

Ballantrae High Water Table Investigation

Problem

- Homeowner complaints over the spring/summer 2009 of wet basements and/or frequent operation of their sump pumps
- Complaints are mainly in the vicinity of Aurora Road and Highway 48

Hydrogeological Setting

- Shallow groundwater in the area flows in northerly and southerly directions from the general Aurora Road corridor
- There are three main aquifers, a surface water table (upper) aquifer and two deeper aquifer systems
- All of the aquifers consist of sand and sand and gravel materials
- the upper aquifer is underlain by fine grained low permeability soils (glacial till) and can be found throughout the community at ground surface
- As shown on the Surface Sand figure, a portion of the upper aquifer follows the Highway 48 corridor and underlies the central part of Ballantrae
- Precipitation infiltrates the upper aquifer and under normal conditions, over the dry summer months, the upper aquifer drains away to the north or south, with a smaller component seeping downward through the underlying fine grained soils

Precipitation

- Normal long-term precipitation records from 1960 to 2004 from the Richmond Hill station shows that the average annual precipitation is 851 mm/year
- Higher than normal precipitation over the last two years – in 2008 the precipitation measured at the Buttonville Station was 1010 mm/year, to-end of October 2009 precipitation was 849 mm/year
- Trend since about 2002 generally shows increases in precipitation

Result

- Higher than normal precipitation, particularly over the last two years with no extended dry periods has resulted in higher than normal retention of water in the upper aquifer, which in turn has produced higher (perched) water table conditions