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October 11, 2022

Hingham Planning Board  
210 Central Street  
Hingham, MA 02043

Subject: **261 Gardner Street – Definitive Subdivision**

Dear Board Members:

At Mr. Silveira's request, we have reviewed the following documents pertaining to the proposed definitive subdivision at 261 Gardner Street:

- Definitive Subdivision Plan (16 sheets), revised September 30, 2022, prepared by Civil Design Group, LLC (CDG)
- Stormwater Management Report, revised September 2022, prepared by CDG
- Cut/Fill report, dated July 8, 2022, prepared by CDG
- List of Major Changes letter from CDG, dated October 4, 2022
- Water Service Approval letter from Weir River Water System, dated September 13, 2022
- Cost Estimate letter from HMLP, dated August 4, 2022
- Email from Mr. Silveira to the Applicant, dated October 3, 2022

The purpose of our review has been to evaluate conformance with the Hingham Zoning Bylaw (ZBL), Planning Board Rules and Regulations (R&R), MassDEP Stormwater Management Standards (SMS) and good engineering practice.

## **Background**

The 4.05± acre site contains an existing single-family dwelling, a number of outbuildings, paved driveways, a garden, lawn areas and wooded area. The property is located within the Residence B Zoning District and the Accord Pond Watershed and Hingham Aquifer Protection overlay district. The proposed definitive subdivision would create five new lots, a drainage lot and four residential lots, one of which would contain the existing dwelling which is to be renovated. There is an existing access and utility easement on the property which contains the driveway and utility lines for the dwelling at 265 Gardner Street. Access and utilities for 265 Gardner Street will be provided by the proposed subdivision road and infrastructure.

The proposed roadway would be a 283± foot long dead-end cul-de-sac roadway off Gardner Street. The road would be a "Limited Residential Street" with twenty-two foot wide travel way, vertical granite curbing and grass strips located within a forty-foot wide right-of-way. No sidewalk is proposed and it is not required on Limited Residential Streets.

The stormwater system would consist of catch basins, drain manholes, high-density polyethylene (HDPE) pipe, a hydrodynamic separator and a subsurface infiltration system consisting of plastic chambers surrounded by crushed stone. Roof runoff from the proposed dwellings on Lots 2, 3 and 4 would be directed into subsurface infiltration systems also consisting

of plastic chambers surrounded by crushed stone. Each dwelling would be served by individual on site subsurface sewage disposal systems. Water service would be provided by new 6-inch ductile iron watermain connected to the Town's distribution system in Gardner Street. Natural gas service would be provided by a new gas main connected to the existing gas main in Gardner Street. Electric, telephone and CATV utilities would be located underground and connected to an existing utility pole in front of the property.

### **Comments**

#### **Compliance with the Planning Board Rules and Regulations**

1. We note that no waivers have been requested from the Planning Board Rules and Regulations.
2. R&R §3.C.2(a) requires the vertical datum (NAVD 1988) and two permanent benchmarks to be shown on the plan. No benchmarks are shown on the plans and notes on Sheet 2 indicate that elevations are based on the datum reference used on the Existing Conditions plan. However, there is no datum referenced on the Existing Conditions plan (Sheet 3).
3. R&R §3.C.2(l) requires that all existing street trees over one foot in diameter to be shown on the plans. Proposed size, type and species of proposed trees are also required to be shown on the plan. Proposed street trees and a ten foot wide street tree planting strip should be in accordance with R&R §5.B4
4. R&R §4.B(2)(a) requires streets to provide access to all lots in the subdivision. Proposed Lot 1 would not be accessed by the proposed street.
5. R&R §4.B(3)(a) and Table 1 requires a twenty foot wide travel way and twelve inch Cape Cod berms on a Limited Residential Street. As noted above, the proposed travel way will be twenty-two feet wide with vertical granite curbing on each side.
6. Table 1 also requires that the binder course of pavement be 3-inches thick and the sub-base gravel be 24-inches thick. The Typical Bituminous Pavement Detail on Sheet 13 shows 2.5-inches of binder and 12-inches of gravel sub-base.
7. R&R §4.B(4)(b) requires sloped granite curbing around the inside island of a cul-de-sac turnaround. Vertical granite curbing is proposed.
8. R&R §4.C(1) prohibits "retention or direct subsurface discharge of storm water." The proposed stormwater system is designed to retain and infiltrate all runoff from impervious surfaces on site. We believe this to be a benefit, however, an emergency overflow connection from Subsurface Infiltration System SIS-1 (the system associated with the roadway collection system) to the municipal stormwater system in Gardener Street should be considered. Should an overflow be provided, we recommend a manhole with either an internal weir structure or the invert out of the manhole set above the 100-year storm peak elevation of 146.32.

