ASB design group

August 22, 2022

Ipswich Planning Board
Ipswich Town Hall
25 Green Street
Ipswich, MA. 01938

Re: **Response to Comments: Site Plan Review for 5 - 11 Washington Street**
**Review Letter: Robert E. Puff, Jr. P.E. Dated July 27, 2022**
**Revision #9**
**Ipswich, MA. 01938**
**Job No. 2021-11**
**Map 41B Lots 274 & 275**

Dear Members:

On behalf, of our client (the applicant) Wash Station Village LLC, **ASB** design group, LLC (ASB) is submitting our Response to Comments regarding the review letter prepared by Robert E. Puff, Jr. P.E. (Dated July 27, 2022) for the Wash Station Village LLC Site Plan Review for your review, comment, and approval.

The submittal includes:

- Response To Comments
- Sheet C1 and C3-C7 (Please Note no revisions were made/required for Sheet C2)

## Review Comments

Stormwater Management & Drainage:

1. The Applicant's response to comment 1 in the 'Task 3' review is insufficient (the Task 3 comment expressed concern over groundwater at soil boring GZ-3 being indicated at 1.1 feet below ground level and being too high relative to the adjacent stormwater infiltration areas). An explanation for the high groundwater elevation found at soil boring location GZ-3 was not provided. In addition, the Applicant proposes that "During construction the Town of Ipswich's Planning Board Designee shall conduct on site soil testing in the location of GZ-3 to determine groundwater elevation. Any revisions required to BMP's 4 and 5 shall be incorporated into the design". This response is not satisfactory, in my opinion, for the following reasons.

a. Soils testing and evaluation of site conditions with respect to the stormwater management design is the obligation of the Applicant, not the Planning Board or their Designee. Any additional testing should be conducted by the Applicant and the Engineer of Record and witnessed by a Town Representative (if desired).

b. The note on plan sheet C-6 regarding soil testing being conducted by the Planning Board Designee should also be deleted from the plan set.
c. An explanation of the high groundwater condition encountered at GZ-3 has not been presented. Without a technical explanation that would identify why different soil conditions and groundwater levels could be a possibility during a retest, it is unclear why a retest would yield significantly different results. Without a supporting technical argument to the contrary, deferral of soil testing and potential redesign is not supported. At this time, and without further information from the Applicant, it is suggested that revised design of BMPs 4 and 5 should be conducted as part of the Application.

**Response**: A technical response was provide concerning this issue and was also discuss at the Ipswich Planning Meeting. Per GZA's Geotechnical Report, ***"The relatively high groundwater level at boring GZ-3 is unusual and may be influenced by external factors, such as surface water intrusion or a leaking water main, or it may be perched water on top of the silty clay"***.

a. To address the concerns for boring GZA-3 on site soil testing will be performed by the Applicant and their representative at the time of the site demolition. The results will be submitted to the Town of Ipswich Planning Department. Any required revisions will be submitted to the Town of Ipswich Planning Department.

b. The note on C-6 will be removed as requested.

c. An explanation was provided as outlined above. As stated above additional soil testing will be performed at the time of the site demolition. The Demolition Phase will provide the applicant complete access to the site to conduct the soil testing in all areas of construction.

2. The technical response to comment 2 in the 'Task 3' review is insufficient (the Task 3 comment expressed concern over the proximity of infiltration areas to building foundations and property lines). The Applicant's response states that "Applicant will install barriers at the infiltration systems. Final location, depth and material shall be determined by the Town of Ipswich's Planning Board Designee. A note has been added to Sheet C6." This response is not satisfactory, in my opinion, for the following reasons.

a. Design components are the responsibility of the Engineer of Record, not the Planning Board or their Designee. Material and dimensional requirements for installation of the barriers should be provided by the Engineer of Record and appear on the plans. The note on plan sheet C-6 regarding specification of barriers by the Planning Board designee should be deleted from the plan set.
b. The concept of separating infiltration systems from building envelopes and property lines is presented in the MA DEP Stormwater Handbook. For the infiltration system locations proposed, setback to property lines and building envelopes is inadequate, hence supplemental mitigation is appropriate and should be addressed on the plans.

**Response**: Presently a concrete surface and grass area flows directly onto the abutting MBTA property (railroad bed). Once on the MBTA property the stormwater infiltrates through the ballast (stone) and then in the soils below. The proposed design prevents the stormwater from flowing directly onto the MBTA property. This is accomplished by trapping and infiltrating the stormwater runoff on the project site. The proposed design results in no impact to the abutting MBTA property (railroad bed) other than to improve the post construction drainage impacts.

