

13 March 2026

POSITIONS AVAILABLE: CRC-P PROJECT, “SMART TECH FOR SAFER DAMS: TACKLING EROSION WITH INNOVATION”

Our CRC-P project, “Smart Tech for Safer Dams: Tackling Erosion with Innovation”, has been successfully funded. This exciting collaboration between UNSW, Pells Consulting, and Sunwater aims to develop next-generation tools to address one of the most challenging problems in dam engineering: rock erosion in spillways. Improving our ability to predict and manage erosion is critical for the long-term safety, resilience, and performance of dam infrastructure.

There are a number of roles we are seeking to fill, high-performing PhD students, Postdoctoral Researchers and consulting roles. The project offers opportunities across computational modelling, laboratory physical modelling at the UNSW Water Research Laboratory, and field-based investigations. We welcome candidates with backgrounds in civil engineering, dam engineering, geotechnical engineering, hydraulic/water engineering, and engineering geology.

The subject matter is on erosion of unlined spillways and chutes, with the following topic areas to be addressed:

- Undertaking UAV (terrestrial) and USV (bathymetric) surveys of various dam spillways, with development of industry leading capability in this area.
- Geological interpretation of rock masses in unlined spillways including rapid development of rock mass models, DFN modelling, based on field inspection and UAV/USV data and interpretation of mechanism of past scour. Additional surveys also undertaken of some cases of soil erosion, including embankments or levees.
- CFD modelling of spillways and correlation between observed scour, interpreted geological mechanisms and hydraulic parameters in CFD models
- Physical hydraulic modelling to represent and analyse the process of scour of fractured rock masses.
- Development of new code for simulation of scour by coupling CFD modelling with rock-mass models, including calibration to field and laboratory studies.

In all cases the roles would be based in Sydney, either at UNSW in Randwick or Manly Vale, or at Pells Consulting office in Frenchs Forest or some combination thereof. Consulting roles would be based at Pells Consulting in Sydney, with roles contributing to the research project as well as the general undertakings and business growth aspirations of Pells Consulting.

We envisage that the task above would be met by the roles set out in the table below, although adjustments to how tasks are distributed may be made depending on candidates.

If you are interested in joining the team, please send your CV, academic transcripts, and a cover letter and any further questions to a.sufian@unsw.edu.au and / or steven@pellsconsulting.com.au.

Please feel free to share this opportunity with your networks.

Role	Mandatory Criteria	Desirable Criteria
PhD DFN land model development	Degree in Civil Engineering or Engineering Geology. Ability to work outdoors undertaking inspections. Experience in development of geological models. Strong computer and analysis skills, engineering / scientific analysis and reporting.	Practical experience in geotechnical engineering, engineering geology, dams engineering. Experience with UAV / USV's. Experience in development of geological models. Engineering computational analyses skills.
PhD CFD modelling and scour interpretation	Degree in civil or mechanical engineering. Strong understanding of engineering hydraulics. Strong computer and analysis skills. Engineering / scientific analysis and reporting	Experience in CFD modelling. Experience in hydraulic, geotechnical and / or dams engineering. Strong coding ability. Experience with UAV / USV's. Experience in spatial analysis. Ability to work outdoors
PhD Physical hydraulic models / laboratory testing	Degree in civil or mechanical engineering. Strong understanding of engineering hydraulics. Engineering / scientific analysis and reporting.	Practical skills in instrumentation Skilled with model building. Computational and coding skills.
PhD Coupled Model development	Degree in science or engineering fields. Strong coding ability. Engineering computational analyses skills.	Experience in CFD modelling. Experience in hydraulic, geotechnical and / or dams engineering.
PostDoc DFN Modeling	Strong coding ability. Experience in the numerical side of rock mechanics	Experience with UAV / USV's. Experience in spatial analysis
PostDoc Coupled code development	Strong coding ability. Software development skills.	Experience in the numerical side of rock mechanics Experience in CFD modelling
Consulting, graduate or early career	Degree in civil engineering. Graduate or up to 4 years experience. Strong interest in engineering hydraulics. Interest in developing UAV / USV skills	Practical experience in water engineering. Skills in hydrodynamic modelling. Practical experience in geotechnical engineering, dams engineering, hydrogeology, tunnelling and / or mining. Experience with UAV / USV's and surveying and spatial analysis / GIS. Engineering computational analyses skills. Field experience / ability to work outdoors
Consulting, experienced engineer	Degree in civil engineering or engineering geology. Over 8 years experience in water, geo and / or dams engineering. Capability / Interest in developing UAV / USV skills Interest / capability in business development.	As above.