

**Armidale Regional**

# Local Flood Emergency Sub Plan



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# ARMIDALE REGIONAL FLOOD EMERGENCY SUB PLAN

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**A Sub Plan of the Local Emergency Management Plan (EMPLAN)**

**Volume 1 of the Armidale Regional Flood Emergency Sub Plan**

**Version 1.0**

# AUTHORISATION

The Armidale Regional Flood Emergency Sub Plan is a sub plan of the Armidale Regional Local Emergency Management Plan (EMPLAN). It has been prepared in accordance with the provisions of the **State Emergency Service Act 1989 (NSW)** and is endorsed by the Local Emergency Management Committee in accordance with the provisions of the **State Emergency and Rescue Management Act 1989 (NSW)**.

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### Authorised

Signature:



NSW SES Local Commander – New England

Print Name:

Johnathon Tarian

Date:

21/09/2023

### Endorsed

Signature:



Chair, Local Emergency Management Committee

Print Name:

Alexander Manners

Date:

3-10-23

## VERSION HISTORY

Version Number	Description	Date
1.0	Armidale Regional Local Flood Plan	October 2023

## PREVIOUSLY ENDORSED VERSION PRIOR TO LGA AMALGAMATION

The below table lists all previously endorsed versions of this plan.

Description	Date
Armidale-Dumaresq Local Flood Plan	August 2006
Armidale-Dumaresq Local Flood Plan	October 2013
Guyra Draft Flood Sub Plan	1994
Guyra Local Flood Plan	October 2013

## AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

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 NSW State Emergency Service  
 PO Box 6126, Wollongong NSW 2500  
[nswses.communityplanning@ses.nsw.gov.au](mailto:nswses.communityplanning@ses.nsw.gov.au)

Amendments in the list below have been entered in this plan.

Amendment Number	Description	Updated by	Date
01	Update of references to 'Flood Development Manual' – replaced with 'Flood Risk Management Manual'	Melissa Lloyd	
02	Update of wording in section 5.4 relating to flood warnings, to reflect the change to the Australian Warning System	Melissa Lloyd	
03	Update of wording from 'DPIE' to 'DPE'	Melissa Lloyd	
04	Recovery Operations – updated 6.22 reference from Resilience NSW to NSW Reconstruction Authority	Melissa Lloyd	
05	Insertion of text under Section 5.9.4 - "The roles and responsibilities for Agriculture and Animal Services are outlined in the Agriculture and Animal Services Functional Area Supporting Plan."	Melissa Lloyd	

## DISTRIBUTION LIST

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# 1 OUTLINE AND SCOPE

## 1.1 PURPOSE

- 1.1.1 The purpose of this plan is to set out the multi-agency arrangements for the emergency management of flooding in the Armidale Regional Local Government Area (LGA).

## 1.2 AUTHORITY

- 1.2.1 This plan is written and issued under the authority of the [State Emergency and Rescue Management Act 1989 \(NSW\)](#) ('SERM Act'), the [State Emergency Service Act 1989 \(NSW\)](#) ('SES Act') and the NSW State Emergency Management Plan (EMPLAN).
- 1.2.2 This plan is a sub plan to the Armidale Regional Local Emergency Management Plan (EMPLAN) and is endorsed by the Armidale Regional Emergency Management Committee (LEMC).

## 1.3 ACTIVATION

- 1.3.1 This plan does not require activation. The arrangements set out in this plan are always active.
- 1.3.2 The Armidale Regional Emergency Management Plan (EMPLAN) is active at all times in anticipation of the need to coordinate support and resources requested by combat agencies, including the NSW State Emergency Service (NSW SES).

## 1.4 SCOPE

- 1.4.1 The area covered by this plan is the Armidale Regional LGA. The Armidale Regional LGA and its principal towns, villages, rivers and creeks are shown in Appendix A.
- 1.4.2 The Council area is in the NSW SES North Western Zone and for emergency management purposes, is part of the New England Emergency Management Region.
- 1.4.3 The plan sets out the Armidale Regional Council level emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the Armidale Regional LGA.
- 1.4.4 In this plan a flood is defined as a relatively high water level which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves (including tsunami) overtopping coastline defences.
- 1.4.5 This plan outlines the local level arrangements for the management of downstream consequences of flooding due to dam failure, however it does not cover the management of flooding of an underground mine by inrush or other



cause, which should be covered by the Mine Emergency Sub Plan for the respective mine.

## **1.5 GOALS**

1.5.1 The primary goals for flood emergency management in NSW are:

- a. Protection and preservation of life.
- b. Establishment and operation of flood warning systems.
- c. Issuing of community information and community warnings.
- d. Coordination of evacuation and welfare of affected communities.
- e. Protection of critical infrastructure and community assets essential to community survival during an emergency incident.
- f. Protection of residential property.
- g. Protection of assets and infrastructure that support individual and community financial sustainability and aid assisting a community to recover from an incident.
- h. Protection of the environment and conservation values considering the cultural, biodiversity and social values of the environment.

## **1.6 KEY PRINCIPLES**

1.6.1 The protection and preservation of human life (including the lives of responders and the community) is the highest priority.

1.6.2 Evacuation is the primary response strategy for people impacted by flooding.

## **1.7 ROLES AND RESPONSIBILITIES**

1.7.1 General responsibilities of emergency service organisations and functional areas are set out in the NSW State EMPLAN and NSW State Flood Sub Plan.

1.7.2 Specific roles and responsibilities for agencies, functional areas and organisations in relation to flooding within Armidale Regional Council are detailed within this plan, Appendix B and Appendix C.

1.7.3 Any agency with agreed responsibilities in this plan that are temporarily unable, or no longer able to fulfil their responsibilities in response operations must as soon as possible notify:

- a. The NSW SES Incident Controller (for local or zone level responsibilities during response operations).
- b. The NSW SES Zone Duty Commander (for regional level responsibilities outside of response operations).

## 1.8 PLAN MAINTENANCE AND REVIEW

1.8.1 NSW SES will maintain the currency of this plan by:

- a. Ensuring that all supporting emergency services and functional areas, organisations and officers mentioned in it are aware of their roles and responsibilities.
- b. Conduct a minimum of one exercise every five years or within two years of the plan being reviewed.
- c. Reviewing the contents of the plan:
  - When there are changes which alter agreed plan arrangements.
  - When changes to land use strategic plans and policies increase the population at risk.
  - After a flood including recommendations from after action reviews, reports, or inquiries.
  - As determined by the NSW SES Commissioner.
- d. The plan is to be reviewed no less frequently than every five years or after a significant flood event.

## 1.9 SUPPLEMENTARY DOCUMENTS

1.9.1 Supplementary and supporting material of the Local Flood Emergency Sub Plan is maintained on the NSW SES website at: <https://www.ses.nsw.gov.au/about-us/flood-storm-and-tsunami-plans/> including:

- a. Flood Plan Glossary.
- b. NSW SES Dam Failure Notification Flowchart.
- c. NSW SES Resupply Flowchart.

# 2 OVERVIEW OF NSW FLOOD HAZARD AND RISK

## 2.1 THE FLOOD THREAT

2.1.1 NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Armidale Regional LGA. This is outlined in Volume 2 – Hazard and Risk in Armidale Regional Council.

2.1.2 Declared dams in or upstream of the Armidale Regional Local Government Area.

Dam Name	Owner	High Risk Dam
Malpas Dam	Armidale Regional Council	No
Puddledock Dam	Armidale Regional Council	Not a declared dam
Dumaresq Dam	Armidale Regional Council	Yes
Hillgrove Eleanora	Hillgrove Mines Pty Ltd	No
Hillgrove Tailings No. 1	Hillgrove Mines Pty Ltd	No
Hillgrove Tailings No.2	Hillgrove Mines Pty Ltd	No
Oaky River	Essential Energy	Not a declared dam

## 3 PREVENTION/ MITIGATION

### 3.1 INTRODUCTION

3.1.1 The Flood Risk Management Manual outlines the NSW Government's Flood Prone Land Policy which details the framework for managing flood prone land in New South Wales. Incorporation of flood risk management into land use planning is one of the key means to limit the exposure to flood risks to our communities and help build long term resilience to future flood events.

### 3.2 LAND USE PLANNING

3.2.1 **Strategy:** Effective land use planning is a key focus for minimising the impacts of flooding. NSW SES will work with land use planning and consent authorities to inform and influence the consideration of the risks arising from flood, storm and tsunami, to prevent the creation of intolerable impacts of these hazards on the community.

**Actions:**

- a. NSW SES will provide strategic input about land use planning matters which have or will create significant flood risk to life and/or property due to flooding.
- b. NSW SES will provide responses to land use planning proposal referrals that have or will create significant flood risk to life and/or property due to flooding.

### 3.3 FLOODPLAIN RISK MANAGEMENT

3.3.1 **Strategy:** Advocate for consideration of emergency management in decision making to reduce risks to the existing community and minimise the growth in future, continuing and residual risk due to development through input to the floodplain management program.

**Actions:**

- a. NSW SES will provide coordinated and consistent emergency management advice to councils and other agencies in relation to the management of land that is subject to flooding or coastal inundation.
- b. NSW SES will provide advice, support, technical resources and training for NSW SES representatives to contribute effectively on local Floodplain Management Committees.

## 4 PREPARATION

### 4.1 INTRODUCTION

4.1.1 Preparation includes arrangements or plans to deal with an emergency or the effects of an emergency.

## **4.2 FLOOD EMERGENCY PLANNING**

4.2.1 **Strategy:** NSW SES develop, review and maintain Flood Emergency Sub Plans.

**Actions:**

- a. Develop and review this NSW SES Local Flood Emergency Sub Plan as required. Local Flood Emergency Sub Plans outline the specific arrangements for management of flood events within an LGA, and may include cross boundary arrangements.
- b. Review plans as per [Section 1.8](#).

4.2.2 Local EMPLAN Consequence Management Guides (CMG's) for flood are not required for communities covered by NSW SES Local Flood Emergency Sub Plans however may be utilised in place of Local Flood Emergency Sub Plan if agreed to by NSW SES.

## **4.3 FLOOD INTELLIGENCE SYSTEMS**

4.3.1 **Strategy:** NSW SES develop and maintain a flood intelligence system to identify flood behaviour, its impact on the community and required response actions.

**Actions:**

- a. Gather and assess flood information for the full range of flood types and severities.
- b. Collect, collate, and assess information on the characteristics of communities at risk and the potential effects of flooding on communities at risk.
- c. Share flood intelligence information with supporting agencies.

## **4.4 DEVELOPMENT OF WARNING SYSTEMS**

4.4.1 **Strategy:** Develop, maintain and prepare systems for the provision of flood warnings and associated warning services.

**Actions:**

- a. All levels of government work in partnership to develop and maintain flood warning infrastructure.
- b. NSW SES maintains a list of the requirements for flood warnings for flood gauges in NSW (including flood classifications, warning times required and key statistics) and can be found in the supplementary document to the NSW State Flood Plan (see Section 1.9).
- c. NSW SES will recommend new warning services and changes to warning alert levels for gauges to the NSW and ACT Flood Warning Consultative Committee.
- d. The State Government, in partnership with Local Government, is responsible for developing and maintaining flash flood warning systems for local catchments where required.
- e. Dam Owners will provide Dam Emergency Plans (where required) and consult with NSW SES on alert levels and messaging. Alert level definitions are listed in Dam Emergency Plans.

