KINGSTON WATERSHED FOCUS GROUP

Meeting Notes

April, 12th, 2012

This was the third meeting of the Kingston Watershed focus Group and it also included members of the Residents focus Group who were also invited to attend. The meeting was very kindly hosted by the Coffin's at their lovely home on the Elliot River Road. Approximately 10 people attended the meeting.

This meeting was held in order to follow up on the many concerns that had been raised about on-site waste water treatment systems and how we could better manage these systems and enhance their overall sustainability. How can we achieve a higher standard of lot classification and system design and ensure that systems will function well over the long term and not negatively impact the neighbours or our ground and surface water resources?

These are very technical questions and the groups wanted to have an expert sit in with them and share some insights and recommendations. Our Planning Consultant, Phil Wood suggested Kelly Galloway P.Eng., the President of Engineering Technologies Canada Ltd. (ETC), based in Stratford. Ms. Galloway is a highly regarded professional engineer who specializes in rural water and waste water management. She is called on regularly to design and oversee the installation of specialized systems on problematic individual sites and she has also overseen the design and installation of everything from composting toilet systems for Parks Canada to sophisticated central municipal collection and treatment systems like the one she recently installed in the Community of Victoria. Kelly volunteered her time at no cost to the Community and we thank her for her time and the very informative presentation.

Kelly talked at some length about the Wastewater Needs Assessments that she has completed for a number of Island communities. She has done work for the Towns of Stratford and Cornwall and the Communities of Miltonvale Park, Brackley and North Shore to name only a few. Kelly is a soils expert and this process involves an overall study of provincial soil mapping and lot size information to determine which areas likely have soil conditions which are limiting to the installation of conventional septic systems. This is overlaid with a current land use survey and information provided by property owners to determine any clusters of development which may already be facing challenges (due to problematic soils, high water tables, undersized lots, intensity of development, etc.). Special attention is paid to any reports of malfunctioning septic systems or well contamination in the area. At the end of the exercise Kelly is able to produce a map which presents the results of this lot-by-lot needs assessment. The map classifies each building lot into one of the following four categories:

-Lots which are anticipated to be sustainable with a conventional septic system (ie. No wastewater need)

-Lots which will require a raised-bed (ie. above ground) septic field to be sustainable

-Lots which will require an advanced on-site treatment system to be sustainable

-Lots which will require an eventual off-site servicing solution

The results of the soils mapping analysis and needs assessment can be used to identify those ***sub-areas*** within the community which have a large number of lots with ***existing or future wastewater needs***. Kelly emphasized that the needs assessment results should be used as a high level planning tool as the analysis is very much limited by the accuracy of the provincial soils mapping information. Kelly brought along a preliminary map showing Kingston's soils mapping and residential development which indicated there are likely some existing clusters of development which may not be sustainable with conventional septic systems. For a proper analysis to be done, Kelly would have to first obtain updated map layers and database information from the province which shows individual lot sizes and current development status.

It was discussed how Kingston also desires to identify strategies to enhance sustainability of future subdivision developments serviced with individual on-site sewage systems and wells. For the undeveloped areas within the community, Kelly explained how the various map layers with information on soils, shallow bedrock, groundwater, nitrates, slope/topography, proximity to watercourses, etc., could be used to model different subdivision development scenarios. The results of the modeling could in turn be used to identify development strategies to reduce the potential for negative environmental impacts from new subdivisions. Possible strategies might include: development controls and higher development standards (eg. Larger lot sizes, particular lot layouts and subdivision configurations) and/or higher standards for the construction of on-site sewage systems and wells.

Kelly then went on to describe some of the localized "cluster" types of waste water collection and treatment systems that might be considered as an alternative to the "urban" style central sewer and waste water treatment systems that are traditionally installed in large, densely developed cities and municipalities. One example is called a *Septic Tank Effluent Sewer* which was used in the Community of Victoria's system. This system uses individual septic tanks on each lot to break down the solids and to provide an initial level of treatment. The partially treated liquid is then transported by either a *Septic Tank Effluent Gravity (STEG)* sewer system or a *Septic Tank Effluent Pump (STEP)* sewer – depending on the local topography. The final treatment is supplied by a centralized facility that could be a large *communal septic field* or other options such *as sand filters*, various innovative *packed-bed filter* systems or man-made wetlands, etc. Kelly's web site at www.engtech.ca can provide more information for those who are interested.

The last item we discussed was the adequacy of the current septic system standards in use in Prince Edward Island. While minimum lot sizes have continued to increase, it is evident that one of the best methods to ensure system sustainability is to have larger lots. Our proposed one acre minimum for single family lots is a step forward, but for particular subsurface, groundwater and slope conditions,

larger lot sizes would provide additional security. It is difficult to say just how large lot sizes should be without at least some analysis and modeling of typical scenarios, and this could be carried out within the context of an engineering study. Final development controls could be fine tuned once site specific subsurface data (eg. Soil test pit information, test wells) were gathered by the developer. Larger stream set backs or buffers (more than the current 15 metres) would also help to protect surface water systems from nutrients and other forms of contamination.

Kelly has also been promoting community based, ***Septic System Management Programs***, and upgrades to our current septic installation standards for a number of years. These include a very simple "effluent filter" installed in the septic tank which can prevent solids from overflowing into the tile field system and cause very expensive tile field replacement; installation of "inspection ports" in tile field trenches; and watertight testing of septic tanks.

For sites with less than ideal conditions, Phil Wood highly recommends that a qualified engineer be asked to perform a detailed site assessment and to recommend a system that is suited to the site (or perhaps avoid the site altogether). In these days of rising insurance costs, the professional "errors and omissions" insurance that engineering firms carry may have "liability reducing" benefits for small municipalities.

At the end of the meeting it was decided that some of these items might be able to fit into a new Development Bylaw and that others, perhaps, would be more appropriate to go into some form of information brochure for new and existing home owners. Many of those in attendance readily admitted that they did not really have a good idea of what was going on in their septic system or how to best care for the system in order to ensure its long term health.