

# Mangrove Creek Dam

Central  
Coast  
Council

## Emergency Plan Summary



**Mangrove Creek Dam is the Central Coast's largest dam, located 50km north-west of Gosford in a narrow valley.**

**Constructed between 1978 and 1982, the dam provides 93% of the region's water storage with a maximum capacity of 190,000 million litres of water.**

**Mangrove Creek Dam is a concrete faced rockfill dam that provides on-stream storage of water. The dam has a catchment area of 101 square kilometres and provides water to the Central Coast local government area.**

**Central Coast Council is the owner and operator of this declared dam.**

## **Dams Safety NSW**

Dams Safety NSW was established under the Dams Safety Act 2015 as an independent regulator with responsibility for the safety of declared dams in NSW.

The main role of Dams Safety NSW is to empower, support and regulate dam owners in managing dam safety risks for the NSW community.

Once a dam is declared, the dam owner must comply with the requirements of the Dams Safety Act 2015 and the Dams Safety Regulation 2019.

Central Coast Council, as a dam owner, is responsible for the operation of the dam including emergency management.

## **Dam safety**

Mangrove Creek Dam has a dam safety management system and plan in place to ensure that risks from the dam, impacting the safety of people, property and the environment, are managed in accordance with legislative requirements and industry best practice.

This includes a Dam Emergency Plan (DEP) that describes emergency procedures for Mangrove Creek Dam and provides information for emergency agencies should downstream evacuation be required in the unlikely event of dam failure.

The purpose of this DEP is to:

- provide processes and procedures to manage likely risks to people and property in the unlikely event of a dam failure
- enable a collaborative response with emergency agencies, emergency management groups, engineering specialists and regulators
- outline the roles and responsibilities for various staff and agencies in the event of an emergency at Mangrove Creek Dam
- identify, evaluate and classify potential emergency situations which could threaten the security of Mangrove Creek Dam and/or surrounding areas
- provide timely notifications for appropriate internal personnel and external emergency management agencies
- define the probable extent of flooding resulting from extreme rainfall events and/or failure of the dam wall; and
- outline emergency instructions, including potential preventative actions, for Council to take prior to and following the development of an emergency.

The DEP has been prepared to guide the management of Mangrove Creek Dam in an emergency. The DEP also includes arrangements for notifying response agencies of potential or actual dam failure situations that may develop.



## Types of emergencies

The DEP outlines emergency identification, evaluation and classification including methods for detecting the development of a potential emergency.

A number of scenarios leading to the possible failure of the dam wall are considered. The three main types of dam failure are associated with:

- extreme flood levels overtopping the dam wall
- an extreme earthquake, and
- internal erosion of the dam wall, known as piping.

Extreme flood events are far above any wet weather event experienced to date and relate to the most rain theoretically possible. The flow of water over the spillway is a design feature for protection of the dam.

## Notifications and actions

When emergency conditions are identified, Council takes action to respond and monitor the dam in accordance with the DEP. If an emergency meets pre-defined alert levels Council notifies the relevant agencies.

Council's primary notification is to the NSW SES, the lead response agency for dam flood emergencies. The NSW SES will provide 'Watch & Act' or 'Emergency Warning' notifications to the community depending on the alert level.

Council continues to monitor and manage the dam and provide updates to response agencies and regulators.

## Alert levels

The DEP explains how alert levels are determined and provides detailed information about actions to be undertaken at each alert level, the roles and responsibilities for response agencies, and when public notifications should occur. These are supported by computer models that have simulated a range of extreme rainfall events that provide estimates of water levels, water velocities and time periods to ensure we are taking the right actions at the right time and not sending warnings to our community unnecessarily. The different levels allow the different agencies involved in an emergency response to be aware that a situation may occur and start planning what to do if an emergency response is required.

The three alert levels are:

- **White** – Support agencies are notified and begin preparation for an emergency response. There are no public notifications at this level.
- **Amber** – SES 'Watch and Act' issued instructing downstream population at risk to prepare to evacuate.
- **Red** – SES 'Emergency Warning' issued instructing downstream population at risk to evacuate now/ move to high ground.

The NSW SES is moving to the Australian Warning System for flood and tsunami warning on 30 September 2022. The 'Watch and Act' and 'Emergency Warning' terminology used here aligns with this new system.



## Roles and responsibilities in an emergency

Agency	Responsibility
Central Coast Council	Overall operation, maintenance and surveillance of Mangrove Creek Dam Emergency planning
Specialist dam engineering consultant	Provision of technical advice on issues and options to manage risks to dams
NSW State Emergency Service (SES)	Designated lead response agency for dealing with floods Provides advice to the community on flood status and actions to be taken Coordinates evacuation, welfare of affected communities and flood rescue operations.
Police	Conduct of emergency operations under direction of NSW SES
Dams Safety NSW	Regulation of dam safety in NSW Update the state government minister as required

## Notification procedures and communications during emergencies

The DEP includes procedures to ensure that timely warning is provided to the responsible agencies in the event of a potential dam failure or incident, and to provide information that is relevant to the emergency response.

The DEP includes response processes for the different alert levels outlining:

- the actions that need to be completed for each alert level
- the organisation responsible
- the key people along with their contact information

There are procedures for flooding, earthquakes and for other emergencies.

The DEP describes when and how Council updates NSW SES on actual and expected dam conditions and potential for flooding in relation to dam failure. NSW SES monitors the overall flooding impacts and provides information to communities on possible extent of flooding and actions to be taken.

## Dam operations and monitoring

The overall dam safety management system describes the broad range of operational aspects to ensure the long-term safe operation of the dam, including:

- regular inspections and surveillance that are linked to warning systems
- servicing and maintenance of grounds and equipment
- regular reviews of surveillance data and practices by qualified specialist
- repairs and renewal of assets as required
- communication methods and record keeping
- incident reporting templates.

There are several processes and documents to support the overall management of these critical assets before, during and after any emergencies.

