

**Inverell Shire**

# Local Flood Emergency Sub Plan



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# **INVERELL SHIRE FLOOD EMERGENCY SUB PLAN**

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

**Volume 1 of the Inverell Shire Flood Emergency Sub Plan**

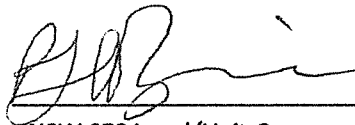
**Version 3.0**

# AUTHORISATION

The Inverell Shire Flood Emergency Sub Plan is a sub plan of the Inverell Shire 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 Local/Unit Commander*

Print Name:

Peter O'Brien

Date:

3 10 23

**Endorsed**

Signature:



*Chair, Local Emergency Management Committee*

Print Name:

Justin Pay

Date:

13/11/23

## VERSION HISTORY

Version Number	Description	Date
1.0	Inverell Shire Local Flood Plan	February 2008
2.0	Inverell Shire Local Flood Plan	February 2013
3.0	Inverell Shire Local Flood Plan	October 2023

## AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

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

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

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

## DISTRIBUTION LIST

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# 1 OUTLINE AND SCOPE

## 1.1 PURPOSE

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

## **1.5 GOALS**

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

## **1.6 KEY PRINCIPLES**

- 1.6.1 The protection and preservation of human life (including the lives of responders and the community) is the highest priority.
- 1.6.2 Evacuation is the primary response strategy for people impacted by flooding.

## **1.7 ROLES AND RESPONSIBILITIES**

- 1.7.1 General responsibilities of emergency service organisations and functional areas are set out in the NSW State EMPLAN and NSW State Flood Sub Plan.
- 1.7.2 Specific roles and responsibilities for agencies, functional areas, and organisations in relation to flooding within Inverell Shire 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 Inverell Shire LGA.
- 2.1.2 Declared dams in or upstream of the Inverell Shire Local Government Area.

Dam Name	Owner	High Risk Dam
Lake Inverell Dam	Inverell Shire Council	No
Pindari Dam	Water NSW	No
Glenlyon Dam (QLD)	SunWater Limited	Yes

## 3 PREVENTION/ MITIGATION

### 3.1 INTRODUCTION

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

## 3.2 LAND USE PLANNING

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

**Actions:**

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

## 3.3 FLOODPLAIN RISK MANAGEMENT

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

# 4 PREPARATION

## 4.1 INTRODUCTION

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

## 4.2 FLOOD EMERGENCY PLANNING

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

**Actions:**

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

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

### **4.3 FLOOD INTELLIGENCE SYSTEMS**

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

**Actions:**

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

### **4.4 DEVELOPMENT OF WARNING SYSTEMS**

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

**Actions:**

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

- Consulting with affected communities, key stakeholders, Dam Safety NSW and the NSW and ACT Flood Warning Consultative Committee and maintains Operational Readiness.
  - Participating in the development of public information and warning systems.
- h. Gauge owners adequately maintain flood warning gauges and systems, including those identified in the 'Service Level Specification' maintained by the Australian 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:**

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

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

**Actions:**

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

- 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.
- All supporting emergency services and functional areas and Council will accurately record and report information relevant to their activities and any real time flood information (including road closure information) to the NSW SES Incident Controller. This may be in the form of a combined Emergency Operations Centre (EOC) report, or direct from agencies where an EOC has not been established.

- c. NSW SES may establish and operate a Joint Intelligence Unit to coordinate the collection, collation, interpretation, mapping, actioning, and dissemination of information.
- d. Reconnaissance, mapping, damage assessments, intelligence validation and post flood evaluation will be coordinated by NSW SES. This may occur post impact and continue into the recovery phase.
- e. NSW SES may request Engineering to assist with the gathering of flood intelligence including (not limited to) maximum flood extents, peak flood heights, recording major flood damage at key high velocity locations and preparation of After-Flood Report.

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

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

## 5.4 PROVISION OF INFORMATION AND WARNINGS TO THE COMMUNITY

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

### **Actions:**

- a. The Bureau issues public weather and flood warning products before and during a flood. These may include:
  - Severe Thunderstorm Warnings – Detailed - issued for all capital cities and surrounding areas when individual severe thunderstorms are within range of the capital city radars.
  - Severe Thunderstorm Warnings - Broad-based - issued for the entire Australian State or territories affected highlighting broad areas where severe storms may occur within the next 3 hours.
  - Severe Weather Warnings with reference to heavy rainfall and/or storm surge.
  - Flood Watches.
  - Flood Warnings.
- b. Dam Owners will utilise the Dam Emergency Plan to provide warnings and information to NSW SES and communities (where appropriate).
- c. NSW SES Incident Controllers will issue the following NSW SES Flood Warnings aligning to the Australian Warning System:
  - Advice.
  - Watch and Act.
  - Emergency Warning.
- d. NSW SES liaises with the Bureau to discuss the development of flood warnings as required.

