NSW STATE EMERGENCY SERVICE

Mid Coast Council (Gloucester)

Local Flood Emergency Sub Plan

FloodSafe

MIDCOAST COUNCIL FLOOD EMERGENCY SUB PLAN

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

Volume 1 of the MidCoast Council Flood Emergency Sub Plan

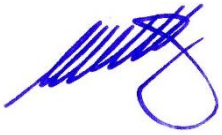
Endorsed by the MidCoast Council Local Emergency Management Committee

20 November 2023

AUTHORISATION

The MidCoast Council Flood Emergency Sub Plan is a sub plan of the MidCoast Council 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)**.

Authorised

Signature: 

NSW SES Deputy Zone Commander

Print Name: Stephen Leahy OAM

Date: 27th November 2023

Endorsed

Signature: 

Chair, Local Emergency Management Committee

Print Name: Peter Hatton

Date: 20 November 2023

PREVIOUSLY ENDORSED VERSION PRIOR TO LGA AMALGAMATION

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

Description	Date
Gloucester Shire Flood Emergency Sub Plan	April 2015
Gloucester Shire Local Flood Plan	October 2009
Great Lakes Local Flood Plan	December 2011
Greater Taree City Flood Emergency Sub Plan	Mar 2013
Greater Taree City Local Flood Plan	December 2012
Greater Taree City Local Flood Plan	August 2007

AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

Manager Emergency Planning
NSW State Emergency Service
PO Box 6126, Wollongong NSW 2500
nswses.communityplanning@ses.nsw.gov.au

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

Amendment Number	Description	Updated by	Date

DISTRIBUTION LIST

Available for general use and distribution on the NSW State Emergency Service website www.ses.nsw.gov.au

CONTENTS

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 MidCoast Council 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 MidCoast Council Local Emergency Management Plan (EMPLAN) and is endorsed by the MidCoast Council Local 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 MidCoast Council 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 MidCoast Council LGA. The MidCoast Council 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 Northern Zone and for emergency management purposes, is part of the North Coast Emergency Management Region.

1.4.3 The plan sets out the MidCoast Council level emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the MidCoast Council LGA. Hazard and Risk information can be found in Volume 2 of this document, and NSW SES Response Arrangements can be found in Volume 3.

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 The arrangements for dealing with episodes of coastal erosion by severe weather, are described in the NSW State Storm Sub Plan.

1.4.6 The arrangements for the emergency management of tsunami are dealt with in the NSW State Tsunami Emergency Sub Plan.

1.4.7 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 MidCoast 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 MidCoast Council LGA. This is outlined in three Volume 2s – Hazard and Risk (prior to amalgamation): Greater Taree; Gloucester; Great Lakes.

2.1.2 Declared dams in or upstream of the MidCoast Council Local Government Area.

Dam Name	Owner	Above safety threshold
Duralie Coal Auxiliary Dam 1	Duralie Coal Pty Ltd	No
Duralie Coal Auxiliary Dam No 2	Duralie Coal Pty Ltd	No
Duralie Coal Mine Water Dam	Duralie Coal Pty Ltd	No
Bootawa Dam	MidCoast Council	No

3 PREVENTION/ MITIGATION

3.1 INTRODUCTION

3.1.1 The Floodplain Development 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 floodplain 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). Gauges of relevance within the MidCoast Council LGA are also listed in the three Volume 3s of this plan (prior to amalgamation: Gloucester; Greater Taree; Great Lakes).

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 as required.

b. NSW SES will provide Liaison Officer(s) to Emergency Operations Centres as required.

c. Where possible Emergency Operation Centres 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; and
- 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:

- MidCoast Council website;
- Transport for NSW 'Live Traffic' website: 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. MidCoast 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 MidCoast 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.

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 Arrangements for the protection of local assets are outlined in Volume 3 of this NSW SES local Flood Emergency Sub Plan. In addition, 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 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. 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.

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; and

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 MidCoast 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 MidCoast Council 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 NSW Reconstruction Authority

7 ABBREVIATIONS

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

8 GLOSSARY

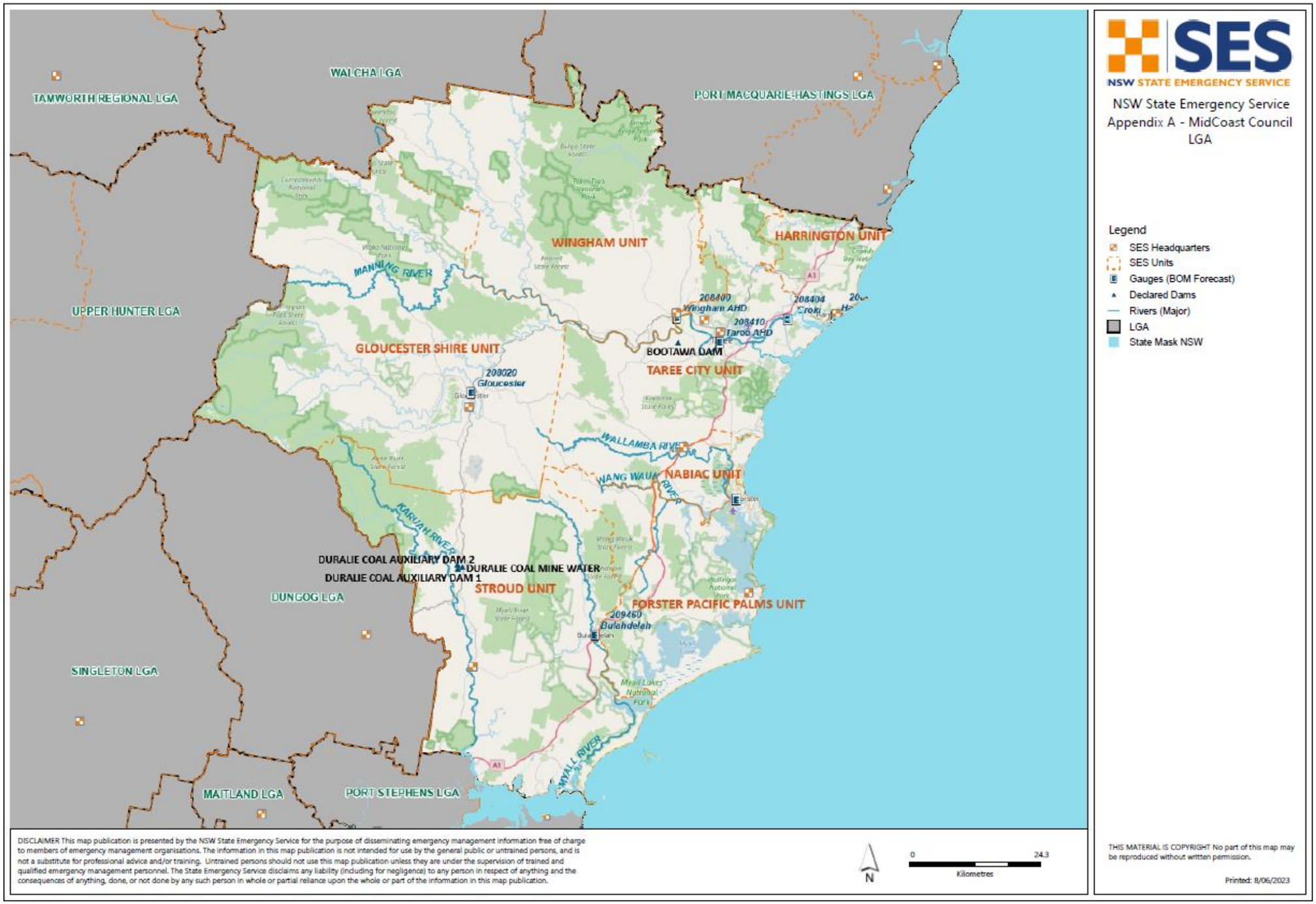
Common emergency service terminology can be found within the Australian Disaster Resilience Glossary.

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 MidCoast Council LGA



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 NSW State Flood Plan.

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.
Australian Government Bureau of Meteorology	The roles and responsibilities for the Australian Government Bureau of Meteorology are outlined in the NSW State Flood Plan.
MidCoast Council	**Preparedness** • Establish and maintain floodplain and coastal risk management committees and ensure that key agencies are represented. • Develop and implement floodplain risk management plans in accordance with the NSW Government's Flood Prone Land Policy and the Floodplain Development Manual. • Provide levee studies, flood studies and floodplain management studies to NSW SES. • Maintain Dam Emergency Plans for the MidCoast Council Bootawa Dam and provide copies to NSW SES. • Provide information on the consequences of dam failure to NSW SES for incorporation into planning and flood intelligence. • If required by council, coordinate the development of warning services for catchments prone to flash flooding (small catchments), where appropriate. • Maintain council-owned flood warning networks and flood mitigation works. • Participate in NSW SES-led flood emergency planning meetings, to assist in the preparation of Flood Sub Plans. • Maintain a plant and equipment resource list for the council area. • Contribute to community engagement activities. **Response** • Subject to the availability of council resources, assist NSW SES with flood operations including:

AGENCY	RESPONSIBILITIES
	– Traffic management on council managed roads. – Provision of assistance to NSW SES (plant, equipment and personnel where able and requested). – Property protection tasks including sandbagging. – Assist with the removal of caravans from caravan parks. – Warning and/or evacuation of residents and other people in flood liable areas. – Provision of back-up radio communications. – Resupply of isolated properties. – Technical advice on the impacts of flooding. – 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. – Assist NSW SES to provide filled sandbags and filling facilities to residents and business in areas which flooding is expected. • Assist with making facilities available for domestic pets and companion animals of evacuees during evacuations. • Operate flood mitigation works including critical structures such as detention basins and levees and advise NSW SES regarding their operation. • Manage and protect council-owned infrastructure facilities during floods. • 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. • Advise the Environmental Protection Authority of any sewerage overflow caused by flooding. • Work with NSW SES and NSW Department of Planning and Environment to collect flood related data during and after flood events. **Recovery** • Provide for the management of health hazards associated with flooding including removing debris and waste. • Ensure premises are fit and safe for reoccupation and assess any need for demolition. • Provide services, assistance and advice to State Government in accordance with the State Recovery Plan.
Caravan Park Proprietor(s)	• Prepare a flood emergency plan for the Caravan Park. • Ensure that owners and occupiers of movable dwellings are aware that the caravan park is flood liable by providing a written notice to

AGENCY	RESPONSIBILITIES
	occupiers taking up residence and displaying this notice and emergency management arrangement within the park. • Ensure that owners and occupiers of movable dwellings are aware that if they are expecting to be absent for extended periods, they should: – Provide the manager of the caravan park with a contact address and telephone number in case of an emergency. – 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). • Ensure that occupiers are informed of Flood Information. At this time, occupiers should be advised to: – Ensure that they have spare batteries for their radios. – Listen to a local radio station for updated flood information. – Prepare for evacuation and movable dwelling (cabins) relocation. • Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and movable dwelling relocation when flooding occurs. • 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. • Secure any movable dwellings that are not able to be relocated to prevent floatation. • 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.
Childcare Centres and Preschools	• When notified of possible flooding or isolation, childcare centres and preschools should. – 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. – Assist with coordinating the evacuation of preschools and childcare centres.
Dams Safety NSW	The roles and responsibilities for Dams Safety NSW (formerly NSW Dam Safety Committee) are outlined in the NSW State Flood Plan.
Department of Defence	Arrangements for Defence Assistance to the Civil Community are detailed within the State EMPLAN (section 448).