BMP 2 abuts the adjoining property with a paved parking lot that currently provides no infiltration. Under existing conditions, the project site flows to the paved parking lot. The proposed design prevents this by allowing BMP 2 to capture this runoff and then infiltrates into the soils before it can reach the impervious surface. The proposed design results in no surficial impact to the abutting property, post construction.

There is no reason to have a barrier for the foundations. They will by themselves be waterproofed. As noted, before, a Low Impact Design Technique (LID) for infiltrating stormwater roof runoff is a drip edge which is placed right up against the foundation. These drip edges do not cause any problems to foundations.

All though this technique is not being used here, the issue is the same except that the proposed design more evenly distributes the stormwater runoff into and through the soils which in turn greater reduces any impact to the foundations and/or abutting property.

3. Several items relative to technical aspects of the stormwater calculations and design intent require further clarification and/or revision to the plans and calculations.

a. The outlet control structures for BMP 2 (NDSCB 5) and BMP 4 (NDSCB 12) require modification for the plans to accurately reflect the calculations. As calculated, the structure grates control flow out of the BMPs, however, the plans also show the perforated pipe within the stone layer to be connected directly to the outlet structures (i.e., the NDSCBs). For consistency, the perforated pipe should be disconnected from outlet structures, or alternatively, the calculations should be revised to reflect the plans (i.e., specify a low level outlet at the perforated pipe elevation). It should be noted that, as drawn, BMPs 2 and 4 would discharge runoff during very small precipitation events, which would be problematic with respect to groundwater recharge requirements.

This is incorrect because during the 2-year storm event NO stormwater leaves the site or any of the proposed BMP's. Any flow exiting the outlet structures are noted in the pre and post peak runoff summaries.

b. Prior Task 3 comment regarding revision to the calculations for BMPs 1 and 5 to reflect 'dynamic tailwater' rather than 'free discharge' remains unresolved. The Applicant's response does not speak to the hydraulic issue at hand. This comment is not relative to overland flow from the site, nor is it a value statement on the proposed redevelopment. The concern is simply that the pipe network discharging from BMP 1 and BMP 5 into the Town drainage system will be submerged during high intensity storm events because of existing flow within the Town pipe

network. As a result, the pipe discharge capacity from BMPs 1 and 5 may be overstated, and if so, would result in a higher peak elevation within the BMPs than currently stated. It is again requested that the pond routing at BMPs 1 and 5 be rechecked using dynamic tailwater for the 100 year storm to verify that peak elevations within the BMPs will be contained by the proposed grading and that the proposed weir crests are set at an appropriate elevation.

i. Note that the revised configuration of the BMP 4 outlet now creates a similar condition for the outlet from NDS CB 12 to CB 3. Dynamic tailwater should also be utilized at this BMP when analyzing the discharge capacity for BMP 4 during the 100-year storm.

The proposed deign will significantly reduce both the peak flow (cubic feet per second) and stormwater volume (cubic feet) to the existing system. Under the proposed design, during the 100-year storm event, the peak depth in the proposed 12" drainage pipe that connects to the existing drainage manhole is just 4". As a result of the proposed design, the proposed design peak depth in the existing 12" drainage pipe (that collects the stormwater runoff from the existing catch basin in Washington Street) which connects to the existing drainage manhole is just 1.7".

The proposed design only improves the conditions to the existing drainage system. If the current drainage system is currently not overburdened, then the only result from the proposed design will be less impact.

Please note that drainage systems (catch basin inlets, pipe capacities, etc.) are not designed for the 100-year storm.

c. Prior Task 3 commentary regarding transition from 12 inch pipe to 6 inch pipe entering BMP 1 remains unchanged and unresolved. The Applicant's response does not address the hydraulic restriction that is created when a 12 inch pipe is reduced to a 6 inch pipe, nor are calculations provided to demonstrate that the proposal is hydraulically adequate (it is anticipated that excessive headwater will be generated in the pipe outlet from MDMH 2 during high intensity storm events because of the pipe reduction). If the larger pipe size cannot be connected directly to NDS CB 1, it is suggested that the pipe transition/reduction be replaced with a manhole that provides multiple 6 inch pipe outlets (similar to what has been provided at CB 2).

