

ASB design group

July 14, 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 June 15, 2022
Revision #8
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 June 23, 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)
- HydroCAD Print Out
- Photographs 1 and 2
- Operation and Maintenance Plan Construction and Post Construction Phase

Review Comments

Stormwater Management & Drainage

1. Previous comment regarding the proximity of groundwater elevation to the bottom of the stormwater infiltration areas (refer to the 'Initial Review - Stormwater' item 4) has been partially resolved with the presentation of observation well information on plan sheet C-6, however, all of the groundwater observations are based on well locations in the center/southeastern part of the site. It is requested that groundwater observations from location GZ-3 be submitted, noting that this location is closest to infiltration areas BMP 4 and BMP 5 (on the northwesterly portion of the site) and that the submitted boring log for GZ-3 indicates groundwater at 1.1 feet below ground (i.e., groundwater would be higher than the proposed bottom of BMPs 4 and 5). It is suggested that groundwater elevation adjacent to BMPs 4 and 5 be established based on observation well GZ-3.

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Response: *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 as a result of the soil testing shall be incorporated into the design and drawings/details.*

2. It was noted in the 'Initial Review' (dated March 25, 2022) that infiltration systems and rain gardens were located too close to building foundations and property lines (reference the 'Initial Review -Stormwater' item 8), and that portions of BMPs 4 and 5 are within 1 to 2 feet of the adjacent building foundations. In the second review, it was noted that the engineer's response was not persuasive, and that additional discussion was warranted. The proposed revision does not address or resolve this concern, nor does it comply with MA DEP Stormwater Handbook recommendations. It is again requested that the design engineer consider the following:

a. Provide measures that will limit the lateral movement of infiltrated runoff onto adjacent property or into the foundation drain system of adjacent buildings.

Response: *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.*

b. Engage a geotechnical engineer to determine what measures should be taken to protect against the stated concerns.

Response: *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.*

c. Modify the design to improve setbacks from buildings and property lines.

Response: *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.*

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

a. The calculations assert that no runoff will be generated from the proposed site onto land of Tzizik. Additional contours, spot grades, and/or flow arrows should be provided on plan C-3 (along the property boundary of Tzizik) to specify this intent.

Response: *Additional contours and spot grades were provided. See revised Sheet C3.*

b. The outlet structure used in the calculations for BMP 2 should be revised for consistency with the plans (or vice versa). The outlet is modelled as a pipe, however, the plan indicates that a grate will control the basin outflow.

Response: *The HydroCAD model of BMP#2 has been updated to reflect an 18” x 18” grate that will be used to control the outflow. Plan and HydroCAD has been revised – Sheet C3 and the HydroCAD Report.*

c. As noted in the 'Initial Review - Stormwater' items 5.a.i and 5.b, outlet characteristics (for BMPs 1 and 5) are based on 'free discharge.' In my opinion, this assumption does not account for tailwater impacts from the downstream piping and existing drainage works. Analysis should be based on dynamic tailwater, or the design engineer should demonstrate how a 'free discharge' analysis is appropriate at BMPs 1 and 5.

Response: *Our response to this comment will be the same that we presented to the Planning Board in the prior reviews. That is:*

- *The subject site is currently developed as a car wash with parking.*
 - *The entire site is disturbed with pavement, concrete, roof, and grass in poor condition.*
 - **A car wash is considered a Land Use with Higher Potential Pollutant Loads (LUHPPL) by the Massachusetts Department of Environmental Protection (MADEP).**
- *Currently there is a single catch basin on this site that falls within the Washington Street Right – of – Way. Under existing conditions, the stormwater flow generated from the pavement, car wash and roof area flows untreated directly to the drainage system (catch basins) located at the intersection of Mineral and Washington Street. The single catch basin on the site collects the stormwater runoff from the grassed area.*
- *Redeveloping the site to residential use will result in improved water quality without any additional stormwater mitigation.*
 - *Redeveloping the site will also result in a decrease in stormwater runoff (peak flow and volume) without any additional stormwater mitigation. This is due to the fact that there will be a decrease in the post development impervious surface of 4,069 s.f. (4206 s.f. – 137 s.f. (new impervious surface) = 4,069 s.f.).*

The proposed project will result in a decrease of stormwater runoff and volume when compared to existing conditions. The existing drainage system located in the roadways appear to adequately remove the existing peak runoff flows from the site as no flooding concerns were mentioned in any prior reviews or public meetings. Since the proposed design will decrease the peak runoff flows and volume it is reasonable to assume that existing system is more than adequate to handle the new “reduced” flows.

The comment that an “Analysis should be based on dynamic tailwater, or the design engineer should demonstrate how a ‘free discharge’ analysis is appropriate at BMPs 1 and 5” is

unnecessary because the free discharge provides the necessary information to assess the impacts.