AGENCY	RESPONSIBILITIES
Energy and Utilities Services Functional Area	The roles and responsibilities for Energy and Utilities Services are outlined in the Energy and Utility Services Supporting Plan (EUSPLAN). Roles and responsibilities in addition to the Supporting Plan are: • Assist NSW SES with identification of infrastructure at risk of flood damage where resources are available. • Facilitate local utility service distribution providers (electricity, gas, water, wastewater) to: – Provide advice to NSW SES of any need to disconnect power/gas/water/wastewater supplies or of any timetable for reconnection. – Advise NSW SES of any hazards from utility services during flooding and coastal erosion/inundation. – Advise the public with regard to electrical hazards during flooding and coastal erosion/inundation, and to the availability or otherwise of the electricity supply. – Clear or make safe any hazard caused by power lines or electricity distribution equipment. – Reconnect customers' electrical/ gas/ water/wastewater installations, when certified safe to do so and as conditions allow. – Assist NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.
Engineering Services Functional Area	The roles and responsibilities for Engineering Services are outlined in the Engineering Services Supporting Plan and NSW State Flood Plan.
Environmental Services Functional Area	The roles and responsibilities for Environmental Services are outlined in the Environmental Services (ENVIROPLAN) Supporting Plan.
Floodplain Management Australia	The roles and responsibilities for Floodplain Management Australia are outlined in the NSW State Flood Plan**.**
Fire and Rescue NSW	The roles and responsibilities for Fire and Rescue NSW are outlined in the NSW State Flood Plan.
Forestry Corporation of NSW	The roles and responsibilities for Forestry Corporation of NSW are outlined in the NSW State Flood Plan.
Health Services Functional Area	The roles and responsibilities for Health Services are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
Local Emergency Operations Controller (LEOCON)	• Monitor flood operations. • If requested, coordinate support for the NSW SES Incident Controller.
Local Emergency Management Officer (LEMO)	• If requested by the NSW SES Incident Controller, advise appropriate agencies and officers of the start of response operations.

AGENCY	RESPONSIBILITIES
Manly Hydraulics Laboratory (MHL)	The roles and responsibilities for Manly Hydraulic Laboratory are outlined in the NSW State Flood Plan.
Marine Rescue NSW	The roles and responsibilities for Marine Rescue NSW are outlined in the NSW State Flood Plan.
NSW Ambulance	The roles and responsibilities for NSW Ambulance are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission	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.
NSW Department of Planning and Environment (Environment and Heritage Group)	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).
NSW Department of Planning and Environment (Water)	The roles and responsibilities for NSW Department of Planning and Environment (Water) are outlined in the NSW State Flood Plan.
NSW Food Authority	The roles and responsibilities for NSW Food Authority are outlined in the Food Safety Emergency Sub Plan.
NSW National Parks and Wildlife Services	The roles and responsibilities for NSW National Parks and Wildlife Services are outlined in the NSW State Flood Plan.
NSW Police Force	The roles and responsibilities for NSW Police Force are outlined in the NSW State Flood Plan.
NSW Reconstruction Authority	The roles and responsibilities for NSW Reconstruction Authority are outlined in the NSW State Flood Plan.
NSW Rural Fire Service	The roles and responsibilities for NSW Rural Fire Service are outlined in the NSW State Flood Plan.
Owners of Declared Dams within or upstream of the LGA	The roles and responsibilities for Owners of Declared Dams are outlined in the NSW State Flood Plan.
Public Information Services Functional Area	The roles and responsibilities for Public Information Services are outlined in the Public Information Services Supporting Plan and NSW State Flood. Plan**.**
SEOCON/SEOC	The roles and responsibilities for the SEOCON/SEOC are outlined in the NSW State Flood Plan**.**
Surf Life Saving NSW	The roles and responsibilities for Surf Life Saving NSW are outlined in the NSW State Flood Plan.

AGENCY	RESPONSIBILITIES
Telecommunications Services Functional Area	The roles and responsibilities for Telecommunications Services are outlined in the Telecommunications Services (TELCOPLAN) Supporting Plan.
Transport for NSW	• Transport for NSW coordinates information on road conditions for emergency services access. • Transport for NSW coordinates the management of the road network across all modes of transport. • Transport for NSW in conjunction will assist NSW SES with the evacuation of at-risk communities by maintaining access and egress routes. • 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. • Assist NSW SES with identification of road infrastructure at risk of flooding.
Transport Services Functional Area	The roles and responsibilities for Transport Services are outlined in the Transport Services Functional Area Supporting Plan and NSW State Flood Plan.
VRA Rescue NSW	The roles and responsibilities for VRA Rescue NSW are outlined in the NSW State Flood Plan.
Water NSW	The roles and responsibilities for Water NSW are outlined in the NSW State Flood Plan.
Welfare Services Functional Area	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

Community Members	**Preparedness** • Understand the potential risk and impact of flooding. • Prepare homes and property to reduce the impact of flooding. • Understand warnings and other triggers for action and the safest actions to take in a flood.

	• Households, institutions and businesses develop plans to manage flood risks, sharing and practicing this with family, friends, employees and neighbours. • Have an emergency kit. • Be involved in local emergency planning processes. **Recovery** • Assist with community clean-up if required and able to do so. • Participate in After Action Reviews if required.

NSW STATE EMERGENCY SERVICE

HAZARD AND RISK IN THE FORMER GLOUCESTER SHIRE

Volume 2 of the Mid Coast Local Flood Plan

Last Update: January 2017

FloodSafe

AUTHORISATION

The Hazard and Risk in the former Gloucester Shire has been prepared by the NSW State Emergency Service (NSW SES) as part of a comprehensive planning process. The information contained herein has been compiled from the latest available technical studies.

Approved

Manager Emergency Risk Management

Date: 19/1/17

Approved

NSW SES Mid North Coast Region Controller

Date: 5TH JANUARY 2017

Tabled at LEMC Date: 14 March 2017

CONTENTS

LIST OF TABLES

VERSION LIST

The following table lists all previously approved versions of this Volume.

Description	Date
Gloucester Shire Local Flood Plan – Annex A & B	Oct 2009

AMENDMENT LIST

Suggestions for amendments to this Volume should be forwarded to:

The Gloucester Local Controller

NSW State Emergency Service

23 Tate Street, Gloucester, NSW, 2422

Amendments promulgated in the amendments list below have been entered in this Volume.

Amendment Number	Description	Updated by	Date

Document Issue: Version 3-02052016

1 THE FLOOD THREAT

1.1 OVERVIEW

Manning River Basin

a. The former Gloucester Shire Council area covers 2,930 kilometres of rugged to undulating terrain within the upper catchment of the Manning River. The area consists of the Manning River to its confluence with Bakers Creek; the Little Manning River; a section the Piga Barney River; the Barnard River to its confluence with the Manning River; the Bowman River to its confluence with the Gloucester River, the Barrington River to its confluence with the Gloucester River; the Gloucester River to its junction with the Manning River; and the Avon River to its confluence with the Gloucester River (1).

b. The Gloucester, Avon and Barrington Rivers form part of the broader Manning River catchment, which is over 8,000 square kilometres in size and drains to the Tasman Sea on the New South Wales mid-north coast (2). The Manning River basin is shown in Map 1.

1.2 LANDFORMS AND RIVER SYSTEMS

a. The Avon, Gloucester and Barrington Rivers all influence flooding in Gloucester and surrounding areas. The Manning River runs through the top third of the LGA. Each river is described below:

i. **Gloucester River**: The headwaters of the Gloucester River start approximately 40 kilometres west of the town, in the Barrington Tops National Park. The peak elevation in the catchment is 1,349 metres above sea level. The catchment is steep and tends to respond quickly to rainfall. At Gloucester the river has a catchment area of 250 square kilometres (1).