9. R&R §4.E requires that all stormwater management structures for detention and/or retention be open basins constructed of natural earth material with loam and seed surface. The proposed stormwater retention/infiltration structure is a subsurface structure. We note that via email sent to Ms. Wentworth on September 9, 2022, we suggested that the Applicant's engineer consider a rain garden in the center of the cul-de-sac with an overflow connection to the Town's drainage system. The Applicant's engineer responded to our email on September 14<sup>th</sup> advising that they would consider the suggestion but we did not receive any feedback as to why this option was ruled out.
10. The Water Service Approval letter from Weir River Water System indicates that there is adequate water supply for domestic use but R&R §4.L(6) also requires documentation that there will be a minimum of 1,000 gallons of water per minute at the proposed fire hydrant. Documentation should be provided to verify this. The Water Service Approval letter specifies that the hydrant is to be positioned off the outside of the cul-de-sac turnaround between Lots 3 and 4. The letter also requires that the connection to the existing water main in Gardner Street be a tee cut in with a three valve cluster.
11. R&R §4.L(7)a. requires a ten foot wide electric easement around all Hingham Municipal Lighting Plant (HMLP) infrastructure. The Applicant should coordinate with HMLP as necessary and the easements should be shown on the definitive plan.
12. R&R §5.L1(4) requires HDPE drain pipe to have rubber gaskets. The Typical Drain & Sewer Trench Detail on Sheet 15 should specify rubber gaskets for the drain pipe.
13. R&R §5.L1(5); §5.R1(22) and §5.T3(6) require granite curb inlets at all catch basins. A detail of the curb inlets should be provided.
14. R&R §5.R1(6) requires catch basins to be five feet in diameter and 8'-6" deep. The proposed catch basins are four foot diameter with a four foot sump, which is MassDOT and industry standard.
15. R&R §5.Q1(1) requires drain manholes to have bricked inverts. This should be specified on the Typical Drain Manhole Detail on Sheet 14.
16. R&R §5.X1(1) requires frames on catch basins and drain manholes to be set in a full bed of mortar with a maximum of four and minimum of two courses of bricks for adjustment to finish grade. The catch basin and manhole details on Sheet 14 should be modified to comply with this requirement.
17. R&R §5.U3(3) requires the reveal of vertical granite curb to be 7-inches  $\pm$   $\frac{3}{4}$  inch. The Typical Vertical Granite Curb Detail on Sheet 13 should be revised to specify this.
18. There should be a loam and seed detail and/or the typical cross-sections and details on Sheet 13 should specify a minimum of six inches of loam in accordance with R&R §5.A4(3).

19. The Board should determine whether street lighting should be included in the subdivision (R&R §5.X3).
20. R&R §5.C4(1) requires granite Hingham Highway bounds to be set at all street intersections and at all points of change in direction or curvature of streets. R&R §5.C4(3) also requires at least one sideline of each lot be marked with a bound. A bound/monument detail should be shown on the plans.

