – Dated May 8, 2024
3. Revised Permit Site Plan – Dated May 10, 2024
4. Revised Stormwater Management Report – Dated May 10, 2024

The following comments were summarized from the memorandum. Comments identified from the comment letter as “No action needed” are not included:

1.0 OUTDOOR LIGHTING STANDARDS

1.2 Light Trespass:

§ 6.3.4.2: All light fixtures shall be located, aimed, and shielded so as to minimize light pollution and light trespass across property boundaries including any buffer zones or setbacks. Lighting shall comply with International Dark Sky Standards.

On Sheet AL030 (Lighting Site Plan and Luminaire Schedule), it is noted that “all exterior luminaires are fully shielded” and that the “automatic lighting control system will be provided with the following hours of operation: except for site safety or security, all exterior lighting, including lighting accessories to authorize signs, shall be automatically turned off 1.5 hours after the facility is closed for the business day. The exterior lighting shall be automatically timed to turn on 1.5 hours prior to the arrival of the first employee on the premises.” The duration of the light and does not comply with the hours of operation requirements; see action required under Item 1.10.

Based upon the provided Photometrics Site Plan, illumination from outdoor lighting does not leave the project site, except for near the last three light poles, where the site access road meets Atwater Avenue.

Weston & Sampson recommends the Applicant adjust pole locations or photometrics, as needed, to ensure no light trespass is proposed off-site.

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RESPONSE: The exterior lighting hours of operation will be revised to comply section 6.3.4.10 (Hours of Operation). The exterior lighting shall be automatically timed to turn off 0.5 hours after the facility is closed for the business day. The exterior lighting shall be automatically timed to turn on 0.5 hours prior to the arrival of the first employee on the premises.

Section 6.3.4.2 (Light Trespass) states lighting shall minimize light trespass and comply with International Dark Sky Standards. The last three poles comply with International Dark Sky standards for LZ2. The standards require luminaires to meet BUG rating in Table C for Limits to Off Site Impacts. The poles are rated B1-U0-G0. They meet requirements under 0.5 to 1 mounting height from property line and ideally oriented in Table C below.

IX. TABLES (cont.) - Ordinance Text

Table C - Maximum Allowable Backlight, Uplight and Glare (BUG) Ratings

May be used for any project. A luminaire may be used if it is rated for the lighting zone of the site or lower in number for all ratings B, U and G. Luminaires equipped with adjustable mounting devices permitting alteration of luminaire aiming in the field shall not be permitted.

TABLE C-1	Lighting Zone 0	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3	Lighting Zone 4
Allowed Backlight Rating*					
Greater than 2 mounting heights from property line	B1	B3	B4	B5	B5
1 to less than 2 mounting heights from property line and ideally oriented**	B1	B2	B3	B4	B4
0.5 to 1 mounting heights from property line and ideally oriented**	B0	B1	B2	B3	B3
Less than 0.5 mounting height to property line and properly oriented**	B0	B0	B0	B1	B2

1.3 Light Intensity:

§ 6.3.4.3: Color, and Efficiency. Lighting shall be designed to provide the minimum intensity needed at any particular time with a 0.5-foot candle average maintained. Color temperature shall not exceed 3,500 Kelvin. Lighting shall be LED or approved current technology to minimize energy use.

The proposed LED outdoor lighting (base on submitted cut sheets) have a color temperature of 3000K (a warm white light with a yellowish hue) that complies with the Town's requirements. The submitted Photometric Site Plan identifies that all roadways will be illuminated to a minimum of 0.5 foot candle, as required. Weston & Sampson recommends that the Applicant review and confirm conformance with standards for:

- Instances where proposed street tree plantings restrict even and adequate lighting levels on roadways and/or pedestrian areas;
- Lower-level pedestrian paved plazas have areas that are below 0.5 foot candles and should be revisited to confirm sufficient lighting present to provide a safe egress path away from the building during an emergency;
- Add the proposed illumination levels under the loading dock canopy to confirm they are adequate; and
- Confirm that the "Battery Area" southeast of the parking garage needs no emergency lighting, as well as the loading dock on the west side of the Phase 2 Building Addition.

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RESPONSE: The lighting design has taken into consideration tree plantings to meet lighting intensity requirements.

The ordinance requires that lighting intensity shall be 0.5-foot candle average maintained not 0.5-foot candle minimum. The submitted Photometric Site Plan identifies a foot candle reading at a given point, not an average foot candle of an area. The average maintained foot candle for the hardscape areas including roadways, parking, walkways, loading areas, upper plaza and lower plaza is 1.15-foot candles. The design confirmed sufficient lighting present to provide a safe egress path away from the building during an emergency.

The lighting is added underneath the loading dock canopy.

Emergency lighting is not required in the Battery Area.

The wall mounted lighting is provided to illuminate the loading dock area on the west side of the Phase 2 Building Addition. One additional pole will be added on the north side of the loading drive to light the loading dock drive area.

1.4 Illuminated Surfaces:

§ 6.3.4.4: Area lighting shall be reduced or eliminated outside business hours. The Planning Board or SPGA may require that parking areas be equipped to support shut-off for specific periods of time or unused areas to reduce lighting trespass.

On sheet AL030 (Lighting Site Plan and Luminaire Schedule), it is noted that the proposed “Automatic lighting control system will be provided with the following hours of operation: except for site safety or security, all exterior lighting, including lighting accessories to authorize signs, shall be automatically turned off 1.5 hours after the facility is closed for the business day. The exterior lighting shall be automatically timed to turn on 1.5 hours prior to the arrival of the first employee on the premises.” The duration of the light and does not comply with the hours of operation requirements; see action required under Item 1.10.

RESPONSE: The exterior lighting hours of operation will be revised to comply section 6.3.4.10 (Hours of Operation). The exterior lighting shall be automatically timed to turn off 0.5 hours after the facility is closed for the business day. The exterior lighting shall be automatically timed to turn on 0.5 hours prior to the arrival of the first employee on the premises.

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1.5 Flickering and Flashing Lights:

§ 6.3.4.5: No flickering or flashing lights shall be permitted. Processes such as arc welding, which create light flashes shall be confined within buildings or shielded to prevent either direct glare or flashing.

Weston & Sampson recommends that the Applicant confirm that there are no proposed flickering or flashing lights in daily operations of this proposed project. If there are flickering or flashing lights proposed, please describe the use, intensity, and frequency for the Town's consideration.

RESPONSE: No proposed flickering or flashing lights in daily operations of this proposed project.

1.6 Searchlights:

§ 6.3.4.6: The operation of laser shows or searchlights for advertising is prohibited.

Weston & Sampson recommends that the Applicant confirm no proposed operation of laser shows or searchlights are planned at the property. No documents indicate searchlight use is planned.

RESPONSE: No laser shows or searchlights are planned at the property.