- The Billabong runs between Boundary and Church Street, and enters the Gloucester River near Boundary Street.

ii. **Avon River**: The catchment of the Avon River is comparatively flat, with a peak elevation of 460 metres above sea level. The river is characterised by a small shallow channel and a wide flat floodplain. At Gloucester the river has a catchment area of 290 square kilometres (1). Mining activity in the south of the catchment may also have some influence on the catchment flood hydrology (2).

iii. **Barrington River**: The Barrington River catchment is topographically similar to the Gloucester River. The headwaters of the river lie in the rugged terrain of the Barrington Tops National Park. The peak elevation within the catchment is

1380 metres. The catchment has a total area of 700 square kilometres (1). It consists of a number of major tributaries draining the eastern slopes of the Barrington Tops. These form three rivers – the Cobark, Barrington and Kerripit – that join at a single confluence location. This configuration has the potential to generate significant flood flows and subsequent elevated tail water conditions along the Gloucester River from the Barrington River confluence (2).

iv. **Manning River:** The Great Dividing Range forms the upper limit of the Manning River catchment, where elevations of around 1200 metres are typical. The Barrington Tops, in the south-west of the catchment, peaks at just below 1600 metres. The Manning River spills onto a vast, low-lying floodplain area downstream of Taree (3).

b. There are some extensive areas of alluvial flats along the lower reaches of the Avon, Gloucester and Barrington Rivers with isolated areas of flats also along the Bowman River and along the Manning River between the Barnard and Gloucester Rivers. In these areas the flood threat is extended to inundation of and damage to river frontage properties (1).

c. Land use within the catchment primarily consists of forested areas, comprising 70% of the Barrington catchment, 60% of the Gloucester catchment and 65% of the Avon catchment. The remaining land uses are predominantly pastureland and other cultivated areas (2).

d. The township of Gloucester is the main community within the catchment, followed by the much smaller communities of Stratford and Barrington (2).

e. The two main transport routes that traverse the area are the Bucketts Way (connecting Gloucester with Taree 50 kilometres to the east and Newcastle 100 kilometres to the south) and the Thunderbolts Way (connecting Gloucester with Armidale 170 kilometres to the north). The north coast railway also traverses the area. These transport routes cross the floodplains of the Gloucester, Avon and Barrington Rivers. They may both impact the flood behaviour and/or be impacted by flooding (2).

1.3 STORAGE DAMS

a. There are no prescribed dams in the Gloucester area or upstream on the Manning, Gloucester, Avon or Barrington Rivers.

1.4 WEATHER SYSTEMS AND FLOODING

a. The heavy rain which produces floods in the Gloucester area tends to come from the following kinds of weather systems:

i. Monsoonal low-pressure systems moving across the Great Dividing Range from Northern Australia, usually during summer and autumn months. These systems are indicated on weather maps as elongated low-pressure troughs stretching from the Northern Territory to the north coast of NSW (1).

ii. Tropical Cyclones moving south from the Coral Sea and the Gulf of Carpentaria may reach the Gloucester area in decayed form as rain depressions, causing flooding. Usually such flooding occurs in the months from January to April. High seas, large waves and storm surge conditions may occur in addition to extremely heavy rain (1).

iii. East Coast low-pressure systems which travel along the coast, usually during the cooler months, and direct moist on-shore winds over the Gloucester area. Orographic uplift of these air masses brings heavy rain over the ranges. Rains from these systems can persist for some days (1).

iv. High intensity, short duration convective thunderstorms occur frequently over the Gloucester area, especially during the summer months. The rain from such storms can cause town drainage systems or minor creeks to surcharge, creating local flooding of low-lying areas and mountain gullies. No rise in the main rivers is likely from such events (1).

v. Floods are most prevalent over the period January to March, however, can occur at any time of year (1).

1.5 CHARACTERISTICS OF FLOODING

a. Flooding within the Barrington River catchment is characterised by deep and rapidly rising floodwaters. The Barrington River floodplain is broad, reaching approximately 300-500 metres wide, and up to one kilometre in locations downstream near Barrington. It has well-defined and steep valley sides. The channel is wide and deep and has considerable flow conveyance capacity. For the modelled design events, the initial response of rising floodwaters occurs approximately 8 hours after the onset of rainfall. Flow through some sections of the Barrington River remains entirely in-channel up to the 2% AEP design event, with velocities through the channel reaching above five metres per second. The deep, fast flow of floodwaters through the Barrington River pose a significant flood hazard, particularly to vehicle crossings (2).

b. Flooding in the Gloucester River is characterised by an extensive network of flood runners through the floodplain. Floodplain inundation first occurs around 5.0 metres, however extensive floodplain inundation is not observed until the gauge height reaches 5.6 metres. Typical depths of floodwaters throughout the floodplain are within the order of 0.5-1 metres. However, the depth of floodwater through the Gloucester River channel downstream of the Barrington River confluence reaches around 13- 15 metres during floods in the order of 8.2 metres. Floodplain inundation

generally occurs around 15 hours after the onset of rainfall, but can happen faster or slower (2).

c. When the rate of flow in the Avon River exceeds channel capacity, it spills onto the floodplain. The in-channel capacity of the Avon River is breached during the 50% AEP event and significant floodplain inundation occurs. Initially, floodwater rises at a much slower rate compared to the other two catchments, however the onset of floodplain inundation occurs at a similar time to that of the Gloucester River. Areas of the floodplain can remain inundated for days after the peak of the event is reached. Typical depths of inundation across the Avon River floodplain are within the order of 1-1.5 metres during the 10% AEP event and 2-3 metres during the 1% AEP event (2).

d. Throughout the three catchments, the majority of properties in the broader catchment area are situated at or beyond the edge of inundation. There are only a few properties that become inundated during the PMF event (2).

e. The following table gives indicative flow travel times for the Manning River.

Table 1: Indicative Flow Travel Time for the Manning River (4)

Locations	Travel Time
Gloucester – Mt George	20-25 hours
Mt George - Wingham	4-6 hours
Wingham - Taree	3 hours
Taree - Croki	2-8 hours
Croki - Harrington	3 hours

1.6 FLOOD HISTORY

a. The largest flood to hit Gloucester this century occurred in 1929. Although the exact gauge height is not known, anecdotal evidence suggests it was around two metres higher than the 1978 flood, and therefore estimated to be 7.3 metres. In this flood, the railway station flooded, businesses in Church Street were flooded to 1.2 metres and lives of two men were lost (1). The 1956 flood is the highest since gauge recording commenced in 1952 (1).

b. The 1956 flood is the highest since gauge recording commenced in 1952. This flood reached 7.01 metres and resulted in 35 shops in Church Street and residences in Hume Street being inundated (2).

c. During the March 1978 flood, 24-hour rainfalls of up to 300 millimetres were reported on the tributary streams of the Gloucester system and the river level reached 5.7 metres. Record floods were experienced in the catchments of the Barrington, Cobark, Dilgry, Bowman and Little Manning Rivers and Craven Creek. The loss of communications west of Gloucester was almost complete before the flood

reached its peak. Several bridges were washed away or severely damaged during the flood. In Gloucester, many businesses were again inundated with significant associated damage and loss of stock. Two shops in Church Street with over floor flooding; 0.5m water in Billabong Lane; water to intersection Church Street and Park, Denison, Hume Streets (1).

d. The following table lists historical flood heights on the Gloucester, Avon and Barrington Rivers. The Gloucester gauge 208020 was changed to an automatic gauge in 2003, with a corresponding change in gauge zero of -0.295 metres. The pre-2003 values in the table below have been adjusted to show what the levels would be, as measured by the automatic gauge.

Table 2: Flood peak heights for the Gloucester and Forbesdale gauges (5) (2) and selected other gauges on the Gloucester, Avon and Barrington Rivers (4) (6) .

*The Gloucester gauge pre-2003 heights have been adjusted to account for the change in gauge zero, where the new gauge zero is 0.295 metres below the original gauge height.

	Gloucester River				Avon River	Barrington River	
Date	Gloucester 208020 (m)	Gloucester (m AHD)	Forbesdale 208008 (m)	Hiawatha (m)	Avon Flatbridge (m)	Forbesdale Causeway (m)	Pumping Station (m)
1929	7.3 * estimated						
June 1950			2.59				
Feb 1954	4.72*						
Feb 1955			3.07				
Mar 1956	7.01*	91.85	3.53				
Feb 1957	6.4*	91.24					
Mar 1957			2.59				
Jan 1974	5.49*	90.34			4.26		5.48
Mar 1976	5.47*	90.32	2.78				5.79
Mar 1978	5.68*	90.52	3.14	2.76	5.18		~9.14
Mar 1963	5.25*	90.09				3.66, 2.82	
Apr 1963						3.05	
May 1963	5.4*	90.25	2.59				
Oct 1967						3.43	
Mar 1977	4.06				3.71		
1987							5.00
1989	4.2			2.6			
1990							8.6
Dec 1992				2			
June 2005	5.11	89.96	2.64				
Apr 2009	4.32						
Jun 2011	5.54	90.39	2.87				
Feb 2012	4.34						
Feb 2013	4.75	89.60	2.60				

1.7 FLOOD MITIGATION SYSTEMS

a. There are no known structural flood mitigation systems within the Gloucester area (1).

1.8 EXTREME FLOODING

a. On very rare occasions, flooding of extreme proportions will occur. Extreme floods can reach far greater heights than any previously recorded. Moreover, such floods are generally both faster to rise and more dangerous in terms of depth and velocity than previous floods. Large amounts of damage would be expected including widespread infrastructure failure (1).

b. Table 4 shows design flood levels at Gloucester and the Forbesdale gauge for PMF, 1%-10% AEP floods. Given that the flood levels at the Gloucester gauge can be influenced by flooding on the Avon and Barrington Rivers it is worth also considering the water levels at the Forbesdale gauge as well as the Gloucester gauge, as it is flood flows on the Gloucester River that are the principal driver of flood conditions along the Billabong (2).

Table 3: Design flood levels at Gloucester and Forbesdale gauges (5), (2)

Flood % (AEP)	Gloucester Gauge 208020	Forbesdale Gauge 208008
	(m)	(m)
20	5.0	2.8
10	5.3	3.1
5	5.6	3.3
2	6.8	3.6
1	8.2	3.9
0.5	9.6	4.2
0.2	11.6	4.6
PMF	17.5	6.0

c. The PMF would reach 17.5 metres at the Gloucester Gauge, which is around 9 metres above the 1% AEP level. The depth of flooding in the Billabong area is likely to increase significantly to over 10 metres and the flood extent would move further east, past Church Street and Bucketts Way (2). Flood depths for the PMF have been modelled to exceed 10-12 metres in the Gloucester area, including Thunderbolts Way and Bucketts Way (2).