Against our engineer's advice, the plans will be revised to reflect the Town of Ipswich Engineer's request.

d. It is noted that the revised plans have added a new patio on the easterly side of Unit H, and that the patio is located within stormwater area BMP 2. The location of the patio within the stormwater area is discouraged as its presence will obstruct overland flow from the northerly end of the BMP to the southerly discharge control outlet at NDS CB5. It is suggested that the proposed patio be deleted from the plans, or that additional grading and/or piping be provided to facilitate overland flow from the northerly end of BMP 2 to the southerly outlet control.

The patio will be removed and replaced with a deck smaller than the current patio footprint.

4.Remaining issues to be coordinated between the plans and/or stormwater calculations.

a. Spot grading remains to be provided at BMP 6 to specify perimeter containment of the 100 year peak storm stage.

Spot grades will be added to meet the reviewer's requirements.

b. Spot grading or flow arrows remain to be provided along the property line of Tzizik to clearly confirm that no surface runoff is to be directed onto that property (as assumed in the calculations).

Half foot contour elevations were added to the plans. Additional Stormwater Directional Flow Arrows will be added to meet the reviewer's requirements.

c. Plan sheet C-3 now specifies a concrete wall (which is presumed to be a poured in place concrete wall) in response to prior concern (expressed in the Task 3 review regarding lateral migration of runoff though a segmental wall at BMP 1). While the new proposal is satisfactory, plan sheet C-5 still details a modular wall. The modular wall detail should be revised to reflect a poured in place wall.

The modular wall detail will be removed.

d. Several discrepancies remain between the pipe sizes and invert elevations contained on the plans (Drainage Data table on Plan C-3) and the information used in the calculations. The following items should be resolved as needed.

i. Coordinate invert in at MDHM 3, invert out at BMP 1, pipe slope between the two locations as specified on plan sheet C-6, and the pipe slope used for the BMP 1 outlet in the calculations.

Plans have been revised to meet reviewer's comments.

ii. Proposed CB 1 specifies a 6 inch pipe on the plans, whereas the calculations used a 12 inch pipe.

Plans have been revised to meet reviewer's comments.

iii. Proposed MDMH 2 specifies a 6 inch pipe on the plans, whereas the calculations used a 12 inch pipe.

Plans have been revised to meet reviewer's comments.

iv. NDSCBs 3 and 4 specify a pipe inlet on the plans (i.e., elevation 25.75) which is 6 inches lower than the bottom of stone elevation in BMP 2 (i.e., elevation 26.25) as specified on plan sheet C-6 and used in the calculations.

Plans have been revised to meet reviewer's comments.

v. Coordinate the proper identification of the NDSCB outlet at BMP 3. NDSCB 11 is indicated on plan sheet C-3 and in the calculations, whereas NDSCB 5 is indicated on plan sheet C-6.

Plans have been revised to meet reviewer's comments.

vi. The detail for MDMH 7 on plan sheet C-6 specifies two eight inch pipes whereas plan sheet C-3, the BMP details on plan sheet C-6, and the calculations specify two ten inch pipes.

Plans have been revised to meet reviewer's comments.

5. The diameter of proposed manholes remains under debate. A 30 inch diameter drain manhole is proposed, and exception is again taken to the proposal at MDMH 1 to 5. Drainage systems require periodic access for maintenance/repairs and are standardly provided with 48 inch inside diameter to facilitate access by maintenance personnel. It is again suggested that these structures be provided with a 48 inch inside diameter. No exception is taken to the use of a 30 diameter manhole at MDMH 6 and 7 since these are very shallow and not located within a main driveway.

Against our engineer's advice, the plans will be revised to reflect the Town of Ipswich Engineer's request.

<u>DEP Stormwater Management Standards:</u>

1. Standard 3 - In response to prior requests for a groundwater mounding analysis, as is required under Standard 3 when estimated seasonal high water table is closer than four feet to the bottom of an infiltration system, the Applicant has proposed that "…Prior to construction the Town of Ipswich's Planning Board Designee shall conduct on site soil testing ….to determine groundwater elevation. Any revisions required to BMP's 4 and 5 as a result of the soil testing shall be incorporated into the design. Groundwater mounding calculations will also be provided in reference to all BMP's." This response is not satisfactory, in my opinion, for the following reasons.

a. Soils testing and evaluation of site conditions with respect to the stormwater management design is the obligation of the Applicant, not the Planning Board or their Designee. Any additional testing should be conducted by the Applicant and the Engineer of Record and witnessed by a Town Representative (if desired).

