



TOWN OF NORTH CASTLE

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MEMORANDUM

To: Adam Kaufman, Director of Planning

From: Sal Misiti

Date: September 30, 2022

Cc: North Castle Planning Board
Joseph M. Cermele, P.E.
Roland Baroni, Jr., Town Attorney

Re: **The Summit Club at Armonk, Proposed Wastewater Treatment Plant**

I have been asked to review the Summit project proposed WWTP designed by R&M Engineering. My comments are based upon the plans and other documentation within the link provided, and offer the following:

First, the effort involved in this review is significant and it would be appreciated if a response can be provided directly to my comments. If the review goes back to the applicant and they re-submit revisions to planning, I generally would be provided a link for the revised documents sometime in the future. If I don't receive a direct response to my comments, I will have to start the process all over again. I first saw the plan back in April when it was shared with me by John Kellard. I was not asked for my comments at the time but in looking at the plan I had noted the proximity to the residential units, process, etc. and in conversation I had mentioned odors could be an issue. Surprisingly, this set of plans includes an odor control system.

Engineering Report

It is difficult to determine various components that surround the functionality and operation of the system as designed. Particularly due to the lack of DEC permit effluent parameters which would be included in a SPDES Permit. Page 6 of the Engineering report indicates "a new SPDES permit will be



obtained”, daily flow demands may not be all that is required by the NYSDEC for a new permit application. There is generally specific waste water sampling required, amongst other things, and currently waste flow does not exist.

Section V of the engineering report describes effluent requirements, which would also relate to the new permit. Oddly, there is no mention of nitrogen limits although the process being proposed is designed for nitrogen removal. What will the plant effluent nitrogen loading be?

Section VII Treatment Facility Design

There is reference to the extension of effluent piping from the proposed effluent manhole some 300’ to the existing effluent piping. Has the condition of the existing effluent piping been determined? How long of a total run is there to the actual outfall to surface water? NYSDEC SPDES permits require a sign to be posted at the outfall with the SPDES number and contact information.

Page 12 describes the Equalization Tank, volume requirements and volume level settings. A table describes float control levels although the narrative indicates the pumps will be controlled by a pressure transducer which is a better method considering the raw sewage environment. Which method is it, floats or transducer?

Also, it is difficult to determine the actual operation of the proposed system as there are no control details or electrical details. Is the control mechanism PLC based? What controls the mentioned VFD’s for the blower network?

An influent screening device is in the design flow after the equalization tank. Generally, these are placed at the plant headworks or influent. The unit proposed is designed to remove rags, wipes, plastic, etc. All of these raw sewage characteristics will permeate in the equalization tank and inevitably become a maintenance burden. The proposed screening device continually filters and compacts the waste and usually is dumped into a hopper, which is not illustrated.



Consideration should be given to the operation of the screening device described as “manually operated” in regards to the disposal of the collected solids. Containment of the screened solids should be considered in a method that will not cause odors.

The package plant system BESST, the Tertiary Filter System, and Ultraviolet Disinfection systems are straight forward and designed for the treatment goals required. I will have comments to follow on some of the related components as detailed of drawings.

Effluent flow metering manhole, not certain the arrangement of this cumbersome component, particularly being used to also sample the effluent. Most likely an inline Ultrasonic Flow meter can be configured in the building in the UV discharge piping, along with a sample port. It is assumed that the SPDES permit requires effluent flow measurement (some permits require influent).

It appears the sludge holding tank is part of the BESST. What are the expected percent solids of stored sludge? How often are hauler pickups expected? I fail to see the connection point for a sludge hauler to remove sludge.

Regarding chemical dosing, the Health Department will require a backup pump. Additionally, they will want to see chemical feed tank containment, and how and where mixing chemicals will be stored. The alum discharge lines have a portion that are buried, the ½” lines are in secondary containment. The planned method in which the smaller lines are sealed at the ends of the containment will cause issues should a feed line need to be replaced. The plan indicates to fill the ends of the containment pipe with silicone. Secondary containment end connectors are available to illuminate this issue.

The Control Building is showing a 1” water service with an RPZ device. This is fine, but will require a separate application and approval from the Health Department. Additionally, there is no water meter illustrated on the water service.

General observations of the plans

- Odor control units will require renewable (every three years) emission point permits with County Health.
- Odor Control unit should include differential pressure gauges



- WWTP fencing does not include all of the site, three-sided fence abuts into the building, emergency generator is outside of the fence.
- The influent distribution box plan is showing 1/4" weep holes, it is assumed they are in place should the EQ pumps shut off, enabling the drainage of the weir box. That type of weep hole will never work with raw sewage, they will continually clog.
- Influent distribution box plan shows the EQ tank 3" feed force mains with the illustration flow direction arrows in the incorrect direction.
- Sanitary riser detail for the main building does not illustrate that the building discharge will be pumped.
- All tank pumps; EQ, Surge, & Backwash, should be on guide rails for ease of removal and pump service. As configured, there is an indication requiring a dresser coupling for dismantling the plumbing for pump removal. The environment inside the tanks will make it difficult to remove and replace/repair any of the pumps.

Finally, there is no indication or feeling regarding hands on operational requirements in part due to the lack of system control methodology. I'm sure the manufacturer of the package system can provide a projection based upon the design flow of the system. In addition, consideration should be given to the operational conditions of the WWTP startup as all design flows will not be available. Seeding of the process biology will need to be balanced in the early startup stages as all housing units will not be completed and discharging. What will happen to the process under extremely low flow conditions? For instance, if during the winter months the dwellings include several snow birds.

Please call me if you or any of the Planning Board members should have any questions or require any additional information.