1.7 Indoor Lighting:

§ 6.3.4.7: Indoor light sources will not be projected outside in a manner to defeat the intent of this Section.

No interior lighting plans have been provided. Light fixture cutsheets included in the Filing Package for Old Quarry dated January 18, 2024 indicates that LED fixtures with a color temperature less than the 3,500 Kelvin required under this section are being provided.

Weston & Sampson recommends that the Applicant provides lighting plan and a lighting analysis indicating that there will not be lighting trespass.

RESPONSE: All interior lighting design will comply with this provision. Completion of interior lighting design is anticipated during construction documents. All interior lighting will be 3500K or less.

1.8 Outdoor Signs:

§ 6.3.4.8: Outdoor light fixtures used to illuminate an outdoor sign shall be mounted on top of the sign structure or otherwise restricted to prevent up-light and light trespass. Internally illuminated signage is prohibited.

Schematic Details of the Exterior Signage have been provided on Sheet C12. Weston & Sampson recommends that the Applicant provide the location and type of illumination, if proposed of outdoor signs.

RESPONSE: Currently, there is no specific lighting for exterior signage. Any signage lighting required in the future design phases will comply 6.3.4.8.

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1.10 Hours of Operation:

§ 6.3.4.10: Except as may be deemed appropriate for site safety or security, all external lighting, including lighting accessory to authorized signs, shall be extinguished one-half hour after the facility is closed for the business day. Such lighting may be timed to resume one-half hour prior to the arrival of the first employee on the premises. Motion activated lights are encouraged for security purposes.

Currently, the Applicant's submission includes information that describes lighting of the property for a greater length of time (1.5 hours) than the Town's regulations (0.5 hour). Weston & Sampson recommends that the Applicant adjust the hours of illumination to comply with the Town's regulations or request a variance from this requirement.

RESPONSE: The exterior lighting hours of operation will be revised to comply section 6.3.4.10 (Hours of Operation). The exterior lighting shall be automatically timed to turn off 0.5 hours after the facility is closed for the business day. The exterior lighting shall be automatically timed to turn on 0.5 hours prior to the arrival of the first employee on the premises.

1.11 Exemptions:

§ 6.3.4.11d: Lighting for public monuments, public art and statuary, flagpoles, or historic buildings at the discretion of the Planning Board or SPGA.

Weston & Sampson recommends that the Applicant confirm that this is the case, or present information about such proposed illumination.

RESPONSE: There are no plans for flagpole or art illumination in the design.

2.0 NOISE STANDARDS

2.1 Limitation:

§ 6.3.5.1: No person or entity shall operate or cause to be operated any source of sound in a manner that creates a sound level of 10 dBA above ambient, as set forth in 310 CMR 7.10, measured at the property boundary of the receiving land use.

Weston & Sampson recommends that the Applicant confirm that noise mitigation measures are in place during demolition and construction. Odors from construction work should also be controlled with construction-phase trash management. The dumpster area while fenced will also need to be maintained to avoid nuisance odors.

RESPONSE: All equipment will be Tier 4, which is clean diesel. All equipment will be in proper working conditions, mufflers etc. All blasting activities will be covered. Site operations will not produce much odor or create trash. Whatever is created will be disposed of properly with either dumpsters or trucking. Dumpsters if used will be removed from site as soon as full. Equipment will be kept in proper working condition to keep exhaust odors to a minimum.

2.2 Hours of Operation:

§ 6.3.5.2: As a condition of any special permit or site plan approval, the SPGA or Planning Board may prohibit or regulate the following circumstances regarding hours of operation.

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§ 6.3.5.2.a: The loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or other objects or materials for sale or storage or use in a manner that causes a condition of noise pollution at any time but most specifically between the hours of 6:00 P.M. and 8:00 A.M. across a real property boundary in any district established under this By-law.

The Applicant's hours of operation for their headquarters and their other facilities located elsewhere are listed as between 8:00 AM and 5:00PM on the Applicant's website. Weston & Sampson recommends that the Applicant confirm the operation hours for this proposed facility.

RESPONSE: Hours of operation are between 8 am and 5 pm.

§ 6.3.5.2.b: Operating or permitting the operation of tools or equipment used in construction, drilling or demolition work between the hours of 6:00 P.M. and 8:00 A.M. on weekdays or Saturday or at any time on Sundays or Holidays so that the sound creates a condition of noise pollution across a real property boundary.

The Applicant's hours of operation for their headquarters and their other facilities located elsewhere are listed as between 8:00 AM and 5:00PM on the Applicant's website. Weston & Sampson recommends that the Applicant confirm the operation hours for this proposed facility.

RESPONSE: Construction will adhere to the town's bylaws.

§ 6.3.5.2.c: The operation of construction devices between the hours 8:00 A.M. and 6:00 P.M. including such items as compressors, jackhammers, bulldozers, cranes, etc., in a manner that causes a condition of noise pollution that could be avoided by the application of best available technology, which might include mufflers where commercially available.

Weston & Sampson recommends that the Applicant confirm that noise mitigation measures are in place during the demolition and construction phases of this development. We also recommend that the Applicant confirms that they will employ sound dampening measures, where feasible, to ensure the avoidance of any undue noise pollution.

RESPONSE: All equipment will be Tier 4, which is clean diesel. All equipment will be in proper working conditions, mufflers etc. All blasting activities will be covered.

3.0 TOPOGRAPHICAL CHANGES AND CLEARING

3.1 Minimize Negative Impacts:

§ 6.4.1.1: Minimize Negative Impacts on the Area. Protect adjoining premises from seriously detrimental uses, including making provisions for stormwater management and surface water drainage, sound and sight buffers, and preservation of views, light, and air;

The Applicant project protects existing site features, such as the bedrock outcrop, and restores vegetation removed in historic quarrying operations. Please refer to Section 6.1 for comments and actions related to

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the views of the proposed development and Section 10.0 of this memo for stormwater management review and actions.

RESPONSE: See response to Section 6.1.

3.2 Protect Public Health, Safety, and Welfare:

§ 6.4.1.2: Protect public health, safety, and welfare. Promote the convenience and safety of vehicular and pedestrian movement within the site and on adjacent streets. If applicable, this shall include the location of driveway openings, access by emergency vehicles, the arrangement of parking and loading spaces, and provisions for persons with disabilities;

The Applicant has included traffic study information reviewed in Section 5.0 of this memo. Signage and emergency vehicle access information is provided including fire truck turning maps on Drawing C7.1. Americans with Disabilities Act (ADA) parking stalls and ramps are provided on Drawing C11. Please see Section 5.0 for traffic related action items.

RESPONSE: See response to section 5.0

4.0 SITE DEVELOPMENT STANDARDS

4.3 Clearing for Utility Trenching:

§ 6.3.7.3: Clearing for utility trenching shall be limited to the minimum area necessary to maneuver a backhoe or other construction equipment. Roots should be cut cleanly rather than pulled or ripped out during utility trenching. Tunneling for utilities installation should be utilized wherever feasible to protect root systems of trees.