On site soil testing will be performed by the Applicant and their representative at the time of the site demolition. The results will be submitted to the Town of Ipswich Planning Department. Any required revisions will be submitted to the Town of Ipswich Planning Department.

b. Stormwater infiltration areas have been designed based on the current amount of soil testing conducted at the site. Consequently, groundwater mounding calculations should be able to be provided at this time, and in accordance with the requirements of Standard 3. Deferral of the mounding analysis is not supported.

Ground Water Mounding calculations will be performed along with any additional soil borings and soil testing at the time of site demolition. The demolition phase will allow for greater access to the entire site for additional soil testing and or soil borings.

c. No technical information was received relative to the adjustment of groundwater levels observed in monitoring wells to estimated seasonal high water table (ESHWT). As previously noted, test pits should identify redox features (i.e., mottles) to establish ESHWT, or alternatively, monitoring well data should be compared to regional USGS wells and adjusted accordingly for historical variation to estimate ESHWT.

On site soil testing will be performed by the Applicant and their representative at the time of the site demolition to determine soil mottles as stated above. The results will be submitted to the Town of Ipswich Planning Department. Any required revisions will be submitted to the Town of Ipswich Planning Department.

2. Standard 4 – The 'Operation and Maintenance Plan – Construction Phase' under the heading 'Spill Control and Response' (pages 21/22) states "…In the event of a spill, immediately notify the resident construction engineer…" It is unlikely that a 'resident construction engineer' will exist in the long term. Hence, the sentence should be revised to provide guidance relative to notification of appropriate agencies/departments.

The necessary guidance will be added to meet reviewer's comment.

3. Standard 9 – 'Operation and Maintenance Plan – Post Construction Phase'.

a. In response to a prior request for an estimate of annual budget costs associated with inspection and maintenance of the stormwater management system, the Applicant has proposed that the "…cost will be developed by the homeowner's association and their attorneys…." In my opinion, the initial operation and maintenance budget should be developed by the design engineer to provide a framework of expected costs and is a requirement under Standard 9 (refer to the MA Stormwater Handbook, Volume 1 Chapter 1) of the Stormwater Standards.

The Applicant, Attorney and design engineer will provide a framework of expected cost for the Operation and Maintenance Budget to meet reviewer's comment.

b. In response to a prior request for an Operation and Maintenance Log Form/Checklist, the Applicant has proposed that the "…log form will be determined by the homeowner's association and their attorneys…" In my experience, the log form/checklist is routinely provided as part of the Operation and Maintenance Plan, and prepared by the design engineer as the professional most familiar with the stormwater management design. As such, it is my opinion that the log form/checklist be provided as part of the submittal and list all individual stormwater management elements requiring inspection and/or maintenance.

We agree that this needs to be provided, but it will be provided as part of the Homeowners Association documents prior to receiving the first certificate of occupancy. This will be prepared

by the Applicant, Attorney and Engineer. This will allow the applicant to prepare in greater detail the Operation and Maintenance Plan including all inspection requirements.

Additional Items for Planning Board Consideration: If/when the Planning Board determines that this Application may be ready to be voted upon, the following suggestions are provided for consideration as potential conditions.

1. A summary report prepared by a professional engineer shall be submitted to the Planning Board documenting all excavation and fill activities conducted in association with the removal of existing fill material beneath and adjacent to the area occupied by stormwater infiltration areas (i.e., BMPs 1, 2, 3, 4, 5, and 6). The report should address the limits of excavation, quantity and composition of earthen material removed, depth of excavation, composition of new fill material placed, and the in-place permeability rate of new fill material placed. The report should also establish whether the work performed, and the new fill material placed, is consistent with the stormwater management design assumptions and the Massachusetts DEP Stormwater Handbook guidelines.

The applicant will provide a summary report to the Ipswich Planning Department.

2. The Applicant has proposed that the future condominium association will be responsible for operation and maintenance of an existing catch basin that is within the Town right of way and located near the southeasterly corner of the site (i.e., within the driveway of proposed Unit H). If this arrangement is acceptable to the Planning Board and the Town, the following is suggested:

a. During construction, the structure shall be inspected and repaired as needed to provide a sound structure containing a grease/oil trap and an appropriate sump depth.

b. During construction, the pipe shall be inspected and cleaned (if needed), and the pipe outfall shall be located and repaired (if needed).

c. Inspections and repairs shall be coordinated with the DPW Director.

d. The 'Operation and Maintenance Plan – Post Construction' shall specifically include routine inspection and maintenance of this structure.

e. Condominium Association documents shall be revised to reflect the terms of the use agreement with the Town.

