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MAY 12 2016

BY:

May 9, 2016

Karen Staffier, PE
VHB
101 Walnut Street
PO Box 9151
Watertown, MA 02472

Re: Water Impact Report
526&528 Boston Post Rd. Redevelopment

Dear Ms. Staffier,

I have reviewed the Water Impact Report submitted by VHB for the former Raytheon site on Boston Post Rd in Sudbury, MA. I have the following comment on the report:

- The District would prefer to see all irrigation water come from onsite irrigation wells.
- Water irrigation system should include moisture sensors as this will help to insure overwatering does not occur. Drip irrigation should also be utilized to the maximum extent possible
- The District would like more information on the "efficient water heating systems which utilize less water".
- The District would like to review the low flow plumbing and high efficiency appliance with flow rates listed per item that will be installed in the development. EPA Water Sense Labeled Fixtures should be installed. Use of high efficiency spray nozzles and dishwashers and horizontal axis washing machines will also lower water use. Automatic flush toilets should not be utilized as they tend to cause multiple flushed per use.
- In 2015 the Sudbury Water District came within 0.2 MGD of its WMA permit. VHB has indicated potentially using 25% of the remaining District's WMA permit allotment. The District would like to see this estimated usage reduced to the maximum extent possible.

Please respond to these comments at your earliest convenience. If you have any further questions or concerns regarding this matter kindly contact me at (978) 443-6602.

Sincerely,

A handwritten signature in black ink, appearing to read 'R McEnroe', with a long horizontal flourish extending to the right.

Rebecca McEnroe, P.E.
Superintendent

Enclosure: Stantec review of water impact report

Cc:

Steve Senna, National Development

David Gillespie, AvalonBay Communities, Inc.

Jody Kablack, Director Planning Town of Sudbury

To: Rebecca McEnroe
Sudbury Water District

From: Erica Lotz
Burlington MA Office

File: 195150201

Date: April 25, 2016

Reference: Water Impact Report – 526 & 528 Boston Post Road Redevelopment

Per your request, we have reviewed the Water Impact Report for 526 & 528 Boston Post Road Redevelopment Project (former Raytheon Site), submitted by BPR Sudbury Development LLC and Prepared by VHB. The following summarizes our review.

Water Use

Based on the proposed uses for the site VHB has summarized the estimated water use using Title V regulations. They anticipate achieving a 20% reduction from the Title V water use through various water conservation measures. While they anticipate achieving this reduction, the hydraulic analysis was calculated based on the full Title V anticipated water use.

Converting the Title V requirements to gallons per minute, VHB assumed an average day domestic water use of 57 gpm and used a max day factor of 1.75 to estimate a maximum day demand of about 100 gpm. Stantec has reviewed the District's most recent Annual Statistical Report and system wide the maximum day demand is about 2 times the average day. While the factor used in VHB's calculations is lower, it remains reasonable for this analysis.

VHB compared the proposed water use to both the previous site water use from 2006 through 2008 along with an assumed office space redevelopment of the site. The net change in water use from the 2006-2008 Raytheon water use is about 42,000 to 50,000 gpd depending on the final mix of tenants. This net change in water use should be compared to the available Water Management Act Withdrawal Limits. In 2015, the District supplied 1.88 MGD on average and is authorized to pump 2.08 MGD based on its Water Management Act registration and permit leaving a difference of 0.2 MGD. The net increase for this proposed development is about 50,000 gpd or 0.05 MGD.

Available Fire Flows

Flows tests were conducted in October 2015 along Boston Post Road near the project site. Based on the field results, flows were calculated for the test and for fire flows available at 20 psi. VHB's calculations used an outlet size of 2 7/8 inches. A typical hydrant outlet is 2.5 inches and therefore Stantec recalculated the hydrant flow discharge to be 1,300 gpm during the test, instead of 1,719 gpm as presented. The calculated flow available at 20 psi is therefore about 7,500 gpm when using a 2.5" outlet size instead of 9,916 gpm as presented.

VHB presented anticipated ISO fire flow requirements of 2,000 gpm to 3,500 gpm and developed a hydraulic model of the site to evaluate whether these flows can be met. Based on their analysis all locations can meet the 3,500 gpm fire flows with the exception of the area near the water service connection to the proposed wastewater treatment facility.



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Rebecca McEnroe
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Reference: Water Impact Report – 526 & 528 Boston Post Road Redevelopment

While the hydrant flow test outlet size included in the calculation is unusual, the overall methodology of the analysis is sound. To confirm the general results of the hydraulic model, we completed a simple hand calculation to review overall headloss for the onsite water system under fire flow conditions. Stantec's calculations resulted in similar available flow and pressures under fire flow conditions.

Conclusions

The flow test data indicates that the Sudbury Water District system is very strong at this project location. The domestic water demands will not adversely impact operating pressures within the District's water system. While isolated areas within the project water system may not be able to supply 3,500 gpm, these facilities will likely have sprinkler systems therefore reducing the volume of water to be supplied from outside the building in the event of a fire. The size of the water mains on site are appropriate given the number of buildings and anticipated fire flow requirements.

This project will result in a net increase of water use of approximately 50,000 gpd compared to 2006 to 2008 water use on site. This additional water use is low enough that it should not result in a violation of existing Water Management Act withdrawal limits but will bring the District closer to those limits.

If you have questions or comments, feel free to contact me.

STANTEC CONSULTING SERVICES INC.

A handwritten signature in black ink that reads "Erica Lotz".

Erica Lotz, P.E., ENV SP
Project Manager
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Erica.Lotz@stantec.com