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### Concerns on the lack of consistent and reliable information with a limited forecast on the future Hazard Mitigation:

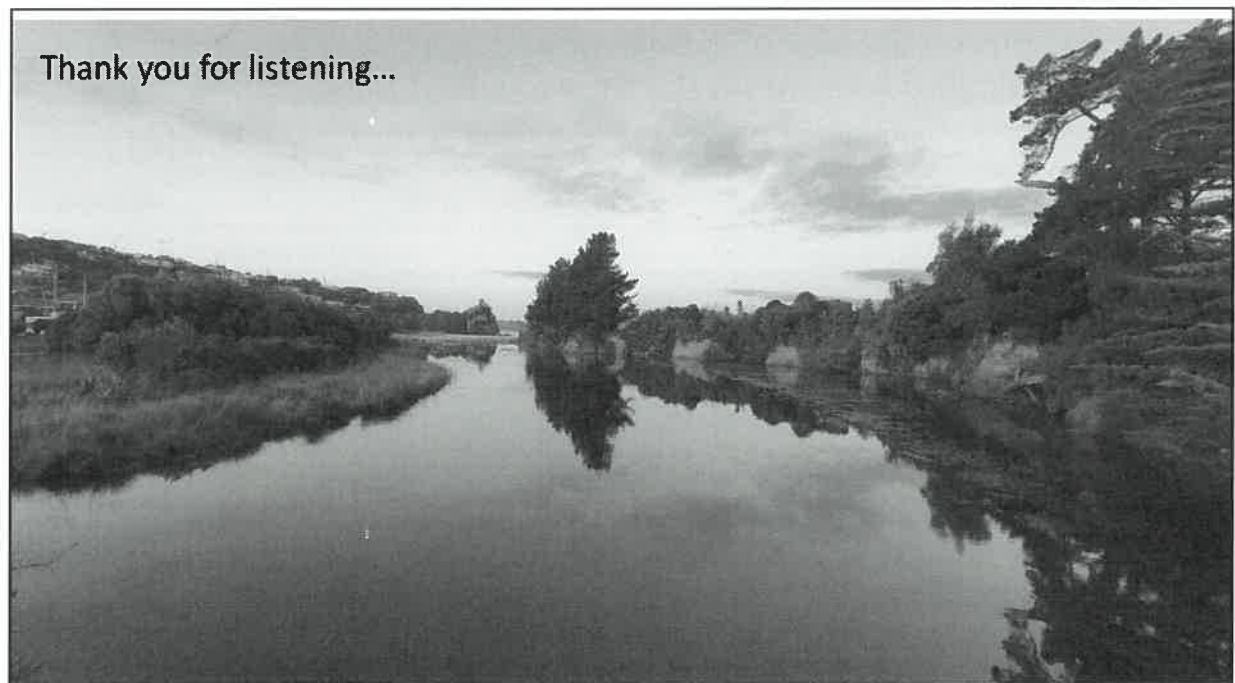
- Loess dispersive nature and highly erodibility, with a limited volume available after site clearance and organic's separation. Lime modification of loess increases durability and constructability characteristics but can affect the permeability. Effect of leachate on lime and potential for degradation of electro-chemical bond or if use high % lime the 'cementing' effect.
- Liner formed of a natural clay source typically constructed wet of the optimum moisture to increase the 'puddle' effect (makes it more deformable but still responds to compactive effort). Using lime negates the beneficial method to build an impervious liner.
- HDPE or GCL Liners have a warranty are limited in timeframe and under specific operational and ongoing maintenance conditions. Reliance on under-liner drainage and external surface monitoring to determine leakage and 'plume' direction.
- Surficial Henley Breccia erodibility, variable permeability, suitability for reuse as capping material or in a zoned liner. Land stability and effects of the shallow groundwater table on the proposed steep excavations / road cuttings.
- Deep seated landslide failure not modelled yet but the terrain indicates this has occurred. Underlying less weathered Henley Breccia drilling indicates appear to either be from faulting or shear / crush zones from large scale landsliding. The deeper low permeability layer and colour changes in the geology presents a combination of confined and higher flow aquifer with the likelihood of well developed preferential seepage pathways.
- Deeper groundwater table with vertical recharge has a seepage time from site to reach either the Taieri (~4.1km) 120-1300years or the Pacific (~3.1km) 95-1000years (*simplified calculation based upon the limited pumping tests information*).
- The initial seismic hazard recognises the site is located between two 'active' faults The 'Titri' and 'Akatore' with 0.5g ground accelerations, however the block (uplift or downthrow) displacement is as yet undefined.
- Do the geology, groundwater along with the 'active' faults or ancient landsliding present a future hazard post de-commissioning.

=> in light of these geological and engineering uncertainties does it warrant developing a 'greenfield site landfill at the top of the catchment?

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