2 EFFECTS ON THE COMMUNITY

2.1 COMMUNITY PROFILE

Table 4: Census of Housing and Population data (2011)

Census Description	Gloucester LGA	Gloucester
Total Persons	**4,877**	**2,870**
Aged 0-4 yrs	235	160
Aged 5-14 yrs	546	309
Aged 65 + yrs	1,267	792
Of Indigenous Origin	228	177
Who do not speak English well	6	4
Have a need for assistance (profound/severe disability)	329	211
Living alone (Total)	591	404
Living alone (Aged 65+)	285	218
Residing in caravans, cabins or houseboats or improvised dwellings	50	40
Occupied Private Dwellings (Households)	**2,000**	**1,202**
No Motor Vehicle	142	116
Caravan, cabin, houseboat or improvised dwell	31	25
Rented via State or Housing Authority	45	39
Rented via Housing Co-Op or Community Church Group	6	0
No Internet Connection	624	433
Unoccupied Private Dwellings	**453**	**193**
Average persons per occup dwelling	**2.3**	**2.1**
Average vehicles per occup dwelling	**1.7**	**1.5**

SPECIFIC RISK AREAS - FLOOD

a. Numerous areas within the Gloucester area are at risk of flooding and/or isolation. Areas of Gloucester, Stratford, Rookhurst, Avon Flat, Barrington Flat and numerous camping reserves are at risk of inundation, while Waukivory, Fairburn's Rd, Bowman Farm, Barrington, Meadows Estate, Gloryvale, Bretti, Copeland and Barrington Tops are all at risk of isolation (1).

2.2 GLOUCESTER

2.2.1 Community Overview

a. The population of Gloucester is approximately 2870 and around one quarter of these are over 65 years (7). Elderly people are often frail and unable to respond quickly without assistance. Some of them may also be socially isolated, resulting in them being unaware of evacuation warnings or unable to decide on a course of action. Areas with particularly high portions of elderly residents should be targeted for doorknocking and the provision of transport (4).

2.2.2 Characteristics of flooding

a. Flooding in Gloucester is a consequence of riverine flooding from Gloucester and Avon Rivers and associated flood runners described in section 2.2.3.

2.2.3 Flood Behaviour

a. The township of Gloucester is located about one kilometre upstream of the junction of the Gloucester and Avon Rivers and is on relatively high ground between river flats. Flood runners develop across these flats as river levels rise. The most significant of these develops when the Gloucester River breaks its right bank near the Golf Course about two kilometres upstream of the town. This flood water then flows north along the line of the Billabong Lagoon, then through the low area between Church Street and Boundary Street before re-joining the river at Lehman's Flat. More extreme levels of flooding can inundate significant river flat areas to the west, north and east of the town (1).

b. The nature of flooding in the Gloucester town area is dependent on the relative peak flows, not only of the Gloucester and Avon Rivers, but also of the Barrington River at their junction some three kilometres downstream of the town. This problem is made worse with the relatively short warning times available. However, the gauges on the headwaters of the Barrington and Gloucester Rivers can provide three hours notice respectively of the arrival of flood waters in the Gloucester area. Confirmation of the size and timing of floods is obtained from the 'Hiawatha' gauge on the Gloucester River- although this is only about 30 minutes travel time upstream from the town (1).

c. Flow velocities across the floodplain at Gloucester are expected to vary. Floods in the order of 8.2 metres are expected to create flow velocities above two metres per second (7.2 kilometres an hour) in the Gloucester River channel and up to 1.2 metres per second (4.3 kilometres an hour) along the Billabong (1).

d. The high velocities in the CBD could result in structural damage to buildings. High velocities also increase the risk to persons wading or driving through flood waters (1).

e. For the floods in the order of 8.2 metres, (1% AEP design event) the flood levels in The Billabong (the small creek that runs parallel to and between Boundary Street, Billabong Lane and Church Street) are anticipated to rise rapidly at around 16 hours from the onset of rainfall and the floodwaters rise relatively quickly, 0.5-1.0 metres per hour. However, the flood water from the Billabong rises before flooding may be observed on Gloucester gauge (2).

f. Most of the flooding, in each design flood is classed as floodway (2). Small areas of the Gloucester River floodplain around Gloucester town do not experience as severe flooding and are classed as flood fringe. There are almost no areas of flood storage within the area, with the exception of isolated sections along the Avon River floodplain (2).

g. Around Gloucester township, around approximately 5.3 metres, the floodway area extends from the Gloucester River near Park Street, through the Billabong, to just south of Phillip Street, affecting residential land between Church Street and Boundary Way. This continues further south as flood fringe. As the severity of the flood event increases, the floodway broadens and extends further south, affecting most residential areas between Church Street / Bucketts Way and Gloucester River. On the east side of the town, there are no residential areas affected by the Avon River floodway (2).

h. By around 5 metres on the Gloucester gauge the channel capacity of the Gloucester River is exceeded and flood waters spill from the right bank between Sandy Creek and the caravan park. Around 5.3 metres flood flows exceed the capacity of The Billabong and flow along Billabong Lane, which was formerly another channel branch of The Billabong. Around 8.2 metres flood waters along The Billabong rise high to surround the commercial properties and flow along Church Street (2).

i. The hazard classification around the township, in general follows the pattern of the hydraulic classification, in that the areas of floodway are generally high hazard and the flood fringe is low hazard (2).

2.2.4 Classification of Floodplain

a. Most of the flood affected properties in Gloucester are situated along Billabong Lane and Church Street. It best classified as a Rising Road Access Area toward the east (2).

b. The caravan park, which is situated between Gloucester River and the Billabong, is isolated when Gloucester gauge height exceeds 5.3 metres and access via Denison Road /Boundary Road is cut, thereafter becoming a Low Flood Island. This classification also applies to other properties situated to the west of Billabong Lane (2).

2.2.5 Inundation

a. The Bureau of Meteorology issues warnings for the Gloucester River Gauge at The old Lehman's Flat Bridge site (208020).

b. General farmland around Gloucester Flats becomes inundated from around 4.3 metres on the Gloucester gauge (1).

c. The majority of Gloucester's CBD is prone to inundation during major floods, as are a small number of residential buildings. The river flats between Gloucester township and the Gloucester River are also flood prone. This area includes the Gloucester Holiday Park, sport and recreation facilitates and a number of residences along Thunderbolts Way (1).

d. The Caravan Park floods around 5.4 metres on the Gloucester gauge (3). Shortly thereafter, businesses in the CBD on the Western side of Church Street, Park Street, Denison Street, Hume Street and Billabong Lane occurs around 5.5 metres on the Gloucester gauge (5).

e. Properties situated at the northern edge of town along the Gloucester River are at risk of flooding from combined flood flows on the Gloucester and Avon Rivers, and to some extent the Barrington River. Inundation to properties along Macleay Street begins to occur around 6.8 metres. By around 11.6 metres properties along the eastern side of town also become inundated from flooding on the Avon River (2).

f. Flood prone properties are located in Macleay Street, Park Street, Boundary Street, Church Street and the western ends of Hume, King, Queen, Denison, Philip and Cook Streets (1).

g. A more detailed analysis of the number of properties at risk of flooding is summarised in the table below.

Table 5: Summary of property inundation in Gloucester (2)

Gauge height (m) (Gloucester)	Businesses with over-floor flooding	Houses with over-floor flooding	Houses with above ground flooding
5.0	0	0	1
5.3	5	0	2
5.6	12	1	8
6.8	60	13	25
8.2	74	31	42
11.6	94	108	126
17.5	99	401	428

2.2.6 Isolation

a. Gloucester can be isolated by road from both Taree and Newcastle (1) when Thunderbolts Way and Bucketts Way roads may be cut at approximately 5.55 metres at the Gloucester gauge.

b. Isolation within the Gloucester area could also occur as a consequence of landslides and bridge and road damage (4), as happened in Kimbriki and Bulliac in 1956 (9).

c. Park Street becomes flooded at Billabong Bridge around 4.25 metres at Gloucester gauge, potential to affect movements to northwest and east (9).

d. Boundary Street becomes flooded by around 5.4-7.1 metres to the south of the Thunderbolts Way intersection and near Hume Street.

e. The caravan park is situated on an island that becomes isolated by floodwaters when Denison Street, Boundary Street and Thunderbolts Way are cut. It then becomes flooded from 5.4 metres (9), becoming completely submerged at 6.8 metres (2).

2.2.7 Flood Mitigation Systems

a. There are no structural flood mitigation systems within the Gloucester LGA (1).

2.2.8 Dams

a. There are no prescribed dams in the Gloucester LGA or upstream on the Manning, Gloucester, Avon or Barrington Rivers.

2.2.9 At Risk Facilities

a. The facilities that are at risk of flooding and/or isolation within Gloucester LGA including possibly child care centres, hospitals, aged care facilities, infrastructure and caravan parks, are shown in Annex 2.

2.2.10 Other Considerations

a. The number of people in Gloucester is likely to increase during holiday periods. These people will likely occupy camping grounds, caravan parks and motels, some of which are flood prone or are likely to become isolated (1). For example (10):

   i. Apr-May: Gloucester Motorcycle Expo, showground

   ii. Mar: Country Music Hoedown, Poley's Place campground

2.3 RURAL AREAS

2.3.1 Stratford

a. Stratford is a small village about 14 kilometres south of Gloucester next to the Avon River. It has a population of around 110 (7).

b. A small number of properties in the Stratford area may be affected by flooding, particularly in the Parkers Road and Bridge Street areas. Road access is not maintained between Gloucester and Stratford during a flood and therefore the community can become isolated (1).

2.3.2 Rookhurst

a. Rookhurst is a locality about 20 kilometres northwest of Gloucester, upstream of the confluence of Chainman's and Cravens Creeks. It has a population of around 177 (7).

b. It has steep sided gullies and may be susceptible to isolation with the closure of Thunderbolts Way.

c. Historical records indicate that the old Rookhurst Primary School is at risk of flooding. As at May 2016, the school is closed and is relocated on Thunderbolts Way (1).

2.3.3 Barrington

a. Barrington is a small village seven kilometres northwest of Gloucester, either side of the Barrington River.

b. Approximately two dwellings in this area are prone to flooding (1), although the remainder of the town remains largely flood free.

c. Thunderbolts Way becomes flooded across the Barrington Flats and in Gloucester from around 5.3 metres (10% AEP event). The community may become isolated for a few hours to a couple of days (dependent of event magnitude and duration) and so is best classified as a High Flood Island (2).

