Justin Henderson

From: Angoli, Trish <trish.angoli@dhhs.nc.gov>
Sent: Thursday, October 30, 2014 10:33 AM
To: Justin Henderson
Cc: Donald Munday; 'Ashley Rollans'; David DeCaron
Subject: RE: Tomlin Mill One Stop Septic System

Justin,

I have reviewed the proposal and we discussed everything this morning.

We agree with the adjusted design flow of 132 gpd for the kitchen wastewater and adjusted design flow of 724.2 gpd for the domestic wastewater from the rest of the convenience store.

Both fields have been assigned an LTAR of 0.25 gpd/sq ft.

Field A which will serve the kitchen wastewater will have the lowest two laterals removed due to fill placed on top of the laterals. A total of 365 linear feet of line remain for Field A.

Field B which will handle all the domestic wastewater needs a total of 725 linear feet total. Field B currently only has 521/525 linear feet total. Two new laterals will be added so that the total line length for all laterals in Field B will be 735 linear feet.

The operation permit should include the following conditions when re-issued.

1. Annual effluent samples are required to be pulled from the pump tank and must meet the following limits: BOD – 660 mg/L and TSS – 100 mg/L. The samples are allowed to exceed the limits by no more than 10%.
2. Monthly water use readings are required and must be submitted to the health department every six months. The average daily water use cannot exceed 856 gpd for 11 out of every 12 months. One month out of every year the average daily water use may exceed 856 gpd.
3. If the effluent characteristics or water use characteristics exceed these limits, the store should be notified immediately and given 30 days to come back in to compliance.

If you have any questions, please let me know.

Thanks
Trish

Patricia M. Angoli, PE
NC Department of Health and Human Services
Environmental Engineer, On-Site Water Protection Branch, Division of Public Health
5605 Six Forks Rd
1642 Mail Service Center
Raleigh, NC 27699-1642
919-707-5878 (Office)
919-845-3973 (Fax)
trish.angoli@dhhs.nc.gov
http://publichealth.nc.gov/

PIEDMONT DESIGN ASSOCIATES, P.A.
125 East Plaza Drive, Suite 101
Mooresville, NC 28115
Telephone (704) 664-7888 Fax (704) 664-1778
Email: dmunday@pdapa.com

Engineering
Surveying
Planning

May 28, 2014

Tricia Angoli
NC DHHS/Division of Public Health
Environmental Health Section
On-Site Water Protection Branch
1642 Mail Service Center
Raleigh, NC 27699-1642

Re: Flow Reduction Request for Tomlin Mill One Stop C-Store
1025 Tomlin Mill Road, Statesville, Iredell County, NC

Dear Tricia:

This letter is to request a flow reduction at Tomlin Mill One Stop, a convenience store located at 1025 Tomlin Mill Road in Statesville, Iredell County, NC. This flow reduction request is for a reduction of 1,125 G/D to 724.20 G/D for the store and a reduction of 40 G/D/Seat for a proposed restaurant to 11 G/D/Seat. The hours of operation for the store are from 5:00 am to 11:00 pm with the restaurant only serving breakfast and lunch.

Our client provided 24 months of water bills documenting water usage for the period of January 2012 to January 2014 and thirty consecutive daily flow readings (collected by client) from February 24, 2014 to March 26, 2014 with an average of 314.67 gallons per day. The monthly reading for September of 2013 has been omitted from the calculations due to abnormally high water usage compared to the other twenty three months.

A peaking factor was derived by dividing the highest monthly flow as indicated from the 24 monthly readings by the sum of the 30 consecutive daily water consumption readings. The peak month used was August 2012 @ 13,440 gallons and the sum of the daily flow readings of 9,440 gallons. This resulted in a calculated peaking factor of 1.42.

The adjusted design daily sewage flow was then determined by taking the numerical average of the greatest ten percent of the daily readings and multiplying by the peaking factor. The average of the highest ten percent daily flow readings, 510 (3 days, 3/8, 3/15 & 3/21) used to calculate the adjusted design daily sewage flow of 724.20 gallons per day for the store.

Currently, the store has two separate septic systems with a total design flow of 1,125 gallons per day. The original system (permitted 12/10/1998) consisted of flow for 500 gallons per day. In 2008, additional restroom fixtures were added and an additional system was installed. The additional flow resulted in a total system capacity of 625 G/D. Ms. Karen Schultz, the current store owner, is proposing to add food service to the building with a total of 12 seats. This would add an additional unreduced flow of 480 gallons per day @ 40 G/D/Seat. The food service will only offer breakfast and lunch and would increase the total daily design flow to 724.20 + 480 = 1,204.20 gallons per day with flow reduction for the store and no flow reduction for the food service. To be able to add food service without expanding the current drain fields, a flow reduction will be required for the food service.

Since food service is yet to be provided at this store, a previously approved flow reduction will be used from similar restaurant for justification. Boss Hog BBQ in Catawba County was granted a flow reduction from 40 G/D/Seat to 11 G/D/Seat in November of 2010 (see attached letter from OSWPS). This restaurant operates on a schedule that includes just two meals per day. This will reduce the flow for the proposed restaurant from 480 G/D to 132 G/D for a total daily design flow reduction of 856.20 gallons per day for the store and 12 seat restaurant.

The current system (both 1998 & 2008) is sized for 1,125 G/D with 1,076 LF trench bottom (555 LF conventional & 521 LF of 25% reduction). The LTAR of the current system is 0.30 G/D/SF. We recommend that flows (132 G/D) from the food service be loaded at 0.25 G/D/SF while the flow from the store (724.20 G/D) continue to be loaded at 0.30 G/D/SF. With a total reduced flow of 856.20 G/D, the total LF of drainfield required for flows from food service and the existing store is 981 LF which is below the existing 1,076 LF. The existing chambers will not be used for a 25% reduction in drainfield sizing, but utilized like conventional laterals.

We will continue to keep the drainfield the same size as was originally designed by the local health department. By having more lateral length in the ground than needed, this will add an additional safety factor for the system. We are recommending that the flows from food preparation and wash down pass through a two compartment grease trap prior to entering the septic tank(s).

Also, we recommend that the owner provide annual effluent samples pulled from the pump tank that must meet the following limits:

BOD - 660 mg/L & TSS - 100 mg/L.

The samples are allowed to exceed the limits by no more than 10%. Monthly water use readings should also be required and should be submitted to the Local Health Department every six months. The average daily water use should not exceed 856.20 G/D for 11 out of the 12 months. One month out of every year the average daily water use can exceed 856.20 G/D.

Please review the attached calculations and flow data and contact us if you have any questions or need any additional information in order to approve this request.

The following pages contain the monthly water use records, 30 consecutive daily readings, calculations for the flow reduction for the store and flow reduction approval letter for Boss Hog BBQ in Catawba County as well as proposed menu for restaurant at Tomlin Mill One Stop.

Thank you in advance for your prompt review and approval

Sincerely,

Piedmont Design Associates, PA

Donald L. Munday, P.E.
NC Registration No. 17327
President

Cc.: Karen Schultz, Store Owner