- f. NSW SES maintains a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.
- g. NSW SES develops and maintains warning and flood information products by:
  - Utilising flood intelligence data.
  - Developing warning and flood information products.
  - Continuously reviewing warning and flood information products.
  - Consulting with affected communities, key stakeholders, Dam Safety NSW and the NSW and ACT Flood Warning Consultative Committee, and maintains Operational Readiness.
  - Participating in the development of public information and warning systems.
- h. Gauge owners adequately maintain flood warning gauges and systems, including those identified in the 'Service Level Specification' maintained by the Bureau of Meteorology (Bureau) and those identified in the 'Provision and Requirements for Flood Warning in New South Wales' maintained by NSW SES.

## **4.5 BRIEFING, TRAINING AND EXERCISING**

4.5.1 **Strategy:** Ensure NSW SES, supporting agencies, functional areas and the community are prepared and familiar with the strategies and arrangements within the Flood Emergency Sub Plan and supporting documents.

**Actions:**

- a. NSW SES will consult stakeholders throughout the development of plans.
- b. NSW SES will inform stakeholders of content changes after revisions.
- c. NSW SES will ensure their facilities and resources are maintained and operationally ready.
- d. NSW SES will train personnel for their expected flood operation roles.
- e. NSW SES will regularly brief stakeholders on the exercise arrangements contained in the NSW Flood Emergency Sub Plan.

## **4.6 COMMUNITY RESILIENCE TO FLOODING**

4.6.1 **Strategy:** NSW SES provides and maintains a flexible volunteer workforce to support community resilience.

**Actions:**

- a. Ensure ongoing recruitment and training of a diverse range of volunteers.
- b. Ensure pre-planning to facilitate the management of spontaneous volunteers and community members during a flood.

4.6.2 **Strategy:** NSW SES works with individuals, communities, businesses and government agencies to build flood resilience.

**Actions:**

- a. Partners with and engage communities to understand and manage the risks associated with floods, including providing business continuity guidance (NSW SES Business FloodSafe), family preparedness (NSW SES Home FloodSafe) and other engagement strategies.
- b. NSW SES will collate, assess and disseminate flood information to the community.
- c. Collaborate with individuals, businesses, government agencies and communities when developing flood intelligence, preparedness and response information.
- d. Plan for floods collaboratively with communities through community and stakeholder participation and engagement.
- e. Collaborate with community sector and recognise the needs of individuals within communities who have an increased susceptibility during floods.

## 5 RESPONSE

### 5.1 INTRODUCTION

5.1.1 Flood response operations will begin:

- a. On receipt of a Bureau Severe Weather Warning or Thunderstorm Warning that includes heavy rain or storm surge; or
- b. On the receipt of a Bureau Flood Watch or Flood Warning; or
- c. On receipt warnings for flash flood; or
- d. On receipt of a dam failure alert; or
- e. When other evidence leads to an expectation of flooding.

### 5.2 INCIDENT MANAGEMENT ARRANGEMENTS

5.2.1 **Strategy:** Maintain effective control of flood operations across NSW.

**Actions:**

- a. NSW SES uses the Australasian Inter-service Incident Management System (AIIMS) to manage the flood response.
- b. Control of flood response will be at the lowest effective level and may be scaled to suit the incident.
- c. The NSW SES State Controller (or delegate) will appoint Incident Controllers and establish Incident Control Centres (see NSW SES facilities on map in Appendix A).
- d. The NSW SES Incident Controller, in consultation with participating supporting emergency services and functional areas will determine the appropriate breakdown of an Area of Operations into Divisions and/or Sectors in accordance with the principles of AIIMS.

5.2.2 **Strategy:** Maintain Incident Control Centre(s).

**Actions:**

- a. NSW SES will operate Incident Control Centre(s) as required.
- b. The NSW SES Incident Control Centre(s) will:
  - Control resources from NSW SES and coordinate resources of supporting emergency services and functional areas.
  - Manage Request for Assistance (RFA) tasking and ensure they are actioned in a timely manner.
  - Undertake response planning and determine future resourcing requirements.
  - Coordinate information flow, including warnings, public information and social media.

5.2.3 **Strategy:** Provide effective liaison between NSW SES and supporting agencies or functional areas in accordance with Local EMPLAN.

**Actions:**

- a. Supporting emergency services and functional areas should provide Liaison Officers to NSW SES Incident Control Centre(s) and/or Emergency Operation Centres (EOC) as required.
- b. NSW SES will provide Liaison Officer(s) to EOC as required.
- c. Where possible EOC to be co-located with NSW SES Incident Control Centres for Flood Emergency Response.

5.2.4 **Strategy:** Coordinate resources and logistics support to ensure operational effectiveness.

**Actions:**

- a. The NSW SES Incident Controller will notify agencies of potential access issues between locations, for the consideration of pre-deploying of resources.
- b. NSW SES may request resources and logistics support directly from a supporting emergency service or functional area.
- c. Wherever possible, supporting organisations are to provide their own logistic support in consultation with NSW SES where appropriate.
- d. The NSW SES Incident Controller will control air support operations and may utilise supporting agencies in the management of aircraft.

## 5.3 USE OF INFORMATION AND COLLECTION OF INTELLIGENCE

5.3.1 **Strategy:** Ensure flood information is effectively utilised, communicated and collected during and post a flood.

**Actions:**

- a. Information relating to the consequences of flooding, response strategies, situational awareness and operational updates will be distributed by NSW SES to supporting emergency services and functional areas listed under this Plan.
- b. All supporting emergency services and functional areas and Council will accurately record and report information relevant to their activities and any real time flood information (including road closure information) to the NSW SES Incident Controller. This may be in the form of a combined Emergency Operations Centre (EOC) report, or direct from agencies where an EOC has not been established.
- c. NSW SES may establish and operate a Joint Intelligence Unit to coordinate the collection, collation, interpretation, mapping, actioning and dissemination of information.
- d. Reconnaissance, mapping, damage assessments, intelligence validation and post flood evaluation will be coordinated by NSW SES. This may occur post impact and continue into the recovery phase.
- e. NSW SES may request Engineering to assist with the gathering of flood intelligence including (not limited to) maximum flood extents, peak flood heights, recording major flood damage at key high velocity locations and preparation of After-Flood Report.

5.3.2 **Strategy:** Ensure flood intelligence is incorporated into operational decision-making.

**Action:** NSW SES will use flood intelligence, official forecasts, warnings, and flood scenario products to undertake an assessment of the predicted impact of a flood and to inform operational decision-making.

## 5.4 PROVISION OF INFORMATION AND WARNINGS TO THE COMMUNITY

5.4.1 **Strategy:** Timely and effective warnings are distributed to the community.

**Actions:**

- a. The Bureau issues public weather and flood warning products before and during a flood. These may include:
  - Severe Thunderstorm Warnings – Detailed - issued for all capital cities and surrounding areas when individual severe thunderstorms are within range of the capital city radars.
  - Severe Thunderstorm Warnings - Broad-based - issued for the entire Australian State or territories affected highlighting broad areas where severe storms may occur within the next 3 hours.
  - Severe Weather Warnings with reference to heavy rainfall and/or storm surge.
  - Flood Watches.
  - Flood Warnings.



- b. Dam Owners will utilise the Dam Emergency Plan to provide warnings and information to NSW SES and communities (where appropriate).
- c. NSW SES Incident Controllers will issue the following NSW SES Flood Warnings aligning to the Australian Warning System:
  - Advice
  - Watch and Act
  - Emergency Warning
- d. NSW SES liaises with the Bureau to discuss the development of flood warnings as required.
- e. NSW SES provides alerts and deliver flood information to affected communities using a combination of public information.
- f. NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams.
- g. Road closure information will be provided to the community through the following agencies/methods:
  - Local Government Council websites.
  - Transport for NSW 'Live Traffic' website: [www.livetraffic.com](http://www.livetraffic.com) or 'Transport InfoLine': 131 500. VMS messaging on roadways may also be used to advise motorists.
- h. The Public Information and Inquiry Centre will be established by NSW Police Force where required to provide information regarding evacuees and emergency information. Contact details will be broadcast once the centre is established.
- i. The Disaster Welfare Assistance Line will be established by Disaster Welfare Services where required to provide information on welfare services and assistance. Assistance line contact details will be broadcast once Disaster Welfare Services commence.

## 5.5 PROTECTION OF PROPERTY

5.5.1 **Strategy:** Coordinate the protection of property from destruction or damage arising from floods.

**Action:** NSW SES, supporting agencies, and community volunteers will assist the community (where resources are available, feasible and safe to do so) in:

- a. The protection of properties including critical infrastructure through flood protection systems (e.g. sandbagging) to minimise entry of water into buildings.
- b. The raising or moving of household furniture and commercial stock/equipment.

## 5.6 ROAD AND TRAFFIC CONTROL

5.6.1 **Strategy:** Coordinate the closing and re-opening of flood affected roads.

**Actions:**

- a. Armidale Regional Council will coordinate the closure and reopening of council managed roads once inspections have been carried out by the relevant authority.
- b. Transport for NSW will coordinate the closure and reopening of the state road network.
- c. NSW Police Force may close and re-open roads but will normally only do so if the Armidale Regional Council or Transport for NSW have not already acted and if public safety requires such action.
- d. NSW SES will assist with erecting road closure signs and barriers when time and resources permit.

5.6.2 **Strategy:** Coordinate traffic control measures in flood affected areas.

**Actions:**

- a. The NSW SES Incident Controller may direct the imposition of traffic control measures into flood affected areas in accordance with the provisions of the *State Emergency Service Act, 1989* and the *State Emergency Rescue Management Act, 1989*.
- b. The NSW SES Incident Controller may request the Local Emergency Operations Controller provide suitable personnel to assist with traffic coordination.

## 5.7 PROTECTION OF ESSENTIAL SERVICES

5.7.1 Local and Region EMPLAN's contain infrastructure inventories.

5.7.2 **Strategy:** Minimise disruption to the community by ensuring protection of infrastructure and supply of essential energy, utility services and lifelines.

**Actions:**

- a. The Transport Services Functional Area is to coordinate the provision of information about the assessment and restoration of transport network infrastructure.
- b. The Energy and Utility Services Functional Area is to coordinate the assessment and restoration of essential energy and utility services (not including telecommunications).
- c. The Telecommunications Services Functional Area is to coordinate the assessment and restoration of telecommunications and the Public Safety Network.
- d. The Engineering Services Functional Area is to:
  - Coordinate the assessment and restoration of critical public buildings for example hospitals.
  - Assessment and operation of flood protection levees.

- Protection of property.
  - Construction and repair of levees.
  - Dam safety assessment and dam stability.
  - Water supply and sewerage operations.
  - Other critical infrastructure.
- e. The Functional Areas and Council will keep NSW SES informed of the status of utilities and infrastructure.

## 5.8 EVACUATION

5.8.1 Evacuation is NSW SES's primary response strategy for managing the population at risk of flooding.

5.8.2 **Strategy:** Conduct planning to ensure all evacuation constraints are considered.

### **Actions:**

- a. Evacuations will take place when there is a risk to public safety. Circumstances may include:
- Evacuation of people when their homes or businesses are likely to flood.
  - Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access.
  - Evacuation of people where essential energy and/or utility services are likely to fail or where buildings have been or may be made uninhabitable.
- b. NSW SES will consider the following in evacuation decisions:
- Duration of evacuation.
  - Characteristics of the community.
  - Numbers requiring evacuation.
  - Availability of evacuation routes and transport.
  - The ability for existing levees or other flood protection works to fulfil their intended function.
  - Time available for evacuation.
  - Evacuee management requirements.
  - Resources and delivery of evacuation information.
  - Length of isolation.
- c. NSW SES Incident Controllers, planning and intelligence officers will carefully consider the risks involved in conducting evacuations.
- d. All evacuation decisions will be made as per the current NSW SES policies and procedures, and consistent with the NSW Evacuation Management Guidelines.
- e. Potential Evacuation Centres are located in the Local EMPLAN.