ROAD CLOSURES AND ISOLATED COMMUNITIES

2.4 ROAD CLOSURES

a. Table 6 lists roads liable to flooding in the Gloucester LGA.

Table 6: Roads liable to flooding in Gloucester LGA (1)

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
Bucketts Way (Truck Road 90)	Avon Flat Bridge – east of Gloucester (Gloucester 9233-1-N 029581)	Restricts access between Gloucester and coastal towns such as Taree	n/a	n/a
	Avon River at Stratford (Gloucester 9233-1-N 998464) (2)	Restricts access between Stratford and Gloucester	Via Stroud, unless roads at Stroud are also closed	2.6 m flood depth at 1% AEP (Stroud)
	Railway Underpass (Gloucester 9233-1-N 998476)	Restricts access between Gloucester and coastal towns such as Taree	Alternative may be available via Northgate Street	localised flooding
Thunderbolts Way (Gloucester to Nowendoc)	Gloucester River Bridge approach at Gloucester (Gloucester 9233-1-N 009589)	Prevents access between Barrington and	n/a	Approximately 6.6 metres

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
		Gloucester, and to the showground from Gloucester		
	Billabong Bridge approaches at Gloucester (Gloucester 9233-1-N 014584) (2)	Restricts access between Gloucester and the Showground and Barrington	n/a	2.0 m flood depth at 1% AEP
	Kia Ora Flat north of Gloucester	Restricts access between Gloucester and Barrington	Via Barrington East Road	n/a
	Barrington River Flat at Barrington (Bowman 9234-1-S 965618) (2)	Prevents access between Barrington and Rookhurst	no	1.2 m flood depth at 1% AEP
	Craven Creek Bridge approach at Rookhurst (Bowman 9234-1-S 939697)	Prevents access between Barrington and Rookhurst	no	n/a
	Leslie's Bridge on the Little Manning River (Tibbuc 9324-2-N 949775)	Restricts access between	no	n/a

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
		Nowendoc and Rookhurst		
	Gloryvale Bridge on the Little Manning River (Tibbuc 9324-2-N 933743)	Restricts access between Nowendoc and Rookhurst	no	n/a
Scone Road (Copeland or Forestry Road)	Copeland Creek at Copeland (Bowman 9234-1-S 924621)	Cuts Copeland into two and prevents access between Copeland and Gloucester, isolates Copeland when Schultz Bridge is also flooded	no	n/a
	Schultz's Bridge on the Cobark River (Bowman 9234-1-S 820618)	Prevents access between Copeland and Cobark, isolates Copeland when Copeland Bridge is also flooded.	no	n/a
Jacks Road	Avon River below Waukivory Ck. Approach to bridge. (Gloucester 9233-1-N 009589)	Restricts access	Not if Bucketts Way is already	n/a

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
		between Gloucester and coastal towns such as Taree	flooded	
Fairbairns Road	Avon River approach to bridge. (Gloucester 9233-1-N 009589)	Restricts access for two residents along Fairbairns Road	Potential 4WD track to the east	n/a
Maslens Lane	Avon River (Gloucester 9233-1-N 027587)	Prevents access between Gloucester and the Airstrip	no	n/a

2.5 SUMMARY OF ISOLATED COMMUNITIES AND PROPERTIES

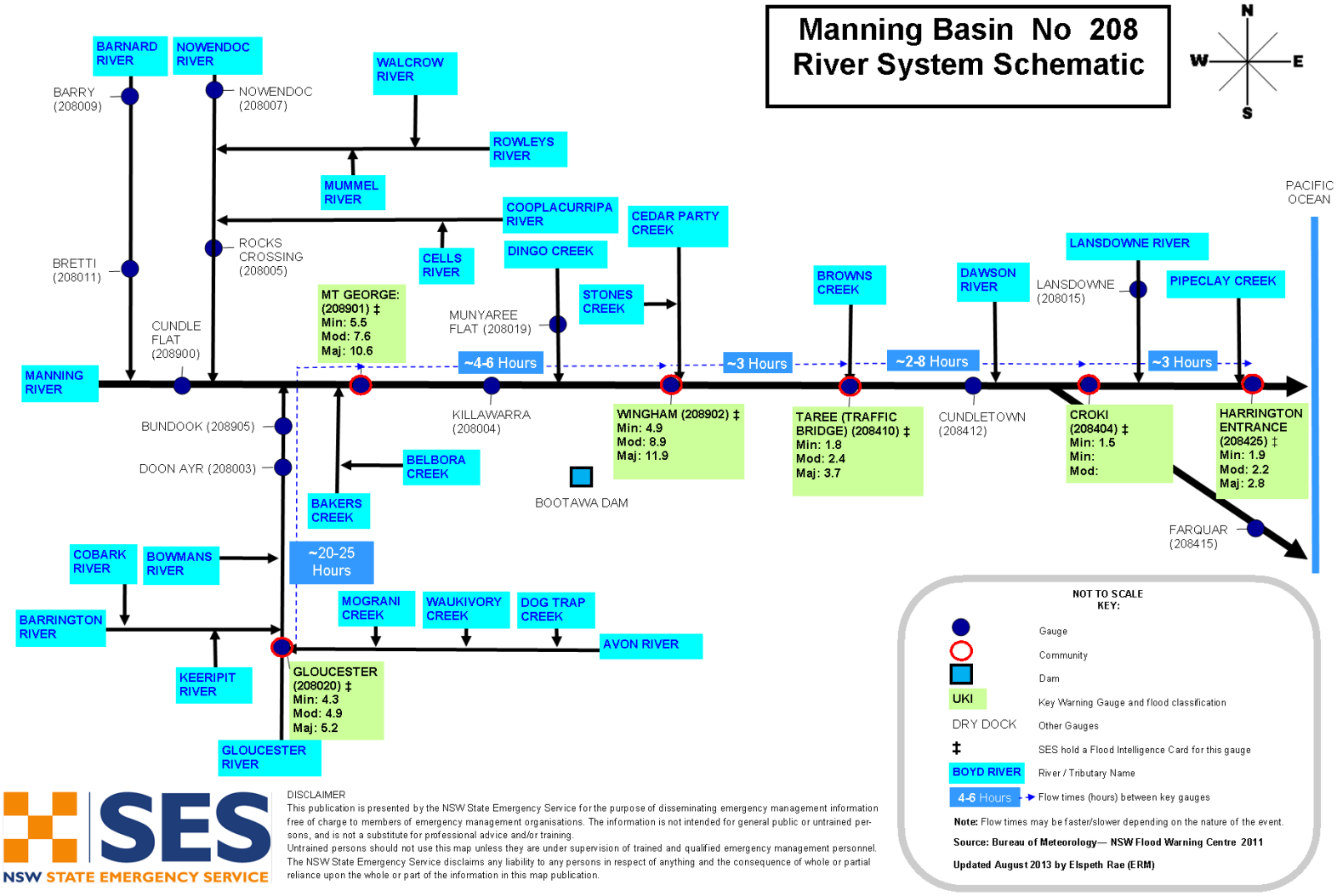
a. Table 7 lists communities liable to isolation and potential periods of isolation. Information presented here is based on historical and design events and does not reflect the duration of isolation expected in larger and extreme events.

Table 7: Potential Periods of Isolation for communities in the Gloucester LGA during a Major flood.

Town / Area (River Basin)	Population/ Dwellings (7)	Flood Affect Classification	Approximate period isolation	Days								NOTES
				1	2	3	4	5	6	7	8	
Gloucester Caravan Park		Low Flood Island	1 – 5 days									
Barrington	240 properties	High flood island	1 – 5 days									Some properties at risk of inundation
Rookhurst	280 properties	High flood island	1 – 5 days									No significant property inundation known
Stratford	156 properties	High flood island	1 – 5 days									Some properties at risk of inundation

Note: Periods of isolation are a guide only. Liaison with the Local Controller and communities/residents involved is essential during periods of potential and actual isolation.

ANNEX 1: MANNING RIVER BASIN SCHEMATIC



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NSW STATE EMERGENCY SERVICE

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Untrained persons should not use this map unless they are under supervision of trained and qualified emergency management personnel.
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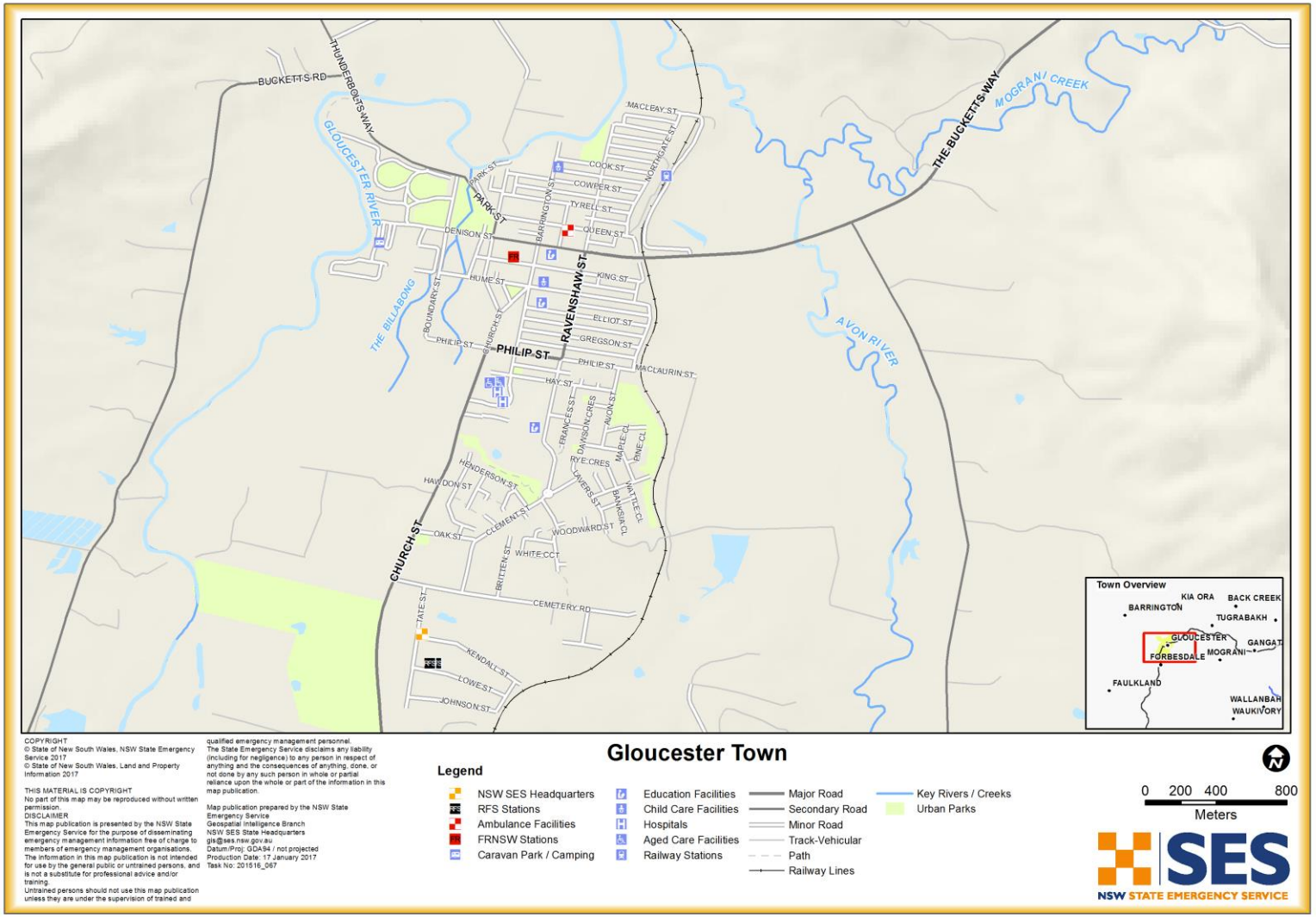
ANNEX 2: FACILITIES AT RISK OF FLOODING AND/OR ISOLATION