- e. NSW SES provides alerts and deliver flood information to affected communities using a combination of public information.
- f. NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams.
- g. Road closure information will be provided to the community through the following agencies/methods:
  - Local Government Council websites.
  - Transport for NSW 'Live Traffic' website: [www.livetraffic.com](http://www.livetraffic.com) or 'Transport InfoLine': 131 500. VMS messaging on roadways may also be used to advise motorists.
- h. The Public Information and Inquiry Centre will be established by NSW Police Force where required to provide information regarding evacuees and emergency information. Contact details will be broadcast once the centre is established.
- i. The Disaster Welfare Assistance Line will be established by Disaster Welfare Services where required to provide information on welfare services and assistance. Assistance line contact details will be broadcast once Disaster Welfare Services commence.

## 5.5 PROTECTION OF PROPERTY

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

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

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

## 5.6 ROAD AND TRAFFIC CONTROL

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

**Actions:**

- a. Inverell Shire 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 Inverell Shire Council or Transport for NSW have not already acted and if public safety requires such action.



- d. NSW SES will assist with erecting road closure signs and barriers when time and resources permit.

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

**Actions:**

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

## 5.7 PROTECTION OF ESSENTIAL SERVICES

5.7.1 Local and Region EMPLAN's contain infrastructure inventories.

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

**Actions:**

- a. The Transport Services Functional Area is to coordinate the provision of information about the assessment and restoration of transport network infrastructure.
- b. The Energy and Utility Services Functional Area is to coordinate the assessment and restoration of essential energy and utility services (not including telecommunications).
- c. The Telecommunications Services Functional Area is to coordinate the assessment and restoration of telecommunications and the Public Safety Network.
- d. The Engineering Services Functional Area is to:
  - Coordinate the assessment and restoration of critical public buildings for example hospitals.
  - Assessment and operation of flood protection levees.
  - Protection of property.
  - Construction and repair of levees.
  - Dam safety assessment and dam stability.
  - Water supply and sewerage operations.
  - Other critical infrastructure.
- e. The Functional Areas and Council will keep NSW SES informed of the status of utilities and infrastructure.

## 5.8 EVACUATION

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

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

### **Actions:**

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

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

- a. NSW SES will control and coordinate the evacuation of affected communities.
- b. The NSW SES Commissioner (or delegate) will warn communities to prepare for a possible evacuation, where circumstances allow such lead time.

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

## **5.9 EVACUEE MANAGEMENT AND WELFARE**

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

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

### **Actions:**

- a. NSW SES will provide initial welfare for evacuees where required but will hand the responsibility over to the Welfare Services Functional Area as soon as possible. NSW SES will brief the Welfare Services Functional Area at the earliest opportunity regarding the level of assistance required.
- b. The Welfare Services Functional Area will manage evacuation centres for affected residents and travellers in accordance with the Welfare Services Functional Area Supporting Plan.
- c. Schools Administration (Government and Private) will manage the safety of students directly affected by flooding and will work with NSW SES in the temporary closure of schools and will coordinate with NSW SES, Transport and Welfare Services in the management of school evacuees.
- d. Disaster Victim Registration will be controlled and coordinated by NSW Police Force with the assistance of NSW SES and the Welfare Services Functional Area.
- e. NSW SES will provide details of all residents assisted in evacuations to the Welfare Services Functional Area as early as possible.
- f. Where the expected remaining number of evacuees and the duration of evacuation is assessed to be beyond the capability and capacity of the established evacuation centre arrangements the SEOCN 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 SEOCAN in consultation with members of the State Emergency Management Committee.

