HANCOCK
ASSOCIATES
Surveyors | Engineers | Scientists

23892

March 10, 2022

Zoning Board of Appeals
Town of Swampscott
22 Monument Ave.
Swampscott, MA 01907

Re: 1 Elm Place, Swampscott, MA

Dear Chairman,

On behalf of the Petitioner, Swampscott Housing Limited Partnership, please review our responses to the Peer Review Letter prepared by VM Consulting Engineers, LLC , dated February 11, 2022, concerning the sewer, water and stormwater infrastructure proposed by the Petitioner in the "Elm Place" civil plans and engineering design documents, submitted to the Town of Swampscott, September, 2021.

In the detailed responses below, we have categorized our responses as discussed in our meeting on February 23, 2022 based upon three main categories:

1. Matters which we suggest could be included as Conditions of Approval where the conditions would require final details to be incorporated into the Final Plans after the issuance of the Comprehensive Permit, but before a certain milestone such as a building permit or certificate of compliance**.**

2. Matters which could include be included as condition within the Comprehensive Permit which requires adherence to Standard Construction Means and Methods, as well as DPW and other Town Standards.

3. Comments which can be reflected in a future set of revised plans prior to Comprehensive Permit issuance.

Our ***RESPONSES*** are ordered in the same order listed in the February 11, 2022, letter from VM Consulting Engineers, LLC as follows:

SEWER:

1. 1 Elm Place will add 66 gpm (peak flow) to the sewer. *66 gpm is based on 168 proposed bedrooms at Elm Place, 110 gpd/bedroom and a peaking factor of 5.5.*

   The 8-inch sewer in Essex Avenue currently receives flow from approximately 300 existing parcels, 14,000 linear feet of sewer and the Swampscott High School. Based on wastewater flow estimates, the existing 8-inch sewer is at capacity. Therefore, the existing 8-inch sewer in Essex Avenue cannot accommodate an additional 66 gpm of wastewater peak flow from 1 Elm Place. Further discussion between the Town and the Developer is required to determine necessary sewer infrastructure upgrades to accommodate the additional flow.

RESPONSE: Proposed sewer connection has been revised to connect to the existing SMH in Pitman Road. See revised plans. The Developer has scheduled flow monitoring of the sewer in Burrill Street to better understand peak flows. The monitoring will include a period involving a rain event. Once this information is obtained, Hancock will share with the Board and its peer review consultant to determine sewer capacity more accurately in the Burrill Street sewer.

   To facilitate the discussion, we recommend that the Developer conduct a closed-circuit television (CCTV) inspection of the existing 8-inch sewer in Essex Street from the intersection of Burpee Road

600-feet southwest to Burrill Street, and the existing sewer in Burrill Street 500-feet south to the intersection of Columbia Street. Footage from the inspection shall be delivered to the Town for their review.

RESPONSE: Proposed sewer connection has been revised to connect to the existing SMH in Pitman Road. See revised plans. Applicant proposes to provide CCTV of these sewer mains in Burrill Street. Results of these field testing will be shared with the Board and its peer review consultant.

2. Provide sewer inverts.

RESPONSE: See revised plans attached. Sewer invert provided at Pitman Road.

3. Provide sewer profile. Provide existing and proposed sewer inverts. Include slope of proposed sewer service. Show intersecting utilities and physical obstructions in the sewer profile. Provide stationing.

RESPONSE: Sewer profiles and stationing are beyond the details required for preliminary plan requirements under the comprehensive permit regulations, 760 CMR 56.05. Sufficient information has been provided for the level of review envisioned in such regulations. We would welcome a Condition of Approval to be included in the Comprehensive Permit requiring the Final Plans to include sewer profiles with details adhering to Town Standards.

4. All sewer infrastructure shall adhere to Town's standards. Provide details and technical specifications for sewer infrastructure, including sewer manhole, pipe trench construction, sewer services, sewer cleanout.

RESPONSE: We would welcome such a Condition of Approval of the Comprehensive Permit. Details will be provided with Final Plans adhering to Town Standards.

5. Use manholes instead of cleanouts in the public way.

RESPONSE: Sewer cleanouts have been eliminated. See revised plans.

6. Provide a maintenance plan for sewer cleanouts including identification of the party responsible for operation and maintenance of the sewer cleanouts.

RESPONSE: Sewer cleanouts have been eliminated. See revised plans.

