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Engineering Department

INTERDEPARTMENTAL COMMUNICATION

To: Scott Mutch, Planning Department

Date: August 30, 2011

From: Engineering Department

Subject: Site Plan Special Permit 7/6/2011 – 433 – 40 Sudbury Road, Acton MA

We have reviewed the above-mentioned Site Plan Special Permit application for 40 Sudbury Road, dated July 5th, 2011 and have the following comments:

1. There appears to be no fire access around the building or turnaround provided. We defer comment on the accessibility of an SU-30 fire truck to the fire chief.
2. The proposed use does not appear to generate a significant number of trips however the applicant reserves the right for the building to be used as a "building trade shop". This nebulous term could potentially generate a higher number of trips depending on the other allowed uses.
3. The plans do not show any proposed utilities (gas, electricity, etc).
4. The engineer should clearly label the Tennessee Gas pipeline and easement on all their plan sheets along with the notes to ensure the contractor is well aware of the location of this gas transmission line.
5. The engineer should describe how the applicant will provide fire protection for the site.
6. The engineer needs to show how they intend to provide potable water for the proposed facility. Our maps indicate that the water main ends on Sudbury Road at the existing hydrant opposite Westside Drive. Any work within the Sudbury Road will require a Permit To Construct Within a Public Way and will need to be coordinated with the developer for the Alexan Concord Housing project.
7. The engineer has not shown how they plan to handle solid waste on-site.
8. The engineer needs to label all the dimensions for the parking spaces within the site and indicate any signs, pavement markings, etc for any required accessible parking spaces.
9. The engineer should label the minimum required 24 foot width for the maneuvering aisle on the site at the building to ensure the contractor is aware of this requirement. We scaled the width of pavement and it appears to be slightly less than the width needed for a 24' maneuvering aisle and the 18.5' parking space.

10. The plans do no reference any vertical datum. The plans should be referenced to the 1929 NGVD datum with the location and elevation of the starting bench mark shown and 2 temporary benchmarks on-site that are set on fixed objects that will not be disturbed or destroyed during construction.
11. The property lines are noted on the plans as being graphic representations and not a result of a land survey. The applicant should be required to perform a survey to certify the location of the property lines to ensure their construction activities do not encroach onto the neighboring lots due to the close proximity of the work to their lot lines. The plans should be stamped by a certified land surveyor.
12. There is very little detail for the existing and proposed grades on the site. The building is built into a steep slope and appears to be at a finish floor elevation of 211'-6" and 201'-7" and the existing elevations are as low as 198 in the area of the building. There is no detail on what proposed grading or retaining walls are used. Any proposed retaining walls or grading should be reviewed by a geotechnical and a structural engineer. The abutting property in the Town of Concord had a severe washout on the steep slope and precautions need to be taken to prevent this from happening at this location during construction and after the work is complete and the buildings are occupied.
13. The engineer has not demonstrated if/how the site will comply with the Massachusetts Stormwater Regulations since the work is outside the jurisdiction of the Conservation Commission.
14. No soil borings were provided in the application. The site is in Groundwater Protection Zone 3 and without the soil borings there is no depth to groundwater referenced anywhere in the drainage report. The engineer needs to provide documentation to support that the bottom of the proposed recharge facilities shall not be less than 2 feet above the maximum groundwater elevation.
- 15. More detail is needed for the existing and proposed topography of the site. The only existing or proposed grades provided are in the vicinity of the building.**
16. The existing runoff rates and volumes were not calculated. The drainage calculations only consider the runoff from the impervious areas however portions of the site that are pervious contribute to runoff offsite and those runoff rates and volumes were not included in the drainage calculations. Without knowing the existing rates and volumes it could not be verified that the proposed rates and volumes do not exceed the existing.
17. Portions of the existing parking lot drain on to the site and were not included in the calculations. The applicant shows a "high point" at the property line to prevent water draining from offsite however there is no detail on this high point. There are no drainage calculations for the portion of the existing lot that drains on to the site.
18. No soil types or soil map were provided.
19. The applicant does no propose curbing for the parking area. The intent of the design is to direct runoff to the inlet structure and recharge area; however, without curbing the water appears to shed offsite. The applicant should show the proposed watershed areas in the drainage report.
20. The Stormwater Operation and Maintenance notes should indicate who is responsible for inspecting and maintaining the drainage system.