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

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

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

**Actions:**

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

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

## 5.10 FLOOD RESCUE

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

**Actions:**

- a. NSW SES will perform flood rescue, where training and equipment is suitable and where a risk assessment has indicated that the risk to rescuers is acceptable.
- b. Flood rescue operations will be conducted in accordance with the State Rescue Board NSW State Rescue Policy which sets out the framework, governance, responsibilities and requirements for the management and conduct of flood rescue in NSW.
- c. NSW SES may request other supporting emergency services to undertake flood rescues on behalf of NSW SES. Agencies must be authorised/accredited to undertake flood rescue operations in accordance with State Rescue Board requirements, as prescribed by NSW SES. Supporting emergency services must supply information regarding rescues performed to NSW SES. Notification arrangements with NSW Police Force are outlined in the State Rescue Board NSW State Rescue Policy.
- d. Rescue agencies will conduct rescue of domestic small and large animals as per the State Rescue Board NSW State Rescue Policy (and may include Large Animal Rescue of family horses and cows at a residence or property). The rescue of livestock (which includes commercial animals found on farming and

breeding enterprises) will be coordinated through the Animal and Agriculture Services Functional Area.

## **5.11 RESUPPLY**

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

**Actions:**

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

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

**Actions:**

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

## **5.12 RETURN**

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

**Actions:**

- a. The NSW SES Incident Controller will determine when it is safe to progressively return in consultation with the relevant Emergency Operations

Controller and supporting agencies considering the ongoing risk to public safety.

- b. The NSW SES Incident Controller will specify the level of access to affected communities as the following:
  - Not suitable for access; or
  - Limited access by emergency services and response agencies; or
  - Limited access by residents and/or business operators; or
  - Full access.
- c. The NSW SES Incident Controller will issue an 'Advice Warning advising "Reduced Threat: Return with Caution" when the immediate danger to life and property has passed for areas.
- d. NSW SES will facilitate the return of evacuees to their homes.

## **5.13 END OF RESPONSE OPERATIONS**

5.13.1 **Strategy:** Conclude response operations.

### **Actions:**

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

## 7 ABBREVIATIONS

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

## 8 GLOSSARY

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

Readers should refer to EMPLAN Annex 9 – Definitions.

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

**For a full list of definitions refer to the Supporting Document - State Flood Plan Glossary**

<https://www.ses.nsw.gov.au/media/2650/glossary.pdf>



# 9 Appendix A – Map of Inverell Shire Council Area



## 10 Appendix B – Roles and Responsibilities

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

AGENCY	RESPONSIBILITIES
Agriculture and Animal Services Functional Area	The roles and responsibilities for Agriculture and Animal Services are outlined in the Agriculture and Animal Services Supporting Plan and NSW State Flood Plan.
Australian Government Bureau of Meteorology	The roles and responsibilities for the Australian Government Bureau of Meteorology are outlined in the NSW State Flood Plan.
Caravan Park Proprietor(s)	<ul style="list-style-type: none"> <li>• Prepare a flood emergency plan for the Caravan Park.</li> <li>• Ensure that owners and occupiers of movable dwellings are aware that the caravan park is flood liable by providing a written notice to occupiers taking up residence and displaying this notice and emergency management arrangement within the park.</li> <li>• Ensure that owners and occupiers of movable dwellings are aware that if they are expecting to be absent for extended periods, they should:             <ul style="list-style-type: none"> <li>– Provide the manager of the caravan park with a contact address and telephone number in case of an emergency.</li> <li>– Leave any movable dwelling in a condition allowing it to be relocated in an emergency (i.e.: should ensure that the wheels, axles and draw bar of the caravans are not removed and are maintained in proper working order).</li> </ul> </li> <li>• Ensure that occupiers are informed of Flood Information. At this time, occupiers should be advised to:             <ul style="list-style-type: none"> <li>– Ensure that they have spare batteries for their radios.</li> <li>– Listen to a local radio station for updated flood information.</li> <li>– Prepare for evacuation and movable dwelling (cabins) relocation.</li> </ul> </li> <li>• Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and movable dwelling relocation when flooding occurs.</li> <li>• Coordinate the evacuation of people and the relocation of movable dwellings when floods are rising and their return when flood waters have subsided. Movable dwellings will be relocated back to the</li> </ul>

