Summary – Rocky Point Water & Wastewater Evidence

Introduction

My name is John Derrick Sternberg. I hold the position of Engineering Manager for CKL in Tauranga. I hold a BSc Civil Engineering degree and have a Master's degree (MSc) in 3 waters engineering. I am registered as a Chartered Professional Engineer (CPEng) with Engineering NZ. I have 40+ years of experience in 3 waters engineering, predominantly in water and wastewater engineering, for land development, local government and private sector clients.

Scope of evidence

My evidence addresses:

- my original water and wastewater assessment, including any updates or changes to that assessment, as appended to my evidence;
- my response to the water and wastewater matters raised in submissions
- my response to the water and wastewater matters raised in the Central Otago District Council planner's section 42A reports.

Water and Wastewater Assessment – Summary

General

The proposed Rocky Point Development includes 30 lots, with a mix of residential, large residential and communal use. CKL's assessment for the treatment and disposal of wastewater, as well as the provision of water supply options is summarised below. A service agency agreement will be established to ensure the ongoing maintenance of all water supply and wastewater infrastructure, including monitoring and reporting in accordance with Taumata Arowai (water services regulator for Aotearoa) Drinking Water Quality Assurance Rules and requirements for Acceptable Solution for Mixed-Use Rural Water Supplies.

Water Supply

It is proposed that water will be supplied to the proposed development from the Chinamans Terrace water scheme. This scheme draws water from an existing bore to the north of the subject lot, with a permit to extract 2,735 kl/day from the aquifer and culminates in four elevated storage tanks to the east of Rocky point.

Bore water quality is generally good with little or no pre-treatment expected. Treatment (through filtration and UV) is however proposed at point of entry (households) to ensure the provision of safe, treated water in accordance with the NZ Drinking Water Standards requirements.

The estimated potable water demand for the development is 22.5kl/d, based on 30 lots, 3 people per lot x 250 litres per person per day. It is proposed to expand the existing bank of raw water storage at Chinamans terrace, at a suitable location to provide sufficient storage. Supplementary harvesting of rainwater on each lot will be considered as a water conservation option for localised irrigation purposes.

Wildfire Management NZ have provided advice on a strategy for combating wildfire. Two types of sprinklers have been recommended to mitigate this risk: vegetation sprinklers (to reduce and slow fire spread in key risk areas, particularly focussed on up-slopes and gullies) and ember sprinklers (to mitigate against the risk of ember attack (drifting embers). A separate (from potable) reticulation and storage system (340,000l capacity strategically located to ensure adequate pressure under gravity) will be provided to supply wildfire sprinkler water. A fire detection system will automatically activate sprinklers. This storage volume can be increased to cater for bulk irrigation purposes if required.

Wastewater

Geotechnical advice has indicated that Lots 1 – 3 and 19 – 30 are capable of accommodating on-site wastewater treatment and disposal. Secondary level treatment is highly recommended for these lots due to the high ecological value of the area.

The remaining lots (4 – 18) are considered unsuitable (geotechnically) for on-site treatment and disposal. For these sites it is recommended to install a low-pressure sewer reticulation system, with on-site grinder pumps and small bore (50mm) rising mains to convey effluent off-lot to the area west of lot 20 for treatment and disposal. The proposed treatment comprises a commercial (communal) wastewater treatment plant (WWTP) and land disposal. The communal treatment system (AWTS) will also be required to treat wastewater to a secondary level prior to land disposal.

Various alternatives were considered including gravity sewer reticulation, multiple land disposal systems, or one large, centralised treatment system. The latter would require a large area of land for land disposal (not considered feasible, given the geology of the site) or discharge to the Clutha River (considered ecologically and culturally sensitive). The selected option was considered the most versatile and practical solution with the least environmental impact.