Drain Manhole 1 connects to the existing Drainage Manhole. The existing Drainage Manhole receives the stormwater runoff from the existing Catch Basin in Washington Street.

Under present conditions the stormwater flow to the existing Drainage Manhole for the 2-year storm event is 1.06 cfs For the 10-year storm event is 1.69 cfs and for the 100-year storm event 2.69 cfs. Under proposed conditions it is 0 cfs for the 2-year storm event, 0.48 cfs for the 10-year storm event and 1.91 cfs for the 100-year storm event.

The post development drainage system drastically improves all aspects of the drainage in this area including the existing drainage system. Also, note that this project is considered a redevelopment under the Massachusetts Department of Environmental Protection's (MDEP) Standard 7 in the Stormwater Checklist.

“Standard 7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater 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 improve existing conditions.”

A Project can only be considered a redevelopment project under Standard 7 as outlined below.

“Redevelopment is defined to include:

- Maintenance and improvement of existing roadways, including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving.
- Development rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in **no net increase in impervious area**; and
- Remedial projects specifically designed to provide improved stormwater management, such as projects to separate storm drains and sanitary sewers, and stormwater retrofit projects.”

This project results in a decrease in impervious surface.

Site History

The Site is located on the north side of Washington Street in Ipswich, Massachusetts. A portion of the Site is currently occupied by a carwash and vehicle detailing facility. The portions of the Site not occupied by buildings are improved with paved parking and limited landscaping. The northern and eastern perimeter of the Site is tree lined; a portion was formerly used as a rail spur.

The use of the Property dates back to at least 1887 as recorded by Sanborn Fire Insurance Maps depicted as a residential dwelling with a detached stable and “G.B. Browns Grist Mill” and “Hay and Grain Storage.” A rail spur track transects the northeastern portion of the property in a northwest-southeast orientation.

By 1907 the grist mill had been replaced by “Ipswich Hardwall Plaster Co.”

In 1916, the stable is no longer depicted, and the eastern extent of the Property had been developed with two (2) new buildings, depicted as “F.L. Burke & Son Leather Storage” and “Dustbane Manufacturing Co.”

By 1929, the residential dwelling had been replaced with a commercial structure depicted as “R.W. Burnham Antiques.”

By 1944, the Property is identified as 15 – 19 Washington Street and the antiques building is now depicted as “Northeastern Supply Co” and “Poultry Supplies.” By 1961 the former “Dustbane Manufacturing Co” is now depicted as “Building Supplies Warehouse.” The City Directory Search confirms the use as “Dustbane Manufacturing Co. Inc.” during 1953, and “Northeastern Supply Co Inc.” from 1953 – 1960, “Jim’s Auto Installations & Detailing Center” from 1995 – 2014 and “TNT Car Wash” in 2014.

The current Property owner purchased the Property in 1988 and informed CSE the Property was previously used as a retailer of swimming pool chemicals prior to a fire which destroyed the associated structures, and the car wash facility was constructed in 1984.”

This site most certainly fits the definition of a Redevelopment in just about every context. The proposed project will not only redevelop the entire site on the surface, but below grade as well. Fill placed on the site over its history will be removed and replaced with granular fill as required.

d. The hydraulic model of 6 inch pipes at CBs 2 and 3 state that “a factor of 3.00 has been applied to the storage and discharge capacity.” The design engineer should explain this part of the model as the plans indicate no reason for such an increase. It is also noted that the output generates a flow width greater than the pipe diameter, which would imply a modelling error.

Response: *Each catch basin has 3-6” PPVC pipes that allow the stormwater to leave the catch basin and then flow into the infiltration stone bed. We were simply modeling that movement of stormwater.*

e. The transition from 12 inch pipe to 6 inch pipe entering BMP 1 creates a hydraulic restriction that is not accounted for in the calculations. It is suggested that the 12 inch pipe be connected directly to the NDS CB 1, or that calculations be revised to model the pipe reduction.

Response: *We have to agree to disagree with this suggestion. The transition goes from a 12”*

pipe to a 6" PPVC pipe as detailed on Sheet C6. Once the stormwater runoff reaches the 6" PPVC it will begin to infiltrate into the stone infiltration system and will utilize that portion of it. The fact that it transitions to a 6-inch PPVC pipe is noted on Sheet C6. This is exactly what the design is intended to accomplish.

f. At the modular retaining wall within BMP 1, identify measures that will be taken to prevent the lateral migration of runoff through the wall and onto the MBTA property.