- f. NSW Police Force will coordinate the provision of overall security for evacuated areas.

5.8.3 **Strategy:** Evacuate people pre-emptively from dangerous or potentially dangerous places and or locations created by the flood hazard to safe locations away from the hazard.

- a. NSW SES will control and coordinate the evacuation of affected communities.
- b. The NSW SES Commissioner (or delegate) will warn communities to prepare for a possible evacuation, where circumstances allow such lead time.
- c. The NSW SES Commissioner (or delegate) will order any necessary evacuations and provide information to the community about when and how to evacuate.
- d. Support to evacuation operations may be requested from other emergency services and supporting agencies using arrangements in the local EMPLAN and supporting plans.
- e. The Health Services Functional Area will coordinate the evacuation of hospitals, health centres and aged care facilities (including nursing homes) in consultation with NSW SES and Welfare Services.
- f. School administration offices (Government and Private) will coordinate the evacuation of schools in consultation with NSW SES and Welfare Services, if not already closed.
- g. Caravan Park proprietors will inform the NSW SES Incident Controller when caravan park evacuations have been completed.
- h. People who are reluctant or refuse to comply with any Emergency Warning will be referred to NSW Police Force.

## 5.9 EVACUEE MANAGEMENT AND WELFARE

5.9.1 Research and experience in flood operations shows that most evacuees go to family, friends and commercial accommodation outside the impact area.

5.9.2 **Strategy:** Maintain the welfare of communities and individuals affected by the impact of a flood.

### **Actions:**

- a. NSW SES will provide initial welfare for evacuees where required but will hand the responsibility over to the Welfare Services Functional Area as soon as possible. NSW SES will brief the Welfare Services Functional Area at the earliest opportunity regarding the level of assistance required.
- b. The Welfare Services Functional Area will manage evacuation centres for affected residents and travellers in accordance with the Welfare Services Functional Area Supporting Plan.
- c. Schools Administration (Government and Private) will manage the safety of students directly affected by flooding and will work with NSW SES in the temporary closure of schools and will coordinate with NSW SES, Transport and Welfare Services in the management of school evacuees.

- d. Disaster Victim Registration will be controlled and coordinated by NSW Police Force with the assistance of NSW SES and the Welfare Services Functional Area.
- e. NSW SES will provide details of all residents assisted in evacuations to the Welfare Services Functional Area as early as possible.
- f. Where the expected remaining number of evacuees and the duration of evacuation is assessed to be beyond the capability and capacity of the established evacuation centre arrangements the SEOCON may establish Major Evacuation Centres or Mass Care facilities.
- g. The decision to establish Major Evacuation Centres or Mass Care Facilities will be made by NSW SES and SEOCON in consultation with members of the State Emergency Management Committee.

5.9.3 **Strategy:** Coordinate available and accessible health services for flood affected communities.

**Action:** The provision of environmental health advice, assessment of public health risks and coordination of immediate mental health support will be provided by the Health Services Functional Area.

5.9.4 **Strategy:** Maintain the welfare of animals impacted by a flood.

**Actions:**

- a. The Agriculture and Animal Services Functional Area will coordinate the welfare of livestock, pets, companion animals and wildlife including support to primary producers, animal holding establishments and community members.
- b. The Agriculture and Animal Services Functional Area role will coordinate the evacuation, emergency care of animals and assessment, humane destruction and disposal of affected animals, and supply of emergency fodder, water and aerial support where necessary.

The roles and responsibilities for Agriculture and Animal Services are outlined in the [Agriculture and Animal Services Functional Area Supporting Plan](#).

## 5.10 FLOOD RESCUE

5.10.1 **Strategy:** Control and coordinate flood rescue of people and domestic animals.

**Actions:**

- a. NSW SES will perform flood rescue, where training and equipment is suitable and where a risk assessment has indicated that the risk to rescuers is acceptable.
- b. Flood rescue operations will be conducted in accordance with the State Rescue Board NSW State Rescue Policy which sets out the framework, governance, responsibilities and requirements for the management and conduct of flood rescue in NSW.
- c. NSW SES may request other supporting emergency services to undertake flood rescues on behalf of NSW SES. Agencies must be authorised/accredited to undertake flood rescue operations in accordance with State Rescue Board

requirements, as prescribed by NSW SES. Supporting emergency services must supply information regarding rescues performed to NSW SES. Notification arrangements with NSW Police Force are outlined in the State Rescue Board NSW State Rescue Policy.

- d. Rescue agencies will conduct rescue of domestic small and large animals as per the State Rescue Board NSW State Rescue Policy (and may include Large Animal Rescue of family horses and cows at a residence or property). The rescue of livestock (which includes commercial animals found on farming and breeding enterprises) will be coordinated through the Animal and Agriculture Services Functional Area.

## 5.11 RESUPPLY

5.11.1 **Strategy:** Coordinate resupply to towns and villages isolated by flooding to minimise disruption to the community.

**Actions:**

- a. NSW SES will advise communities and businesses if flood predictions indicate that areas are likely to become isolated, and indicative timeframes where possible.
- b. Retailers should be advised to ensure sufficient stock is available for the duration of the flood.
- c. When isolation occurs, NSW SES will establish loading points where retailers can instruct suppliers to deliver goods.
- d. NSW SES will endeavour to support the delivery of mail to isolated communities but may not be able to do so according to normal Australia Post timetables.
- e. NSW SES will assist hospitals with resupply of linen and other consumables where able.
- f. NSW SES may request resupply assistance from supporting agencies.
- g. NSW SES may conduct resupply operations as per the designated resupply plan for the event.
- h. Where additional supplies are required Engineering Services Functional Area be requested to coordinate the supply of goods and services in response to and recovery from the emergency.

5.11.2 **Strategy:** Coordinate resupply to rural properties isolated by flooding.

**Actions:**

- a. When requested, NSW SES will establish a resupply schedule and coordinate the resupply for isolated rural properties.
- b. NSW SES will provide local suppliers with designated loading points. Resupply items are to be packaged by the supplier.
- c. Isolated households unable to afford resupply items will be referred to the Welfare Services Functional Area for assistance.

## 5.12 RETURN

5.12.1 **Strategy:** Coordinate the safe return of communities to flood affected areas when the immediate danger to life and property has passed.

**Actions:**

- a. The NSW SES Incident Controller will determine when it is safe to progressively return in consultation with the relevant Emergency Operations Controller and supporting agencies considering the ongoing risk to public safety.
- b. The NSW SES Incident Controller will specify the level of access to affected communities as the following:
  - Not suitable for access; or
  - Limited access by emergency services and response agencies; or
  - Limited access by residents and/or business operators; or
  - Full access.
- c. The NSW SES Incident Controller will issue an Advice Warning advising “Reduced Threat: Return with Caution” when the immediate danger to life and property has passed for areas.
- d. NSW SES will facilitate the return of evacuees to their homes.

## 5.13 END OF RESPONSE OPERATIONS

5.13.1 **Strategy:** Conclude response operations.

**Actions:**

- a. Response operations will conclude when:
  - There is a reduced likelihood of additional flooding within the Area of Operation and flood waters have receded.
  - All requests for assistance related to the flood have been completed.
  - The need for warning and evacuation no longer exist.
  - There is no further likelihood of rescuing people.
  - Resupply is no longer required (resupply operations may occur concurrently with the recovery phase).
  - Response to fire and hazardous material incidents have concluded (not including subsequent clean-up of contaminated sites).
  - All affected areas have had a ‘Reduced Threat: Return with Caution’ issued.

## 5.14 POST IMPACT ACTIONS

5.14.1 **Strategy:** Learnings from the event are used to inform recovery and future events.

**Actions:**

- a. NSW SES will continue to engage with communities after significant floods through convening one or more community forums, workshops or other opportunities to provide communities a chance to provide feedback, address any concerns and provide input into the recovery process. These will typically include other agencies such as the Bureau, Welfare Services and Armidale Regional Council representatives.
- b. NSW SES will conduct After Action Reviews, at the conclusion of response operations, which will involve all stakeholders. Findings will be shared and incorporated into improved disaster resilience planning.
- c. NSW SES will provide information and data throughout the emergency response to inform community recovery. A report will be developed at the request of the SERCON at the conclusion of the response within an area. Should a response summary report be required it will include the following:
  - The emergency action plan in place at conclusion of the response emphasising any continuing activities including community meetings/ engagement activities.
  - Resources allocated to the emergency response and associated exit strategies.
  - Details of any areas or situations with potential to re-escalate the emergency.
  - A recommendation for the conclusion of NSW SES as lead agency to transition to NSW Reconstruction Authority as the lead agency for Recovery.
  - Any actions that are incomplete or outstanding.
  - Damage Assessment Data and Information obtained throughout the response phase which will further support the long-term recovery of communities.
- d. NSW SES will undertake/coordinate a comprehensive review of intelligence and plans following significant flood events.

5.14.2 **Strategy:** Participate in post flood data collection analysis.

**Actions:** NSW SES works with relevant stakeholders and Armidale Regional Council(s) on post flood data collection analysis including review of flood intelligence where necessary.



## 6 RECOVERY OPERATIONS

### 6.1 INTRODUCTION

6.1.1 Recovery is the process of returning an affected community to its proper level of functioning after an emergency. It will generally commence simultaneously with the Response phase.

6.1.2 Recovery operations will be initiated and conducted as outlined in the NSW State EMPLAN and as further detailed in the NSW Recovery Supporting Plan.

### 6.2 NSW SES RECOVERY ROLE

6.2.1 **Strategy:** NSW SES will support recovery operations and established Recovery Committees.

6.2.2 **Actions:**

- a. NSW SES will provide representation to Recovery Committees as required and may have an ongoing role in the Recovery phase.
- b. NSW SES roles on Recovery Committees may include providing information about any continuing response, guidance on mitigation strategies and general advice and assistance to the committee as a subject matter specialist and or expert.
- c. NSW SES will provide information to NSW Reconstruction Authority to support applications to Treasury for Natural Disaster Relief and Recovery Arrangements.
- d. NSW SES, in conjunction with a Recovery Committee, will provide a service to support the information needs of a community immediately following a flood.
- e. NSW SES and where required supporting agencies will assist with clean-up operations after floods, where possible when resources and personnel permit.
- f. NSW SES may coordinate immediate relief in collaboration with SEOCON and SERCON.