AGENCY	RESPONSIBILITIES
	<p>caravan park(s) by owners or by vehicles and drivers arranged by the park managers.</p> <ul style="list-style-type: none"> <li>• Secure any movable dwellings that are not able to be relocated to prevent floatation.</li> <li>• Inform NSW SES of the progress of evacuation and/or movable dwellings relocation operations and of any need for assistance in the conduct of these tasks.</li> </ul>
<p><b>Childcare Centres and Preschools</b></p>	<ul style="list-style-type: none"> <li>• When notified of possible flooding or isolation, childcare centres and preschools should. <ul style="list-style-type: none"> <li>– Liaise with NSW SES and arrange for the early release of children whose travel arrangements are likely to be disrupted by flooding and/or road closures.</li> <li>– Assist with coordinating the evacuation of preschools and childcare centres.</li> </ul> </li> </ul>
<p><b>Dams Safety NSW</b></p>	<p>The roles and responsibilities for Dams Safety NSW (formerly NSW Dam Safety Committee) are outlined in the NSW State Flood Plan.</p>
<p><b>Department of Defence</b></p>	<p>Arrangements for Defence Assistance to the Civil Community are detailed within the State EMPLAN (section 448).</p>
<p><b>Energy and Utilities Services Functional Area</b></p>	<p>The roles and responsibilities for Energy and Utilities Services are outlined in the Energy and Utility Services Supporting Plan (EUSPLAN).</p> <p>Roles and responsibilities in addition to the Supporting Plan are:</p> <ul style="list-style-type: none"> <li>• Assist NSW SES with identification of infrastructure at risk of flood damage where resources are available.</li> <li>• Facilitate local utility service distribution providers (electricity, gas, water, wastewater) to: <ul style="list-style-type: none"> <li>– Provide advice to NSW SES of any need to disconnect power/gas/water/wastewater supplies or of any timetable for reconnection.</li> <li>– Advise NSW SES of any hazards from utility services during flooding and coastal erosion/inundation.</li> <li>– Advise the public with regard to electrical hazards during flooding and coastal erosion/inundation, and to the availability or otherwise of the electricity supply.</li> <li>– Clear or make safe any hazard caused by power lines or electricity distribution equipment.</li> <li>– Reconnect customers' electrical/ gas/ water/wastewater installations, when certified safe to do so and as conditions allow.</li> <li>– Assist NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.</li> </ul> </li> </ul>

AGENCY	RESPONSIBILITIES
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.
Inverell Shire Council	<p data-bbox="507 846 687 875"><b>Preparedness</b></p> <ul data-bbox="507 904 1433 1715" style="list-style-type: none"> <li data-bbox="507 904 1433 976">• Establish and maintain floodplain and coastal risk management committees and ensure that key agencies are represented.</li> <li data-bbox="507 1005 1433 1111">• Develop and implement flood risk management plans in accordance with the NSW Government’s Flood Prone Land Policy and the Flood Risk Management Manual.</li> <li data-bbox="507 1140 1433 1211">• Provide levee studies, flood studies and flood risk management studies to NSW SES.</li> <li data-bbox="507 1240 1433 1312">• Maintain Dam Emergency Plans for Lake Inverell dam and provide copies to NSW SES.</li> <li data-bbox="507 1341 1433 1413">• Provide information on the consequences of dam failure to NSW SES for incorporation into planning and flood intelligence.</li> <li data-bbox="507 1442 1433 1514">• Maintain council-owned flood warning networks and flood mitigation works.</li> <li data-bbox="507 1543 1433 1615">• Participate in NSW SES-led flood emergency planning meetings, to assist in the preparation of Flood Sub Plans.</li> <li data-bbox="507 1644 1433 1673">• Maintain a plant and equipment resource list for the council area.</li> <li data-bbox="507 1702 1433 1731">• Contribute to community engagement activities.</li> </ul> <p data-bbox="507 1760 635 1789"><b>Response</b></p> <ul data-bbox="507 1818 1433 2051" style="list-style-type: none"> <li data-bbox="507 1818 1433 2051">• Subject to the availability of council resources, assist NSW SES with flood operations including: <ul data-bbox="555 1890 1433 2051" style="list-style-type: none"> <li data-bbox="555 1890 1433 1928">– Traffic management on council managed roads.</li> <li data-bbox="555 1935 1433 2007">– Provision of assistance to NSW SES (plant, equipment, and personnel where able and requested).</li> <li data-bbox="555 2016 1433 2051">– Property protection tasks including sandbagging.</li> </ul> </li> </ul>

