

Physical Hydraulic Models

Googong Dam Spillway, Queanbeyan, NSW

Background

Googong Dam is situated in Queanbeyan on the Queanbeyan River in southern NSW and is owned and operated by ActewAGL. The spillway chute has suffered severe erosion in the unlined rock section and has undergone subsequent remedial works. Based on a recommendation from GHD, ActewAGL plans to extend the concrete lining to produce a longer lined chute, raise the sidewalls and construct a flip bucket discharging into a plunge pool. In order to achieve this a hydraulic model investigation was needed and MHL was engaged to undertake this.

Project Scope

The aim of the study was to carry out physical model testing on the proposed Googong Dam spillway upgrade works to evaluate and verify the adequacy of the proposed alternative designs for upgrade works up to the newly revised PMF of $10,500 \text{ m}^3/\text{s}$.

Our Role

MHL constructed a 1:60 scale model of the Googong Dam existing spillway and proposed upgrade works, to examine the hydraulic behaviour for six discharges up to the PMF. Testing included discharge rating, water surface profile and velocity measurements as well as static and transient pressures on the chute and walls.

Outcomes

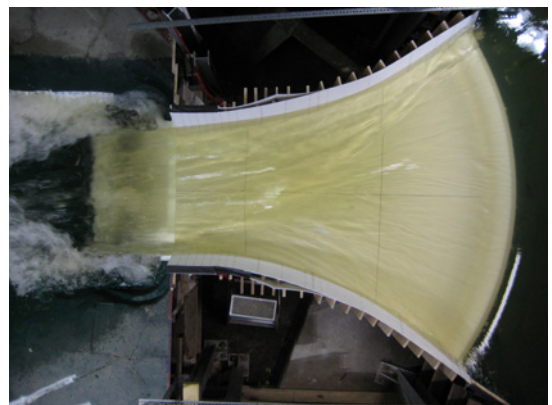
The information gathered from testing of the proposed spillway aided the final design by providing important information on pressures along the chute, sidewall heights, and erosion patterns in the plunge pool area.



Spillway discharging downstream into the Queanbeyan River



Flow exiting flip bucket into plunge pool area



Overhead view of new chute extension