## 7 ABBREVIATIONS

For a full list of abbreviations refer to the NSW State Flood Plan - Abbreviations

## 8 GLOSSARY

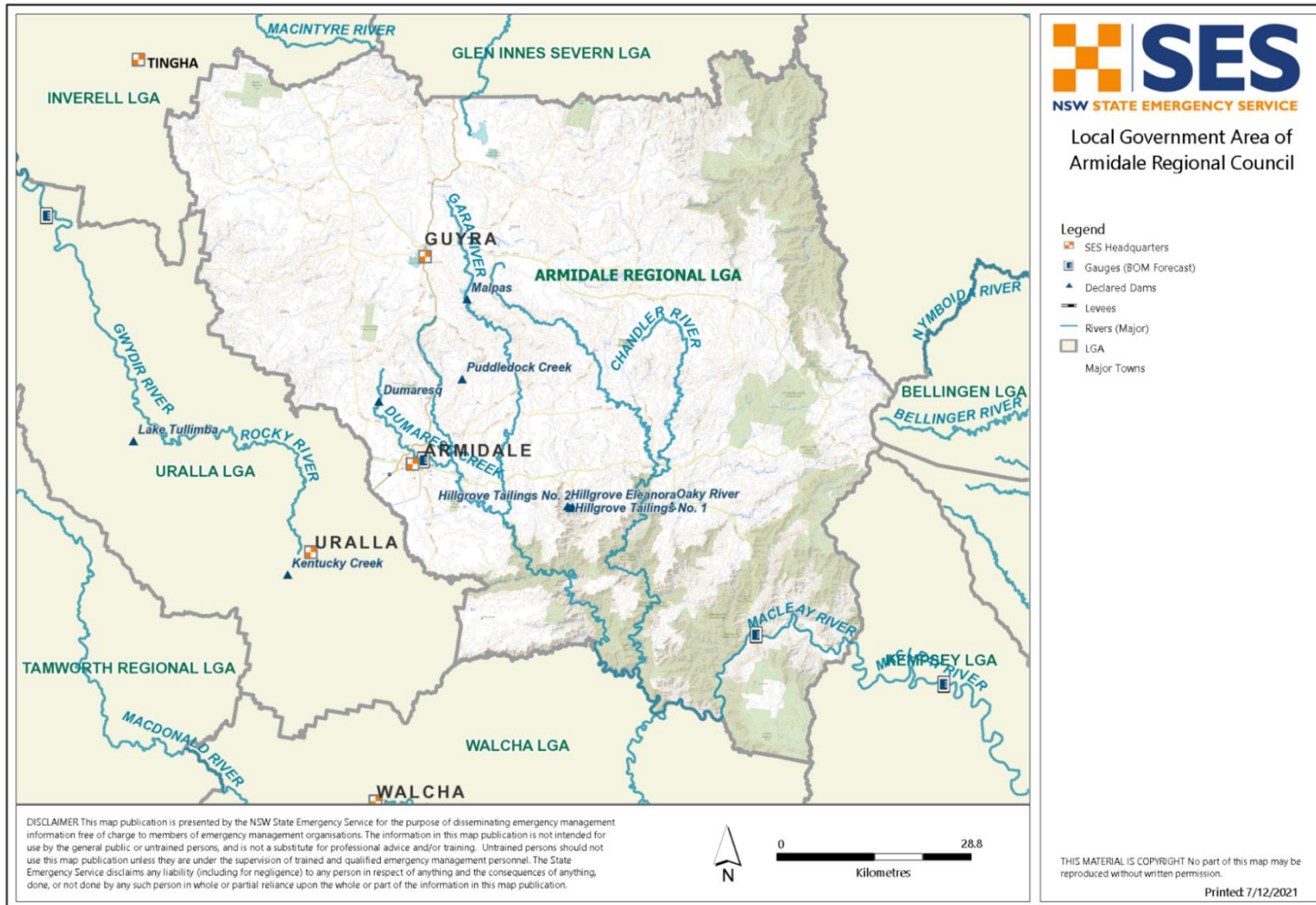
Common emergency service terminology can be found within the Australian Disaster Resilience Glossary.

Readers should refer to EMPLAN Annex 9 – Definitions.

Refer to the NSW State Flood Plan for a complete glossary of terminology used throughout this plan and within NSW SES Flood Plans.

**For a full list of definitions refer to the Supporting Document - State Flood Plan Glossary**  
<https://www.ses.nsw.gov.au/media/2650/glossary.pdf>

# 9 Appendix A – Map of Armidale Regional Council Area



## 10 Appendix B – Roles and Responsibilities

AGENCY	RESPONSIBILITIES
NSW State Emergency Service	NSW SES is the designated Combat Agency for floods, storms and tsunami and controls response operations. NSW SES roles and responsibilities in relation to floods are outlined in the <a href="#">NSW State Flood Plan</a> .

AGENCY	RESPONSIBILITIES
Agriculture and Animal Services Functional Area	The roles and responsibilities for Agriculture and Animal Services are outlined in the Agriculture and Animal Services Supporting Plan and NSW State Flood Plan.
Armidale Regional Council	<p><b>Preparedness</b></p> <ul style="list-style-type: none"> <li>• Establish and maintain floodplain and coastal risk management committees and ensure that key agencies are represented.</li> <li>• Develop and implement flood risk management plans in accordance with the NSW Government’s Flood Prone Land Policy and the Flood Risk Management Manual.</li> <li>• Provide levee studies, flood studies and floodplain management studies to NSW SES.</li> <li>• Maintain Dam Emergency Plans for the Malpas, Puddledock and Dumaresq Dams and provide copies to NSW SES.</li> <li>• Provide information on the consequences of dam failure to NSW SES for incorporation into planning and flood intelligence.</li> <li>• Maintain council-owned flood warning networks and flood mitigation works.</li> <li>• Participate in NSW SES-led flood emergency planning meetings, to assist in the preparation of Flood Sub Plans.</li> <li>• Maintain a plant and equipment resource list for the council area.</li> <li>• Contribute to community engagement activities.</li> </ul> <p><b>Response</b></p> <ul style="list-style-type: none"> <li>• Subject to the availability of council resources, assist NSW SES with flood operations including: <ul style="list-style-type: none"> <li>• Traffic management on council managed roads.</li> <li>• Provision of assistance to NSW SES (plant, equipment and personnel where able and requested).</li> <li>• Property protection tasks including sandbagging.</li> <li>• Assist with the removal of caravans from caravan parks.</li> </ul> </li> </ul>

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> <li>• Warning and/or evacuation of residents and other people in flood liable areas.</li> <li>• Provision of back-up radio communications.</li> <li>• Resupply of isolated properties.</li> <li>• Technical advice on the impacts of flooding.</li> <li>• Close and reopen council roads (and other roads nominated by agreement with Transport for NSW) and advise NSW SES, NSW Police Force and people who contact the council for road information.</li> <li>• Assist NSW SES to provide filled sandbags and filling facilities to residents and business in areas which flooding is expected.</li> </ul> <ul style="list-style-type: none"> <li>• Assist with making facilities available for domestic pets and companion animals of evacuees during evacuations.</li> <li>• Operate flood mitigation works including critical structures such as detention basins and levees and advise NSW SES regarding their operation.</li> <li>• Manage and protect council-owned infrastructure facilities during floods.</li> <li>• Provide advice to NSW SES and the Health Services Functional Area during floods about key council managed infrastructure such as sewerage treatment and water supply.</li> <li>• Advise the Environmental Protection Authority of any sewerage overflow caused by flooding.</li> <li>• Work with NSW SES and NSW Department of Planning and Environment to collect flood related data during and after flood events.</li> </ul> <p><b>Recovery</b></p> <ul style="list-style-type: none"> <li>• Provide for the management of health hazards associated with flooding including removing debris and waste.</li> <li>• Ensure premises are fit and safe for reoccupation and assess any need for demolition.</li> <li>• Provide services, assistance and advice to State Government in accordance with the State Recovery Plan.</li> </ul>
<b>Australian Government Bureau of Meteorology</b>	The roles and responsibilities for the Australian Government Bureau of Meteorology are outlined in the NSW State Flood Plan.
<b>Caravan Park Proprietor(s)</b>	<ul style="list-style-type: none"> <li>• Prepare a flood emergency plan for the Caravan Park.</li> </ul>

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> <li>• Ensure that owners and occupiers of movable dwellings are aware that the caravan park is flood liable by providing a written notice to occupiers taking up residence and displaying this notice and emergency management arrangement within the park.</li> <li>• Ensure that owners and occupiers of movable dwellings are aware that if they are expecting to be absent for extended periods, they should: <ul style="list-style-type: none"> <li>• Provide the manager of the caravan park with a contact address and telephone number in case of an emergency.</li> <li>• Leave any movable dwelling in a condition allowing it to be relocated in an emergency (i.e.: should ensure that the wheels, axles and draw bar of the caravans are not removed and are maintained in proper working order).</li> </ul> </li> <li>• Ensure that occupiers are informed of Flood Information. At this time, occupiers should be advised to: <ul style="list-style-type: none"> <li>• Ensure that they have spare batteries for their radios.</li> <li>• Listen to a local radio station for updated flood information.</li> <li>• Prepare for evacuation and movable dwelling (cabins) relocation.</li> </ul> </li> <li>• Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and movable dwelling relocation when flooding occurs.</li> <li>• Coordinate the evacuation of people and the relocation of movable dwellings when floods are rising and their return when flood waters have subsided. Movable dwellings will be relocated back to the caravan park(s) by owners or by vehicles and drivers arranged by the park managers.</li> <li>• Secure any movable dwellings that are not able to be relocated to prevent floatation.</li> <li>• Inform NSW SES of the progress of evacuation and/or movable dwellings relocation operations and of any need for assistance in the conduct of these tasks.</li> </ul>
<b>Childcare Centres and Preschools</b>	<ul style="list-style-type: none"> <li>• When notified of possible flooding or isolation, childcare centres and preschools should. <ul style="list-style-type: none"> <li>• Liaise with NSW SES and arrange for the early release of children whose travel arrangements are likely to be disrupted by flooding and/or road closures.</li> <li>• Assist with coordinating the evacuation of preschools and childcare centres.</li> </ul> </li> </ul>
<b>Dams Safety NSW</b>	<p>The roles and responsibilities for Dams Safety NSW (formerly NSW Dam Safety Committee) are outlined in the NSW State Flood Plan.</p>

AGENCY	RESPONSIBILITIES
<b>Department of Defence</b>	Arrangements for Defence Assistance to the Civil Community are detailed within the State EMPLAN (section 448).
<b>Energy and Utilities Services Functional Area</b>	<p>The roles and responsibilities for Energy and Utilities Services are outlined in the Energy and Utility Services Supporting Plan (EUSPLAN).</p> <p>Roles and responsibilities in addition to the Supporting Plan are:</p> <ul style="list-style-type: none"> <li>• Assist NSW SES with identification of infrastructure at risk of flood damage where resources are available.</li> <li>• Facilitate local utility service distribution providers (electricity, gas, water, wastewater) to: <ul style="list-style-type: none"> <li>• Provide advice to NSW SES of any need to disconnect power/gas/water/wastewater supplies or of any timetable for reconnection.</li> <li>• Advise NSW SES of any hazards from utility services during flooding and coastal erosion/inundation.</li> <li>• Advise the public with regard to electrical hazards during flooding and coastal erosion/inundation, and to the availability or otherwise of the electricity supply.</li> <li>• Clear or make safe any hazard caused by power lines or electricity distribution equipment.</li> <li>• Reconnect customers' electrical/ gas/ water/wastewater installations, when certified safe to do so and as conditions allow.</li> <li>• Assist NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.</li> </ul> </li> </ul>
<b>Engineering Services Functional Area</b>	The roles and responsibilities for Engineering Services are outlined in the Engineering Services Supporting Plan and NSW State Flood Plan.
<b>Environmental Services Functional Area</b>	The roles and responsibilities for Environmental Services are outlined in the Environmental Services (ENVIROPLAN) Supporting Plan.
<b>Floodplain Management Australia</b>	The roles and responsibilities for Floodplain Management Australia are outlined in the NSW State Flood Plan.
<b>Fire and Rescue NSW</b>	The roles and responsibilities for Fire and Rescue NSW are outlined in the NSW State Flood Plan.
<b>Forestry Corporation of NSW</b>	The roles and responsibilities for Forestry Corporation of NSW are outlined in the NSW State Flood Plan.
<b>Health Services Functional Area</b>	The roles and responsibilities for Health Services are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
<b>Local Emergency Operations Controller (LEOCON)</b>	<ul style="list-style-type: none"> <li>• Monitor flood operations.</li> <li>• If requested, coordinate support for the NSW SES Incident Controller.</li> </ul>

