Mechanics of the Waimea Community Dam

Water from the upstream reservoir flows into either or both of the lower and upper intake screens. The screens work as a filter to exclude fish and debris from the outlet works. The water then flows through the screens into the upstream valve chamber, where the water from the two intakes is mixed to maintain water quality targets. After flowing through approximately 160 metres of pipework, the length of the dam, the water reaches the downstream valve chamber where cone valves control the release of the water to the river.

◀ UPSTREAM CONSTRUCTION

▶ DOWNSTREAM CONSTRUCTION

A VALVE CHAMBER DOWNSTREAM houses fixed cone valves to allow safe discharges to the river. Also inside the valve chamber is the micro hydropower turbine, which provides power for the dam and a ventilation system so it is safe for personnel to access the conduit.

The INTAKE SCREENS can be winched to the dam crest for ease of cleaning and maintenance, with a platform to make it safe for personnel.

Reservoir water is filtered through the upper and lower INTAKE SCREENS, to meet water quality objectives. The 20mm screen openings prevent harm to fish and eels and prevent debris from entering the pipes and valves.

The two intake pipes enter the UPSTREAM VALVE CHAMBER, where water quality is achieved by mixing the flows from the two pipes using butterfly valves.

During dry periods, the Waimea Community Dam's stored water is released to maintain even flows in the Lee and lower Waimea rivers. The flowing rivers top up the Waimea aquifers to maintain water levels for extraction, reduce the risk of saltwater intrusion from the coast and maintain a healthy river habitat for plants and animals. The flow from the dam will support both horticulture and the domestic water wells near Appleby that supply water to the combined Richmond / Nelson water network. Māpua, Ruby Bay, Brightwater and Wakefield also use bores in the Waimea Plains, benefitting from the recharged aquifers. The Waimea Community Dam catchment covers approximately 26% of the full Waimea River catchment. In an average year the dam is expected to be full 83% of the time. The size of the reservoir mitigates the impact of a drought greater than a 1:50 year event.

A DOWNSTREAM VALVE CHAMBER houses fixed cone valves to safely discharge water into the river by dissipating energy. The micro-power turbine is also inside the valve chamber to power the dam.