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PLACES Associates, Inc.

Certified WBE

January 12, 2022

Planning Board
Town of Wenham
138 Main Street
Wenham, MA 01984

via email & us mail:

RE: Peer Review
Hamilton Circle Definitive Subdivision Plan
60 Arbor Street, Wenham, MA
Project No. 5532

Dear Members of the Board:

This office has reviewed the revised plans for the 60 Arbor Street Subdivision dated January 5, 2022 and the revised Stormwater Management Report dated January 10, 2022 by Decoulos and Company.

There have been several revisions to the plans, the most noticeable one is that the roadway pavement for Hamilton Circle has been shifted allowing the centerline of the pavement to align with that of the right of way. In addition, the engineer has provided a centerline profile of the pavement around the cul-de-sac. There have been no changes to the layout of the roadway property lines and the ten foot radii remain on the plan.

It is our understanding that the Board will be making a decision on this project at it's meeting so this letter is orientated to allow the Board to clearly view both requested and recommended waivers as well as those sections that are not in compliance. There are some design/plan deficiencies, some of which have arisen as a result of the newly submitted plans and drainage calculations which are identified separately from the regulatory compliance portion. We have included a list of recommended conditions for the Board to consider in their deliberations which are specific to this project and are reflective of construction issues that we have seen in other towns.

Overall Design/Plan Deficiencies:

1. The plans do not provide sufficient detail to allow the construction of the site without the use of the electronic files. The plan and profile for the street should provide sufficient horizontal and vertical data for a contractor to correctly construct the roadway using the approved plans. Vertical elevations shown to the nearest hundredth of a foot (0.01') should be provided per section 3.3.3.15. The plan portion of the plan and profile should provide information related to the geometry of the edge of pavement (curve radii) as the radii at the entrance are critical for the Fire Department access into the site. It is also noted that the proposed edge of pavement is not tangent to the edge of pavement on Arbor Street which should be corrected to accommodate turning vehicles without forcing them to cross into the opposing lane on Arbor Street.
2. The vertical alignment is not consistent with the regulations and industry standards of providing continuous grades with vertical curves creating smooth transitions between slopes. The disjointed profile grades will impact the ability to pave the roadway according to the plan as a paver cannot change grades abruptly and will have to create transitions.

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3. The entrance of the roadway pavement has been shifted to be centered in the right of way. This shift has positioned the edge of pavement adjacent to the existing utility pole. The exact location of the pole can vary several feet, due to both the location of the survey shot as well as drafting techniques. If the pole is within 2' of the edge of pavement, either the pole will need to be moved or the roadway should be shifted and a waiver requested to offset the roadway. This close proximity may be exacerbated when the edge of pavement is made tangent to Arbor Street. The exact location of this pole needs to be confirmed before the pavement roundings are revised.

4. The utility plan does not depict the proposed drainage structures and the relationship between them and the other utilities. When overlaying prints, it appears that the gas line is in conflict with CB3, water service with DMH2 and the electric line cuts the corner of the recharge area. These plans need to be corrected and all structures shown on the utility plan.

5. The Erosion and Sedimentation Control Plan is insufficient and should be modified. As this site
    a. The Stabilized Construction Entrance is insufficient in width to accommodate typical construction vehicles.
    b. The silt sock and fence are shown across the entire entrance to the site with no notation as to how access is maintained.
    c. It is recommended that there be additional notes added requiring the protection of the infiltration area from vehicular or storage both prior to installation and after to prevent over compaction. Additional notes should be added for its construction given the depth and proximity to the cut slope.
    d. The drainage system should be constructed from the downstream site up.