<b>AGENCY</b>	<b>RESPONSIBILITIES</b>
<b>Local Emergency Management Officer (LEMO)</b>	<ul style="list-style-type: none"> <li>If requested by the NSW SES Incident Controller, advise appropriate agencies and officers of the start of response operations.</li> </ul>
<b>Manly Hydraulics Laboratory (MHL)</b>	The roles and responsibilities for Manly Hydraulic Laboratory are outlined in the NSW State Flood Plan.
<b>Marine Rescue NSW</b>	The roles and responsibilities for Marine Rescue NSW are outlined in the NSW State Flood Plan.
<b>NSW Ambulance</b>	The roles and responsibilities for NSW Ambulance are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
<b>NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission</b>	The roles and responsibilities for NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission are outlined in the NSW State Flood Plan.
<b>NSW Department of Planning and Environment (Environment and Heritage Group)</b>	The roles and responsibilities for NSW Department of Planning and Environment (Environment and Heritage Group) are outlined in the NSW State Flood Plan (referred to as DPIE EES).
<b>NSW Department of Planning and Environment (Water)</b>	The roles and responsibilities for NSW Department of Planning and Environment (Water) are outlined in the NSW State Flood Plan.
<b>NSW Food Authority</b>	The roles and responsibilities for NSW Food Authority are outlined in the Food Safety Emergency Sub Plan.
<b>NSW National Parks and Wildlife Services</b>	The roles and responsibilities for NSW National Parks and Wildlife Services are outlined in the NSW State Flood Plan.
<b>NSW Police Force</b>	The roles and responsibilities for NSW Police Force are outlined in the NSW State Flood Plan.
<b>NSW Reconstruction Authority</b>	The roles and responsibilities for NSW Reconstruction Authority are outlined in the NSW State Flood Plan.
<b>NSW Rural Fire Service</b>	The roles and responsibilities for NSW Rural Fire Service are outlined in the NSW State Flood Plan.
<b>Owners of Declared Dams within or upstream of the LGA</b>	The roles and responsibilities for Owners of Declared Dams are outlined in the NSW State Flood Plan.
<b>Public Information Services Functional Area</b>	The roles and responsibilities for Public Information Services are outlined in the Public Information Services Supporting Plan and NSW State Flood Plan.
<b>SEOCON/SEOC</b>	The roles and responsibilities for the SEOCON/SEOC are outlined in the NSW State Flood Plan.



<b>AGENCY</b>	<b>RESPONSIBILITIES</b>
<b>Surf Life Saving NSW</b>	The roles and responsibilities for Surf Life Saving NSW are outlined in the NSW State Flood Plan.
<b>Telecommunications Services Functional Area</b>	The roles and responsibilities for Telecommunications Services are outlined in the Telecommunications Services (TELCOPLAN) Supporting Plan.
<b>Transport for NSW</b>	<ul style="list-style-type: none"> <li>• Transport for NSW coordinates information on road conditions for emergency services access.</li> <li>• Transport for NSW coordinates the management of the road network across all modes of transport.</li> <li>• Transport for NSW in conjunction will assist NSW SES with the evacuation of at-risk communities by maintaining access and egress routes.</li> <li>• Assist NSW SES with the communication of flood warnings and information provision to the public through Live Traffic and Social Media according to the VMS protocols and procedures.</li> <li>• Assist NSW SES with identification of road infrastructure at risk of flooding.</li> </ul>
<b>Transport Services Functional Area</b>	The roles and responsibilities for Transport Services are outlined in the Transport Services Functional Area Supporting Plan and NSW State Flood Plan.
<b>VRA Rescue NSW</b>	The roles and responsibilities for VRA Rescue NSW are outlined in the NSW State Flood Plan.
<b>Water NSW</b>	The roles and responsibilities for Water NSW are outlined in the NSW State Flood Plan.
<b>Welfare Services Functional Area</b>	The roles and responsibilities for Welfare Services are outlined in the Welfare Services Functional Area Supporting Plan and NSW State Flood Plan.

## 11 Appendix C – Community Specific Roles and Responsibilities

<b>Community Members</b>	<p><b>Preparedness</b></p> <ul style="list-style-type: none"> <li>• Understand the potential risk and impact of flooding.</li> <li>• Prepare homes and property to reduce the impact of flooding.</li> <li>• Understand warnings and other triggers for action and the safest actions to take in a flood.</li> <li>• Households, institutions and businesses develop plans to manage flood risks, sharing and practicing this with family, friends, employees and neighbours.</li> <li>• Have an emergency kit.</li> <li>• Be involved in local emergency planning processes.</li> </ul> <p><b>Recovery</b></p> <ul style="list-style-type: none"> <li>• Assist with community clean-up if required and able to do so.</li> <li>• Participate in After Action Reviews if required.</li> </ul>
<b>Private companies or other organisations</b>	Assist with donations of assets or services that can be used to support the operation/event
<b>Service and sporting clubs</b>	Assist with spontaneous volunteering
<b>Aboriginal organisations or groups</b>	<ul style="list-style-type: none"> <li>• Act as the point of contact between NSW SES and the Anaiwan and Kamilaroi community.</li> <li>• Inform the NSW SES Unit Commander about flood conditions and response needs.</li> <li>• Disseminate flood information, including flood and evacuation warnings, to the Anaiwan and Kamilaroi community.</li> <li>• Armidale Local Aboriginal Land Council (LALC) – 02 6772 2447</li> </ul>
<b>Communication</b>	<ul style="list-style-type: none"> <li>• Coordinate the restoration of telephone facilities damaged by flooding.</li> <li>• Coordinate additional telecommunications support for the NSW SES Headquarters as required.</li> <li>• Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.</li> </ul>
<b>Community assistance groups</b>	Rapid Relief Team Backtrack Program



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# HAZARD AND RISK IN ARMIDALE DUMARESQ

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**Volume 2 of the Armidale Dumaresq Local Flood Plan**

Last Update: August 2006

## **ANNEX A - THE FLOOD THREAT**

### **Landforms and River Systems**

1. The area covered by this plan is almost entirely contained within the Macleay River Basin (Basin No 206). The Armidale Dumaresq Council area is located in the New England Tablelands and Gorge sections of the upper Macleay River Valley.

2. The New England Tablelands section is where the following principle tributaries of the Macleay River rise:

- a. Gara (or Guyra) River.
- b. Commissioners Waters.
- c. Salisbury Waters.
- d. The Chandler River and its main tributaries:
  - Wollomombi (or Rockvale) Creek;
  - Station Creek;
  - Oakey River;
  - Styx River; and
  - Serpentine River.

3. The Gorge section is where the rivers leave the tablelands in a series of waterfalls and join to form the Macleay River. Here the valleys are steep sided. Stream gradients are steep and flood flow velocities are high. On this section there are several minor tributaries of the Macleay (the Parrabel, Hickeys, Georges and Nulla Nulla creeks and Dykes River) but no major ones.

4. The flood threat to the City of Armidale comes from the Dumaresq Creek, which flows into Commissioners Waters, and its tributaries Martins Gully and Black Gully.

### **Storage Dams**

5. There are three dams located in the Armidale Dumaresq Council area. They are:

- a. Puddledock Dam,
- b. Dumaresq Dam, and
- c. Malpas Dam.

## **Puddledock Dam**

6. Puddledock Dam is an emergency water supply source for the City of Armidale. It is located on Puddledock Creek about 14 km north east of Armidale. The dam is not capable of passing the Probable Maximum Flood (PMF) and could fail during extreme floods. The Imminent Failure Flood (IFF) could be as low as 35% of the PMF. However, failure of this dam is unlikely to result in loss of life and the dam is classified as a low hazard dam.

## **Dumaresq Dam**

7. Dumaresq Dam is a disused water supply dam built to service the City of Armidale. It is located on Dumaresq Creek about 10 km north west of Armidale. The dam is probably not capable of safely passing the PMF and may fail during extreme floods.

## **Malpas Dam**

8. Malpas Dam is the main water supply for the City of Armidale. It is located on the Gara River approximately 33 km north east of Armidale in the Guyra Shire Council.

9. The dam was constructed by the Public Works Department in 1968. It is an earth and rock fill embankment having an impervious sandy clay core, semi-pervious intermediate zone and outer rock fill shell. It has a height above the riverbed of 31m, a crest length of 450m and a crest width of 8m. The upstream face has a slope of 2:2:1. The dam is located on a north-south axis with the downstream side facing to the east. The axis is curved at both ends.

10. There is a single line grout curtain across the centre line of the embankment foundation. The grout cap incorporates a small concrete cut-off wall on the right side of the embankment.

11. An unlined, uncontrolled spillway is cut through the right abutment. It is curved in plan, 44m wide and includes a small concrete control sill, which provides freeboard to embankment crest level RL 1,184.26 of 8.53m. The full supply level (FSL) is RL 1,175.70m.

12. The catchment area is 200 km<sup>2</sup>. The present capacity of the reservoir, which has a surface area of 180 hectares, is 13,000ML.

13. Below the dam, the Gara River flows through a rugged narrow-sided valley for about 23 km to the vicinity of "Loch Abba" where the valley opens out slightly. Between this point and "Gara" (a further 32 km downstream) are a number of rural properties, which are located near the river. Below "Gara" the river is joined by Commissioners Waters before reaching the Gara Falls and then flowing into the wilderness of the Upper Macleay River.

14. Malpas Dam is not capable of safely passing the PMF.

15. The affects of flooding resulting from a failure of Malpas Dam is described in Annex B. The dam-failure warning and evacuation system for Malpas Dam is described in Annex G.

## **Weather Systems and Flooding**

16. Most of the floods recorded have mostly occurred in the summer months, particularly January and February when summer cyclonic weather systems often move south from Queensland and the Northern Territory. In these wetter months the catchment is often saturated and more liable to flooding.

17. Fronts passing the state from west to east, usually during the cooler months of the year, normally constitute the principle flood producing mechanisms of the southern inland parts of the state and winter flooding from frontal systems is less common in the more northern inland parts of the state.

## **Characteristics of Flooding**

18. The majority of flooding in the Dumaresq Council area is flash flooding from the Dumaresq Creek and its tributary streams, Martins Gully and Black Gully.

## **Flood History**

19. One of the highest floods on record occurred in 1949 and is reported to have resulted in the inundation of about 10 homes and two commercial premises. The best historical records available relate to the major floods of 1963-64.

20. The May 1963 flood was estimated to be 0.3 metres below the height of a 1% AEP (1:100 years) flood.

21. Early in January 1964 Tropical Cyclone "Audrey" formed in the Gulf of Carpentaria. On 11-12 January 1964 it moved inland forming a large complex depression over Queensland, with a trough extending down over eastern Australia and feeding a flow of moist tropical air over NSW. In the meantime, a stream of cool southern air spread north-eastward over the State, between a deep depression passing south of Tasmania and a ridge of high pressure extending across Southern Australia from the Bight. Interaction of these two air masses caused general rain over all but the South-West Corner of New South Wales on 13-14th January, with some very heavy falls and flooding in the northern inland. At about 11:45 a.m. on the 14 January 1964 parts of Armidale were flooded from Dumaresq Creek and a number of residents had to raise their furniture above flood level and evacuate their homes. The 1964 flood was estimated to have a 5% AEP (1:20 years) recurrence probability.