7. Provide detail to show how proposed 8-inch sewer service will be cored into the sewer manhole in Pitman Road.

RESPONSE: As recommended, a detail will be included in the revised plan set to be submitted prior to the April Zoning Board hearing date.

8. Provide existing and proposed inverts in the Pitman Road sewer manhole.

RESPONSE: See revised plans.

9. Confirm that the sewer manhole in Pitman Road can receive an 8-inch sewer service without compromising the structural integrity of the manhole.

RESPONSE: We would welcome a Condition of Approval to be included in the Comprehensive Permit requiring an inspection and assessment of the condition of the existing sewer manhole. The Developer will work with the Swampscott Public Works Department to ensure the manhole is not compromised.

10. Provide detail for proposed three-way connection of the discharge from the oil/grease separators / catch basins to the new 8-inch sewer service.

RESPONSE: The oil/grease separators and garage drains are depicted on the plans to show the intent of providing separators as required by the Massachusetts Plumbing Code. Final Plans prepared by the Project Plumbing Engineer will depict final layout in accordance with the Plumbing Code. We would welcome a Condition of Approval to be included in the Comprehensive Permit.

11. Provide proposed wastewater flow from the oil/grease separator.

RESPONSE: The flow anticipated to the garage drains will be from rain and snow melt on cars entering the garage and should be considered de minimus. Final sizing of the garage drains will be done by the Project Plumbing Engineer in accordance with the Massachusetts Plumbing Code and will be included in Final Plans.

12. Provide size and material of sewer south tying directly into 8-inch VC over 5-inch VC flowing south in Pitman Road (Oil/Grease Separator Sewer Tie-in, no proposed manhole, no sewer slope and/or profile, no detail of this sewer tie-in).

RESPONSE: See revised plans. This connection has been eliminated. All building Oil/Grease separators now outlet to a single pipe to the existing sewer manhole within Pitman Rd.

13. Proposed sewer should intersect existing sewer with a smooth transition (wye instead of a tee) to reduce turbulence and potential corrosion in the manholes.

RESPONSE: As recommended, a detail will be included in the revised plan set to be submitted prior to the April Zoning Board hearing date.

WATER:

1. Provide drinking water demand for 1 Elm Place.

RESPONSE: Water demand is 18,480 gallons per day based on Title 5 anticipated flow of 110 gallons per day per bedroom.

2. All water infrastructure shall adhere to the Town's standards. Provide details and technical specifications on water main design including trench, hydrant, gate valve, water service, bends, push-on and mechanical joint restraints, thrust blocks.

RESPONSE: We would welcome a Condition of Approval to be included in the Comprehensive Permit requiring such details adhering to Town Standards be included on Final Plans.

3. Provide stationing.

RESPONSE: We would welcome a Condition of Approval to be included in the Comprehensive Permit requiring such details adhering to Town Standards be included on Final Plans.

4. Water service length should be minimized. In the proposed design, the service for 1 Elm Place is tapped off the water main in Essex Street. This creates an undesirable parallel water main in Pitman Road, until the service enters the building approximately 60 feet down Pitman Road. The service for 1 Elm Place should either enter the building on Essex Street, or the service connection should be moved onto Pitman Road and the Pitman Road main upgraded from 6-inch to 8-inch to the location of the new service.

RESPONSE: See revised plans. The building water services for both fire and domestic have been moved to a single tee connection to the existing 6" water line within Pitman Road. The location where the water services enter the building has been moved to a location immediately adjacent to Pitman Road to ensure no parallel water main issues.

5. Fire hydrants must be in the public way and hydrant lateral lengths should be minimized. Therefore, the proposed hydrant should be fed from Elm Place, not Essex Street. To accommodate the new hydrant, the existing 2-inch water main in Elm Place should be upgraded to 8-inch.

RESPONSE: The proposed private hydrant has been removed from the plans and the Fire Department is reviewing this revision. There is a fire hydrant within 55' of the Fire Department Connection (FDC).

6. Cut into existing water main instead of using tapping sleeve and valves.

RESPONSE: See revised plans.

7. Show proposed bends in water main.

RESPONSE: See revised plans. The bends have been eliminated.

8. Water main must use field-lok gasket push-on joint restraints. All mechanical joints must be restrained with Mega-lugs.