Response: *The wall will be concrete, and the plans have been updated accordingly.*

4. Several coordination issues were identified between the plans and stormwater calculations. A comprehensive quality control check is suggested prior to submission of revised plans and calculations. Items include but are not necessarily limited to the following.

a. On the plans, identify spillway locations, dimensions, and crest elevations for BMPs 1, 2, 3, 4, and 6, consistent with the calculations.

Response: *The plans have been revised for BMP#6 and the information is shown on Sheet C6. However, BMP#1, 2, 3, and 4 have no discharge from the weir during the 2, 10, or even 100-year storm events.*

i. It should be noted that the spillway from BMP 1 is calculated to flow towards Washington Street, which does not appear to be feasible based on the proposed site grading. If the spillway is allowed to overflow onto MBTA property, it is anticipated that post development runoff onto MBTA property may be increased for high return storms.

Response: *Overflow weirs were provided in BMP#1 as shown on Sheet C6 and are directed towards the MBTA property. However, there is no discharge from the weir during the 2, 10, or even 100-year storm events. See Revised Sheet C6 and HydroCAD Report. All stormwater runoff generated from this area flows to Washington Street drainage system.*

ii. It is also noted that the spillway from BMP 3 is calculated to flow towards EBSCP property, however, it is not clear how this will occur, based on the proposed site grading.

Response: *This is incorrect – the plans show the discharge going towards Washington Street and HydroCAD Model lists Washington and EBSCO Industries as a Link to show impacts to the existing catch basin. Again, no discharge from the spillway will occur during the 2, 10, or even 100 year storm events, please see the HydroCAD Report.*

b. On plan C-6, coordinate top/bottom of stone elevation for BMPs 1, 2, 3, 4, and 6 with the elevations used in the calculations.

Response: *The top and bottom of stone elevations have been coordinated between sheets C6 and the HydroCAD model. See revised plans and HydroCAD Report.*

c. Perimeter grading of BMPs 2, 4, and 6 should be supplemented on the plans to specify grading that will contain the calculated 100-year peak storm elevation.

Response: See *HydroCAD Report and Sheets C3 and C6.*

d. Clarify the location of contours 28, 29, and 30 within BMP 1, and specify the top and bottom of the proposed retaining wall.

Response: *Contours 28 and 29 will follow the wall as shown. See the revised Sheet C3 and C6.*

e. Provide contour 30 within BMP 3 to reflect the assumed area used in the calculations.

Response: *See the revised Sheet C3.*

f. On plan C-3, call out permeable patio, walkway, and driveway apron areas to reflect the design intent and areas used in the calculations.

Response: *The permeable patio – walkway – and driveway areas are hatched, and the limits are shown and labeled on Sheet C3.*

g. Coordinate the pipe sizes and invert elevations contained on the plans (Drainage Data table on Plan C-3) with the information used in the calculations. Several discrepancies were found.

Response: *See the revised Sheet C3 and HydroCAD Report.*

h. Revise pre and post development watershed maps to identify all catchment areas and properly designate all design points, consistent with the calculations.

Response: *See the revised Water Shed Maps.*

i. Add a note to plan C-3, specifying that ‘all roof runoff shall be conveyed to the infiltration systems in accordance with the stormwater management calculations.’

Response: *This note is shown on Sheet C6 in the proper location under the Roof Drainage: Gutters and Down Spouts Detail.*

5. BMP 2 is proposed to overflow into an existing catch basin located within the right of way near the southern corner of the property. Furthermore, the design engineer’s ‘response to comments’ proposes that the future condominium association will be responsible for operation and maintenance of this structure. If this arrangement is acceptable to the Town, it is strongly suggested that the following notes be added to the plans and documents:

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 for the stormwater system should include inspection and maintenance of this structure.

e. The condominium documents should reflect the terms of the agreement with the Town.

Response: *Notes will be added to Sheet C6 and see Photograph #2.*

6. Exception is again taken to the proposed use of 30 inch diameter drain manholes within the main drainage system. The proposed diameter does not enable reasonable access within the manhole for maintenance. Standardly, 48 inch diameter manholes are used for road and parking lot drainage systems. The 48 inch diameter structures are suggested for use here.

Response: *The deepest 30" diameter drain manhole is less than 5' deep (4.85'). To access and clean you just need to remove the cover. With such a shallow depth there is no need to enter the manhole. In actuality the 30" diameter manhole is easier to clean and maintain and that is why it was selected.*

DEP Stormwater Management Standards: Comments 2, 3, 4, 5b, 6, and 7 as contained in the initial (Task 1) review dated March 25, 2022 and as also noted in the second (Task 2) review dated May 18, 2022, continue to remain unaddressed by the design engineer's responses.

2. Standard 3 – Calculations were not provided for a mounding analysis. Since the infiltration systems are located closer than 4 feet to groundwater level, a mounding analysis is required.

a. It is further noted that groundwater level appears to be based on monitoring well observations. Estimated seasonal high water table (ESHWT) should be provided, based on soil redox features (mottles) or alternatively the monitoring well data should be compared to regional USGS wells and adjusted accordingly.