Facility Name	Street	Suburb	Comment
Schools			
Former Rookhurst Primary School	Thunderbolts Way	Rookhurst	10 enrolments in 2003, currently closed
Child Care Centres			
Barrington Street Pre School	4 Barrington Street	Gloucester	Situated on the edge of the 1% AEP flood extent
Hospitals			
Gloucester Community Health Service	166-182 Church Street	Gloucester	Situated on the edge of the 1% AEP flood extent
Gloucester Hospital	Church Street	Gloucester	Situated on the edge of the 1% AEP flood extent
Facilities for the aged / infirm			
Hillcrest Nursing Home	166-182 Church Street	Gloucester	Situated on the edge of the 1% AEP flood extent
Utilities and infrastructure			
Country Energy Sub Station	Phillip Street	Gloucester	Flooded at some point between the 1% AEP flood and the PMF
Electricity and Telephone distribution networks	Church Street, Park Street and TR90 to Taree	Gloucester	Both electricity and telephone distribution networks within the flood liable areas. The telephone network includes a local cable network and an optical cable along Church St, Park Street and TR90 to Taree.
Railway line and Railway Station		Gloucester	The Gloucester railway station will be flooded at some stage between the 1% AEP and the PMF.
Road Access to Airstrip			Gloucester airstrip is flood free; however, road access is likely to be cut.
Sewer ponds and sewer pump stations	(Bowman 9234 2 S GR 604)	Lehman's Flat	The auxiliary pumping station of the sewerage treatment works near Lehman's Flat is flooded at approximately 5 metres on the Gloucester gauge.

Facility Name	Street	Suburb	Comment
Petrol stations		Gloucester	Numerous petrol stations with gas tanks within the flood prone area. May potentially generate hazardous materials incidents.
Chlorine Store at Gloucester Swimming Pool		Gloucester	Within the flood prone area. May potentially generate hazardous materials incidents.
Camping Ground / Caravan Parks			
Gloucester Holiday Park	Denison Street	Gloucester	The caravan park requires evacuation prior to the onset of flooding as it is situated on an island that becomes isolated by floodwaters. (2) See Gloucester section on Isolation.
Bretti Reserve Camping area	Thunderbolts way	30 mins north of Gloucester	100+ people during peak periods, may become isolated from Gloucester (1)
Gloryvale Reserve Camping area	Thunderbolts way	30 mins north of Gloucester	30 people during peak periods, may become isolated from Gloucester (NSW SES, 2009)
Barrington Top camping area			Likely to become isolated (1).
Gloucester Tops camping area			Likely to become isolated (1).

MAP 1: MANNING RIVERBASIN

MAP 2: GLOUCESTER TOWN MAP



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Task No: 201516_067

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3. **BTM WBM.** *Review and Update Manning River Flood Study - Draft report.* s.l. : Greater Taree Council, 2016.

4. **NSW SES.** *Vol 2 Hazard and Risk in Gloucester November 2014 (Draft).* 2014.

5. —. Flood Intelligence System - Gloucester Gauge 208020. *NSW EOS.* [Online] 2016. [Cited: 23 May 2016.] https://eos.ses.nsw.gov.au/_layouts/FloodIntelClient/home.aspx.

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NSW SES RESPONSE ARRANGEMENTS FOR GLOUCESTER SHIRE

Volume 3 of the Mid Coast Local Flood Plan

CONTENTS

VERSION LIST

The following table lists all previously approved versions of this Volume.

Description	Date
NSW SES response arrangements for Gloucester Shire	October 2009

AMENDMENT LIST

Suggestions for amendments to this Volume should be forwarded to:

The Gloucester Shire Local Controller

NSW State Emergency Service

23 Tate Street

Gloucester NSW 2422

Amendments promulgated in the amendments list below have been entered in this Volume.

Amendment Number	Description	Updated by	Date

GLOUCESTER FLOOD WARNING SYSTEMS AND ARRANGEMENTS

Chapter 1 of Volume 3 (NSW SES Response Arrangements for Gloucester) of the Mid Coast Local Flood Plan

Last Update: March 2017

AUTHORISATION

Gloucester Flood Warning Systems and Arrangements has been prepared by the NSW State Emergency Service (NSW SES) as part of a comprehensive planning process.

Approved

Manager Emergency Risk Management

Date: 1/3/17

Approved

NSW SES Mid North Coast Region Controller

Date: 16.1.17

Tabled at LEMC: 14 March 2017

Document Issue: 3.1-07042014

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1. GAUGES MONITORED BY THE NSW SES GLOUCESTER LOCAL HEADQUARTERS

Table 1: Gauges monitored by the NSW SES Gloucester Local Headquarters

Gauge Name	Type	AWRC No.	Bureau Gauge No.	Stream	Flood level classification in metres			Special Reading Arrangements	Owner
					MIN	MOD	MAJ		
Forbesdale Barrington River (Rocky Crossing)	Tele	208006	560001	Barrington River	-	-	-	BOM	DPI Water
"Bellevue" Gloucester River	Tele		560063	Gloucester River	-	-	-	BOM	DPI Water
Forbesdale Gloucester River	Tele	208008	560061	Gloucester River	-	-	-	BOM	DPI Water
Gloucester * ‡ Gloucester River	Tele	208020	560062	Gloucester River	4.30	4.90	5.20	BOM	DPI Water
Avon River D/S Waukivory Ck	Tele	208028	560060	Waukivory Creek	-	-	-	BOM	DPI Water

Notes: The Bureau of Meteorology provides flood warnings for the gauges marked with an asterisk (*).
NSW SES Local Flood Advices are provided for the gauges marked with a single cross (†).
The NSW SES holds a Flood Intelligence Card for the gauges marked with a double cross (‡).
"Tele" refers to gauges that are telemetered.

Table 2: Rainfall Gauges

Gauge Name	Type	AWRC No.	Reading Arrangement
Moppy Lookout Barrington Tops	Pluviometer	60153	BOM
Cobark	Pluviometer	60152	BOM
Upper Bowman	Pluviometer	60075	BOM
Gloucester *	Pluviometer	60015	BOM
Waukivory	Pluviometer	60155	BOM
Craven	Pluviometer	60042	BOM
Carey's Peak Barrington Tops	Pluviometer	61413	BOM

2. DISSEMINATION OPTIONS FOR NSW SES FLOOD INFORMATION AND WARNING PRODUCTS

The NSW SES Mid North Coast Region Headquarters distributes NSW SES Flood Bulletins, NSW SES Evacuation Warnings and NSW SES Evacuation Orders to the following regional media outlets and agencies:

Television Stations:

Station	Location
Prime TV	Taree
Southern Cross Ten	Taree
NBN 9 TV	Taree

Radio Stations:

Station	Location	Frequency	Modulation
MAX FM	Taree	107.3	FM
2RE	Taree	1557 & 100.1	AM/FM
2TLP (Ngarralinyi)	Taree	103.3	FM
2 BOB FM	Taree	104.7	FM
Breeze FM	Gloucester	97.7	FM

Newspapers:

Name	Location
Manning River Times	Taree
Gloucester Advocate	Gloucester

Other Agencies:

Flood bulletins will be issued by the Region Headquaters to the following;

- Region Emeregency Management Officer (REMO)
- Local Emergency Operations Controller (LEOCON)
- Local Emergency Management Office (LEMO)
- Community Service NSW – District Manager (CS)
- NSW Ambulance – Operation Centre Newcastle (for distribution to own stations)

- NSW Police Force – Operations Centre Newcastle (for distribution to own stations)
- Fire and Rescue NSW – Operations Centre Newcastle (for distribution to own stations)
- Essential Energy
- NSW Rural Fire Service
- Hunter New England Health
- NSW Police Force – Gloucester
- Department of Primary Industries
- Transport for NSW

Emergency Alert (EA):

Predefined areas for utilising EA have been developed for Gloucester

- If height to exceed 5.5m
- If height to exceed 5.6m

GLOUCESTER NSW SES LOCALITY RESPONSE ARRANGEMENTS

Chapter 2 of Volume 3 (NSW SES Response Arrangements for Gloucester) of the Mid Coast Local Flood Plan

Last Update: March 2017

AUTHORISATION

NSW SES Locality Response Arrangements in Gloucester has been prepared by the NSW State Emergency Service (NSW SES) as part of a comprehensive planning process.

