**Notes on sewer depth**

As a general rule of thumb sewers are buried not less than 1m deep.

There are 3 types of sewer:

**Foul** – transports foul sewerage, that waste from the toilet bath, kitchen sink, washing machine, dishwaher etc to the sewage treatment works

**Storm/surface** – transports rainwater and water accumulating on the surface to a watercourse like a culvert, stream or river

**Combined** – transports both foul sewage and storm/surface water to a treatment works but in the same pipe.

Since the sewerage network is gravity fed, it flows downhill, unlike the water network which is pressurised.

This means that when building a new street or estate, sewerage network designers will look at the depth of the target sewer into which the sewage from the new estate must flow and work backwards to see if an acceptable downhill gradient can be achieved.

Self-cleansing – there is a concept called self-cleansing. This is where the force of the flow (generally dictated by speed of the running water, the expected volume and gradient of the sewer must be great enough to have a self cleansing effect. Ie the flow washes the waste down stream and does not allow it to accumulate and block the sewer.

As a very general rule of thumb, a larger diameter sewer can carry the same volume of sewage but at a flatter gradient than a smaller diameter pipe. Although we do use larger diameters for larger expected flows. So there are rare occasions where a network designer might advocate a larger diameter pipe than is needed for volume purposes alone, in a very flat area, because the gradient cannot be achieved.

There are however a few places where it’s simply impossible to connect a property (or sewer in the street) to a main sewer downstream because it would have to flow up hill. In some cases, this involves introducing what is known as a “rising main” where sewerage is pumped uphill. These locations are marked on the data we have provided.

Sewers do not necessarily mirror the surface topography. They may need to be buried shallower or deeper at one end to a) ensure adequate gradient for self-cleansing and b) to meet up with the target sewer.

Guidelines for laying new sewers: There are guidelines for contractors installing sewers. “Sewers for adoption design guide and part H of building regulations.”

Sewer gradients (made simple).

Foul sewers - for new we refer to self-cleansing regime.

for a 150mm dia the gradient should be not flatter than 1:150 where there are at least ten dwellings units connected;

for a 100mm dia serving less than 10, no flatter than 1:80.

Surface water

for a 150mm dia the gradient should be not flatter than 1:150 and  for a 100mm , no flatter than 1:100. However these parameters should not be taken as the norn when the topography permits steeper gradients.