Town of Erin Growth Capacity:

The Erin Wastewater Treatment Plant Environmental Study Report (ESR) is clear that the approved, rated capacity for the new sewage treatment plant is for an average effluent flow of 7,120,000 L/d.

The ESR based the above average flow on a population equivalent of 18,873. We understand that the intent of the ESR is that the future size of Erin would be a residential population of 14,550 persons plus additional sewage flows from existing and future commercial and employment lands equal to a population equivalent of 4,314, resulting in a total population equivalent of 18,873.

As per the ESR, the above rated average day flow capacity of 7,120,000 L/d was based on a per capita sewage flow estimate of 290 L/d per person, plus an allowance of 90 L/d per person for infiltration (i.e., rainwater and groundwater leakage), for a total average per capita sewage flow estimate of 380 L/d per person.

In reality, actual per capita water use in Ontario is approximately 200 L/d per person[1], according to data published by the City of Toronto and Statistics Canada for general water use and potable water use in Canada on a provincial basis.[2],[3],[4] This means that the per capita water use, and by extension per capita rates of sewage production, are much lower than assumed by Erin and their consultants and as noted above, are approximately 200 L/d per person. When the same infiltration allowance of 90 L/d per person is added, a more reasonable per capita sewage flow rate of 290 L/d per person is estimated. This represents only 76% of the sewage flow rate of 380 L/d per person as estimated in the ESR.

So, theoretically, over time, the actual population equivalent of the serviced portion of Erin could actually be much higher at approximately 24,731 (7,172,000 L/d divided by 290 L/d per person).

However, it is also our understanding that new sewer systems using modern pipe and gasket materials, combined with rigorous inspection and testing during construction, have much lower rates of infiltration and inflow than older sewer systems. As such, it is possible that the long term and more accurate estimate for infiltration could be significantly lower than 90 L/d per person. For instance, if the long term infiltration rate proved to be only 50 L/d per person, the total per capita sewage flow would drop to 250 L/d per person and the population equivalent that could be serviced by the new sewage system would be 28,688.

It should also be clarified that the average day rated capacity of the sewage plant is based on the fact that normally municipalities can average the total sewage flow emitted over a calendar year to determine if they have remained below the rated capacity. We also understand that Environmental Compliance Approvals (ECA) can and do identify that even higher peak sewage flows (and thus higher effluent discharge rates) can and will occur for limited periods, and these maximum peak flows are listed separately in the ECA from the average day rated capacity.

For illustration, please review the ECA issued for the Orangeville sewage plant by following this link.

[1] *ESR, Volume 2 of 3, Part 1, System Capacity and Sewage Flows, 4.1, Flows from Existing Development Communities. P-59/317.*
[2] *City of Toronto average water consumption.*
[3] *Statistics Canada, Canada at a Glance, Environment edition, Water, Table 4, Ontario.*
[4] *Statistics Canada, Potable water use by sector and average daily use, Ontario*.

As per the bottom of page 1 of the linked ECA document, the Average Daily Flow is identified as 13,650 m^3/d. Note that Average Daily Flow is a defined term and if you refer to page 6 (Definitions), the term *"Average Daily Flow" means the cumulative total sewage flow to the sewage works during a calendar year divided by the number of days during which sewage was flowing to the sewage works that year".*

At the top of page 8, also under definitions, rated capacity is defined as *"Rated Capacity" means the Average Daily Flow for which the Works area approved to handle"*

As such, our interpretation of the ESR is that the proposed Rated Capacity (and thus also the Average Daily Flow) of the new Erin sewage plant is intended to be 7,172,000 L/d …and that the ECA will include allowances for even higher peak flows for relatively short periods. The higher peak flows would allow for the inclusion of higher than normal rates of inflow and infiltration that could accompany wet weather periods.

If you review the full Orangeville ECA, we are also confident that nowhere in the ECA does the Ministry of Environment, Conservation and Parks list the number of people, or homes, or businesses that can actually connect to the Orangeville sewage treatment plant. As such, we maintain our position that, very likely, the ECA issued for the Erin sewage treatment plant will be the same, i.e., the Erin ECA will not limit the number of people that can connect to the plant. Therefore, the ECA itself will not limit the ultimate size of urban Erin and or Hillsburgh. Combined with much lower and more accurate per capita sewage flows of 290 L/d per person, we continue to contend that the actual population equivalent that could be serviced by the Erin sewage plant could exceed 24,000, or as much as 28,000, in the future.

It is interesting to compare the rated capacity of the Orangeville sewage plant (13,650 m^3/d) with the proposed Erin sewage plant (7,172 m^3/d rated capacity). This means the Erin sewage plant will be almost 53 percent as large as the Orangeville plant. Our understanding is the current population of Orangeville is approximately 29,000 persons and we assume the Orangeville sewage plant has been expanded to allow a much larger serviced population in the future. It is a sobering thought to consider an urban Erin that is 53 percent of the size of a future and much larger city of Orangeville.

We remain very concerned whether the ecological integrity of the West Credit River can be saved with a much larger urban area upstream (expanded Erin and Hillsburgh) with accompanying massive increases in urban heat island effects, much increased stormwater flows to the West Credit and at the same time a significant loss of infiltrated rain and snow into the critical groundwater aquifers below. These aquifers are critical to maintain the cold water baseflow in the West Credit during the hot summer period.