Approved

Manager Emergency Risk Management

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NSW SES Mid North Coast Region Controller

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SECTOR OVERVIEW

Table 1: Overview of Sectors in the former LGA of Gloucester.

Sector Name	Community	Sector Basis	Total properties	Properties potentially at risk
Sector 1	Gloucester	High Flood Island, Caravan Park is a Low Flood Island	1499	105

1. GLOUCESTER SECTOR / COMMUNITY

<table>
<tr><td></td><td colspan="6"><h2>1.1. GLOUCESTER RESPONSE ARRANGEMENTS</h2>Refer to Volume 2: Hazard and Risk in Gloucester for more information about this Sector/Community.</td></tr>
<tr><td>Sector Description</td><td colspan="6">The former Gloucester Shire area covers 2,930 kilometres of rugged to undulating terrain within the upper catchment of the Manning River. The area consists of the Manning River to its confluence with Bakers Creek; the Little Manning River; a section the Piga Barney River; the Barnard River to its confluence with the Manning River; the Bowman River to its confluence with the Gloucester River, the Barrington River to its confluence with the Gloucester River; the Gloucester River to its junction with the Manning River; and the Avon River to its confluence with the Gloucester River.
The town of Gloucester sits between the Gloucester and Avon Rivers and is located around one kilometre upstream of their confluence. The Barrington River joins the Gloucester River around one kilometre downstream of the Avon River confluence.
Refer to Volume 2 for cultural and population information.</td></tr>
<tr><td>Hazard</td><td colspan="6">The nature of flooding in the Gloucester town area is dependent on the relative peak flows, not only of the Gloucester and Avon Rivers, but also of the Barrington River at their junction some three kilometres downstream of the town.
This problem is made worse with the relatively short warning times available. However, the gauges on the headwaters of the Barrington and Gloucester Rivers can provide three hours' notice respectively of the arrival of flood waters in the Gloucester area. Confirmation of the size and timing of floods is obtained from the 'Hiawatha' gauge on the Gloucester River- although this is only about 30 minutes travel time upstream from the town. Predictive warnings provided by the Bureau provide advance notice of at least three hours.
The rural areas of Stratford and Barrington Flat have a small number of properties that can be affected by flooding in severe events.
In Stratford road access is unlikely to be maintained between Gloucester and Stratford during a flood and approximately 6 properties are at risk of flooding up to a PMF.
In Barrington Flat approximately two properties are prone to flooding.</td></tr>
<tr><td>Flood Affect Classification</td><td colspan="6">Rising Road Access to a High Flood Island for the majority of Gloucester, including the CBD, up to and including a PMF.
The Caravan Park and areas to the west of Billabong Lane become a low flood island around 6.6 metres.</td></tr>
<tr><td>At risk properties</td><td colspan="2">105</td><td colspan="2">Total number of properties within Sector/Community</td><td>2000</td></tr>
<tr><td>Sector Control</td><td colspan="6">Command - The assigned NSW SES Incident Controller will command operations in the local area.
Control – The NSW SES Gloucester Unit Controller will control operations and evacuations in the sector.
In larger events, incident control may scale up to LGA level with the Mid Coast Local Controller becoming the Incident Controller.
Conduct and Coordination – The NSW SES Gloucester Unit will conduct and coordinate operations and evacuations in this sector with assistance from other agencies.</td></tr>
<tr><td rowspan="2">Key Warning Gauge Name</td><td>Name</td><td>Watercourse</td><td>AWRC No.</td><td>Min (m)</td><td>Mod (m)</td><td>Maj (m)</td></tr>
<tr><td>Bobs Crossing</td><td>Barrington River</td><td>208001</td><td>n/a</td><td>n/a</td><td>n/a</td></tr>
</table>

	Forbesdale (Rocky Crossing)	Barrington River	208006	n/a	n/a	n/a
	Bellevue	Gloucester River	560063 (BOM)	n/a	n/a	n/a
	Forbesdale	Gloucester River	208008	n/a	n/a	n/a
	Gloucester	Gloucester River	208020	4.30	4.90	5.20

General Strategy	• Manage operations in response to predicted heights indicating likely consequences that pre-empt appropriate actions.
	• Issue of early warning of flood level impacts and potential isolation.
	• Assistance with property protection where time and resources permit.
	• Evacuation of at risk population:
	  o Self-Evacuation to friends/family outside the impact area.
	  o Establishment of an Assembly Area/Evacuations Centre in consultation with the Welfare Services Functional Area Coordinator.
	  o Establishment of a helicopter landing zone at Gloucester High School Sports field.
	• Flood rescue where evacuation has failed, or where people have driven into floodwater.
	• Resupply of isolated properties and communities.					

Key Risks / Consequences	**Inundation** The majority of Gloucester's central business district (CBD) is prone to inundation during major floods as are a small number or residential buildings. There are 105 properties at risk of over-floor inundation by 8.2 metres at the Gloucester gauge. **Structural Damage and Loss of Life** The high velocities in the CBD could result in structural damage to buildings and also increase the risk to people wading or driving through floodwaters. **Isolation** Gloucester can be isolated by road from both Taree and Newcastle. The caravan park becomes isolated at around 6.6 metres.					

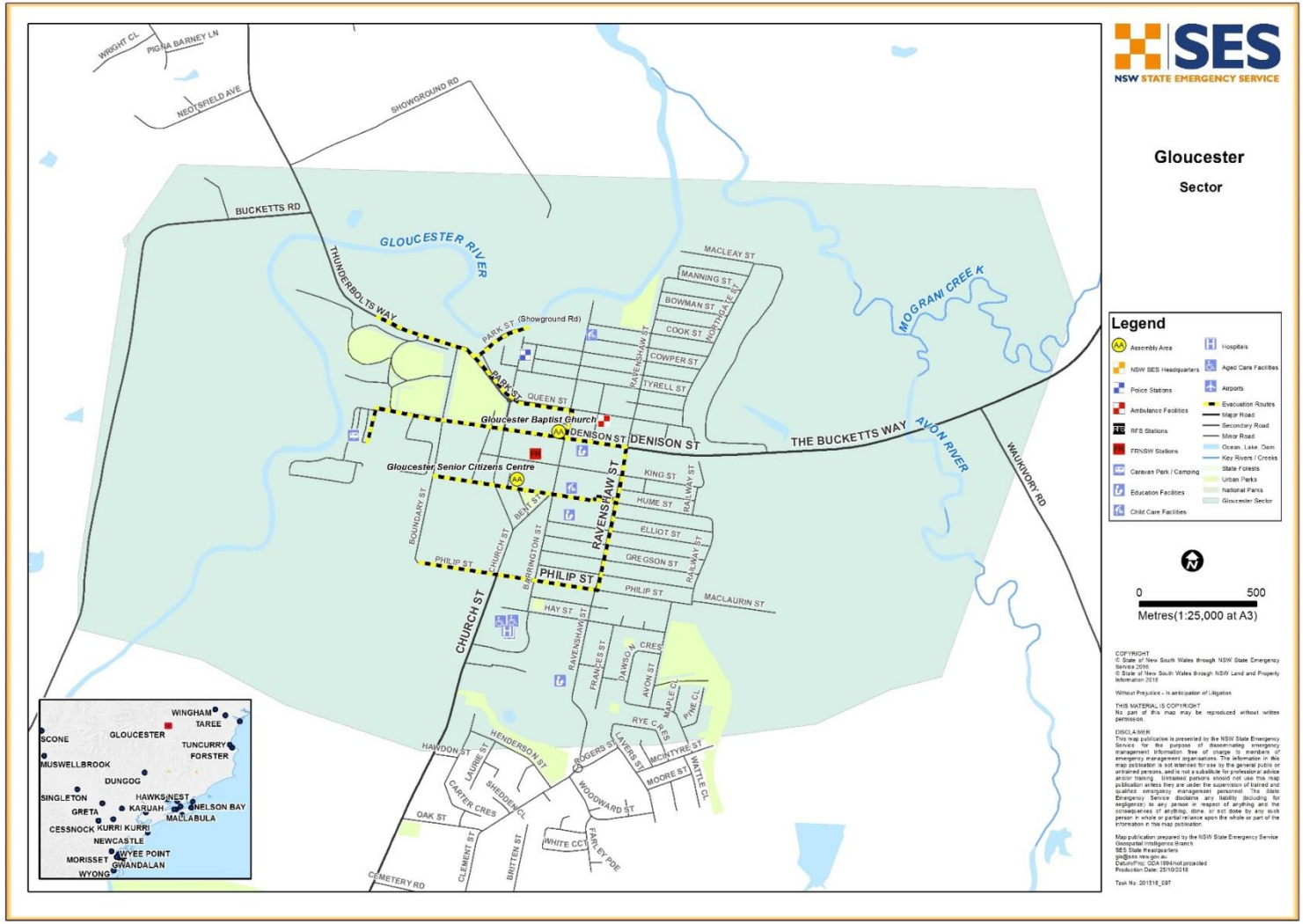
Information and Warnings	NSW SES Flood Bulletins will localise the consequences of the Bureau products on the sector. NSW SES Mid North Coast Region will issue timely, relevant and tailored information to the public in the following formats:
	• NSW SES Bulletins
	  o Flood Watch
	  o Flood Warning
	  o Equipment, Livestock and Aquaculture Warnings
	  o Media Release such as– Isolation Warnings
	• Evacuation Warning
	• Evacuation Order
	• All Clear
	• Emergency Alert
	• Standard Emergency Warning Signal (SEWS)
	• Sequenced door knocking
	• Media briefing					

