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August 28, 2024

Alex Klose, P.E., Town Engineer
Town of East Lyme
P.O. 519
Niantic, CT 06357

Re: Proposed Light Manufacturing
296 Flanders Road

Dear Mr. Klose:

We are in receipt of your review comments dated August 14, 2024, regarding the project noted above. Our response is shown below in ***bold italic*** type and is as follows:

1. The engineer of record provided supplementary information that I requested along with the initial plan set and report, this information indicates that the stormwater management practices proposed are adequate for a development of this size.

   Response: Comment noted, no action required at this time.

2. The large above ground basin labeled as P-108 is located outside the aquifer protection area and appears to have at least 2' clear between observed mottling and the bottom of the proposed basin. The soil investigation test pits were performed in March and there was no standing water observed in the two test pits within the proposed basin TP-11 and TP-10. While I understand that the basin was likely proposed with an impermeable liner and 6" piped underdrains because there is not at least 3 feet of separation, I believe with adequate pre-treatment (hydrodynamic separators and isolator rows that the applicant is proposing) this basin should be considered for infiltration. This will reduce the chance of water sitting in the basin between storm events as well as promote groundwater recharge rather than directing additional volume directly to the watercourse.

   Response: BL agrees with this assessment and have revised the design of Stormwater Management Basin (SWMB) P-108 to function as a detention and infiltration basin. The impervious liner references and underdrain previously noted for this basin have been removed and the hydrologic calculations have been revised accordingly. Reference the revised plan and Stormwater Management Report for more information.

3. The engineer of record should verify that the outlet control modeling for stormwater attenuation (flood control) is accurate in the 50-yr and 100-yr storm events in the

underground systems, with two potential concerns. First is that the exfiltration is proposed at the same 5" per hour (maximum) for all storm events, when in reality during larger events the ground may be saturated and infiltration slower. Second is that the engineer modeled the outlet control devices essentially with a free flow out of the system besides the weir and orifice devices, where in reality there is a pipe that would restrict larger storms. It is possible this was done since the flow into the outlet control structure is restricted by pipe size as well, if so the engineer should verify that the elevation of the water in the underground systems does not exceed the top of the stone above the system.

Response: This response is divided into two separate responses to clarify the design concerns posed, as below:

The infiltration rate for all storm events is anticipated to be 5 inches per hour for all storm events for two reasons:

1. ***The nature of the in-situ soils below the subsoil layer are very granular and loose allowing for high conveyance factor to higher depths.***
2. ***The depth to water and in some cases lack of water at the time of excavation.***

The combined effect of these factors result in a deep soil profile of loose granular material well above the typical expected groundwater levels.

Upon review of the subsurface detention system outlet piping as compared to larger storm event outflow rates, we have increased the outlet pipe sizes for both the SWMB P-106 and P-107. s the out pipe will not hinder the subsurface stormwater system performance. Note pipe capacities from StormCAD model and do not account for available headwater. Peak outflow rates are from the HydroCAD model.

P-101 outlet pipe is a 15" HDPA @ S=1.52%

- ***Pipe capacity=8.01cfs***
- ***System Outflows: Q10=0.67cfs, Q25=2.38cfs, Q100=5.87cfs***

P-102 outlet pipe is a 15" HDPE @ S=0.82%

- ***Pipe capacity=5.82cfs***
- ***System Outflows: Q10=2.38cfs, Q25=5.64cfs, Q100=8.39cfs***

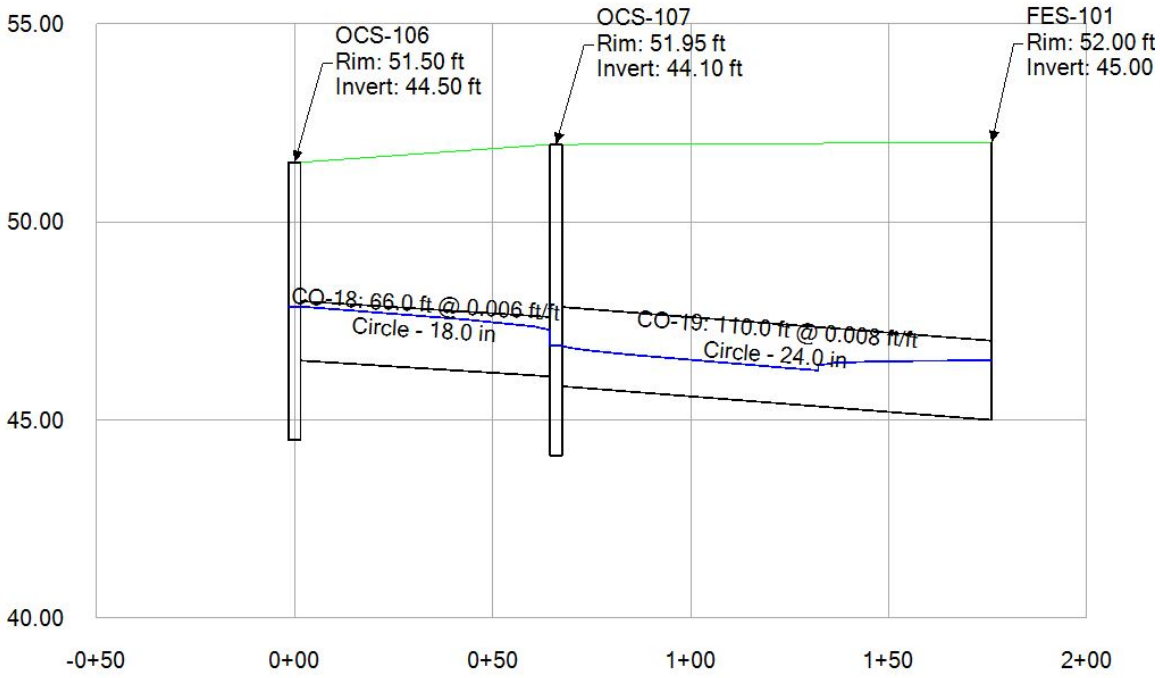
P-106 outlet pipe is a 15" HDPA @ S=0.60%

- ***Pipe capacity=5.03cfs***
- ***System Outflows: Q10=7.20cfs, Q25=9.10cfs, Q100=12.13cfs***
- ***Outlet pipe increased to an 18"***

P-107 outlet pipe is a 18" HDPE @ S=0.75% - combined with P-106

- ***Pipe capacity=9.23cfs***
- ***System Outflows: Q10=4.89cfs, Q25=12.93cfs, Q100=17.92cfs***
- ***Outlet pipe increased to a 24"***

As outlet piping for P-106 and P-107 are combined, the following screenshot is the StormCAD for the pipe segment from the P-106 outlet structure to the system outlet into SWMB P-108 for a 25-year storm



4. The engineer of record should inspect and certify that the site stormwater management system once installed, has been installed per their design. I would recommend this for any site with subsurface drainage elements since much of this information is not captured in detail in the as-built drawings and it is difficult to correct once buried.

   Response: Comment noted.

We trust this addresses your concerns. Should you require additional information, please call me at 860-760-1925.

Sincerely,

Gareth Wilson
Project Manager I