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> <li>– Assist with the removal of caravans from caravan parks.</li> <li>– Warning and/or evacuation of residents and other people in flood liable areas.</li> <li>– Provision of back-up radio communications.</li> <li>– Resupply of isolated properties.</li> <li>– Technical advice on the impacts of flooding.</li> <li>– Close and reopen council roads (and other roads nominated by agreement with Transport for NSW) and advise NSW SES, NSW Police Force and people who contact the council for road information.</li> <li>– Assist NSW SES to provide filled sandbags and filling facilities to residents and business in areas which flooding is expected.</li> </ul> <ul style="list-style-type: none"> <li>• Assist with making facilities available for domestic pets and companion animals of evacuees during evacuations.</li> <li>• Operate flood mitigation works including critical structures such as detention basins and levees and advise NSW SES regarding their operation.</li> <li>• Manage and protect council-owned infrastructure facilities during floods.</li> <li>• Provide advice to NSW SES and the Health Services Functional Area during floods about key council managed infrastructure such as sewerage treatment and water supply.</li> <li>• Advise the Environmental Protection Authority of any sewerage overflow caused by flooding.</li> <li>• Work with NSW SES and NSW Department of Planning and Environment to collect flood related data during and after flood events.</li> </ul> <p><b>Recovery</b></p> <ul style="list-style-type: none"> <li>• Provide for the management of health hazards associated with flooding including removing debris and waste.</li> <li>• Ensure premises are fit and safe for reoccupation and assess any need for demolition.</li> <li>• Provide services, assistance, and advice to State Government in accordance with the State Recovery Plan.</li> </ul>
<b>Local Emergency Operations Controller (LEOCON)</b>	<ul style="list-style-type: none"> <li>• Monitor flood operations.</li> <li>• If requested, coordinate support for the NSW SES Incident Controller.</li> </ul>
<b>Local Emergency Management Officer (LEMO)</b>	<ul style="list-style-type: none"> <li>• If requested by the NSW SES Incident Controller, advise appropriate agencies and officers of the start of response operations.</li> </ul>

<b>AGENCY</b>	<b>RESPONSIBILITIES</b>
<b>Marine Rescue NSW</b>	The roles and responsibilities for Marine Rescue NSW are outlined in the NSW State Flood Plan.
<b>NSW Ambulance</b>	The roles and responsibilities for NSW Ambulance are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
<b>NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission</b>	The roles and responsibilities for NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission are outlined in the NSW State Flood Plan.
<b>NSW Department of Planning and Environment (Environment and Heritage Group)</b>	The roles and responsibilities for NSW Department of Planning and Environment (Environment and Heritage Group) are outlined in the NSW State Flood Plan (referred to as DPIE EES).
<b>NSW Department of Planning and Environment (Water)</b>	The roles and responsibilities for NSW Department of Planning and Environment (Water) are outlined in the NSW State Flood Plan.
<b>NSW Food Authority</b>	The roles and responsibilities for NSW Food Authority are outlined in the Food Safety Emergency Sub Plan.
<b>NSW National Parks and Wildlife Services</b>	The roles and responsibilities for NSW National Parks and Wildlife Services are outlined in the NSW State Flood Plan.
<b>NSW Police Force</b>	The roles and responsibilities for NSW Police Force are outlined in the NSW State Flood Plan.
<b>NSW Reconstruction Authority</b>	The roles and responsibilities for NSW Reconstruction Authority are outlined in the NSW State Flood Plan.
<b>NSW Rural Fire Service</b>	The roles and responsibilities for NSW Rural Fire Service are outlined in the NSW State Flood Plan.
<b>Owners of Declared Dams within or upstream of the LGA</b>	The roles and responsibilities for Owners of Declared Dams are outlined in the NSW State Flood Plan.
<b>Public Information Services Functional Area</b>	The roles and responsibilities for Public Information Services are outlined in the Public Information Services Supporting Plan and NSW State Flood Plan.
<b>SEOCN/SEOC</b>	The roles and responsibilities for the SEOCN/SEOC are outlined in the NSW State Flood Plan.
<b>Surf Life Saving NSW</b>	The roles and responsibilities for Surf Life Saving NSW are outlined in the NSW State Flood Plan.
<b>Telecommunications Services Functional Area</b>	The roles and responsibilities for Telecommunications Services are outlined in the Telecommunications Services (TELCOPLAN) Supporting Plan.

