

The History: The Doylestown Township Public Water and Sewer Advisory Committee has been collecting data on the septic system functionality in the Pebble Ridge Neighborhood for the past 14 years. Visual inspections of the 203 lots that form the neighborhood in 1998 and 2008 have found examples of malfunctioning On Lot Disposal Systems. Soil studies show that the soils in this neighborhood are poor to moderate effecting septic system performance and the ability to find new places to install a septic system if an old system is failing. Our storm water engineers, Conestoga Rover & Associates have consistently found elevated levels of fecal coliform in the Pebble Ridge storm drainage outfalls.

The Science:

1. The 1998 Boucher and James visual inspection of On Lot Disposal Systems (OLDS) in the Pebble Ridge area found 38 properties which revealed confirmed malfunctioning septic systems and 8 properties that were suspected of malfunctioning at some point during the year *.
2. The 2008 Boucher and James visual inspection of OLDS in the Pebble Ridge Area found 15 properties revealed confirmed malfunctioning septic systems. Another 35 properties had systems that were suspected of malfunctioning at some point during the year*.
3. In 2008, the Bucks County Health Department issued a letter to Doylestown Township explaining the soil composition of the Pebble Ridge Neighborhood and the ability to install new fully functioning on lot disposal systems given the soil's in ability to perk. The letter stated, "For the most part the soils in this area are poorly drained and would not qualify by today's standards." On May 24, 2010, the Bucks County Department of Health sent a revised letter stating, "Most of the soil in the Pebble Ridge area are rated as poorly drained. This area has a history of malfunctions during seasonal high water table conditions. A malfunctioning septic system is a system that ponds on the surface of the ground or backs up in the house at any time of the year. A malfunctioning system during high water table conditions is still considered a malfunction." Systems that malfunction are cause for health and safety concerns for the Township and its Residents.
4. Conestoga Rovers Storm Water Testing Results for Sewage Management Plan (SMP) Cycle 1 (Pebble Ridge and surrounding neighborhoods). Cycle 1 was required to pump their septic systems in 2007 and 2010. You can see that the numbers increased as years between pump out increased. Then in 2010 the numbers greatly improved. Now as time passed in 2011, the numbers worsened. These numbers point to the connection between healthy septic systems and clean groundwater.
 - a. In 2007, 42% of sampled sites showed fecal coliform levels > 100 col/ 100 mL.
 - b. In 2008, 68% the results showed fecal coliform levels >200 col/100ml. Also in 2008 One outfall had fecal coliform results of >600,000 col/100ml!
 - c. In 2009, 100% of samples showed fecal coliform results >600 col/100ml and one outfall showed fecal coliform > 6,000 col/100ml.
 - d. In 2010, after pump outs occurred, only 1 fecal coliform sample showed results > 200 col/100 ml.
 - e. In 2011, 12 samples showed fecal coliform > 200 col/100 ml

Summary & Recommendation:

In January of this year the Board of Supervisors received the results of a Feasibility study conducted by Bucks County Water and Sewer Authority to ascertain the cost and type of public sewer system that would work for the Pebble Ridge Area. The feasibility study reported two types of potential systems for the neighborhood, a gravity system or a Low Pressure Sewer (LPS) system.

At the March meeting of the Public Water and Sewer Advisory Committee, the committee voted to recommend the installation of a gravity system in the Pebble Ridge Area. Their rationale is that the LPS can have higher maintenance requirements and that with the LPS system all residents would need to be required to immediately connect to the system. The estimated cost of the gravity system per home is \$ 20,480 for the line in street plus the individual home hook up cost estimated at \$6,200 equaling a total cost of \$26,680 or about \$75 per month plus interest. The estimated cost for the LPS system per home is \$ 13, 660 for the line in the street plus the individual home hook up cost is estimated at \$4,700 totaling \$18,360 or \$ 51 per month plus interest, plus maintenance. Road restoration cost shall be based on trench repair and is estimated at \$ 1,000 Per household.

The committee recommends that residents with malfunctioning systems be required to connect immediately to the proposed sewer collection system, as was done in the Pebble Hill III and Tedwill neighborhoods, as well as the Turk Road area of the Township and as dictated by Ordinance 297. Ordinance # 298 allows residents with functioning onsite septic systems to connect at a later date, but in no case, later then sale of their property. All residents, no matter when connected, shall be required to pay their fair share of the public (line in the street costs) at time of construction.

*A "malfunctioning septic system" was defined by the observer, using the Pennsylvania Department of Environmental Protection's (PA DEP) criteria of a malfunctioning system. PA DEP defines a malfunctioning system as one which reveals effluent or partially treated effluent is or was ever present on the ground surface. Boucher & James, Inc. added a second category which they termed a "Suspected malfunctioning septic system". This included properties where conditions over the drain field did not reveal conditions worthy of being classified as a malfunctioning system but exhibited one or more of the following: dead grass, excessive grass growth or soft soils within the drain field.