22. Following heavy flooding in the 1950's and early 1960's the Armidale City Council took non-structural measures to mitigate against the flooding problem. They included the removal of existing obstructions, purchase of flood prone residences and rezoning of some areas to non-residential uses.

## **ANNEX B - EFFECTS OF FLOODING ON THE COMMUNITY**

### **Armidale**

1. Armidale City has a population of 22,000. It is situated on the New England Tablelands, 510 km north of Sydney, 462 km south of Brisbane and 190 km from Coffs Harbour. It is situated on the intersection of the New England Highway, the main road link between Sydney and Brisbane, and the Grafton Road (Main Route 78), which runs east of the Pacific Highway near Coffs Harbour.
2. Located on the banks of the Dumaresq Creek, Armidale City has a long history of localised flooding. Apart from the creek itself, the City is also dissected by a small number of flooding tributaries.
3. Flood behaviour is typical of flash flooding streams. Heavy rain on a catchment already saturated by prior rainfalls can result in rapid rises in the creeks. For a typical flood on Dumaresq Creek, the peak flood level can be expected about five hours after the creek starts to rise and to return to original flow rates about eight hours after the peak. On the tributary streams (Martins Gully and Black Gully) the time of rise is around one hour with a three hour recession time.
4. During a 1% AEP flood, there are about 40 residences at risk of inundation in Armidale:
  - a. An area of the CBD on the southern bank of Dumaresq Creek between Markham and Dangar streets.
  - b. Approximately 11 residences in Dumaresq, Beardy, Douglas, Holmes, Bain and Markham streets may be flooded from Dumaresq Creek.
  - c. On Martins Gully, 17 residences in the area of Shambrook Avenue and Drew Street, upstream of the railway bridge are flooded at depths of up to two metres.
  - d. A further six residences in Niagara and Wigan streets may be flooded from Martins Gully.
  - e. On Black Gully, six residences may be flooded in Kentucky, Mann and Kennedy streets and Jewel and Roslyn avenues.
  - f. A number of low-level bridges and causeways on Dangar, Faulkner and Dumaresq streets. This can occur even during minor floods.
  - g. The Main Northern Railway at Martins Gully.
5. It should be noted that some non-residential flood damage can be caused by floods on the Dumaresq Creek with a frequency as high as 50% AEP whereas the threshold is lower in Martins Gully (20% AEP), Black Gully (5% AEP) and



residential flood damage from Dumaresq creek (5% AEP). Extreme floods (greater than the 1% AEP event) could result in other areas as well.

## **Rural Areas**

6. Floods do not significantly affect the rural community of the Armidale Dumaresq Council. However, flooding does cause damage to several roads, which may be cut for short periods. The areas so affected include:
  - a. Roads in the Tilbuster area, which may be cut by the Duval, Tilbuster or Puddledock creeks.
  - b. Fosters Road at the Powers Creek crossing.
  - c. The Longswamp Road at the low-lying area near Armidale.
  - d. Sunnyside Road at the Tilbuster Creek crossing.
  - e. Herbert Park Road at the Gara River crossing.
  - f. The Old Inverell Road at the Booralong Creek crossing.
7. The Point Road may be cut at the Serpentine River crossing near the Trout Hatchery for several days at a time during major flooding.
8. The Armidale to Kempsey Road may be cut at a number of places including Long Flat Cutting (near Middle Creek), Smiths Creek, Lagoon Creek and across Blackbird Flat near the Council boundary.

## **Rural Areas Downstream of Malpas Dam**

9. Malpas Dam is not capable of safely passing the PMF. The Malpas Dam – Dambreak Study by NSW Public Works (DBS No 5 – October 1994) indicates that the Imminent Failure Flood (IFF) could be as low as 58% of the PMF and have an annual exceedance probability of about 0.05% (1:2,000). This particular case refers to a six-hour probable maximum rainfall of just under 600mm.
10. The report indicates that by the time this particular IFF was reached (ie before dam failure):
  - a. The Rockvale Road bridge deck could be covered by 1.65 metres of water.
  - b. Floor levels at "Argyle No 2" could be covered by over two metres of water.
  - c. The Grafton Road bridge deck could be covered by over two metres of water.
11. After dam failure, a dambreak flood wave would move quickly down river with the peak arriving at "Gara" between six and seven hours after the commencement of failure. The dam break flood wave could be as about 10 metres higher than the

riverbed levels in the vicinity of "Brookside" and up to 15 metres at "Gara". The report also indicates that the dambreak flood wave would exceed homestead floor levels as follows:

<b>Location</b>	<b>Height above floor level</b>	<b>Time after start of dambreak</b>
"Brookside"	1.89m	3.2 hours
"Argyle No 2"	6.13m	3.65 hours
"Argyle No 1"	1.77m	4.2 hours
"Gara"	0.23m	4.7 hours

**Figure 2 - Effect of a dambreak wave on homestead floor levels**

Each of the above listed properties are therefore considered to be at risk in the event of a failure of Malpas Dam.

12. The report also states that the above heights were calculated with an accuracy of about plus or minus one metre. If water depths in the analysis are underestimated by one metre, the dambreak flood wave could exceed additional homestead floor levels as follows:

<b>Location</b>	<b>Height above floor level</b>
"Thalgarrah"	0.41m
"Mining Vale"	0.93m

**Figure 3 - Effect of dambreak wave on additional homestead floor levels**

Therefore, these properties must also be considered to be at risk in the event of a dam failure.

13. The calculations in the report are based on the assumption that the dam will fail when the IFF level is reached. This level is set to equate to a level of flooding where the spillway capacity is reached and flood waters threaten to overtop the embankment.

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# **SES RESPONSE ARRANGEMENTS FOR ARMIDALE DUMARESQ**

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**Volume 3 of the Armidale Dumaresq Local Flood Plan**

Last Update: August 2006



## ANNEX D - DISSEMINATION OF SES FLOOD BULLETINS

The Namoi SES Region Headquarters distributes SES Flood Bulletins and other flood related information (including Flood Warnings) to the following regional media outlets:

### Television Stations:

Station	Location
Prime TV	Tamworth
NBN TV	Tamworth
ABC	Tamworth
NRTV	Tamworth

### Radio Stations:

Station	Location	Frequency	Modulation
2TM	Tamworth	1287	AM
Tamworth FM	Tamworth (co-located with 2TM)	92.9	FM
2NU (ABC)	Tamworth	648	AM
2MO	Gunnedah	1080	AM
2GGG	Gunnedah (co-located with 2MO)	97.5	FM
2VM	Moree	1530	AM
2CR (ABC)	Orange	549	AM
2AD	Armidale	1134	AM
2DU	Dubbo	1251	AM
2WEB	Bourke	585	AM
MAX FM	Narrabri	91.3	FM
2NZ	Inverell	1188	AM

### Newspapers:

Name	Location
The Northern Daily Leader	Tamworth
Namoi Valley Independent	Tamworth

### Other Agencies:

- All SES units and Emergency Services in the Namoi area.
- Councils in the Namoi area.
- Members of Parliament in the Namoi area.
- Tourist Information Centres
- NRMA

## ANNEX E - TEMPLATE EVACUATION WARNING MESSAGE FOR [ENTER NAME OF AREA]

**Evacuation Warning for** [ ]

**Date/Time of Issue:** [ ]

**Authorised By:** [ ]

The Bureau of Meteorology has predicted a flood level of [ ] metres at [ ] (*place*) at [ ] (*time*). This means that the following area(s) may be inundated [ ].

It is recommended that you prepare to evacuate/for evacuation within the next [ ] hours. If you leave it later, the roads may be congested or closed.

To prepare for evacuation, you should:

- Raise belongings by placing them on tables, beds and benches. Put electrical items on top. Some items may be able to be placed in ceilings.
- Gather medicines, personal and financial documents and momentos together to take with you.
- Listen to radio stations [ ] for further information and to confirm this warning.
- If possible, check to see whether your neighbours need help.
- Make arrangements for care of pets or companion animals.

If evacuation is necessary:

- Turn off the electricity, gas and water.
- Take three days' supply of clothes with you.
- If you have a car, drive to the evacuation centre at [ ] (*specify route if appropriate*).
- If you don't have a car, buses will operate on normal routes. Special transport can also be provided on request if necessary, telephone [ ].
- So that you can be accounted for, it is important that you register at the evacuation centre.
- After registering, you may go to the house of a friend or relative. Alternatively, accommodation will be arranged for you.
- The Police will provide security for your property while you are away.

# ANNEX F - EVACUATION ARRANGEMENTS FOR THE ARMIDALE DUMARESQ COUNCIL AREA

## Situation

1. Flood behaviour in Armidale is typical of flash flooding streams. Heavy rain on a catchment already saturated by prior rainfalls can result in rapid rises in the creeks. For a typical flood on Dumaresq Creek, the peak flood level can be expected about five hours after the creek starts to rise and to return to original flow rates about eight hours after the peak. On the tributary streams (Martins Gully and Black Gully) the time of rise is around one hour with a three-hour recession time.
2. Residents in low-lying areas of Dumaresq Creek and its tributary streams may be required to evacuate for short periods of time.
3. In the event of a failure of Malpas Dam several rural residences immediately downstream of the dam will evacuate to a safe refuge on higher ground.

## Execution

4. **General Outline.** During floods, evacuations will be controlled by the Armidale Dumaresq SES Local Controller (or, at the Local Controller's request, the LEOCON) and conducted in four phases:
  - a. Phase 1 - Warning.
  - b. Phase 2 – Withdrawal.
  - c. Phase 3 – Shelter.
  - d. Phase 4 – Return.

## The Decision to Evacuate

5. **Responsibility.** Responsibility for issuing any general evacuation order during flooding rests with the Armidale Dumaresq SES Local Controller who exercises his/her authority in accordance with Section 22(1) of The State Emergency Service Act 1989. The decision to evacuate will be made after consultation with the Local Emergency Operations Controller. Care must be taken to ensure that residents are not evacuating into danger because of the nature of flooding (ie. flash flooding).
6. **When Evacuation Should Occur.** As far as possible, evacuation will be carried out before inundation occurs when there is evidence to suggest that Dumaresq Creek and its tributaries will break their banks.
7. **Self-Motivated Evacuation.** Some people will make their own decision to evacuate earlier and move to alternative accommodation using their own transport.

These evacuees will be advised, via the media, to inform the Police or SES of their evacuation and their temporary address.

8. **Evacuation Triggers.** The Armidale Local Government Area is located in a Flash Flood Basin. As there is no flood prediction system in place evacuation triggers would be evaluated during any event by reconnaissance and appropriate accredited rescue resources would be forward deployed. Further details would be provided in the Evacuation Message (Annex E) if such a message was required.

### **Phase 1 - Warning**

9. **Evacuation Warnings.** When there is evidence that leads to a prediction that the Dumaresq Creek and its tributaries will break their banks and there is continuing rainfall over the catchments, the Dumaresq SES Local Controller will consult as necessary to determine the level of the threat and the need to consider evacuations. As soon as possible after the decision to evacuate is made, the Armidale Dumaresq SES Local Controller will issue evacuation warnings to the 'at risk' residents, indicating what people should do before evacuating and when actually doing so.