Weston & Sampson recommends that the Applicant provide additional information demonstrating the compliance with this bylaw requirement.

RESPONSE: Notes added to erosion control sheet C2.2 under section titled ‘General Notes’

4.6 Preservation of Existing Vegetation:

§ 6.3.7.6: Priority shall be given to the preservation of existing stands of trees, trees at site perimeter, contiguous vegetation with adjacent sites (particularly existing sites protected through conservation restrictions), and specimen trees. Understory vegetation beneath the dripline of preserved trees should be retained in an undisturbed state. During clearing and/or construction activities, all vegetation to be retained shall be surrounded by temporary protective fencing or other measures located a minimum of twelve (12”) inches outside of the dripline before any clearing or grading occurs and maintained until all construction work is completed and the site is cleaned up. Barriers shall be large enough to encompass the essential zone of all vegetation to be protected. All vegetation within the protective fencing shall be retained in an undisturbed state. No staging or stockpiling of construction materials or activities shall occur in tree root protection zones. All work within the root zone of existing trees to be preserved shall be carried out under the direction and supervision of a Certified Arborist.

Weston & Sampson recommends that the Applicant provide additional details related to tree protection and barriers and controls related to stockpiling activities in areas of existing vegetation.

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RESPONSE: A tree protection detail has been added to erosion control sheet C2.2 with additional notes detailing preservation of existing vegetation. The project team including the General Contractor have gone to great lengths to provide a thoughtful design that protects the tree cover on the property.

4.8 Limit of Clearing:

§ 6.3.7.8: Development envelopes for structures, driveways, wastewater disposal, lawn areas and utility work shall be designated to limit clearing and grading. In order to minimize the clearing and grading on a site associated with construction activities such as parking of construction vehicles, offices/trailers, stockpiling of equipment/materials, such activities may be limited to areas already planned for permanent structures. Topsoil shall not be stockpiled in areas of protected trees, wetlands, and/or their vegetated buffers.

The Applicant has depicted limited areas of clearing. Weston & Sampson recommends that the Applicant provide additional details on construction phasing related to these bylaw requirements.

RESPONSE: See response to section 4.3,4.6.

4.10 Topsoil:

§ 6.3.7.10: A minimum of eighteen (18") inches of topsoil shall be placed on all disturbed surfaces which are proposed to be planted with trees or other woody plant material. A minimum of six (6") inches of topsoil shall be placed in lawn or grass areas.

The Applicant has proposed to use 24" – 36" of planting bed soil for shrubs and trees, and a minimum of 6" for "grass habitat and lawn areas". Weston & Sampson recommends that the Applicant provide more information about how "Seed Areas" that will receive 4" of soil differs from providing 6" soil for "grass habitat and lawn areas".

RESPONSE: Where planting is meant to be permanently established, in close proximity to the building and an integral part of the campus, a minimum 6" of soil is provided for long term enhancement of the landscape. In comparison 4" of soil is only suggested in a large area to the northeast of the building and loop road – this is not part of the current Phase 1+2 project but is currently stripped land used for quarry activities. Soil and seeding is proposed to prevent erosion and provide a temporary cost effective solution as that area may be developed in future phases. Due to the large square footage of the area increasing soil depth is cost-prohibitive and the design team is confident that with 4" of soil and native erosion control seeding that the area will be improved.

4.11 Irrigation:

§ 6.3.7.11: The Planning Board or SPGA may require that water for the purpose of irrigation shall be provided by an onsite well, after consultation with the Water Department.

The Applicant has noted that the irrigation improvements will be connected to and served by municipal sewer and water lines. Weston & Sampson recommends the Applicant review the irrigation plan with the Town Water Department.

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RESPONSE: Irrigation will not be provided from ~~the municipal water lines during regular operation, only during drought and~~ except for plant establishment during the first year. Irrigation will be served by a cistern fed by stormwater and RO reject water collected on site.

5.0 PEDESTRIAN AND VEHICULAR ACCESS; TRAFFIC MANAGEMENT, PARKING

5.4 Interior Circulation:

§ 6.3.8.4: The proposed development shall assure safe interior circulation within its site by separating pedestrian, bikeways, and vehicular traffic.

Sidewalks are proposed internal to the site with a sidewalk adjacent to most internal roadways and connecting the building, parking garage and pedestrian amenities. Please see Part 5.12 discussion of § 6.3.8.12a and § 6.3.8.12b for recommendations about internal connections to external road.

RESPONSE: See response to section 5.12

5.5 Transportation Plan Approval.

§ 6.3.8.5: The proposed development shall be subject to Transportation Plan approval by the Planning Board or SPGA. The Transportation Plan shall consist of the following information:

§ 6.3.8.5a: A plan showing the proposed parking, loading, and traffic circulation within the site; access and egress points; and other features related to traffic generated by the proposed use.

Sheet C7.1 of the Permit Site Plan is labeled “TRAFFIC AND SIGNAGE PLAN” and depicts the required elements per § 6.3.8.5a but is not a separate document. See part below discussion of § 6.3.8.5d for action needed.

RESPONSE: See responses to discussion of § 6.3.8.5d.

§ 6.3.8.5b: A traffic study, prepared by a qualified traffic engineer licensed by the Commonwealth of Massachusetts, detailing the expected traffic impacts. For proposed development in excess of twenty five thousand (25,000) gross square feet, the required traffic study shall substantially conform to the Institute of Transportation Engineers "Traffic Access and Impact Studies for Site Development: A Recommended Practice," latest edition (TIAS). The SPGA shall approve the geographic scope and content of the TIAS. In addition, the Applicant shall submit a Transportation Demand Management (TDM) plan tailored to the specific uses and the geographic location of the site.

The requirement above specifies requirement of a traffic study and a transportation demand management (TDM) plan. The Applicant submitted a traffic study within which includes a chapter entitled “TRANSPORTATION DEMAND MANAGEMENT” but did not submit a Transportation Demand Management plan. Weston & Sampson recommends that the Applicant provide a separate document to include the content of the indicated chapter and summary of other transportation elements from the traffic study.

RESPONSE: The Applicant will provide, under separate cover from the TIAS, a Transportation Plan document which outlines the Transportation Demand Management (TDM) plan.

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§ 6.3.8.5c: Proposed mitigation measures, if any, such as left-turn lanes, roadway widening, signage, signalization of intersections.

The Applicant proposed the following two off-site improvements to roadway infrastructure:

1. Restripe and sign for a 5-foot buffered bike lane on School Road from the terminus of recently striped buffered bike lanes north of Route 128 to Atwood Avenue. Weston & Sampson expects this potential improvement may be infeasible; the traffic study indicates that the roadway is 28' wide. Even without buffers, adding 5-foot bike lanes would leave 9' travel lanes where the roadway is 28' wide. If buffers are present, the travel lanes would be narrower than 9'. Furthermore, School Street does not have a sidewalk along this segment so marking a potential shoulder as a bike only space may not be preferable to the Town/State.

