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Engineering Department

INTERDEPARTMENTAL COMMUNICATION

To*: Planning Department** ***Date: June 25, 2015

From: **Engineering Department**

Subject: Review of 456 Massachusetts Ave/143 Prospect Street - Definitive Subdivision Plan – Jaime's Way & Thomas Drive

We have reviewed the plans for the above mentioned project titled "Definitive Subdivision – Residential Compound, Jaime's Way & Thomas Drive, 456 Massachusetts Ave/143 Prospect Street" dated May 22, 2015 and have the following comments:

1. The Fire Department should comment on the accessibility of a fire truck. Based on our templates the common driveway does appear adequate for an SU-30 truck and the applicant has provided plans showing that an Acton Fire Truck is adequate as well.

2. The applicant proposes the following roadway name and street addresses for the homes. The street name and addresses will have to be reviewed by the Police and Fire Department. The roadway name will have to be approved by the Planning Board. We have assigned the Map and Parcel ID's:

Lot #	Address	Map/Parcel
1	1 Jaime's Way	F2 / 117
2	2 Jaime's Way	F2 / 117-1
3	3 Jaime's Way	F2 / 117-2
4	1 Thomas Drive	F2 / 126
5	2 Thomas Drive	F2 / 126-1

3. The applicant will be responsible for providing an as-built plan certified by a PLS and a statement by a PE stating that the subdivision has been constructed as designed and if not, any differences shall be noted in the statement.

4. The applicant is not proposing a sidewalk and requests making a contribution to the sidewalk fund.

5. Prior to building permits being issued, we request a copy of the MassDOT access permit for Mass Ave for our records. A note has been provided on the plans.

6. The Common Drive detail should have a note stating the 12" compacted gravel base shall be applied in two 6" courses.

7. The applicant has proposed a Low Impact Design for the drainage system which is allowed for a Residential Compound.

8. There are minor discrepancies between the drainage report and the calculations:

    a. 46,587 SF of woods in subcatchment 3S, 46,596 in the report (existing conditions)
    b. 2,784 SF of woods in subcatchment 1S, 2,785 in the report (existing conditions)

9. The drainage report only provided HydroCAD drainage calculations for the 2-year storm. The applicant should provide the calculations for the 10- and 100-year storms. For all storm events, the infiltration rate should be shown in the HydroCAD calculations. The current calculations only provide a flow rate of 0.01 cfs at the detention ponds, rather than an infiltration rate (inch/hour) therefore we can't verify if the applicant is using a proper rate for the soil type.

10. The applicant has not addressed Section 4.3.6.2 of the Zoning Bylaw regarding Watershed Recharge which states:

    > *Watershed Recharge – The* ***amount of annual precipitation*** *being captured and recharged to the groundwater on site shall not be reduced due to development related surface runoff from the site when compared to pre-development conditions. Where a Special Permit or Subdivision Approval is required the Special Permit Granting Authority or the Planning Board shall require a hydrologic budget or water balance calculation for the site, showing pre- and post-development conditions, prepared by a Massachusetts Registered Professional Engineering experienced in hydrogeology. This Section shall also apply in Zone 4.*

    Water balance calculations should be provided which illustrates the annual volume of recharge in the pre-development and post-development conditions. This volume should not decrease in post-development.

    The amount of impervious area increases from 8,734 SF in the pre-development condition (House, Walkway and Pavement) to 24,097 SF in post-development. The drainage calculations show a decrease in the volume of runoff from post- to pre-development for all watersheds except subcatchment 3, which shows an increase. Reducing runoff alone for a single storm event does not necessarily equate to an annual increase in infiltration

11. The applicant provided a soil map which shows two soil types: 103B-Charlton-Hollis-Rock outcrop (103B) and 656-Udorthents-Urban land complex (656). For soil 103B, the applicant classified the soil as a Class B soil, which is true for areas without shallow bedrock. In these areas, the Middlesex Soil Survey classifies this as a Class D soil:

Hydrologic group: Charlton-B, Hollis-D, Rock Outcrop-D

The Charlton soil has only slight limitations for septic tank absorption fields, but the Hollis soils have severe limitations because of their shallow depth to bedrock. Intensive onsite investigations may be necessary to find suitable locations for the systems.

We recommend test pits be done in the areas proposed for the detention basins to ensure the shallow bedrock is avoided. Generally we accept test pit logs for septic systems when we evaluate suitability for stormwater detention basins however this subdivision is connecting to the sewer system therefore test pits were not done.