RESPONSE: We would welcome a Condition of Approval to be included in the Comprehensive Permit requiring such details adhering to Town Standards be included on Final Plans.

9. Provide detail of connection into 8-inch main in Essex Street. Include elevations and intersecting utilities.

RESPONSE: Estimated elevations and intersecting utilities will be provided as part of the Construction Documents. We would welcome a Condition of Approval to be included in the Comprehensive Permit requiring such details adhering to Town Standards be included on Final Plans.

10. Provide detail for cutting and capping existing water services in Pitman Road and Essex Street. Services must be shut off at the corporation and inspected by the Town.

RESPONSE: We would welcome a Condition of Approval to be included in the Comprehensive Permit requiring services to be shut off at the corporation and inspected by the Town.

STORMWATER:

1. Table 1B.1 – Site Criteria for Infiltration Basins of the Chapter 2 of the Massachusetts Stormwater Handbook states, "One soil sample for every 5,000 feet of basin area is recommended, with a minimum of three samples for each infiltration basin. Samples should be taken in the actual location of the proposed infiltration basin so that any localized soil conditions are detected." None of the borings were performed where the proposed stormwater treatment unit is sited. Please clarify.

RESPONSE: Preliminary borings were conducted at the site of the proposed building and 8' to groundwater was used for the preliminary design of the infiltration system. Further on-site testing will be conducted prior to final design to observe ground water and review soils samples in order to confirm the design. The design will be modified as may be needed based upon the new sampling data gathered. We would welcome such a Condition of Approval to be included in the Comprehensive Permit.

2. Provide the seasonal high groundwater elevation at the site.

RESPONSE: Preliminary borings were conducted at the site of the proposed building and 8' to groundwater was used for the preliminary design of the infiltration system. Further on-site testing will be conducted prior to final design to observe ground water and review soils samples in order to confirm the design. The design will be modified as needed. We would welcome such a Condition of Approval to be included in the Comprehensive Permit.

3. The borings were performed in August 2020. Seasonal groundwater levels are typically low in August. Is there any groundwater data available from the spring season?

RESPONSE: No additional testing was performed on-site. On-site testing will be conducted prior to final design and the design will be adjusted as needed to meet the Massachusetts Stormwater Management Best Practices. We would welcome such a Condition of Approval to be included in the Comprehensive Permit.

4. Provide details of the Stormtech chambers with inverts. Show groundwater elevation.

RESPONSE: As recommended, a detail will be included in the revised plan set to be submitted prior to the April Zoning Board hearing date.

5. The function of the Stormtech chambers depends on the elevation of the weir in the manhole proposed at the southeast corner of the Stormtech system. Will this weir be in a standard drain manhole or a non-standard drainage structure? How will the weir be constructed? Please provide a detail and specification for this manhole/structure. Show the weir and orifice elevations, and inverts in the detail.

RESPONSE: This drain manhole is a standard manhole and is an outlet control structure. The contractor will form the weir wall within the structure as is a standard practice. The weir wall will have a capped orifice for emergency drawdown. DMH details will be incorporated into the Final Design Plans. We would welcome such a Condition of Approval to be included in the Comprehensive Permit.

6. Describe the purpose of the orifice in the drainage manhole/structure at the southeast corner of the Stormtech system.

RESPONSE: The purpose of this orifice is an emergency drawdown orifice. A screw cap will be applied so that the orifice is closed in general operations, only being used to draw down the system for maintenance. DMH details will be incorporated into the Final Design Plans. We would welcome such a Condition of Approval to be included in the Comprehensive Permit.

7. The south invert into the 6-foot drain manhole is 27.9, which is lower than the manifold elevation of 28.40. The 20-feet of HDPE drainage pipe feeding this south invert will not fully drain; it will always contain about 6-inches of water. Please clarify.

RESPONSE: This pipe inlets into the isolator row at 27.9, which by design is the lowest inlet into the infiltration system to capture the first flush and treat this runoff. Then the rest of the stormwater will fill and outlet simultaneously at elevation 27.9 and 28.40 and infiltrate throughout the system. As the storm stages and ends, the pipe will draw down with the infiltration system.

