



## MEMORANDUM

**TO:** Kristan Stalker – Maryhill Ltd

**FROM:** Chris Hansen  
Clark Fortune McDonald & Associates

**DATE:** 3<sup>rd</sup> April 2019

**SUBJECT:** Glenpanel – Proposed housing development – WSP Opus review dated 22 Mar 2019.

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The numbered points below correspond with the numbered points in the WSP OPUS Memo.

### Wastewater

1. Once the precise capacity of the DN375 pipe has been determined; it is anticipated that a threshold of total number of DE's will be set as a limit before a new pumped main is commissioned. It is anticipated that some development can proceed prior to new main being commissioned.
2. Agree that a single WWPS is preferable however, this outcome is dependent on timing and cooperation of several different land owners. Short, medium- and long-term solutions may need to be considered to incorporate the best whole of life outcome.
3. Although not in keeping with the HIF, utilising the existing DN125 may provide interim connection while HIF works are being completed. It is already available for use.
4. Agree storage volumes and WWPS sites can be determined at detailed design time.
5. As above, although the existing infrastructure was not designed for additional flows, it may still be a cost-effective interim solution to complete minor upgrades to enable development to proceed while new infrastructure is built. No option should be ruled out fully until there is more certainty in development timing and detail.

### Stormwater

1. Agree that the volume of on-site storage is the remaining variable to be determined should the development proceed. There is sufficient land available in the development plans for large volumes of storage.
2. The cut-off drain exists currently. The drain however was not specifically designed or constructed to any engineering standards. The cut-off drain therefore will need further assessment and possibly augmented. What the existing drain illustrates however is that this engineering principle and method has been successful for this site.
3. The COP is a constantly evolving document. The standards applied to the design should be set at resource consent.



4. It is inevitable that all infrastructure requires some maintenance.

### **Water Supply**

1. Previously QLDC have accepted 1,000 l/dwelling/day based on similar developments (Shotover Country SHA & Hanley Farms). (333l/p/d) This was considered a realistic demand based on data available to QLDC. This may be considered a realistic figure for this development.
2. The subject land has an existing supply agreement with the Arrow Irrigation Company. The irrigation demands for the existing pastoral uses are vastly higher than those anticipated once the development is completed. The Arrow supply will be used for public amenity areas and open space. It is not however proposed to connect individual properties to the scheme.
3. Meeting the firefighting demand of 25l/s will be incorporated into the reticulation sizing. Mains and hydrants will be designed to meet firefighting levels of service. This demand is then held as static reserve in a reservoir. Once the reservoir is filled, no additional domestic demand on the water source and treatment is needed. (unless there is a fire).
4. Again, detailed pipe sizing/modelling is needed to confirm minimum fire fighting levels of service can be met. A suitably placed reservoir to provide higher pressures or potentially fire booster pumps could be installed to provide this service.
5. If the buildings proposed in the storage area contain large fire cells or have a high Fire Hazard Category, then they shall be sprinklered to meet FW2. Buildings and activities of this nature will require specific design and consent.
6. The highest elevation of any of the proposed buildings on the Glenpanel site is at approx. 365masl. If the reservoir is to be sited at RL 407m, then the minimum static pressure would equate to 420kpa. The lowest is at approx. 358masl providing 490kpa. QLDC COP allows for a range of between 300-900kpa. It sits comfortably in this range.

We agree that the timing of all proposed developments in the Ladies Mile catchment needs to be coordinated with the timing of HIF infrastructure. Less work may be required for some development to commence using existing infrastructure, some development may need interim upgrades and some development may not be able to proceed until all HIF infrastructure is complete. While this should be coordinated and managed by QLDC, it may be that external market factors also play a part in the delivery of the housing projects.

We note it will also require the ongoing cooperation of the landowners to ensure cost effective infrastructure solutions.

All existing infrastructure is suitable for its designed purpose. It is not however suitable for the fully built demand and will need augmented. It is not economical to construct all new infrastructure at the outset for the full demand. Infrastructure should be built progressively to meet the demands as they arise. As long as the overall design anticipates the final outcome the infrastructure can be provided to service the development.