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

## 11 Appendix C – Community Specific Roles and Responsibilities

<p><b>Community Members</b></p>	<p><b>Preparedness</b></p> <ul style="list-style-type: none"> <li>• Understand the potential risk and impact of flooding.</li> <li>• Prepare homes and property to reduce the impact of flooding.</li> <li>• Understand warnings and other triggers for action and the safest actions to take in a flood.</li> <li>• Households, institutions, and businesses develop plans to manage flood risks, sharing and practicing this with family, friends, employees, and neighbours.</li> <li>• Have an emergency kit.</li> <li>• Be involved in local emergency planning processes.</li> </ul> <p><b>Recovery</b></p> <ul style="list-style-type: none"> <li>• Assist with community clean-up if required and able to do so.</li> <li>• Participate in After Action Reviews if required.</li> </ul>
<p><b>Private companies or other organisations</b></p>	<p><b>Inverell Bus Service, Symes’ Bus Service, McCosker’s Bus Service</b></p> <p>Assist with the provision of.</p> <ul style="list-style-type: none"> <li>• Bus transport and drivers for evacuation, resupply or commuting purposes.</li> </ul>
<p><b>Service and sporting clubs</b></p>	<p><b>Rotary, Lions and Apex Clubs</b></p> <p>Assist with.</p> <ul style="list-style-type: none"> <li>• Delivery of evacuation warnings.</li> <li>• Lifting and/or moving household furniture and commercial stock</li> <li>• Sandbagging</li> <li>• Relocation of caravans.</li> <li>• Operation of the Inverell Town Flood Advice System to disseminate warnings and advice to business and residents within Inverell.</li> </ul>
<p><b>Aboriginal organisations or groups</b></p>	<ul style="list-style-type: none"> <li>• Act as the point of contact between NSW SES and the Inverell community.</li> <li>• Inform the NSW SES Local and or Unit Commander about flood conditions and response needs.</li> <li>• Disseminate flood information, including flood and evacuation warnings, to the Inverell community.</li> </ul>
<p><b>Name of farmer or flood warning networks</b></p>	<p><b>NSW SES Flood Contact Network (Bonshaw, Wallangra, and Gilgai):</b></p> <ul style="list-style-type: none"> <li>• Provide flood information to the NSW SES Incident Controller.</li> </ul>



	<ul style="list-style-type: none"> <li>• Distribute flood warnings and flood information provided by the NSW SES Incident Controller.</li> </ul>
<b>Cross-border assistance arrangement</b>	<ul style="list-style-type: none"> <li>• A local cross-border mutual assistance arrangement exists in which the Inverell, Ashford and Yetman NSW SES and the Texas SES (QLD) Unit will deploy resources to support each other (arrangements by the Shires involved with advice to the NSW SES North Western Zone Headquarters.</li> <li>• By local arrangement with NSW SES Commanders in neighbouring council areas, flood operations will be conducted under the control of the NSW SES Incident Controller. This includes the whole of Lake Copeton and along the Macintyre River and Ottleys Creek in Gwydir Shire.</li> </ul>

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# HAZARD AND RISK IN INVERELL SHIRE

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**Volume 2 of the Inverell Shire Local Flood Plan**

Last Update: February 2008

## ANNEX A - THE FLOOD THREAT

### Landforms and River Systems

1. Most of the Inverell Shire is drained by the Macintyre River and its tributaries, including the Dumaresq River and the Severn River. These three main streams all rise on the western slopes of the Great Dividing Range outside the shire and flow in predominantly westerly and north-westerly directions to the point where the Dumaresq River and the Macintyre River meet.
2. A small area in the south-west of the shire is drained by tributaries of the Gwydir River. Some of these creeks, including Copes Creek, drain to Lake Copeton which straddles the boundary with Gwydir Shire.
3. The **Macintyre River** rises in the Maybole area south of Glen Innes and flows in a westerly direction towards the town in Inverell. From here it takes a more northerly direction and is joined by Swanbrook Creek some 6.5 kilometres north of the town. The most important tributaries in this upper section are the Queera, Paradise, Kings and Middle Creeks. About 19 kilometres north of Wallangra the river is joined by the Severn River and then flows in a north-westerly direction past Yetman to Goondiwindi. In this section the river is joined by Trigamon Creek upstream of Yetman, Ottleys Creek and the Dumaresq River.
4. The **Severn River** rises to the north-east of Glen Innes and generally flows to the north-west until it joins the Macintyre River. Its main tributaries are Beardy Waters, Furracabad, Wellingrove and Frazers creeks. River flows from the upper portion of the catchment are regulated to some extent by Pindari Dam, which is situated 25 kilometres upstream of Ashford.
5. The **Dumaresq River** rises in the Stanthorpe area and flows in a south-westerly direction to Maiden Head where it is joined by the Beardy River. Thereafter it flows towards the north-west to its junction with the Macintyre. Other important tributaries are Tenterfield Creek, the Deepwater and Mole rivers, Pike Creek and Macintyre Brook.

