



TOWN OF TRURO
HEALTH & CONSERVATION DEPARTMENT
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To: **Art Hultin, Chairman & Members of the
Zoning Board of Appeals**

From: Emily Beebe, Health & Conservation Agent

Date: July 16, 2020

Re: BoH Comments on Revised Cloverleaf parcel development proposal

On behalf of the Truro Board of Health, thank you for the opportunity to provide comments on the revised proposal for the development of the Cloverleaf parcel. The Board of Health held a work session on July 8th to discuss the latest proposal for the Cloverleaf parcel, including the updated peer review reports prepared by the Horsely & Witten Group (HWG). Mr. Jeff Nelson of HWG called-in to our work session to discuss the report and the supplemental information provided by the applicant's engineer JM O'Reilly & Associates in response to their earlier comments.

1. The Board of Health reviewed the sewage-drainage site plans by JM O'Reilly & Associates dated November 1, 2019, and **revised June 5, 2020**. The revised plans now propose additional treatment of the residential wastewater by a Bio-Microbics system designed to reduce the nutrients from the wastewater generated at this site. A case study provided in the ZBA packet indicates that this system achieved 98% reduction in nitrogen levels at a development in Westport, MA with a design flow larger, but similar to what is proposed for the Cloverleaf parcel; that is, clustered residential conditions with wastewater design flow under 10,000 gallons per day.

The design flow of the current proposal is 7,501 gallons per day. In their peer review of the application HWG has calculated that the Bio- Microbics system as designed could achieve a Nitrogen concentration of 9.1 mg/liter at the property line with Nitrogen levels in the effluent reduced to 10 mg/l. This system, operating as conditioned below, will perform significantly better than the standard residential title 5 systems found in the neighborhood of this parcel, including the Pond Village area. Standard systems typically generate wastewater with Nitrate nitrogen concentrations of 35-80 mg/L.

Based on the findings of the peer review and details of the case study, the Board of Health supports applying this level of additional treatment of the wastewater to significantly reduce the nutrient loading at this site, and the conditions suggested by HWG to ensure that the system perform to the desired levels.

The following conditions are recommended by the Board of Health:

- a. That the Certified Wastewater Operator have documented experienced operating Bio-Microbics systems of this model and size.
- b. That the system will be monitored with water quality testing for 12 months following 80% occupancy of the community. Written protocol for this monitoring will be developed by the Health Department with support from the Barnstable County I/A test center staff, and will specify the relevant parameters for testing.
- c. Should TN concentrations in the effluent exceed 10 mg/L the operator shall notify the Health Department in writing within 5 business days of receiving lab analysis results; proposed corrections shall be implemented within 48 hours.

- d. Following 12 months of monitoring the results may be reviewed by the Board of Health to evaluate system performance relative to the approved water quality thresholds; at such point a quarterly monitoring plan may be substituted for monthly monitoring.
 - e. That a monitoring well established at the property line be located to intercept the groundwater downstream from the wastewater leaching facility at this site. This well shall be monitored quarterly for Nitrate nitrogen for the first year following 80% occupancy of the community.
 - f. That the Operation and Maintenance agreement be executed prior to issuance of the disposal works construction permit.
 - g. That the system be approved, installed and operated in accordance with the DEP approval for the proposed technology.
2. With regard to other comments made within the peer review document the Board of Health sees no need to condition the proposal further as it finds the proposed location of the reserve area test pits to be within keeping of our normal protocols; further, the Board of Health agrees with the recommendations for plan notes to address watertight access covers , cleanouts, estimated seasonal high groundwater elevations and proper setbacks to drainage areas, as well as the specification that plantings over the septic leaching areas be planned to exclude tall shrubs or trees, and support plantings such as low shrubs (such as huckleberry/blueberry) native ground-covers and grasses. Further that native plantings be favored and that turf grass not be included
3. With regard to discussions about the groundwater quality of the Pond Village area down-gradient from the proposed project, the Health Department has reviewed data from Nitrate testing completed under a wroc project between 2007-2016 in an effort to characterize the water quality in wells that were tested. We reviewed analysis results in an area bordered by Pond Village Avenue on the west, to the on/off ramp on the east, further delineated by the Pilgrim pond on the south, and Amanda Lane to the north. The nitrate sample results were gathered during a ten-year period, and in our review area 28 of the 73 developed parcels (38 %) had been sampled and tested. Some parcels were only sampled and tested once; some were tested several times. Most of the developed parcels in this area were not tested at all. For the purpose of characterizing the water quality, we wanted to determine what the average value of Nitrate nitrogen was in this area; and to do that we only included the most current result for those properties that were tested more than once. However, to characterize the average Nitrate levels, the data should be obtained in the same period (in this case- the same year) and should include the same parcels from year to year. With the limited data that is available it is difficult to frame an accurate picture of the Nitrate levels in this area. What we can see are that certain properties displayed elevated Nitrate levels, but most showed low and background levels. The most recent water test analysis do not show any exceedances to the drinking water standard for Nitrate nitrogen of 10 mg/L in the area we reviewed.
- In the area we reviewed, 28 wells were tested in 6 sessions over a 10 year period, and the most recent test results showed 4 wells with Nitrate nitrogen levels that exceeded 5 mg/L . This represents 14 % of the wells that were tested.
 - In the area we reviewed, concentrations of Nitrate nitrogen of more than 2 and less than 5 mg/L. were the most recent results found in 4 wells. This represents 14 % of the wells that were tested.
 - In the area we reviewed, the most recent results for 20 wells showed less than 2 mg/L. Nitrate nitrogen. This represents 71 % of the wells that were tested.

We are of the opinion that while there are several homes with water quality showing Nitrate nitrogen levels >5 and <10 mg/L , this does not appear to be widespread, or trending generally as the results that we have show vast variation from one sampling/testing session to another.

The Board of Health considers protection of groundwater their top priority and are continually looking for ways to protect and improve groundwater quality. The Board has and will continue to aggressively adjust their Regulations for the town of Truro to address ways to protect the Public Health. Be assured that this conversation on the Pond Village area has precipitated a discussion about the watershed of Pilgrim Pond, including the health of the Pond itself, the stormwater issue from route 6, and the nitrogen input from lawns and septic systems in this area.

