UPPER MAKEFIELD TOWNSHIP

ACT 537 SEWAGE FACILITIES PLAN UPDATE

DOLINGTON AREA ON-LOT SEWAGE DISPOSAL SYSTEM SURVEY RESULTS

AUGUST 22, 2013

PURPOSE OF OLDS SURVEY

- Addressing long-term sewage disposal needs of areas within a municipality that have on-lot sewage disposal system problems is a required component of an Act 537 Sewage Facilities Plan Update.
- BCHD had previously identified the Dolington Area as a "problem" OLDS malfunctioning area.
- Board of Supervisors engaged an independent consultant to perform an On-Lot Sewage Disposal System Survey within Dolington Area to provide an updated assessment of OLDS conditions.

SCOPE OF WORK – OLDS SURVEY

- Perform inspection of OLDS at each property
- Review performance of OLDS with property owner/tenant while onsite
- Document any indications of OLDS malfunctions
- Perform sampling/testing of any observed potential surface malfunction
- Perform sampling/testing of well water
- Perform evaluation of subsurface conditions at each property by conducting soil probes.

Penn's Trail Environmental, LLC Qualifications and Experience



- Penn's Trail Environmental was engaged by the Township to perform the OLDS Survey within the Dolington Area. Penn's Trail Environmental was the consultant selected by the Township to perform a similar OLDS Survey in the Taylorsville Area after submitting a competitive bid for services.
- Penn's Trail Environmental was established in 2008.
- 4 employees with more than 80 years of collective experience with Act 537 (PA Sewage Facilities Act.)
- All Penn's Trail Environmental, LLC employees are state-certified Sewage Enforcement Officers (SEOs). SEO certification requires maintenance of a level of professional performance subject to PA DEP review as well as a requirement for continuing education.

Penn's Trail Environmental, LLC Principal Surveyor: John M. Dudish

- B.A. Biology LaSalle College
- M.S. Biology East Stroudsburg State College (emphasis: water quality assessment and management).
- 12+ years experience as BCDH Environmental Protection Specialist.
- 23+ years experience as environmental consultant
- PA-Certified SEO since 1978 Qualified to evaluate soils/sites for individual and community sewage disposal systems; design and review designs; issue permits of installations; revoke permits, issue notices of violations or take other administrative actions.
- Member of PA Association of Sewage Enforcement Officers (PASEO), state-wide professional organization to maintain knowledge of technical advances and individual proficiency and consistency.



SUMMARY OF DOLINGTON AREA SURVEY

SURVEYED PROPERTIES

- 58 properties identified in the target area
- 35 Property Owners responded to mailing
- 4 Property Owners declined to participate
- 23 owners failed to respond to 3 certified mailings



Map Illustrating Surveyed



PROPERTY INSPECTION CRITERIA

Physical inspection of participating properties for visible indications of:

- sewage system malfunction (raw sewage on surface)
- seasonal stress (lush vegetation growth)
- improper discharges (overflow pipes)
- distinctive sewage odor.



















WELL WATER SAMPLING AND ANALYSIS

- Also considered public health impact by conveyance of incompletely treated effluent to groundwater resulting in:
 - coliform bacteria contamination
 - elevated Nitrate-Nitrogen concentrations
- Samples were collected from raw water supplies (pre-treatment) using sterile methods and laboratory-supplied bottleware.
- Raw water samples were collected from 27 properties
- 1 property could not be accessed for a "pre-treatment" water sample
- 1 sample collected from post particulate filter at owner's request













SOIL PROBE EVALUATION

- Soil Probe Evaluation performed to determine depth to "Limiting Zone" on Study Area Properties as this is a primary factor in the viability of potential OLDS repair/replacement options.
- A Limiting Zone is any layer in the soil or underlying geology which does not renovate or which limits downward movement of the absorption area effluent. Some examples include:
 - Layers which inhibit downward passage of effluent, such as: fragipans, clay lenses, and impermeable rock formations.
 - Layers which provide no renovation, such as: rock formations with insufficient fine materials between the rocks, gravel beds lacking soils, creviced bedrock, rock outcrops, saturated soils, and perched, seasonal and regional water tables.
- Soil probe evaluations were conducted on 27 properties.





GENERAL FINDINGS

- Property Inspections
 - OLDS at 31 properties were inspected.
 - Evidence of a malfunctioning OLDS was documented at one participating property.
 - 3 of the 31 participating properties were served seasonally by holding tanks.
- Well Water Sampling/Testing
 - Well water sampling was authorized at 27 of the 31 participating properties.
 - Initial testing results for coliform bacteria were positive at 3 properties.
 - Subsequent sampling/testing was conducted at the 3 properties. The follow-up testing revealed no well contamination related to malfunctioning OLDS.
 - Nitrate-Nitrogen concentrations ranged from <0.5 mg/l to 8.66 mg/l (10 mg/l requires treatment).

GENERAL FINDINGS

• Soil Probe Evaluation

- Soil probes were authorized on 27 of the 31 participating properties.
- The Limiting Zone on 18 of the 27 participating properties was ≥20", which could potentially support a "standard" design replacement OLDS.
- The Limiting Zone on 7 of the 27 participating properties was ≥ 10", which could potentially support an "alternative" design replacement OLDS.
- The Limiting Zone on 2 of the 27 participating properties was <10", which would preclude the installation of a replacement OLDS.
- The depth to the Limiting Zone is only one of the factors affecting the potential OLDS replacements in the Study Area. Available isolation distances at a number of Study Area properties would not comply with current regulations.
- The BCHD is the regulatory agency that would make a final determination as to the feasibility of OLDS replacements in the Study Area.

Updated OLDS Conditions Assessment Map



Partial Study Area Map: Isolation Distance Concerns



CONCLUSIONS

- Based on the results of the property inspections and well sampling/testing, the functioning of the existing OLDS at the properties surveyed is being "managed" at the present time.
- Performance of existing OLDS may be improved by water conservation and/or increased system oversight/maintenance.
- Based upon a review of BCHD records and the overall evaluation of properties performed in conjunction with the OLDS Survey, the longterm sewage disposal needs of properties with recently permitted OLDS, or the relatively larger properties within the Study Area, would be considered to be addressed.
- Based upon the results of the OLDS Survey including the recent Soil Probe Evaluation and/or existing isolation distance limitations previously noted at the relatively smaller properties within the Study Area, the viability of using replacement OLDS to address the longterm sewage disposal needs of the affected properties is doubtful.
- Long-term sewage disposal needs of properties served by holding tanks or without practical on-lot solutions must be further assessed.

FUTURE ACTIONS/ACTIVITIES

 Township Staff to meet with Pennsylvania Department of Environmental Protection to review recent findings with regard to Dolington Area and develop reasonable approach for moving forward with Act 537 Plan Update.