6. The drainage calculations were provided on Monday, January 10, 2022. The following items have been identified and need to be addressed:
    a. The Proposed Watershed Plan identifies 3 subcatchments yet the HydroCAD calculations have only two subcatchments. The HydroCAD model should separate the subcatchment to the infiltration system.
    b. The subcatchment to the infiltration basin will have a much shorter Time of Concentration, typically 6 minutes, than the subcatchment WS-1 which has a direct impact on the rainfall intensity.
    c. The same rainfall intensity was used for both the 9 and 15 minute Time of Concentration. The Rational Method utilizes a rainfall intensity which is a function of the Time of Concentration. Please explain why a single rainfall intensity was utilized.
    d. It is also noted that the storm duration utilized is a 1 hour storm duration. Please explain how this duration was chosen.
    e. The Proposed Watershed Plan does not accurately depict the tributary area to the recharge system which will collect majority of the runoff from the roadway, driveway serving Lot 6 as well as the front yard to Lot 6.
    f. The drainage calculations indicate the creation of less than 3,000 s.f. of grass created with the addition of both the cul-de-sac and on Lot 6. This does not appear to be realistic given the clearing that will be needed for the roadway, house and septic system construction.
    g. It is recommended that the grading for Lot 6 be provided. The Point of Analysis is a natural low area (elev. 73±) in the back yard on Lot 6. There appears to be a natural saddle near the property line at elevation 77+.

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Given that the proposed house basement elevation is 78 and the first floor is 88, the final grades are important to document and the limit of grading be identified. If the backyard is graded for a walkout basement, there may be runoff directed towards the abutting property.

Waivers Requested:

1. Sidewalks. Waiver of sections 4.1.4.3, 4.9.1 and 5.5. A waiver is requested from the requirements of sidewalks and was previously granted by the Board in previous submittals.
2. Water Main. Waiver of section 4.7.5.4 waiving the requirement from the 8" water main to allow a single 1" water service for the proposed house. This waiver was previously granted by the Board in previous submittals.

Recommended Waivers:

1. Hydrants. Waiver of section 4.7.10 to waive the requirement of a hydrant as the water line is proposed at 1" water service and the Fire Department has determined that the existing hydrant is sufficient to provide fire protection.
2. Section 3.3.3.16.1 to waive the requirement to show the Four-foot elevation above the high water mark.
3. Sections 3.3.3.18.1 and 4.7.7.1. to allow the use of the SCS Tr-55 method consistent with the DEP Stormwater Manual standards. This will allow the use of computer stormwater models.
4. Section 5.2.1.5.4 Requires road oil on the pavement foundation. This is an outdated practice and is no longer environmentally allowed. A waiver is recommended conditioned upon the use of a tackifier coat between the binder coat and finish coat of pavement.
5. Section 5.1.2. refers to outdated construction standards. A waiver is recommended conditioned upon the addition of a note be added to the detail sheet indicating that "All construction shall be in accordance with the MassDOT Standard Specifications for Highways and Bridges, 2020 edition."

Non-Compliance with the Subdivision Rules and Regulations:

1. Section 3.3.3.15 Profile and 3.3.3.15.1 Profile. The plans do not provide grade elevations at 50' stations and 25' stations through the vertical curves. Gradients are not shown by figures expressed in percent.

2. 3.3.3.17.1 through 3.3.3.17.3 The Utility Plan is required to show the storm drains and appurtenances as well as all other utilities. The plans do not show the drainage structures and it appears that the other utilities may be in conflict with the drainage structures and drain lines.

3. Section 4.1.3.5. Property lines at street intersections shall be rounded or cut back to provide for a radius of not less than forty feet (40'). The proposed plan shows an initial short section of the property lines with a 40' radius directly adjacent to a 10' radius. On the left side, there is 6.25' of R=40' and 24.13' of R=10'. The portion of the 10' radius is roughly four times longer than the 40' radius which results in an effective radius of less than 40' at the intersection.

4. Section 4.1.5.3 Vertical Curves. The revised profile dated 1-5-22 shows an irregular sloping proposed centerline profile. No vertical curves are provided. At the high point in the roadway, based on scaled slopes, it appears that the requisite vertical curve of 420' would exceed the length of the roadway. This roadway profile does not meet the requirements and may result vehicles unable to transverse this crest.