10. **Content of Evacuation Warnings.** A template guide to the content of evacuation warning messages is at Annex E. These are disseminated via:

- a. Public address systems from emergency service vehicles.
- b. Door-knocks by emergency service personnel.
- c. Telephone.
- d. Two-way radio.
- e. Direct access to Radio Station 2AD, Armidale.
- f. The radio and TV stations listed in Annex D.
- g. SES Flood Bulletins.

### **Phase 2 – Withdrawal**

11. **Introduction.** Withdrawal involves the actual removal of the community/individuals from dangerous or potentially dangerous areas to safer areas.

12. **Control.** Evacuations will be controlled by the Armidale Dumaresq SES Local Controller (or, at the Local Controller's request, the LEOCON) and conducted by Police, SES, NSWFB and RFS personnel.

13. **Movement.** Evacuees are to be moved using their own transport where possible. The Armidale Dumaresq SES Local Controller will arrange transport for those people without their own vehicles.

14. **Evacuation Routes.** Evacuation Routes would be described in detail in any Evacuation Message (Annex E) as a result of a detailed reconnaissance of the area affected.



15. **Doorknocking.** Field teams conducting doorknocks will record and report back the following information back to the Operations Centre:

- a. Addresses and locations of houses doorknocked and/or evacuated.
- b. The number of occupants.
- c. Details of support required (such as transport, medical evacuation, assistance to secure house and/or property and raise or move belongings).
- d. Details of residents who refuse to comply with the evacuation order.

16. **Refusal to Evacuate.** Field teams should not waste time dealing with people who are reluctant or refuse to comply with any evacuation order. These cases should be referred to the Local Emergency Management Operations Controller who will arrange for Police to ensure their evacuation.

17. **Security.** The NSW Police will provide security for evacuated premises.

18. **Helicopter Landing Points (LP).** Suitable landing points need to be confirmed prior to utilisation. Two emergency LP's are located at:

- a. Lambert Park (opposite public and private hospital) Rusden Street with a cross street of Butler Street.
- b. Armidale Airport (located on New England Highway on Southern side of Armidale).

19. **Collection Centres (Safe Havens).** Collection centres will be identified by the DOCs and provide in the Evacuation Message and Evacuation Brief.

20. **Transport of Furniture.** The transport and storage of furniture from flood-threatened properties will be arranged as time and resources permit.

### **Phase 3 - Shelter**

21. **Evacuation Centres.** The usual purpose of evacuation centres is to meet the immediate needs of victims, not to provide them with accommodation. Evacuees will be advised to go to or be taken to the nearest accessible evacuation centre, which may initially be established at the direction of the Armidale Dumaresq SES Local Controller but managed as soon as possible by the Department of Community Services. Any or all of the following sites may be used as evacuation centres:

- a. The Teachers College.
- b. Newling Campus.
- c. University of New England, Armidale.

22. **Action on Arrival.** On arrival, evacuees will be:

- a. Registered.
- b. Medically checked, if necessary.
- c. Provided with their immediate welfare needs.

23. **Registration.** The NSW Police will ensure that all evacuees are registered on arrival at the designated evacuation centres and details of the registrations are to be sent to the [Enter name of Police HQ] Police District Headquarters by the quickest means available.

24. **Support Provided At Evacuation Centres.** The expected duration of the evacuation will dictate the need for and level of facilities and support at the evacuation centres. If evacuations are expected to be of a short duration, evacuees may be provided with short-term accommodation at the centres. However, if they are expected to last for longer than 24 hours, evacuees will be encouraged to go to alternative accommodation or stay with friends where possible. Alternatively, accommodation will be arranged for them in hotels, motels or by billeting.

25. **Animal Shelter Compounds.** Animal shelter compounds will be set up for the domestic pets and companion animals of evacuees. The Armidale Dumaresq Council will operate these facilities.

#### **Phase 4 - Return**

26. Once it is considered safe to do so, the Armidale Dumaresq SES Local Controller will authorise the return of evacuees to their normal or alternative place of residence. This decision will be made after consultation with appropriate officers on matters such as the electrical safety of buildings.

27. The return will be controlled by the Armidale Dumaresq SES Local Controller and may be conducted, at his/her request, by DoCS.

# ANNEX G - DETAILS OF THE DAM-FAILURE WARNING AND EVACUATION SYSTEM FOR MALPAS DAM

## Purpose of System

1. The purpose of the dam-failure warning system is to notify the Council, SES and residents downstream of Malpas Dam of the need to evacuate in the event of a possible or imminent failure of Malpas Dam. Failure could be the result of "sunny day" failure or an extreme flood event.

## Operation and Procedures

2. Armidale Dumaresq Council operates a water storage level telemetry system - Supervisory Control and Data Acquisition (SCADA) system - at Malpas Dam. This system transmits water level data to the Water Treatment Plant in Armidale. Redundancy is provided by a DLWC system that is located at the Water Treatment Plant in Armidale, which also monitors the water level at the dam. As pre-set alarm levels are reached (White, Orange and Red) the SCADA system will begin to contact council staff via a paging system. There are three pagers on the system each carried by a Council officer.

3. The pagers are triggered one at a time. The first pager carrier must then go to the Water Treatment Plant to acknowledge the alert. If this is not done, the alarm is escalated to the second carrier and so on. If the SCADA system fails, the DLWC telephone system will use a similar escalation procedure to contact Council staff by telephone. The Council staff member that acknowledges the alarm will then notify the SES Local Controller. The Controller will then follow the arrangements detailed in the following table.

## Malpas Dam Alarm States

4. The pre-set water storage levels for the transmission of alarm messages are as follows:

- a. **Protection Alert.** The Protection Alert is triggered when the water level reaches 0.3m above the spillway crest. Council staff will interrogate the SCADA system and check the condition of the dam.
- b. **White Alert.** This is a preliminary alert to assist the SES in its preparation.
  - The Armidale Dumaresq SES will respond by alerting the residents of "Argyl No. 2" and the riverside cottage at "Brookside" to prepare for a possible evacuation and acknowledging its receipt with the Armidale Dumaresq Council. The Local Controller will also notify the Namoi Region SES Headquarters.

- The White Alert is triggered when the system detects either a rate of rise that is slower than 0.8m/hr **and** the storage level is at or above 1,176.2m AHD (0.5m above the spillway crest) **OR** 0.8m/hr or faster and the storage level is 1,177.2m AHD (1m above spillway crest).
  - Communication between the Armidale Dumaresq SES, Namoi SES Region Headquarters and Armidale Dumaresq Council will continue throughout the period of high flows downstream of Malpas Dam.
- c. **Orange Alert.** This alert signifies the need to evacuate the residents of "Argyl No. 2" and the riverside cottage at "Brookside" and alerting the other at risk residences of the need to prepare for a possible evacuation.
- The Armidale Dumaresq SES will issue an Evacuation Order to the residents of "Argyl No 2" and the riverside cottage at "Brookside". The residents of "Thalgarra", "Brookside", "Argyl No. 1" and "Argyl No 3" will be advised to prepare for a possible evacuation.
  - The Orange Alert is triggered when the system detects either:
    - a rate of rise slower than 0.8m/hr **and** a storage level that is equal to or greater than the FSL plus 3.53m; **or**
    - a rate of rise that is equal to or faster than 0.8m/hr **and** a storage level that is above the FSL plus 1.0m (but below FSL plus 5.5m).
- d. **Red Alert.** This alert signifies the need to evacuate the residents of all at risk residences. Residents should evacuate the area and proceed immediately to the evacuation centre and await instructions from the SES and / or the NSW Police.
- The Armidale Dumaresq SES will issue an Evacuation Order to the residents of "Thalgarra", "Brookside", "Argyl No. 1" and "Argyl No. 3".
  - The Red Alert is triggered when the system detects either:
    - a rate of rise that is slower than 0.8m/hr **and** a storage level that is at or above the IFL (8.47m above the crest); **or**
    - a rate of rise that is equal to or faster than 0.8m/hr **and** a storage level that is above the FSL plus 5.0m.
5. The detailed notification, warning and evacuation arrangements for a potential failure of Malpas Dam are provided in the following table.

## NOTIFICATION, WARNING AND EVACUATION ARRANGEMENTS FOR A POTENTIAL FAILURE OF MALPAS DAM

### List of Abbreviations:

AHD	Australian Height Datum
DLWC	Department of Land and Water Conservation
DSC	Dam Safety Committee
FSL	Full Supply Level (1,175.7m AHD)
IFF	Imminent Failure Flood
IFL	Imminent Failure Level (1,184.2m AHD - 0.6m below embankment)
SCADA	Supervisory Control and Data Acquisition

Alert	Defining Conditions	Approximate Elapsed Time (worse case)	Flood Effects	Notification Arrangements and Actions			
				Armidale Dumaresq Council	Armidale Dumaresq SES	Namoi SES Region Headquarters	People At Risk
<b>Protection</b>	The water level reaches 0.3m above the spillway crest.			Council staff will interrogate the SCADA system and check the condition of the dam			