Weston & Sampson recommends reevaluation of restriping benefits and the Town/State consider the corridor for potential complete streets improvements base with respect to presence of trailheads and conservation areas.

RESPONSE: Note that on Page 41 of the original TIAS, the TIAS specifically identifies a need to provide box widening of School Street to accommodate the bicycle improvement, in addition to the striping and signage.

2. Following opening of Phase 1, Perform a signal warrant analysis at the intersection of School Street & Route 128 NB Ramps to reevaluate if signalization would be warranted at full buildout. If so, construct a traffic signal at the intersection.

Weston & Sampson notes that the Phase 1 analysis within the traffic study indicates that the volume-to-capacity ratio is 1.03 during the AM peak hour and 0.93 during the PM peak hour for the eastbound left-turn movement. Weston & Sampson recommends that the Applicant discuss with the Town if installing traffic signal equipment is appropriate with Phase 1 as signalization may still be appropriate or if it is allowable to be delayed until after Phase 1.

RESPONSE: The subject intersection is under the jurisdiction of the Massachusetts Department of Transportation (MassDOT) and the programming of potential traffic signal control improvements follow Phase 1 has been submitted to MassDOT and approved through the Massachusetts Environmental Policy Act (MEPA) review process by MassDOT District 4 Traffic and MassDOT 's Public-Private Development Unit (PPDU).

Page 37 includes a reference to MassDOT TIA Guidelines Section 3.I.C as part of reasoning that a potential improvement may be delayed to Phase 2. The referenced thresholds are for traffic study requirements regardless of phasing and is not a requirement related to mitigation. Page 37 also provides an abbreviated analysis of Phase 1 conditions. Weston & Sampson recommends removing this reference if a revised traffic study is produced. Weston & Sampson recommends the Applicant be able to produce Phase 1 trip generation, peak hour traffic volumes and warrant analysis that were not included within the traffic study's narrative or attachments. The Synchro reports for 2033 Build conditions (without mitigation) were also not included in Attachment L.

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RESPONSE: A revised TIAS document will be provided with the noted reference removed. TEC will also provide the Town with a peak hour traffic network, a traffic signal warrant, and trip generation summary of Phase 1 only. W&S is correct that the specific Synchro worksheets for the 2033 Build conditions (without mitigation) were not included in the Appendices accidentally. These will be provided in the revised TIAS.

§ 6.3.8.5d: For proposed development in excess of twenty-five thousand (25,000) square feet of gross floor area, the Applicant shall submit a Traffic Management Component (TMC) as part of the Transportation Plan. The TMC shall provide information on the number of expected person trips to and from the site, broken down by various travel modes (e.g., single occupancy vehicle, carpool, walk, bicycle, commuter rail, shuttle bus, etc.). The TMC may also incorporate one or more of the following techniques to reduce the number of single occupancy vehicle trips by employees coming to and departing from the proposed use:

- 1) of or contribution to a Traffic Management Association (TMA) within the region, which provides shuttle services for employees and other services as may be appropriate.
- 2) Employee carpools or vanpools sponsored by the employer or the TMA.
- 3) Subsidized commuter rail passes, provided by the employer, and sold on the site or offered through payroll deduction.
- 4) Monetary incentives to employees who do not use a parking space.
- 5) On-site shower facilities and bicycle racks for employees who do not drive to work.
- 6) Other techniques as may be deemed appropriate by the SPGA or Planning Board or its traffic consultant.

Though the information is provided within the traffic study and Sheet C7.1 of the Permit Site Plan, there is not a separate document found within the Applicant's submittal documents. The Applicant indicates it will provide preferential carpool parking, develop an employee rideshare/vanpool/carpool program, electric vehicle charging stations, indoor bicycle parking, shower facilities, transit and rideshare subsidies, provide public transportation maps, guaranteed ride home program via an employee transportation coordinator.

Weston & Sampson recommends the Applicant submit a Transportation Plan including a Traffic Management Component.

RESPONSE: The Applicant will provide, under separate cover from the TIAS, a Transportation Plan document which outlines the traffic management component as noted above. Items related to the site plan, including parking, EV charging stations, bicycle parking will be identified. Other items in the TDM measures are not site plan related or may be specifically related to architectural specs which are to be created following much of the site plan process.

5.7 Level of Service Maintenance or Improvement:

§ 6.3.8.7a: If the proposed project will result in an intersection level of service below a rating of LOS D, the Applicant may be required to provide detailed plans with a cost estimate (including reconstruction concepts), that when implemented would result in an intersection level of service rating of D or better.

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Several of the study intersections are evaluated to operate at LOS E or F without the proposed development. No cost estimate is included. See also part 5.5 discussion of § 6.3.8.5c, and part 5.7 discussion of § 6.3.8.7b.

§ 6.3.8.7b: If the proposed project will result in a reduction in level-of-service of one letter grade or an increase of ten (10) seconds of delay to a signalized or unsignalized intersection, the Applicant may be required to provide detailed plans with a cost estimate that when implemented would result in a return to existing conditions.

Weston & Sampson reviewed the traffic study and noted the following locations are projected to have a level-of-service reduction and/or increase in delay per vehicle by at least ten seconds:

1. School Street and Atwater Avenue

-Westbound approach (single approach lane) AM peak hour LOS C to D (17 to 28 seconds); PM peak hour LOS C to E (15 to 49 seconds) No intersection specific changes are proposed, noting that the volume-to-capacity ratio is projected to be 0.86 with a queue length of approximately eight vehicles.

2. School Street and Route 128 SB Ramps

-Westbound left-turn lane AM peak hour LOS D to F (30 to 59 seconds); PM peak hour LOS D to F (29 to 86 seconds) No intersection improvements are proposed, noting that the volume-to-capacity ratio is projected to be 0.76 with a queue length of approximately four vehicles.

3. School Street and Route 128 NB Ramps

-Eastbound left-turn movement AM peak hour LOS F to F (53 to 233 seconds); PM peak hour LOS F to F (60 to 94 seconds) An additional signal warrant analysis is proposed after occupancy of Phase 1 and signalization proposed contingent on the results of the analysis.

4. School Street and Pleasant Street

-Eastbound approach (single lane approach) AM peak hour LOS D to E (31.9 to 41.3 seconds)
-Westbound right-turn lane AM peak hour LOS F (62 sec) to LOS F (87 sec)
-Southbound approach (single approach lane) AM peak hour LOS F (104 sec) to LOS F (124 sec)
No intersection improvements are proposed, noting existing intersection conditions and little change in vehicle queues.