General, Utilities, Stormwater & Erosion Control

1. The post-development drainage/ HydroCAD calculations are based on runoff from the entire roofs of the dwellings proposed on Lots 2, 3 and 4 being directed into the subsurface infiltration systems. This will require all downspouts to be piped into the subsurface systems. Should the Board approve the project, we recommend a condition requiring that all downspouts be connected to the subsurface infiltration systems.
2. We note that the overall site post-development analysis is based on proposed grading as shown on the plans, including lot development. There are low areas on the proposed lots that are modeled as retention/infiltration areas. These low areas will need to be maintained and proposed lot grading will need to be per plan to ensure that post development runoff is mitigated as proposed.
3. There are no test pits within Subsurface Infiltration System SIS-1, which is the large system located on the proposed drainage lot associated with roadway runoff. However, the eleven test pits excavated on site all show consistent sandy soil and seasonal high groundwater between elevation 139.5 and 142.1 and the design of SIS-1 is based on those parameters. However, the bottom of the system should be at El. 144.1 minimum (also SIS-2). Per the MassDEP Stormwater Standards, two test pits should be excavated within the footprint of the system. Based on the consistency of the soils and groundwater level we believe that the test pits can be done at the start of construction.
4. Subsurface Infiltration System SIS-1 should have an inlet manifold to evenly distribute flow to each row of the system. Also, if an overflow is incorporated into the design as suggested above, there should be a manifold on the outlet end of the system.
5. To allow for easier inspection and maintenance, we recommend that the inspection ports on the subsurface infiltration systems be a minimum of six inches diameter and that an inspection port be installed on each end chamber in each row of the systems (two on each row).
6. The invert elevations of catch basins CB-3 and CB-4 are specified to be 145.2 on the plans and 145.0 in the Hydraflow Storm Sewer Inventory Report (pipe sizing calculations).
7. The beehive grate detail included in the Typical Hydroworks HS4 Detail on Sheet 14 should be removed.
8. The Quarterly Stormwater Inspection Report attached to the Operation and Maintenance Plan (O&M) should include reporting information for the hydrodynamic separator.

9. The O&M includes references to items typically associated with a commercial development site (dumpster enclosure, secondary containment for petroleum storage, designated snow storage areas, etc.). The O&M should be specific to this residential development.
10. The Definitive Plan, Sheet 10 of the plans set, is missing geometry for Lot 5 (drainage lot) and it does not differentiate between existing and proposed property lines. The plan should be updated to clearly show the lines of the proposed subdivision, including all easements.
11. As noted in Mr. Silveira's October 2, 2022 email to the Applicant, the method that frontage has been measured for each lot should be shown on the plans.
12. The proposed erosion control barrier should be moved to the proposed limit of work line around the drainage lot.
13. General Note 2 on Sheet 2 indicates that the area of the subdivision is 4.31 acres, yet Sheet 3, the Existing Conditions plan, indicates that the area of the subdivision is 4.05 acres. Clarification is needed.
14. Grading & Drainage Note 11 on Sheet 2 refers to downspouts daylighting. As noted above, all downspouts should be connected to the subsurface infiltration systems.
15. Utility Notes 8 and 10 on Sheet 2 refer to sewer pipes and a common septic system, respectively, yet no sewer nor common septic system are proposed.
16. Soil Erosion and Erosion Control Note 3 refers to construction "sequencing plans included herein," yet there is no construction sequencing specified on the plans.
17. To avoid confusion we recommend that references to "wattles" be changed to "silt socks" as wattles are typically associated with straw or hay, which the Conservation Commission does not allow. See Soil Erosion and Erosion Control Note 7
18. We note that there will be significant coordination required to maintain utility service to the dwelling at 265 Gardner Street. This is acknowledged by the Applicant's team as this is noted on Sheet 4, the Demolition & Erosion Control Plan. We want to make sure the residents at 265 Gardner Street are aware of this as well.

Please give us a call should you have any question.



Very truly yours,

AMORY ENGINEERS, P.C.

By:

A handwritten signature in blue ink that reads "Patrick G. Brennan".

Patrick G. Brennan, P.E.