The applicant will incorporate these requests into the project. (Items a-e).

3. Prior to the start of construction, the Applicant shall submit a Stormwater Pollution Prevention Plan (SWPPP) and the contractor's construction schedule, for review and approval by the Planning Board.

The applicant agrees to this condition.

4. Consistent with the stormwater management design, grading along the property line adjacent to land of Tzizik shall be conducted to ensure that no surface runoff will flow from the proposed site onto the Tzizik property.

The applicant agrees to this condition.

5. Patio, walkway, and driveway apron accent areas shall be constructed of permeable pavers, consistent with the assumptions made in the stormwater management calculations.

The plans currently reflect this requirement.

6. All roof runoff shall be conveyed to stormwater infiltration areas consistent with the assumptions made in the stormwater management calculations.

This will be shown in the as-built drawings which in turn become part of the final Homeowners Association documents as stated in the Post Construction Operation and Maintenance Plan.

7. A fully executed copy of the 'Illicit Discharge Compliance Statement' should be submitted for the Planning Board record.

The applicant agrees to this condition.

8. In accordance with MA DEP Stormwater Standard 9, the following items shall be addressed:

a. Prior to the start of construction, the Applicant shall designate the person(s) responsible for 'Operation and Maintenance - Post Construction' until such time as the Condominium Association is formed.

The applicant agrees to this condition.

b. Once a Condominium Association is formed, it shall provide the Planning Board with the name and contact information of the person(s) responsible for implementation of and compliance with the 'Operation and Maintenance Plan – Post Construction.'

The applicant agrees to this condition.

9. Condominium documents shall include a stormwater management section to specify that:

a. The Condominium Association acknowledges its obligation to perform stormwater inspection and maintenance in accordance with the 'Operation and Maintenance Plan – Post Construction' document, and its intention to appoint a person(s) responsible for insuring compliance.

The applicant agrees to this condition.

b. The Condominium Association agrees to provide suitable funding for performing the required inspections and maintenance of the stormwater management and drainage systems consistent with the 'Operation and Maintenance Plan – Post Construction.'

The applicant agrees to this condition.

10. Final landscape plantings within BMP areas 1, 2, 3, 4, and 6 shall be consistent with the MA DEP Stormwater Handbook recommendations and are subject to review and approval of the Planning Board.

The applicant agrees to this condition.

11. To ensure that construction of the drainage and stormwater management network is conducted in accordance with the design, an as-built plan of the completed project should be submitted to the Planning Board along with a report from the engineer of record indicating whether or not construction complies with the design intent. The as-built plan and engineering report should also be appended to the final version of the 'Operation and Maintenance Plan' prepared for the stormwater management system, for the property owner's future use and reference.

The applicant agrees to this condition.

12. The following documents are suggested to be incorporated as part of any Planning Board approval:

a. The ‘Operation and Maintenance Plan - Construction Phase’ and the Stormwater Pollution Prevention Plan (SWPPP) to identify actions and responsibilities relative to sedimentation and erosion control during construction.

The applicant agrees to this condition.

b. The ‘Operation and Maintenance Plan – Post Construction’ to provide guidance for the long term inspection and maintenance of the drainage and stormwater management systems and the long term management of the site.

The applicant agrees to this condition.

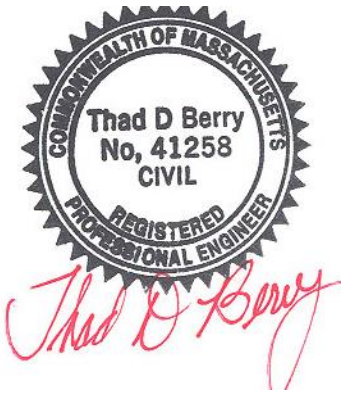
13. The Planning Board, on behalf of the Town, shall reserve the right to enter and inspect the premises to evaluate and ensure that the property is in compliance with the stormwater management design and ‘Operation and Maintenance Plan.’

The applicant agrees to this condition.

If you have any questions and or concerns, please feel free to contact me at 978-500-8419

Sincerely,

**ASB** design group, LLC
Thad D. Berry, P.E.
Principal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