The bylaw does not state that mitigation is required at every location meeting the specified threshold. Weston & Sampson provided the information above to assist with potential discussion regarding mitigation needs. Weston & Sampson recommends the Applicant clarify the statement on page 29 – “Project-specific mitigation at this location is not expected to change the results of the traffic operational analysis.”

RESPONSE: The intent of this statement is to show that the mitigation proposed along Atwater including pavement markings and traffic signage will not result in any change in the traffic operational analysis as the traffic control and geometry has been retained. Generally, pavement marking and traffic signage level improvements, although providing an improved safety condition to not directly affect the analysis software results.

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5.8 Dangerous Intersections:

§ 6.3.8.8: The Planning Board or SPGA may require mitigation for any net increase in traffic volumes of ten (10%) percent or more at an intersection that has an accident history of more than five (5) accidents in the last three (3) years for which data is available.

The intersection of School Street and Route 128 NB Ramps is the study intersection. An additional signal warrant analysis is proposed after occupancy of Phase 1 and signalization proposed contingent on the results of the analysis. Weston & Sampson recommends the Applicant discuss with the Town if signalization is appropriate with Phase 1 of the development.

RESPONSE: Note that the subject intersection described in the comment does not meet the criteria for ‘Dangerous Intersection’ under § 6.3.8.8 as there have not been more than five (5) crashes in the last three (3) years of data. In addition, the subject intersection is under the jurisdiction of MassDOT and the programming of potential traffic signal control improvements follow Phase 1 has been submitted to MassDOT and approved through the Massachusetts Environmental Policy Act (MEPA) review process by MassDOT District 4 Traffic and MassDOT ‘s Public-Private Development Unit (PPDU).

5.12 Pedestrian and Bicycle Safety:

§ 6.3.8.11: Pedestrian and bicycle circulation, and the amenities required thereof, on and off site, shall be in accordance with the following requirements:

§ 6.3.8.12a: All development and redevelopment shall provide for pedestrian and bicyclist connections on the property, and allow for possible future connections with adjoining properties, where deemed appropriate by the Planning Board or SPGA.

Sidewalk connections do not exist and are not proposed at either existing driveway. Weston & Sampson recommends sidewalks to the following locations:

- Along main entry to connect Atwater Avenue and proposed internal sidewalk (approximately 300 feet). Also add crosswalk across main entry at Atwater Avenue to improve the connection towards the Manchester Athletic Club for employees on break or after hours.
- Along secondary entry/Beaver Dam Road that connects Atwater Avenue to sidewalk around Rain Garden (approximately 350’). This will allow a continuous sidewalk from Atwater Avenue to the trailhead.

RESPONSE: Sidewalks will not be added along Atwater Ave and Beaver Dam Road as this is outside the project scope of work. Sidewalks are proposed at the beginning of the main driveway, allowing pedestrian access to the Manchester Athletic Club from the main campus. A crosswalk is proposed across the main driveway.

§ 6.3.8.12b: Pedestrian access shall connect to all building entrances with further connections to local sidewalks.

Internal sidewalks connect all building, parking garage and pedestrian amenities. Weston & Sampson recommends the following:

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- Add an additional sidewalk between the NW corner of the parking garage north to the proposed sidewalk/crosswalk for the adjacent to the service ramp (approximately 80'). This will separate pedestrian traffic from the service ramp along the shortest path from the garage to the Quarry Garden/north side of the proposed buildings.
- Crosswalk on NE corner of Rain Garden near Phase 2 building access is far from intersection corner. We recommend shifting the crosswalk to intersection. If a crosswalk is desirable from the building to the mid-southern portion of the Rain Garden, consider adding a separate crosswalk at south side of service ramp.

RESPONSE: There is currently no proposed pedestrian exit or access from the parking lot in that location, as requested by the Owners. All pedestrian circulation from parking lot is expected to be through overhead bridge (above loading dock). Walkway along entrance to the garage is for egress only and not expected to be used regularly.

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§ 6.3.8.12d: The Planning Board or SPGA may require proposed development and redevelopment to provide sufficient rights-of-way on their properties to accommodate expected needs for pedestrian use.

Sidewalks are proposed along most roadways. See Part 5.12 discussion of § 6.3.8.12a.

RESPONSE: See response to section 5.12

6.0 AESTHETICS STANDARDS

6.1 Views:

§ 6.3.9.1: Existing scenic viewsheds shall be preserved or enhanced by the proposed development.

The Town Planning Board has noted that the project site shall be screened from Route 128. The Applicant's renderings as presented to the Planning Board on March 11, 2024, indicate that the proposed building will not be visible from Route 128 and that additional plantings and trees will screen the building. The Applicant has noted that in the winter, the screening effect may allow the building to be visible from Route 128. The extent of this review is unclear and should reflect the length of Route 128 that could view the new building.

Weston & Sampson recommends the Applicant confirm through additional renderings or study along Route 128 in eastbound and westbound directions that the structure will not be visible. Elevation changes along the highway and view from taller vehicles (e.g., buses, trucks) may allow views of the building. The Applicant has added evergreen trees for screening, and the Planning Board may require additional evergreen trees to improve winter screening of the building.

RESPONSE: This will be provided to the Planning Board at the restart to the new board.

6.2 Compatibility with Neighborhood.

§ 6.3.9.2a: harmony in scale, bulk, massing, and density.

A height variance was filed for an allowance of eight-foot increase in height of the building from 55' to 63', a four-foot increase in height for mechanical appurtenances from 15' to 19' and an eleven-foot increase in height of the vent pipes from 15' to 26'. To serve as a reminder, chapter 40A, 5 of the Zoning By-Laws of the Town of Manchester-By-The-Sea, "rights acquired under a variance shall lapse if they are not exercised within one year."

RESPONSE: Weston and Sampson's assumption is incorrect. So long as the applicant is working on the projects permitting with the town or has started construction, the variance shall not lapse.

7.0 LANDSCAPING, WALLS, AND FENCES

7.2 Street Trees:

§ 6.3.10.2: Street trees are shade trees located along a Road and/or Street. Where existing street trees are more than fifty (50') feet apart on average or do not exist along a Street or Road, the Applicant shall plant street trees. Street Trees shall be placed in a linear fashion along the Right-of-Way or way boundary, at a maximum spacing of forty (40') feet on center. Where the character of the site is predominantly wooded

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or pastoral, the Applicant may cluster trees informally along the lot line, with a maximum of seventy-five (75') feet between clusters of three or more trees.

The proposed landscaping plan for this site provides a robust street tree planting program (deciduous) combined with screening (evergreen trees) along many roadway edges. Most street tree spacing is 30' – 40', meeting the requirements. In several areas the street tree spacing is greater, when it is an area transitioning to meadow, on the interior of the site. Weston & Sampson recommends that the Applicant augment the street tree planting immediately east of the Phase 2 parking garage structure to meet the guidelines in the bylaws.