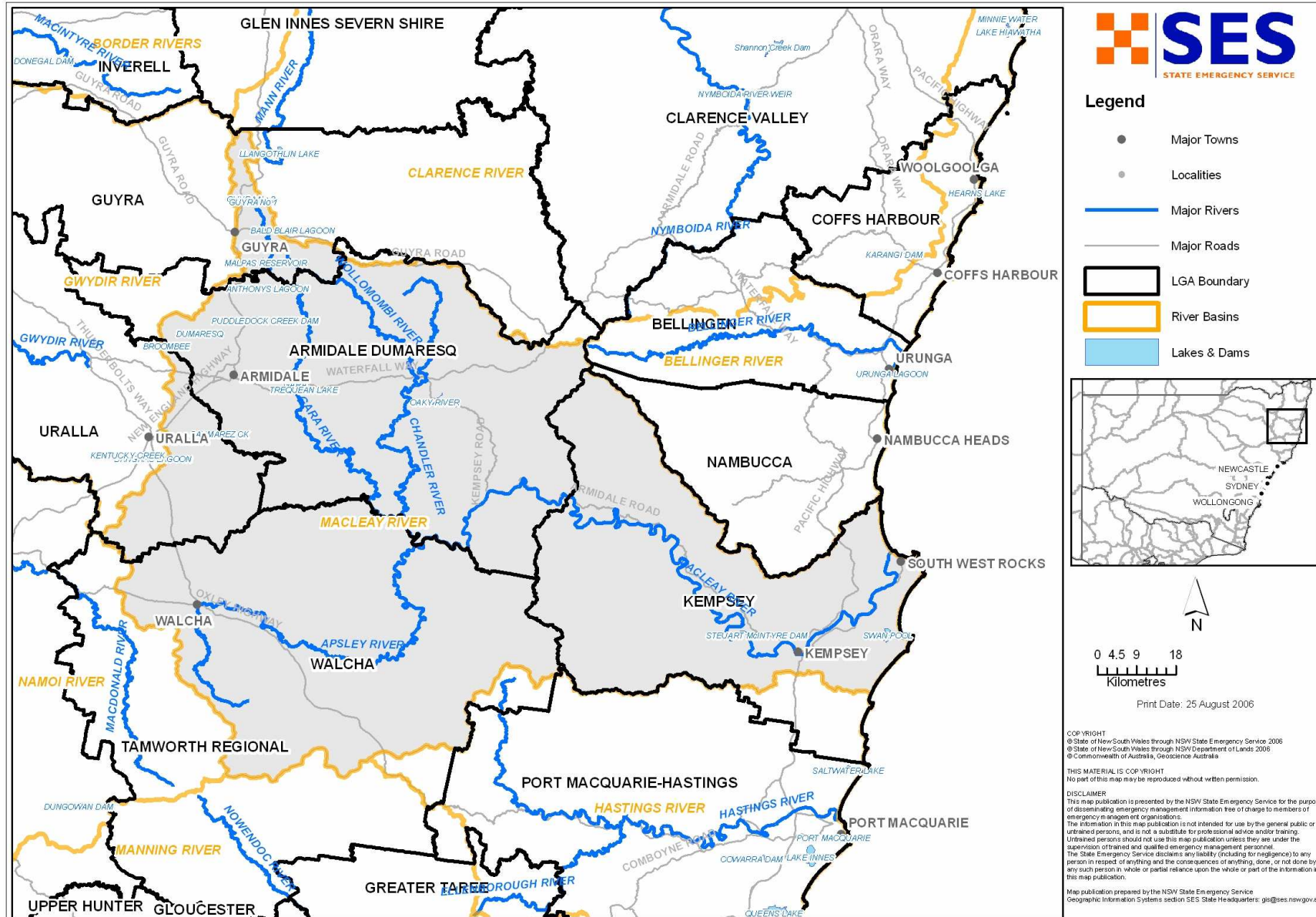
Alert	Defining Conditions	Approximate Elapsed Time (worse case)	Flood Effects	Notification Arrangements and Actions			
				Armidale Dumaresq Council	Armidale Dumaresq SES	Namoi SES Region Headquarters	People At Risk
<b>White</b>	<p>Rate of rise &lt; 0.8m/hr <b>and</b> storage level =&gt; FSL plus 1m.</p> <p><b>OR</b></p> <p>Rate of rise =&gt; 0.8m/hr <b>and</b> FSL plus 0.5m.</p>		<p>Low-level bridge at Herbert Park Road - Gara River crossing CLOSED.</p> <p>Brookside Road - Gara River crossing CLOSED.</p> <p>Gara Road crossing CLOSED.</p> <p>A level of 1m over the spillway closes southern access at "Brookside". Alternate route available.</p>	<p>Contact the SES Local Controller and confirm receipt of the alert.</p> <p>Continue monitoring conditions at the dam.</p> <p>Check condition of evacuation routes and advise the SES Local Controller.</p> <p>Advise DLWC who advises the DSC.</p>	<p>Activate the Armidale Dumaresq Local Flood Plan.</p> <p>Notify the Armidale Dumaresq LEOCON.</p> <p>Notify the Namoi SES Region HQ.</p> <p>Warn the residents of "Argyl No. 2" and the riverside cottage at "Brookside" to prepare to evacuate.</p> <p>Inform the residents of "Thalgarra", "Brookside", "Argyl No. 1" and "Argyl No. 3".</p>	<p>Notify SES State HQ.</p>	<p>Residents of "Argyl No. 2" and the riverside cottage at "Brookside" make preparations to evacuate.</p> <p>All residents should monitor local conditions and evacuate if in doubt.</p> <p>Advise the Armidale Dumaresq SES if the decision is to evacuate.</p>

Alert	Defining Conditions	Approximate Elapsed Time (worse case)	Flood Effects	Notification Arrangements and Actions			
				Armidale Dumaresq Council	Armidale Dumaresq SES	Namoi SES Region Headquarters	People At Risk
<b>Orange</b>	<p>Rate of rise slower than 0.8m/hr <b>and</b> storage level =&gt; FSL plus 3.53m.</p> <p><b>OR</b></p> <p>Rate of rise =&gt; 0.8m/hr <b>and</b> FSL plus 1m (but below FSL plus 5.5m).</p>	<p>From White to Orange Alert:</p> <p>For IFF (0.8m/hr) - 4 hours.</p> <p>For PMF (1.5m/hr) - 2 hours.</p>	<p>Not yet defined.</p> <p>Following are at risk of inundation:</p> <p>"Argyl No. 2", the riverside cottage at "Brookside", the Rockvale Road bridge and the Grafton Road bridge.</p>	<p>Contact the SES Local Controller and confirm receipt of the Orange Alert.</p> <p>Continue to monitor conditions at the dam.</p> <p>Position staff to monitor the Roackvale Road bridge.</p> <p>Advise DLWC who then advise the DSC.</p>	<p>Notify the Armidale Dumaresq LEOCON.</p> <p>Notify the Namoi SES Region HQ.</p> <p>Issue an evacuation order (by telephone or direct contact) for the residents of "Argyl No. 2" and the riverside cottage at "Brookside".</p> <p>Advise the residents of the following properties to prepare for evacuation:</p> <p>"Thalgarra", "Brookside", "Argyl No. 1" and "Argyl No. 3".</p>	<p>Notify SES State HQ.</p> <p>Broadcast warnings.</p> <p>Contact Oxley SES Region HQ and provide a warning of potential for downstream flooding.</p>	<p>Evacuate "Argyl No. 2" and the riverside cottage at "Brookside".</p> <p>All other residents to ensure that they are ready to evacuate if situation deteriorates.</p> <p>Monitor local conditions and evacuate if in doubt.</p> <p>Advise the Armidale Dumaresq SES if the decision is to evacuate.</p>

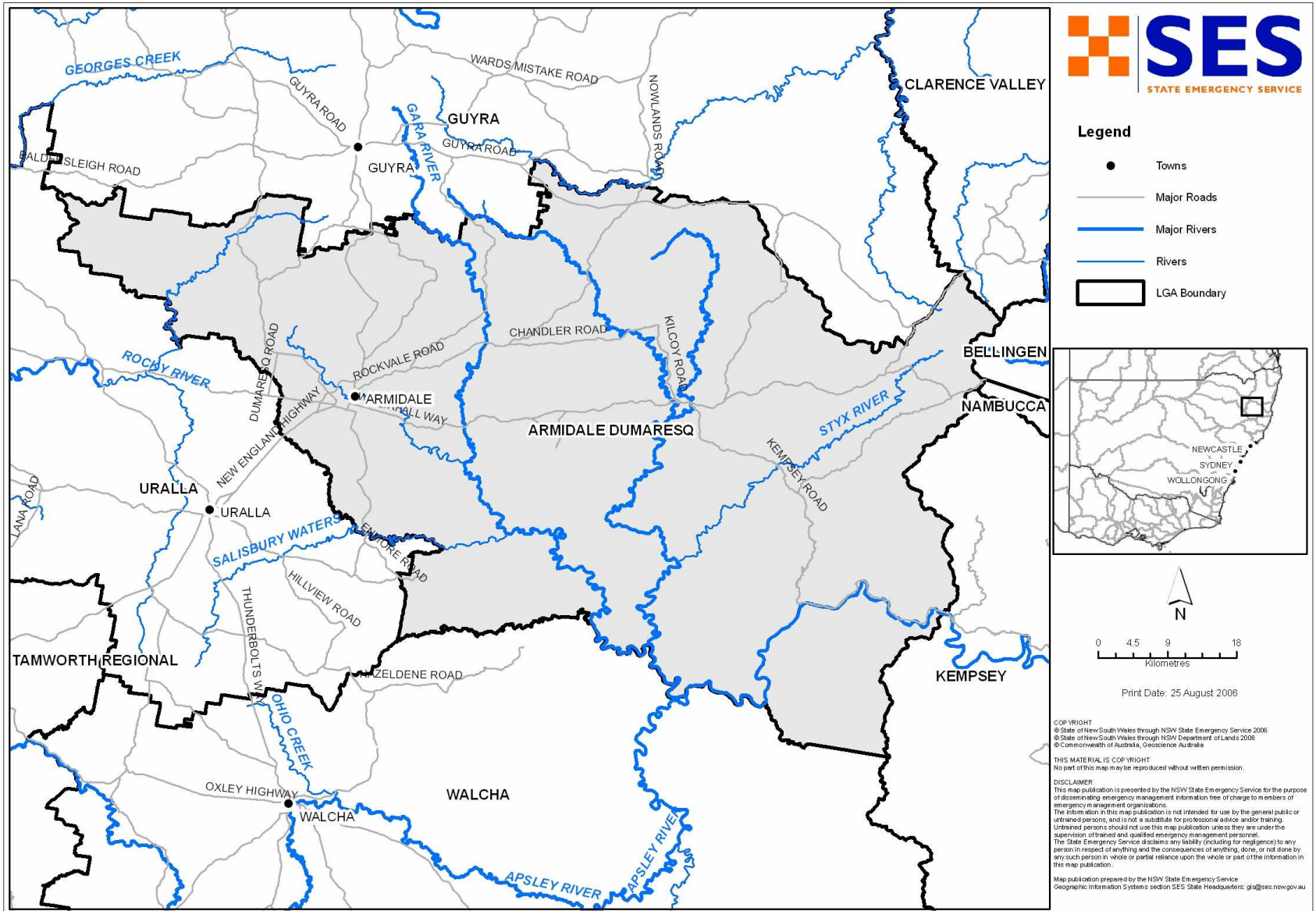
Alert	Defining Conditions	Approximate Elapsed Time (worse case)	Flood Effects	Notification Arrangements and Actions			
				Armidale Dumaresq Council	Armidale Dumaresq SES	Namoi SES Region Headquarters	People At Risk
<b>Red</b>	<p>Rate of rise slower than 0.8m/hr <b>and</b> storage level =&gt; IFL (8.47m above crest).</p> <p><b>OR</b></p> <p>Rate of rise =&gt; 0.8m/hr <b>and</b> FSL plus 5m.</p>	<p>1. To reach Red Alert:</p> <p>For IFF (0.8m/hr) - 9 hours (5 hours after Orange Alert level).</p> <p>For PMF (1.5m/hr) - 6 hours (2 hours after Orange level is reached).</p> <p>2. To reach the deck of the Rockvale Road bridge:</p> <p>For IFF (0.8m/hr) - 1½ hours.</p> <p>For PMF (1.5m/hr) - ¾ hour.</p>	<p>With 4-5m of spill (IFL):</p> <p>Rockvale Road bridge covered by 2.5m.</p> <p>"Argyl No. 2" inundated by 3m.</p> <p>Grafton Road bridge covered by 3.1m.</p>	<p>Contact the SES Local Controller and confirm receipt of the Red Alert.</p> <p>Continue to monitor conditions at the dam.</p> <p>Advise Namoi SES Region HQ.</p> <p>Advise DLWC who then advise the DSC.</p>	<p>Notify the Armidale Dumaresq LEOCON.</p> <p>Notify the Namoi SES Region HQ.</p> <p>Contact all designated properties by telephone or direct contact and issue evacuation order to:</p> <p>"Thalgarra", "Brookside", "Argyl No. 1" and "Argyl No. 3".</p>	<p>Notify SES State HQ.</p> <p>Broadcast warnings.</p> <p>Contact Oxley SES Region HQ and provide a warning of potential for major flooding.</p>	<p>Evacuate to designated safety or evacuation centres.</p> <p>Advise the Armidale Dumaresq SES if changing location after evacuation.</p>



# MAP 1 - MACLEAY RIVER BASIN



# MAP 2 - ARMIDALE DUMARESQ COUNCIL AREA



# MAP 3 - TOWN/VILLAGE/SUBURB AREA

