

Holly Delisle

From: Greg Dixon <greg.dixon@krebssandlansing.com>
Sent: Thursday, January 9, 2025 9:43 AM
To: Holly Delisle
Cc: Cameron Goodrich
Subject: Re: 1705 - Checking in
Attachments: 2025-01-09_Westford-Center_DRAFT-Design.pdf; 2025-01-09_Westford-Center_Possible-Wastewater-Design-Flow.pdf

Hey Holly,

Attached is a design which I believe we could get a permit for easily, i.e. this is the type of design we do all the time. Unfortunately, the most I could squeeze into this space was 495 GPD. I have attached a design flow calculation for that design as well, again it is pretty close to what I sent before. This would be the design we are most comfortable suggesting and should be considered your "maximum design" if/when the Town purchases the property. This will require both a septic tank and pump station. These are not shown on the plan because the building is not located, but I have provided some detail. The issue with this site is the depth to ordinary high water and the linear loading rate of the soil. In basic terms the soil can only take so much water regardless of the strength of the effluent and the need for treatment. This will be a recurring issue for some of the other ideas below and will limit what even pretreatment can provide.

That being said, below are some other items which we could further explore. I have not fully calculated any of these items because I wanted to limit scope so this would need to be designed to give exacts.

Pretreatment:

- As discussed, these are expensive upfront costs for installation and have more running costs/maintenance associated with them.
- This would not reduce the soils linear loading rate, so we **cannot** get double the flow as once hoped.
- We would be able to reduce the amount of sand under the mound from 30" to 12". This would reduce the height of the mound by 1.5' because of this we could increase the length of the mound in the same location. I believe we could increase the mound length to between 8-12 feet because it will not require as much grading . This would give a mound length of 64-67 feet; with greater linear length we could have greater capacity. The capacity could increase to **576-603 GPD**.
- This is not a large increase for the cost of the pretreatment system. I feel it is not worth the investment and running maintenance costs for an additional 86-113 GPD increase.

Presby Wastewater Design:

- The Presby wastewater designs are a manufactured system which is used often in the State of Vermont and in the Northeast. This system has its own calculations which we have found can provide some relief when sites are struggling with shallow ground water, reduced depth to ledge, or a space constraint. Another upside to these systems, if you have the grade to get wastewater to the mound, is they do not require a pump station because the system does not require dosing like

the system which is outlined in my plans. So, for this site we could remove the upfront and running costs of the pump station.

- Based on my understanding of the Presby system, I do not believe we would get drastically more flow. I would suspect it would be similar to the increased capacity of the pretreatment system above. Again, I have not fully calculated this so there could be room for more, but I do not think we are going to get double the capacity. This could allow us to remove the pumpstation from the project scope, which would have some savings. There is a slightly high upfront cost for the materials of the Presby system so that may outweigh the initial cost of the pump station.
- Krebs and Lansing do not use Presby Systems often, really the only time we do is to avoid the pump station when grade is there to help. The Presby design is a very good system, from my point of view, it works by progressive failure. The length of pipe slowly accumulates with debris and that debris slowly fills the length of pipe, failing the pipe as it goes. I do believe the manufacturer has maintenance which can slow this progressive failure. Also closely watching was goes down the drain and cleaning the septic tank more often can also slow this progression. I have heard and seen these systems lasting for years but do believe eventually the Presby pipes need to be replaced. Please note this can also happen with aspects of the design we have proposed.

Reaching out to DEC to discuss Specific Project Constraints:

- The way municipal offices are used does provide some argument on consistency in flow. The buildings will have some larger instantaneous flows. Such as during town meetings, big days at the library, etc. But these high flow days are not the norm. Over the course of the year the flows from municipal buildings will be small and dependent on the number of staff. I feel those large flows would be limited to a few times a year.
- We could reach out to the State to discuss other options for flow reduction or flow counter measures in the system to achieve some higher flows. I cannot guarantee any exact flow values or if they would even listen to the argument but there is a valid reasoning.
- My suggestion would be to increase the size of the pump station's tank. This will provide additional capacity in the pumpstation itself, then if the building sees an instantaneous larger flow that tank could fill. We could then find a way to dose the system slowly/consistently so it did not overcome the mound. So, on a big meeting night the pump station tanking can hold the effluent a little longer and dose the mound throughout the night or next day.
- Again, I have never offered this to the State but they are always looking for innovative ideas. It is often the case that municipal buildings have high instantaneous flows but small day to day use.

I am sorry I do not have any better news. What I would state to any client and what I will tell the Town when buying a property is that this site should be considered capped at the 495 GPD based on the system I outlined in the plans and details. I think there are opportunities to look at some of these other items outlined above, but I do not think we will see large increases and they may be more headache than they are worth. Please review everything I have provided and let me know if there is anything more you need.

Thanks,
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