### Storage Dams – Glenlyon Dam, Pindari Dam

6. **Pindari Dam** is a water storage dam on the Severn River, about 22km upstream of Ashford. It supplies water to the Border Rivers area, including Ashford, Yetman, Boggabilla and Goondiwindi. Pindari Dam was enlarged in 1992-95 and now has a storage capacity of 312,000ML. State Water's Dam Safety Emergency Plan states Pindari Dam is unlikely to fail as a result of an extreme inflow flood. The current spillway has a capacity that is in excess of the PMP Design Flood. Calculations show the dam has sufficient freeboard such that overtopping is unlikely during the PMP event. However, there would be unprecedented flooding downstream due to spillway discharge and flow in the Severn River due to the PMP.

7. **Glenlyon Dam** is a water storage dam on Pike Creek, a Queensland tributary of the Dumaresq River. Dam-break studies indicate that the dam could be overtopped and fail during floods larger than 68 percent of the volume of the PMF. Such a flood is thought to be likely to occur only once in about 65,000 years, on average. The possibility must therefore be regarded as extremely remote.
8. In the event of a Glenlyon Dam failure, the dam failure flood wave could take between 5 and 14 hours to reach Bonshaw depending on pre-existing conditions and the mode of failure. Peak flood levels could vary from 309.6m (AHD) up to 314.4m (AHD) depending on pre-existing flood conditions and the mode of failure.
9. The following information is provided to give an idea of the severity of the flooding being considered in the event of a Glenlyon Dam failure:
  - a. The general floodplain height at Bonshaw is about 305.9 metres (AHD).
  - b. The minimum Dam Crest Flood (DCF) for Glenlyon Dam would have about twice the flow rate of the record 1976 flood at Bonshaw. It would be about 308.7 metres (AHD) or 2.6 metres above the general floodplain level. Therefore Bonshaw would probably need to be evacuated before this level of flooding was reached.
  - c. In this extremely remote event, the maximum flood level could rise to 314.4 metres (AHD) or 8.5 metres above the general floodplain level in the vicinity of Bonville. The flooding would be of catastrophic proportions all the way along the Dumaresq River and well past the point at which it meets the Macintyre River. Some back-up flooding would also occur up the Macintyre River towards Yetman.

## **Weather Systems and Flooding**

10. Flooding has occurred in all months of the year, but it is experienced more often in summer than in the other seasons.

This is especially the case with the more serious events as is shown by the fact that the record floods at Inverell, Ashford and Yetman all occurred between December and February. Occasionally, serious floods do occur in winter, but winter rainfalls are usually sporadic and unreliable.

An indication of the summer dominance of flooding is that of the ten worst floods ever recorded at Inverell, eight occurred between December and March. The others were in April and July. There is a secondary flood season, generally of smaller events, in June and July.

11. Floods peaking at above 3.0 metres at Inverell have occurred in the following numbers in the various months of the year:

Month	Number	Month	Number
January	13	July	7
February	9	August	0
March	4	September	2
April	1	October	3
May	3	November	5
June	6	December	2

The heavy rain which produces floods in the Inverell Shire comes from a number of different weather systems. Explanations follow.

12. **Monsoonal low-pressure systems** which penetrate from northern Australia during the summer and early autumn months. These systems are indicated on weather maps as elongated low-pressure troughs stretching into New South Wales from the Northern Territory or Western Australia. These systems are associated with north-westerly cloud bands. The serious floods of the February months in 1955, 1976 and 1991 at Inverell, Ashford and Yetman were all of this origin as was the flooding at Ashford and Yetman in November 2000.
13. **Rain depressions originating as tropical cyclones** in the Gulf of Carpentaria occasionally penetrate as far south as Darling Downs and northern New South Wales to produce flooding. The floods of January 1996 at Ashford and Yetman were the result of such a system which had originated as Tropical Cyclone Barry and had brought torrential rain to the Darling Downs in Queensland.
14. **Sequences of fronts** crossing the northern part of New South Wales from west to east, usually in the winter and spring months. The individual fronts are not usually associated with very heavy falls but the cumulative effect of a series of them may produce flooding. Generally, floods of this origin are not severe, though floods exceeding 'major flood' thresholds have been experienced between May and November at Inverell, Ashford and Yetman. These floods were probably produced by the passage of frontal systems.
15. **East Coast low-pressure systems** which travel along the coast, usually in a southerly direction and during the cooler months, may direct moisture-laden winds onto the Great Dividing Range. Floods originating to the east of Inverell Shire, over the Severn and Tenterfield shires, may result. Flooding of this origin is uncommon in the Inverell Shire, however.
16. **High-intensity, short-duration convective thunderstorms** occur frequently over the shire, especially during the summer months. The rain from such storms lasts only for minutes and may cause minor creeks and town drainage systems to surcharge. Local flooding of low-lying areas can result, but generally no significant rises in main streams occur from thunderstorm activity.