RESPONSE: Landscape plans will be revised to include additional shade trees at this location.

7.3 Fencing:

§ 6.3.10.3: Fencing up to six (6') feet in height, may be allowed in conjunction with plantings. At least fifty (50%) percent in length of built fences that face a public way shall be softened with plantings. Design and height of such fencing, with accompanying landscaping, shall be subject to the approval of the SPGA or Planning Board.

It appears that the plans show two locations of fencing, both internal to the site (not along a public right-of-way). The first is a fence for screening of the generator along the north side of the parking garage. It is proposed to be a metal, 8' tall, louvered fence to screen views of the generator from pedestrian spaces on-site. The second location is a fence around the upper pedestrian plaza (on top of the rock outcropping) to presumably provide a barrier for safety.

Weston & Sampson recommends that the Applicant provide more information about the fence material including height to review conformance with the standard.

RESPONSE: Fence at the upper pedestrian plaza (upper quad), is labelled as “guardrail to match architectural guardrail”, additional information can be found on architectural drawings (see detail 3/A45). These are currently designed as 42” high cable rails. At the generator an 8’ metal louvered fence is proposed – this is due to the size of the generator. In addition to the fence significant planting is provided in that location in order to soften and screen the fence itself.

7.4 Retaining Walls:

§ 6.3.10.4: Retaining walls shall be constructed to a maximum height of six (6') feet. If site conditions require elevation changes of greater than six (6') feet, retaining walls shall be terraced and landscaped. Any retaining wall greater than thirty-six (36”) inches in height shall be designed by a structural engineer. The face of any retaining walls visible from residential districts shall be designed with textured or natural stone, solid fieldstone or fieldstone veneer or other similar material. At least fifty (50%) percent in length of built walls that face a public way shall be softened with plantings.

The Applicant has identified the use of many retaining walls on-site to negotiate grade changes – most of which are identified to be a maximum of 6' in height, complying with regulations. However, the parking garage access bridge and those identified on the plans as W5 and W6 do not have their heights identified. Weston & Sampson recommends the Applicant provide the proposed retaining wall heights and, as proposed, the associated safety protections.

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RESPONSE: Wall w5 has top height of 122.0 and bottom height of 110.0 and has been terraced into two 6 foot walls with a landscaped section between the two retaining walls. Wall w6 height varies but is under 6' tall in its entirety, top and bottom of wall have been called out on sheet c4.1 at a few points.

7.6 Unsightly Uses and Areas:

§ 6.3.10.6: Exposed storage areas, refuse disposal facilities, HVAC, machinery, service areas, truck loading areas, utility buildings and structures and other unsightly uses shall be screened from view from neighboring properties and streets using dense, hardy evergreen plantings, or earthen berms, or wall or tight fence complemented by evergreen plantings.

Most “Unsightly Use Areas” appear to have been screened from public view by vegetation or fencing.

Weston & Sampson recommends that the Applicant evaluate the level of screening of the proposed generator and electrical equipment (Phase 2) by existing vegetation and augment it as needed with proposed plantings.

RESPONSE: Existing vegetation will remain north of the phase 2 generator to provide screening in that direction. South-east of the generator the design proposes a heavily planted berm to shield views of the generator and electrical equipment from the building and road. Additional planting will be provided to the north if required.

7.7 Maintenance:

§ 6.3.10.7: All landscaping features, structures and areas required for buffering or screening shall be properly maintained. Dead shrubs or trees shall be replaced within one growing season as a condition of approval. Green infrastructure systems shall be inspected and maintained to preserve stormwater management functions.

Weston & Sampson recommends that the Applicant develop an Operations and Maintenance manual to ensure the proposed landscape features continue to provide the desired function and effect at this site.

RESPONSE: O&M manual shall be developed by the applicant in conjunction with landscape architect and contractor during construction phase.

8.0 UTILITIES; SECURITY; EMERGENCY SYSTEMS STANDARDS

8.1 Wastewater Treatment and Disposal:

§ 6.3.11.1: The SPGA or Planning Board may require a report from the Board of Health confirming that the proposed site development provides for wastewater treatment and or disposal in a manner that is consistent with regulations of the Commonwealth of Massachusetts and the Board of Health.

Based on comments provided herein, it is unclear where the engineer proposes to connect the new force main shown on the plans to an existing sewer system. We recommend that the engineer clarify the location of the proposed sewer connection.

RESPONSE: The proposed sewer connection is approximately one mile off-site and part of a utility improvement project with the Manchester By the Sea DPW. A note has been added to plan C6.1

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which states "See plan set titled "utility extension plan" prepared by this office for the Town of Manchester-by-the-sea revised 2024-04-10"

8.2 Water:

§ 6.3.11.2: There shall be sufficient water capacity to meet the flow demands of the proposed use without causing municipal water flow characteristics off-site to fall below the standards adopted by the Town.

The submission does not include information regarding the required peak flow demands for fire and/or domestic use at the site, and no information has been provided to confirm whether these flows will be within acceptable parameters. One means by which to evaluate this would be for a flow test to be conducted to ensure that system pressures do not drop below acceptable levels during peak flow events. The Planning Board may wish for the engineer to coordinate with the Town Water Department to identify acceptable criteria, conduct a flow test, and provide this analysis for review.

RESPONSE: An extensive water modeling study and utility improvement program is ongoing with Manchester-by-the-sea Department of Public Works.

8.3 Site Security:

§ 6.3.11.3: There shall be a certification by the Police Chief that the petitioner has provided a written plan for site security, which plan has been approved by the Police Chief.

Weston & Sampson did not readily identify the documentation related to Applicant communication with the Police Chief. Weston & Sampson recommends the Applicant include this documentation for review and the plan for site security.

RESPONSE: CST has submitted a written site security plan to the town.

10.0 STORMWATER MANAGEMENT STANDARDS

Article XXIII, §7 STORMWATER MANAGEMENT PLAN

B. The Plan shall include:

1. A locus map;
2. The existing zoning and land use at the site;
3. The proposed land use;
4. The location(s) of existing and proposed easements;
5. The location of existing and proposed utilities;
6. The site's existing and proposed topography with contours at 2-foot intervals;
7. The existing site hydrology;
8. A description and delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows;
9. A delineation of 100-year flood plains, if applicable;
10. Estimated seasonal high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration;
11. The existing and proposed vegetation and ground surfaces with runoff coefficient for each;

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12. A drainage area map showing pre-construction and post-construction watershed boundaries, drainage area, and stormwater flow paths;
13. A description and drawings of all components of the proposed drainage system including:
 - a. locations, cross sections, and profiles of all brooks, streams, drainage swales, and their method of stabilization;
 - b. all measures for the detention, retention, or infiltration of water;
 - c. all measures for the protection of water quality;
 - d. the structural details for all components of the proposed drainage systems and stormwater management facilities;
 - e. notes on drawings specifying materials to be used and construction specifications; and
 - f. expected hydrology with supporting calculations.
14. Proposed improvements including location of buildings or other structures, impervious surfaces, and drainage facilities, if applicable;
15. Timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, and vegetative stabilization;
16. A maintenance schedule for the period of construction; and
17. Any other information requested by the Planning Board.