	• Interagency Local Emergency Management Committee (LEMC) briefings Bureau products, such as Flood Watches and Flood Warnings, will include NSW SES safety advice.
Property Protection	**Assistance with property protection:** NSW SES will monitor rising flood waters and provide the following assistance for flood-threatened properties where time and resources permit: • Relocation of personal property for at risk locations • Relocate moveable at risk public assets • Control surface water through sandbagging • Monitor integrity of dwellings surrounded by flood waters
Evacuation Triggers	The Key evacuation triggers based on Bureau of Meteorology flood height predictions at the Gloucester Gauge (208020). **1. If prediction to reach and/or exceed 5.40m** Low lying parts of Gloucester Caravan Park must be evacuated by this height. **2. If prediction to reach and/or exceed 5.50m** Low lying businesses (5) must be evacuated by this height in: • Boundary Street • Western end of Hume Street • Billabong Lane • Western side of Church Street in Gloucester CBD • Park Street • Western end of Denison Street **3. If prediction to reach and/or exceed 5.60m** 12 businesses and 1 residence in the CBD area must be evacuated by this height. **4. If predicted to reach and/or exceed 6.60m** Gloucester Caravan Park must be fully evacuated by this height to the Gloucester Showground. **5. If predicted to reach and/or exceed 6.80m** 60 businesses and 12 residences must be evacuated by this height including Macleay Street adjacent to the river. **6. If predicted to reach and/or exceed 8.2m** 74 businesses and 31 residences adjacent to the river must be evacuated by this height. **7. If predicted to reach and/or exceed 17.5m** 99 businesses and 401 residences in Gloucester must be evacuated by this height.
Sequencing of evacuation	Evacuation sequencing will be as per the triggers for identified at risk properties. Outside the identified sequenced evacuation areas, a number of residences and properties may need to be evacuated during periods of significant flooding. In most floods, the evacuation tasks will only involve a small number of people from impacted properties. These properties would be dealt with on a case by case basis in conjunction with NSW Police and the Welfare Services Functional Area Coordinator. Evacuations will be conducted incrementally as the flood height predictions become known and the impact extent established.

	Evacuations will be staged as follows. **Stage 1:** Evacuation of the elderly, sick and infirm as well as families with young children. Evacuation will be by way of road along higher ground to the nominated Assembly Area or Evacuation Centre. **Stage 2:** Evacuation of all persons not required for emergency operations. Evacuation will by way of road along higher ground prior to roads being flooded. **Stage 3:** Full evacuation of the sector if required (including emergency services). Evacuation will be by way of road along higher ground. If access is impeded or blocked by water, flood boats and helicopters may be utilised for rescue dependent upon prevailing conditions.
Evacuation Routes	The topography of Gloucester township is such that flood evacuation routes move from the lower parts of the town to the higher parts. The length of these routes is in the order of a few hundred metres. Thus provided evacuations are commenced early, the risk of persons becoming trapped by rising water is minimal. Refer to sector map. o Thunderbolts Way o Park Street o Queen Street o Denison Street o Ravenshaw Street o Hume Street o Phillip Street
Evacuation Route Closure	The evacuation route for Gloucester Holiday Caravan Park is via a grassed over dirt track and is closed at 6.6 m on the Gloucester gauge.
Method of Evacuation	Evacuations should reflect the principles outlined in Evacuation Planning Handbook (Australian Emergency Management Institute, 2013). Options include- • Self-evacuation by private transport to the Evacuation Centre or family and friends • Where resources permit, with assistance of NSW SES or emergency services to the Evacuation Centre. At risk residents will be advised via warnings issued (media broadcast and Emergency Alert system) and or doorknocks from emergency services personnel advising of evacuation details and arrangements.
Evacuation Centre/Assembly Point	Evacuation Centre will be determined by the Welfare Services Functional Area Coordinator. Potential locations identified are: • Gloucester Baptist Church • Gloucester Senior Citizen Centre
Large scale evacuations	In a large or full scale evacuation evacuees will be moved to the Evacuation Centre in consultation with the Welfare Services Functional Area. NSW Police will be responsible for security of evacuated areas. Population densities with the sector would not exceed capacity of the surround evacuation centres and services.
Rescue	The NSW SES Gloucester Unit will manage flood rescue operation in accordance with the responsibilities outlined in the Flood Emergency Sub Plan.
Resupply	Resupply may be required in Barrington Village, Rural properties and remote camping

	areas within the Gloucester area.
	The need to resupply will depend on the duration of the event. Any event longer than 3 days may require prolonged resupply.
	Table 2, in Volume 2 provides information about isolated communities in the Gloucester area and potential periods of isolation. Periods are generally between 1 and 5 days. A flowchart illustrating the Resupply process is shown in Volume 1 of the Local Flood Plan, Attachment 1
Aircraft Management	***Helicopter Landing Points:*** Suitable landing points are located at: ▪ Gloucester High School Sports field (latitude -32.015, longitude 151.9601).
	Airports: ▪ Nil
Other	The number of people in Gloucester is likely to increase during holiday periods. These people will likely occupy camping grounds, caravan parks and motels, some of which are flood prone or are likely to become isolated (1). For example (8): i. Apr-May: Gloucester Motorcycle Expo, showground ii. Mar: Country Music Hoedown, Poley's Place campground These arrangements will stay in place until the 'ALL CLEAR' is provided by the SES to residents to return to their premises.

1.2. GLOUCESTER SECTOR MAP



GLOUCESTER NSW SES
CARAVAN PARK ARRANGEMENTS

Chapter 4 of Volume 3 (NSW SES Response Arrangements for Gloucester) of the Mid Coast Local Flood Plan

Last Update: March 2017

AUTHORISATION

The Gloucester NSW SES Caravan Park Arrangements have been prepared by the NSW State Emergency Service (NSW SES) as part of a comprehensive planning process.

Approved

Manager Emergency Risk Management

Date: 1/3/17

Approved

NSW SES Mid North Coast Region Controller

Date: 16.1.17

Tabled at LEMC: 14 March 2017

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1 ARRANGEMENTS FOR THE EVACUATION OF CARAVAN PARKS AND THE RELOCATION OF MOVABLE DWELLINGS

1.1 GENERAL

1.1.1 The following caravan parks are flood liable:

a. The Gloucester Holiday Caravan Park located at Denison Street off Boundary Road, Gloucester.

1.1.2 For more information on individual caravan parks see Table 1 at the end of this Chapter.

1.2 ADVISING PROCEDURES

1.2.1 Caravan Park proprietors will ensure that the owners and occupiers of movable dwellings are:

a. Made aware that the caravan park is flood liable by:

- Providing a written notice to occupiers taking up residence. The notice will indicate that the caravan park is liable to flooding and designate the location of flood liable land within the park (1).
- Displaying this notice and the emergency arrangements for the Caravan Park prominently in the park.

b. Made aware that if they are expecting to be absent for extended periods, they should:

- Provide the manager of the caravan park with a contact address and telephone number in case of an emergency.
- 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).

c. Informed of Flood Warning Information. At this time, occupiers will be advised to:

- Ensure that they have spare batteries for their radios.
- Listen to a local radio station for updated flood information.
- Prepare for evacuation and movable dwelling relocation.

1.2.2 The NSW SES Gloucester Local Controller will ensure that the managers of caravan parks are advised of flood information (described in Volume 1 of the Gloucester Local Flood Plan).

1.3 EVACUATION OF OCCUPANTS AND RELOCATION OF MOVEABLE DWELLINGS

1.3.1 When an evacuation order is given caravan park occupants should follow the flood evacuation procedures for the park under the direction of the caravan park management. This should include advice to:

a. Isolate power to moveable dwellings.

b. Collect personal papers, medicines, a change of clothing, toiletries and bedclothes.

c. Lift the other contents in any remaining dwellings as high as possible.

d. Move to friends, relatives or a designated evacuation centre if they have their own transport, or move to the caravan office to await transport.

e. If undertaking self-managed evacuation, register their movements with the caravan park management upon leaving the park.

1.3.2 Where possible, movable dwellings that can be moved will be relocated by their owners. Park managers will arrange for the relocation of movable dwellings as required. Council and NSW SES personnel may assist if required. Vans are to be moved to the locations outlined in Tables 1 and 2 at the end of this Chapter.

1.3.3 Caravan park managers will:

a. Secure any movable dwellings that are not able to be relocated to prevent floatation.

b. Ensure that their caravan park is capable of being evacuated in a timely and safe manner.

c. Advise the NSW SES Gloucester Local Controller of:

- The number of people requiring transport.
- Details of any medical evacuations required.
- Whether additional assistance is required to effect the evacuation.

d. Check that all residents and visitors are accounted for.

e. Inform the NSW SES Gloucester Local Controller when the evacuation of the caravan park has been completed.

f. Provide the NSW SES Gloucester Local Controller with a register of people that have been evacuated.

1.4 RETURN OF OCCUPANTS AND MOVEABLE DWELLINGS

1.4.1 The NSW SES Gloucester Local Controller, using council resources as necessary, will advise when it is safe for the caravan parks to be re-occupied.

1.4.2 Moveable dwellings will be returned back to the caravan park(s) by owners or by vehicles and drivers arranged by the park managers.

1.4.3 Council and NSW SES personnel may assist by request where resources are available.

Table 1: Caravan Parks at risk of Inundation and/or Isolation from Flooding.

Name	Address/ Location description	Town/ Sector	Number of sites	Risk	Evacuation route	Evacuation route closure	Moveable dwelling relocation location	Evacuation centre	Notes
Gloucester Holiday Caravan Park	Denison Street off Boundary Road, Gloucester	Gloucester	60 semi-permanent (non-moveable) vans and 60 tourist vans, 200 tents and several storage vans.	Inundation begins at 5.4m on Gloucester Gauge (208020).	Evacuation is via a dirt track.	The majority of the park becomes flooded at 6.8m and must be evacuated before the evacuation route to Gloucester Showgrounds is lost around 6.6m.	Away from the area, or to the north of Gloucester Showgrounds, noting the eastern section becomes flooded by 8.2 metres and therefore should not be used.	Evacuation Centre will be determined by the Welfare Services Functional Area Coordinator. Potential locations identified are: Gloucester Baptist Church Gloucester Senior Citizen Centre	The evacuation route to the showgrounds is a dirt track and is closed at 6.6m on the Gloucester gauge. At peak times (January and Easter) it may accommodate 1500 people. There are approximately 12 'permanent' residents.

LIST OF REFERENCES

1. **NSW Government.** *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005 Part 3 Division 3 Subdivision 7 Clause 123.* 2005.