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5. 4.3.1 There is no indication of the geometry of the proposed driveway nor is there a detail indicating compliance with this section requiring a 10' width with a 20' width at the gutter line. When the geometry is specified in the regulations, the dimensions should be shown to indicate the minimum requirement per the regulations. The absence of dimensions implies that the geometry is not critical for compliance.

6. 4.7.8.1 Electricity – a note should be added to the plan indicating the requirement for screening of any transformers.

7. 5.9.2. A note should be added to the plans requiring 4" loam.

Recommendations for Project Specific Conditions

1. The plans and calculations shall be revised to address those items listed as Overall Plan/Design Deficiencies. The plans shall be modified and approved prior to the endorsement of the final plans.
2. This decision applies only to the requested Definitive Subdivision Approval. Other permits required by the Bylaws, other governmental boards, agencies or bodies having jurisdiction shall not be assumed or implied by this decision. This includes but is not limited to a street opening permit, Stormwater Permit and Special Permit for the Grading and redistribution of earth under 10.1 Soil Stripping, earth removal and grading of the Zoning Bylaws.
3. The roadway, known as Hamilton Circle, shall remain a private road and shall not be submitted to the Town of Wenham for acceptance as a public way.
4. The northerly property line between Hamilton Circle and 70 Arbor Street shall be staked by a Professional Land Surveyor from Arbor Street to beyond the limits of construction. An orange construction fence or similar visible barrier shall be erected on this line and shall remain in place until construction is complete. The limit of construction shall be marked in the field prior to the initiation of construction.
5. A drainage easement shall be provided to the Town of Wenham, at no cost to the town, for the drainage outfall on Arbor Street to the Inland Freshwater Wetland shown on the plans where it crosses Lot 1.
6. Mining of material from beneath the infiltration system is expressly forbidden.
7. Any fill material used on site, other than required for the road base, shell be compatible with the drainage calculations (Hydrologic Soil Group A – sand and gravel).
8. Any blasting required during construction shall be performed in accordance with the Wenham Fire Department regulations.
9. Prior to the initiation of construction, the contractor shall document the condition of the Arbor Street pavement via photographs or video and a copy submitted to the Town Planner. Should damage occur the Arbor Street that is directly related to this project, the repairs shall be the responsibility of the contractor to repair.
10. No paving shall take place between November 1 and March 30 unless prior permission has been granted by the Planning Board subject to temperature and weather conditions. The binder shall winter over one season prior to the top course.
11. All utilities shall be underground.
12. During construction, the contractor is responsible for keeping Arbor Street clean of any construction sediment. Hamilton Circle shall be swept a minimum of twice a month or as needed during active construction. All catchbasins, both on Hamilton Circle and the existing Arbor Street catchbasin shall have silt sacks installed and inspected regularly and when any extreme rainfall

events or flash flood warnings are issued. Catchbasin sumps shall be cleaned twice a year and post construction, the property owner shall follow the Operations and Maintenance plan for the Hamilton Circle drainage system.

13. In addition to the requirements of Section 3.3.15.1., the design engineer shall certify that the roadway was built in accordance with the approved plans, identify any deviations from the approved plans and certify that the drainage system as installed will function as designed. The as-built plans shall be submitted in electronic format (pdf and AutoCAD drawing) as well as three paper copies.
14. Any construction materials imported on the site shall contain no debris, rubbish, or other non-biodegradable materials. Use of recycled products shall be allowed provided that documentation is provided that they do not contain demolition materials and meet MassDOT specifications for the intended use.
15. The drainage calculations are based on the proposed house shown for Lot 1. Any increase in size, greater than 25% or changing the location by more than 20' shall require review. A letter from the design engineer, certifying that the changes do not impact the overall drainage design and that the drainage system has sufficient capacity to accommodate any such changes.
16. Grading on Lot 1 shall maintain overall drainage patterns, at no time shall runoff routed to discharge onto the property at 70 Arbor Street.

Thank you for this opportunity to work with the Board. Please contact the undersigned should there be any question or clarification needed.

Very truly yours,
Places Associates, Inc.
By:

Susan E. Carter, P.E., LEED AP
President, Director of Engineering

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