The plans generally appear to include the information listed above, except for the following:

- The proposed sewer force main shown on Sheet C6.1 appears to run to a point off of the page, it is unclear where this will connect to an existing sewer.
- A general project timing, schedule and sequence summary was not found on the plans.

We recommend that the engineer address these items.

RESPONSE: A note has been added to plan C6.1 which states "See plan set titled "utility extension plan" prepared by this office for the town of Manchester-by-the-sea revised 2024-04-10"

Per item B.15, A construction sequence has been added to sheet c2.2

C. Standards

Projects shall meet the Standards of the Massachusetts Stormwater Management Policy, which are as follows:

1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

A new outfall pipe is proposed at the northwest corner of the site. Plans include a riprap apron detail but no apron sizing calculations were found. We recommend that the engineer provide apron sizing calculations.

RESPONSE: Sizing Calcs have been attached in the appendices of the drainage report. A table has been added to detail 7 on Sheet c12 displaying the dimensions for each outfall apron. For Outlets

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with large flows and pipes, riprap plunge pools have been proposed. Calculations are attached in the appendices of the Drainage report and a table and detail has been added to sheet c13.

2. Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

The engineer has provided calculations suggesting that peak discharges for the post-development condition do not exceed the pre-development condition. The engineer has used rainfall values using the RMAT tool for estimated 2090 rainfall values, which are higher in magnitude and conservative in comparison with data sets such as TP-40, NOAA Atlas 14 and the Northeast Regional Climate Center data set. There were various technical issues noted in our review which should be addressed in order to ensure that this standard has been met. Some of these issues include the following:

- The total area analyzed in the pre-development HydroCAD model is 272,110 square feet and in the proposed conditions model it is 278,675 square feet. The models should be corrected to use the same areas for comparison.

RESPONSE: The Drainage report calculations have been updated using the correct value of 278,464SF.

- Discrepancies were noted between the plans and HydroCAD calculations for Infiltration Basin #1. These include the following:
 - o The bottom area of the basin seems larger on the plans than indicated in the calculations;

RESPONSE: The calculations have been updated with the correct contour areas

- o Plans show a weir plate with top elevation of 48.0, this device is not included in the calculations;

RESPONSE: The weir plate has been added to OCS1 in the Hydrocad Model

- o Plans indicate only a single pipe barrel exiting the outlet control structure whereas the calculations indicate three pipe barrels;

RESPONSE: There is only a single pipe out-letting from OCS1. This has been updated in the HydroCAD model.

- o The outlet pipe on the plans is at an invert of 47.0 whereas the calculations use 47.10; and

RESPONSE: The outlet pipe invert has been corrected to 47.1 in the model

- o Plans show an outlet control structure with rim of 51.0 which is not included as an outlet in the calculations.

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RESPONSE: The OCS has been updated to the correct rim/grate at elevation.

- Discrepancies were noted between the plans and HydroCAD calculations for Infiltration Basin

#2. These include the following:

- o The outlet control structure detail on the plans has an outlet invert elevation of 83.50 whereas the calculations show an elevation of 80.50; and

RESPONSE: The OCS detail has been updated to show the outlet at elevation 80.50

- o Calculations provide for a sharp-crested weir and orifice at the outlet control structure but these are not shown on the detail in the plan set.

RESPONSE: The detail has been updated to show the sharp crested weir and the orifice in the OCS

- The peak water surface elevation exceeds the embankment elevation of 67.50 for Rain Garden #1 for all storm events modeled.

We recommend that the engineer address these issues.

RESPONSE: The HydroCAD model has been revised. Water surface elevation does not exceed Rain garden #1 during any storm event. Other areas of flooding have been addressed as well.

3. Loss of annual recharge to groundwater shall be eliminated or minimized with infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. The annual recharge from the post-development site should approximate the annual recharge rate from the pre-development or existing site conditions based on soil types. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

The following issues are noted relative to this standard:

- No test pit information was provided within the footprint of Rain Garden #1;
- Rain garden details do not show the required bioretention soil profile required for the rain gardens; and
- Other issues noted elsewhere in this section may impact compliance with this standard.

We recommend that the engineer address these issues.

RESPONSE: No indications of estimated seasonal high groundwater were observed in the test pits adjacent to Rain Garden #1. Knowing this, along with our understanding of the overall site from more than 120 test pits and borings, we are confident Rain Garden #1 will have the required 2-foot separation to groundwater.

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Rain garden/bioretention mix design is included on Detail Sheet.

4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). It is presumed that this standard is met when:
- Suitable practices for source control and pollution prevention are in a long-term pollution prevention plan and are thereafter implemented and maintained;
 - Structural stormwater management best management practices (BMPs) are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and
 - Pre-treatment is provided in accordance with the Massachusetts Stormwater Handbook.

The engineer has noted that the site is located within or discharging to critical areas and has proposes appropriate pretreatment methods to promote water quality. We offer the following comments:

- It was noted in the engineer's TSS removal calculation worksheet that credit was given for both a sediment forebay at 25% and infiltration basin/rain garden at 80%. It is our understanding of DEP policy that a combined sediment forebay and rain garden (or sediment forebay and infiltration basin) are allowed to take credit for only a total 80% TSS removal and don't receive separate credit when combined.
- The claimed water quality volume should be re-evaluated to confirm that it is still adequate after discrepancies between the plans and calculations noted elsewhere in this section are resolved.

We recommend that the engineer address these items.

RESPONSE: The 25% TSS removal credited to the sediment forebay has been removed. 80% TSS removal is credited to rain garden/infiltration basin combined with forebay. Water quality volumes are re-evaluated in the latest stormwater report.

5. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff; the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, G.L. c. 21, ss. 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

The engineer has claimed that the site is not a Land Uses with Higher Potential Pollutant Loads (LUHPPL). The engineer should confirm whether the parking onsite generates more than 1,000 vehicle trips per day, as such would constitute a parking lot with a high-intensity use and would be considered a LUHPPL. We recommend that the engineer review and confirm the vehicle trips and designation.

RESPONSE: Phase 1 will not be considered higher potential pollutant loading, based on 200 projected employees and total daily trips of 674 (TEC). Phase 2 will be considered higher potential pollutant loading, based on 550 projected employees and total daily trips of 1,896 (TEC). In both

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cases, at grade parking will be limited to 29 surface parking spaces and the remaining 259 parking spaces for phase 1 will be within the parking garage.