8. Is there a hydraulic grade line calculation for the drainage in the 40S catchment area?

RESPONSE: The Hydrocad modelling software utilized a dynamic modelling algorithm which models stormflow over time, therefore since the system is never at an equilibrium, there is no single Hydraulic Grade Line (HGL) for the system. Per Hydrocad FAQ section "Determining the HGL traditionally involves a steady-state analysis, with the entire drainage system at equilibrium. Since hydrograph routing models are handling a time-varying flow, there is no single HGL for the system. However, the

peak elevation calculated at each node can be used as the effective HGL." Therefore, the peak staging elevations provided in the Hydrocad output can be used in lieu of a single HGL.

9. Provide a detail for the 6-foot drainage manhole. Show the five inverts into the manhole. Also, please show that there will be sufficient space between the pipes to maintain the structural integrity of the manhole.

RESPONSE: As recommended, a detail will be included in the revised plan set to be submitted prior to the April Zoning Board hearing date.

10. Provide details and technical specifications for drainage infrastructure including trench construction, drain manhole and catch basin.

RESPONSE: We would welcome such a Condition of Approval to be included in the Comprehensive Permit that these details be included in the Final Plans.

11. 15-inch drain from Stormceptor will be buried below parking garage in the building. Provide information on how the owner will access the pipe for service and confirm that the pipe will have sufficient cover for traffic load.

RESPONSE: Owner will access this drain through manholes. Trench detail will be provided to specify H-20 loading over the pipe. We would welcome such a Condition of Approval to be included in the Comprehensive Permit providing that these details be included in the Final Plans.

12. Create smooth flow transitions in the stormwater system (wyes), instead of 90-degree pipe intersections at manholes (tees).

RESPONSE: Final Plans will provide details in accordance with industry standards and manufacturer recommendations. We would welcome such a Condition of Approval to be included in the Comprehensive Permit providing that these details be included in the Final Plans.

13. In the Standard 3: Recharge section of the Elm Place Stormwater Report, a drawdown time of 116 hours is given. It could be that 116 hours is a typo, as it looks like drawdown time was calculated to be 10.3 hours. Please clarify.

RESPONSE: This was a typo. The drawdown time is 10.3 hours. The Stormwater Report will be revised based on the Final Plans. We would welcome a Condition of Approval to be included with the Final Plans after the Issuance of the Comprehensive Permit. Details will be provided and adhere to Town Standards.

14. Provide more information on the decision to not include the groundwater depth found in boring B-8 in the stormwater design calculations. The Stormwater Report states, "the observation of groundwater was performed immediately following drilling utilizing the wet rotary method due to time constraints and may not be valid."

RESPONSE: Please find attached the full report from McPhail Associates. Groundwater was only observed at borings:

B-3 – 8.5'
B-7 – 8'
B-8 – 4'

And noted in the report:
"It is noted that the observation of groundwater within B-8 (a depth of 4 feet below existing ground surface corresponding to Elevation +28.1) was performed immediately following drilling utilizing the

wet rotary method due to time constraints. As such, this level may not be indicative of groundwater levels at the site."

The 4' depth was disregarded as this was taken immediately after drilling using the wet rotary method, which utilizes jets of water to facilitate the drilling. As the method introduces water into the hole, generally filling and flowing out the top during the process, time is required after drilling for the water in the hole to infiltrate and stabilize to groundwater levels. As the depth was taken immediately after the drilling, it is likely that the boring was still full of the water that was pumped into it as opposed to groundwater.

Further Testing will need to be conducted prior to final design to observe ground water and review soils samples. These locations are not in the vicinity of the Infiltration basin as the location was not determined at the time of the preliminary testing. On-site testing will be conducted prior to Final Design Plans. The design will be modified to meet the Massachusetts Stormwater Management Best Practices. We would welcome such a Condition of Approval to be included in the Comprehensive Permit.

15. Is there any stormwater treatment proposed for the 60S catchment area?

RESPONSE: No additional treatment is proposed for this catchment area as the runoff from this catchment enters the existing Pitman Rd. catch basins.

GENERAL:

1. Provide pavement repair detail and provide specifications.

RESPONSE: As recommended, a detail will be included in the revised plan set to be submitted prior to the April Zoning Board hearing date.

Please let us know if you have any questions or require clarification.

Sincerely,

Deborah L. Colbert

Deborah L. Colbert, P.E.

cc. Gino Cresta, Jr., Swampscott Director of Public Works
Victoria Masone, VMCE
Angela Gile, Project Director, Winn Development Company Limited Partnership

Attachments:
Revised Utility Plan
McPhail Associates Geotechnical Report