Response: *Prior to 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 as a result of the soil testing shall be incorporated into the design and drawings/details. Groundwater mounding calculations will also be provided by the Geo-Technical Engineer in reference to all BMP's.*

Prior to 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 as a result of the soil testing shall be incorporated into the design and drawings/details.

3. Standard 4 – Provide a Long Term Pollution Prevention Plan (LTPPP) which addresses all topics contained under 'Standard 4' in the 'Checklist for Stormwater Report.'

Response: *These are all addressed in the Operation and Maintenance Plan. See Operation and Maintenance Plan.*

4. Standard 8 - The 'Operation and Maintenance Plan - Construction Phase' should be revised to provide the following items:

a. Specify need for erosion control around perimeter of stockpile areas.

Response: See Revised Operation and Maintenance Plan.

b. Add a note that if the site remains idle for a period of more than 30 days, disturbed areas shall be hydroseeded (per Town Stormwater Management Permit Regulations).

Response: See Revised Operation and Maintenance Plan.

c. Construction sequencing and identification of the person/entity responsible for plan implementation and compliance are specified to be provided by the Contractor at a later date. It is suggested that this information be provided as part of the application.

Response: A typical construction sequence is provided. However, when a contractor is selected, they are responsible for the means and methods needed for construction. A revised detailed construction schedule will be provided which is specific to their construction phasing. It will be provided to the Town of Ipswich for review and approval. See Revised Operation and Maintenance Plan.

d. Include provisions for dust control during construction.

Response: See Revised Operation and Maintenance Plan.

e. Provide an Inspection and Maintenance Log Form.

Response: A typical Construction and Maintenance Inspection form has been provided. The maintenance log form will be determined by the homeowner's association and their attorneys and will reference the Post Construction Operation and Maintenance Plan. See Revised Operation and Maintenance Plan

5. Standard 8 – Plan items:

a. Include a note on the plans referencing the requirements of the 'Operation and Maintenance Plan – Construction Phase' and the SWPPP.

Response: See Revised Operation and Maintenance Plan and Sheet C1.

b. Portions of the existing and developed site are graded to runoff towards both Washington and Mineral Streets. As such, additional erosion barriers should be specified along the project frontage.

Response: See Revised Operation and Maintenance Plan and a note has been added to Sheet C3.

6. Standard 9 – Address and coordinate the following items in the 'Operation and Maintenance Plan – Post Construction Phase':

a. Under the heading 'Permanent Operation and Maintenance Items,' two additional items should be added. The first item should specify the obligation of the 'association' to appoint a person, group, or other entity that will be responsible for implementing inspection and

maintenance contained in the plan, and provide that information to the Planning Board. The second item should specify the obligation of the 'association' to provide suitable funding to perform the requisite maintenance and inspection.

Response: *See Revised Operation and Maintenance Plan. Any additional items will be addressed by the condo association and their attorneys such as funding.*

b. Revise the inspection interval for catch basins to be consistent with MA DEP Stormwater Handbook recommendations (i.e., inspect four times per year).

Response: *See Revised Operation and Maintenance Plan.*

c. An item should be included to reference the design plan of record and the 'as-built' plans for the project.

Response: *See Revised Operation and Maintenance Plan.*

d. Provide estimated annual costs for anticipated inspection and maintenance of the stormwater management system.

Response: *Annual cost will be developed by the homeowner's association and their attorneys as part of their final condominium documents.*

e. Expand on the inspection and maintenance narrative for the 'Infiltration System' and the 'Rain Garden.' In particular, specify the number of each type of stormwater best management practices, and elaborate on what inspection/maintenance items should be performed for the 'Infiltration Systems.'

Response: *This section has been added please see Revised Operation and Maintenance Plan.*

f. Include inspection/maintenance of drain manholes.

Response: *See Revised Operation and Maintenance Plan.*

g. Include inspection/maintenance of pervious walkways and patios on site, to ensure that they are functioning as intended (and as assumed in the calculations).

Response: *See Revised Operation and Maintenance Plan*

h. Provide an Operation and Maintenance Log Form for the overall system. Include line items for each element, and each system, described in the document.

Response: *The maintenance log form will be determined by the homeowner's association and their attorneys and will reference the Post Construction Operation and Maintenance Plan. See Revised Operation and Maintenance Plan.*

7. Standard 10 – Provide a signed and fully executed Illicit Discharge Compliance Statement that speaks directly to the presence of any existing or proposed illicit discharges at the project site.

Response: See Revised Operation and Maintenance Plan - Illicit Discharge Compliance Statement

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