21. The Stormwater Operation and Maintenance and Site Plan and Details should include information about how to shut-off the drainage system (i.e. inlet structure, recharge areas, etc...) in the event of any potential spill. In the event of a spill the engineer needs to show they intend to contain the material on the impervious surface without curbing to avoid contaminating the site. There should be notes on the plans clearly establishing the process and procedures that need to be followed by the future owners/tenants.
22. The Stormwater Operation and Maintenance notes should also include information about the monitoring well for the underground infiltration system. The notes should describe, in layman's terms, the inspection process and how to determine when there is there is a problem.
23. The engineer should ensure the recharging of runoff at the retaining walls on the steep slope will not undermine the existing soils underneath the wall footings and cause the walls to prematurely fail.
24. The Zoning Bylaw requires that all runoff from the impervious area within Groundwater Protection District Zone 3 shall be funneled into a gas-trap catch basin.
25. There is no curbing being proposed along the parking area and recharge areas are being shown directly next to the parking allowing for the potential of direct infiltration. Also, the runoff entering the inlet structure is only for the initial flush of runoff. Once the sand bed is full or inundated by a peak flow that it may not be able to handle, the runoff from the impervious surface is diverted to recharge area without any pretreatment such as gas trap catch basin as required by the Zoning Bylaw.
26. The 1st inch of runoff is suppose to diverted to a retention pond that will allow exposure to sunlight and vegetation and lined with a soil featuring a permeability of 0.1417 in/hr or less so that it will be retained for an average of at least 3 days. The engineer needs to demonstrate there is sufficient storage capacity within the sand bed to contain the entire first inch and that it will retain the runoff for an average of at least 3 days. There is no vegetative layer being shown for the sand bed. The engineer has indicated a layer of pea stone on filter fabric instead of vegetation as required by the zoning bylaw. If a portion of the storage capacity is considered within the soil layers for the sand bed, we have some concerns that the runoff will not be able to infiltrate through the soil layer as quickly as the rate of runoff for a larger storm event.
27. The engineer has shown some absorbent triangle areas on the backside of the proposed buildings. There is no way for future tenants/owners to access these areas with equipment to maintain and/or replace these areas when maintenance is required.
28. Maintenance and routine inspections of the drainage facilities and the steep slope will be crucial at this site to try and prevent any clogged systems from overflowing and eroding the slope that will compromise the safety of the facility and its occupants.
29. The notes & typical details for the drainage system needs to clearly state the inlet structure, baffles, pipe connections, joints, etc... will be watertight to contain the pollutants that will trapped within the structure.
30. The engineer has indicated pervious pavement to be used with certain locations on the site, including parking areas and at the holding tank and the Oil, Sand and Gas separator for the interior floor drain system. The runoff from the impervious areas cannot discharge to the inlet structure without draining over the porous pavement thus it will allow direct

infiltration without pretreatment through a gas trap catch basin as required by the Zoning Bylaw.

31. The cross section for the porous pavement shows it being installed with a compacted processed gravel base. This will restrict the infiltration capacity by compacting the layers and minimizing the voids in the soil. The cross section should also state the existing soils shall not be compacted in any form to maintain its natural infiltrative characteristics.
32. Due to the porous pavement, sanding the parking area during the winter months should be prohibited to prevent clogging the porous material. Also, the maintenance of the porous pavement may need to be revised. We've found that some sources indicate monthly inspections and vacuuming the porous surface almost to that frequency, if needed, to maintain its ability to allow runoff to pass through the voids in the material.
33. The Applicant will need to show the locations of any proposed signs along Sudbury Road that will be used to identify the businesses on the site. The sign location will need to account for the roadway improvements being done by the Contractor for the Alexan Concord Housing Development.
34. It's my recommendation that the applicant should, at a minimum, post a street address sign on Sudbury Road to clearly identify the location of this facility. I want to be sure that emergency personnel can easily locate the driveway for the facility in case of an emergency 911 situation. The Applicant will need to obtain approvals from the Acton Police and Fire for the street numbering system proposed for the site before we can issue a final approval.
35. There is an existing stone bound labeled on the Concord's side of the town line near the proposed sand bed. The stone bound should be clearly marked in the field so that it is not disturbed during construction. If any survey markers are damaged or disturbed during construction, the applicant will be required to hire a registered land surveyor to reset and certify the new survey location.
36. The developer for Alexan Concord will be constructing a sidewalk along their frontage on Sudbury Road and there is an existing sidewalk along their frontage on Powdermill Road next to the canoe landing.
37. There should be an Erosion & Sedimentation Control Note clearly stating that the developer is responsible to immediately clean up any sand, dirt or debris that erodes onto private property or into any existing drainage system (including catch basin sumps, pipe lines, manholes, and ditches).
38. The engineer should include an Erosion and Sedimentation Control Plan to show locations of erosion control barriers, crushed stone construction entrances, check dams, etc... We are very concerned about erosion along this steep slope.
39. The architectural plans show 2 side doors on the buildings, but there are no walkways provided for them on the site plan.
40. The existing canoe landing and parking that is located on this property along the Powder Mill Road is not shown on the plans.
41. The engineer should show the proposed location for their sewage disposal system and the setbacks to property lines and drainage facilities to demonstrate compliance.

Cc: Cheryl Frazier, Building Department