Per the existing design, the top floor of the parking garage will be covered by a solar array. Any stormwater runoff collected from the solar array and top deck will be collected by the buildings stormwater system and pass through a gas/sand interceptor and then to the site stormwater system. Please note the project architect for the parking garage refers to oil/grit separators as gas/sand interceptors. Per the design, the parking garage drainage system is a spur from the main stormwater network (ie offline). DMH9 is identified at the gas/sand interceptor, as shown on sheet C4.1.

Per MA DEP Stormwater Best Management Practices Volume 2, Chapter 2 Oil/Grit Separators shall provide pretreatment when they are placed offline.

6. Stormwater discharges to critical areas within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, considering site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A “storm water discharge” as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply. Critical areas also include swimming beaches and cold-water fisheries.

As noted above, the engineer has acknowledged critical areas relative to the site. Provided that the issues noted elsewhere in this section are addressed, this standard will be met.

RESPONSE: The site discharges to Sawmill Brook which is a Coldwater Fisheries critical area. Therefore, 44% TSS removal pretreatment is required prior to discharge to the infiltration structure. To achieve 44% TSS removal, the site will utilize street sweeping, Structural Pretreatment BMPs such as deep sump catch basins and proprietary separators, along with Treatment BMPs such as filtering bioretention areas with forebays/plunge pools.

7. Redevelopment of previously-developed sites must meet the Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and stormwater management systems must be designed to improve existing conditions.

Despite indicating that the project is a redevelopment, the engineer appears to have taken the approach of meeting the standards. Provided that the issues noted elsewhere in this section are addressed, this standard will be met.

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RESPONSE: No action.

8. A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

The engineer has submitted an erosion and sediment control plan for the project. The plan appears to be generally reasonable. Compost filter tubes of unknown size appear to be the sole device for perimeter erosion control. Given the large area of the site it may be questionable whether this alone will provide adequate silt storage capacity for such a large site, as opposed to using them in combination with silt fence. We recommend that the engineer evaluate this and respond to this comment.

RESPONSE: The site is larger than 1 acre and Construction General Permit (CGP) will be developed by the General Contractor (GC) to address stormwater discharge during construction. The sediment sock identified on the plan is to limit runoff from the disturbed area of development from expanding to the undisturbed areas. Once the GC has contracted his team, they will develop the CGP with understanding of the specific phase of site construction and the understanding a significant portion of the site is rock.

The size of the sediment sock has been called out as 8-inch and a note detailing silt removal has been added on the detail located on a sheet C2.2.

9. All stormwater management systems must have a long-term Operation and Maintenance Plan to ensure that systems function as designed.

The engineer has submitted a long-term operation and maintenance plan as part of the stormwater report. The operation and maintenance plan generally appears to be adequate relative to the MA Stormwater Handbook standard, though additional requirements may apply as discussed further below. Presently the O&M plan and the maintenance log form are separate documents in different locations within the stormwater report, whereas we believe it would be better if this plan and checklist were able to be consolidated and separated as a stand-alone document. The O&M plan should also include a figure showing the location of the stormwater BMPs that are subject to the requirements of the O&M plan. We recommend that the engineer address these items.

RESPONSE: The operation and maintenance plan and the maintenance log have been consolidated to the same section of the stormwater report. An operation and maintenance plan has been created detailing the BMPS and required annual maintenance and included in the Stormwater Report.

D. Reporting Requirements

The Applicant shall prepare and submit semi-annual reports to the Planning Board for the first two (2) years after issuance of the Certificate of Completion, and annual reports thereafter demonstrating compliance with the terms and conditions of the special permit received from the Planning Board.

In addition to the foregoing, there were several other issues noted in reviewing the plans and stormwater calculations which may impact compliance with the standards above:

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- Numerous discrepancies were noted concerning catch basin/drainage structure rim, invert elevations and storm drainpipe sizes between the calculations and the plans;

Response: All catch basins, manholes, rain garden/basin OCS rim/invert/sump/sizes/lengths have been updated to be consistent between the HydroCAD model and planset.

- Rain Garden #3 is labeled as Rain Garden #2 on the plans;

Response: Rain garden #3 has been properly labeled on the plan

- Plans show a contour of 66 at Rain Garden #1 which is not possible if Rain Garden 1 has a bottom elevation of 66.5;

Response: Rain Garden #1 has been updated to show the correct contours (67' is the correct contour)

- The catch basin at Rain Garden #2 appears to be incorrectly labeled as CB24; and

Response: The catch basin in RG#2 has been correctly labelled as CB26

- On the proposed subcatchment map, there is no boundary separating 10B from 10C.

We recommend that the engineer address these issues.

RESPONSE: There was a boundary between 10B and 10C. However, subcatchment 10D was incorporated into 10C but the label had not been removed from the plan: this label has been deleted.

Article XXIII, §7 OPERATION AND MAINTENANCE PLANS

2. Maintenance agreements that specify:

- a. The names and addresses of the person(s) responsible for operation and maintenance;
- b. The person(s) responsible for financing maintenance and emergency repairs;
- c. A Maintenance Schedule for all drainage structures including swales and ponds;
- d. A list of easements with the purpose and location of each; and
- e. The signature(s) of the owner(s).

A formal maintenance agreement with signature lines has not been provided. We recommend that the engineer address this.

RESPONSE: A formal maintenance agreement with signature line has been added to the O/M section of the stormwater report. The agreement includes the names and addresses of those responsible for operation and maintenance and financing said repairs. The maintenance schedule has been consolidated into this section. A signature line has been added to the end of the section.

2. Stormwater Management Easement(s):

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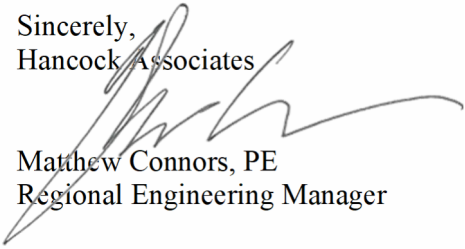
- a. Stormwater management easements shall be provided by the property owner(s) as necessary for:
 - i. access for facility inspections and maintenance;
 - ii. preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100- year storm event; and
 - iii. direct maintenance access by heavy equipment to structures requiring regular cleanout.
- b. The purpose of each easement shall be specified in the maintenance agreement signed by the property owner(s);
- c. Stormwater management easements are required for all areas used for off-site stormwater control unless a waiver is granted by the Planning Board;
- d. Easements shall be recorded with the Essex County South Registry of Deeds prior to issuance of a Certificate of Completion by the Planning Board;

It appears that the entire site will fall under common ownership and therefore no easements would be required for the property owner to gain access to the BMPs that they are responsible for maintaining. We do not believe that easements in favor of the owner/developer are required.

RESPONSE: No easements are required.

If you have any questions, please feel free to reach out and contact us.

Sincerely,
Hancock Associates



Matthew Connors, PE
Regional Engineering Manager