



GREEN INTERNATIONAL AFFILIATES, INC.

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February 5, 2021

Mr. John Lee, Chairman
Walpole Zoning Board of Appeals
135 School Street
Walpole, MA, MA 02

Subject: Diamond Hill Estates, Dupee Street
Updated Fire Truck Movement Analysis

Dear Mr. Chairman,

As a follow up to the design modification to the site development plans and the meeting conducted with Deputy Fire Chief Barry, we have updated and refined the plan analysis of the anticipated fire truck movement within the site and at the intersection of Dupee Street with Route 27. The three plan sheets depict the movements using the computer software program known as AutoTurn. While the software tends to be conservative in illustrating these movements, nonetheless we have shown that the Walpole design apparatus will be able to maneuver through the cul de sac under the latest design as well as enter and exit the street. That said, we have the following notes in regard to the truck turn movements:

- The latest plans depicting the fire truck includes illustrating an estimate of the ladder overhang. The red line on the plans shows the estimated location. When we examined this on the latest GLM design for the circle, the overhand was shown to potentially extend up to 3 feet beyond the edge of the berm. Keep in mind that the estimate is conservative in that the ladder is not only in the center of the truck but also about 8 feet high at a minimum from the ground. Thus, even with the overhang being 3 feet beyond the berm, the ladder would be above potential obstacles like hydrants, mailboxes, low lying shrubs, etc.
- That said, we developed a refinement to the circle to reduce the possible overhand and this is shown on the attached truck turn plan. It involves flattening the entry into the circle slightly in comparison to the GLM plan. In this way, it allows the truck to enter the circle tighter to the edge of pavement and then be able to process around the circle. Based on this analysis, the overhang would only be at the back of the berm
- The other two plans are updates to the enter and exiting Dupee Street in relation to the Route 27. One sheet depicts the entry from each direction and the other illustrates the exiting maneuvers. The updates include depicting the estimated overhang position. In each case, the proposed street modifications shown on the GLM plans is a significant improvement over the existing condition. Also shown in both plans is the ability of the fire apparatus to make the left and right turns to enter and exit. Some movements such as the left turn in from the east and the left turn out of Dupee Street can be done with minimal and normal centerline encroachment on Route 27. For example, the left turn exiting Dupee Street shows approximately 20 feet of encroachment while making the turn towards the west.

- The two movements that will involve some additional “kick-out” to make the turn relate to the right turn entering from the west and the right turn exit from Dupee Street. The “kick-out” refers to the truck just before making the turn shifts to the left to provide a wider radius in making the right turn. For the exit movement, this shift would be to position the vehicle more in the center of Dupee Street beginning between 30 and 50 feet of the approach and then perform the right turn. As shown, the vehicle can avoid the right-side curb and will only encroach the centerline on Route 27 a short distance.
- For the right turn entering movement, the shift for the larger fire vehicles will again occur between approximately 30 and 50 feet on the approach to Dupee Street before performing the right turn. While this will occur on Route 27, it is expected that under most conditions, the entering fire/emergency apparatus that is entering Dupee Street will have sirens and lights flashing, along with being on a level, straight section of street, this movement is expected to be unimpeded and safely accomplished. With respect to this movement, the overhang is shown to slightly (approx. one foot) go over the eastern sidewalk/ramp section. This is good to know when locating any new signage or adjustments to poles, etc.

In any event, this analysis has shown that the fire apparatus will be accommodated with respect to the proposed Diamond Hill Estates project. Furthermore, the updated analysis including the ladder overhang suggests that a minor modification to the current GLM design will essentially eliminate any overhang beyond the asphalt. It’s still our opinion that the hammerhead design in this case may better serve the needs and operations under fire/emergency conditions, however, we recognize that will be the Chief’s decision.

We believe this supplemental information with the attachments in combination with the previous memoranda have satisfactorily addressed the fire/emergency apparatus turning aspects in relation to this proposed project. If you have any questions or need further information, please let me know.

Very truly yours,
GREEN INTERNATIONAL AFFILIATES, INC.

William J. Scully, P.E.
Vice President

WJS/-

Attachments

Cc C. Tobias
R. Truax