In 1976, however, thunderstorm activity over an already wet upper Macintyre River catchment produced a serious flood at Inverell.

## Characteristics of Flooding

### Areas Affected

17. Flooding in the southern and eastern parts of the shire is generally confined to the main stream areas and their adjacent alluvial flats which are not extensive. Flood flows in these areas can be fast and dangerous. The extent of the alluvial flats and hence of areas liable to flood inundation increase in a downstream direction in each valley. The Macintyre River below Yetman and the Dumaresq River below about Texas are comparatively slow-moving streams. On these reaches, large areas of plains county are inundated.

### Flood Warning and Flow Travel Times

18. On the many small creeks of the shire, flooding can occur soon after heavy rains have fallen. Much of the shire is subject, therefore, to flash flooding. At Inverell, up to about six hours notice of flooding is available. This time is greatly extended on the lower reaches of the Macintyre River, especially at and downstream of Yetman, and on Dumaresq River below about Texas.
19. River flow times during floods vary considerably from event to event, but the following are indicative:

Locations	Travel Time
Inverell to Wallangra	15 – 22 hours
Pindari Dam to Ashford	5 – 7 hours
Wallangra to Bedwell Downs	7 – 9 hours
Bedwell Downs to Yetman	6 – 8 hours
Inverell to Yetman	26-39 hours
Yetman to Boggabilla (Moree Plains Shire)	22-28 hours
Boggabilla to Goondiwindi	6 hours
Goondiwindi to Mungindi	6-26 days

**Note: these times could be significantly reduced during very severe flood events.**

## Flood History

20. Flood records at Inverell and Yetman go back to the nineteenth century, though there is some uncertainty before about 1950. At Ashford and other locations the record is shorter. The Table on page A-9 summarises the flood history at six locations, but it should be noted that there is anecdotal evidence of a flood at

Inverell in about 1830 which might have been up to two metres higher than the worst floods recorded since.

21. The Table on page A-9 highlights the irregularity of serious flooding on the shire's rivers. Several floods may occur in a short period of time, as was the case between 1864 and 1890 at Inverell, when there were six events which exceeded the 5.0 metre level, but from 1890 to 1954 there were only two such events. Yetman saw four serious floods in a very short period between 1953 and 1956 after a long period of little flooding.
22. The occurrence of lesser flooding also shows great variability. There were five separate events during the 1970s at Inverell which exceeded the current 'minor flood' threshold of 3.0 metres, but no flood in the 17 years since February 1991 has done so.

### **Severe Floods at Inverell**

23. The town of Inverell is highly susceptible to flooding from the Macintyre River, with ten floods having exceeded the current 'major flood' level of 5.0 metres at the Ross Hill Bridge gauge since 1864. Such floods enter the Central Business District (CBD). The worst of them was in 1872 when the peak level is estimated to have been about 6.3 metres. It is believed, however, that the peak flow in this event was less than in the disastrous flood of February 1991.

### **The 1991 Flood**

24. The rainfall which caused the 1991 flood, which peaked at 6.00 metres, started around 5pm on February 6. Heavy rain then fell fairly uniformly across the entire Macintyre River catchment upstream of Inverell. Some 110-130mm of rain fell in the 20-hour period up to 1pm on February 7 with most (70-90mm) during the period from 6am to 1pm hours on the 7th. By 1pm the river had reached a height of about 2 metres at the Ross Hill Bridge gauge. Water started to flow into the CBD some 2 hours later.
25. The following description of the 1991 flood's behaviour is taken from an examination of flood damage carried out by Water Studies. The first overflow occurred near the Tingha Bridge, inundating the Inverell Caravan Park. As river levels rose further, to a gauge height of approximately 5.1 metres on the Ross Hill Bridge gauge, the next overflow occurred near the Suspension Bridge which was washed away. These waters flooded Sweaney St and the surrounding area between Mansfield and Lawrence streets, and flowed in an easterly direction at considerable speed towards the hollow at the intersection of Oliver and Wood streets. The third overflow occurred at Ross Hill Bridge around 4pm when the gauge height was 5.2 metres. This water flowed at considerable speed in a north-easterly direction down Byron and Sweeney streets. Shortly after, at a gauge height of about 5.3 metres, the river overflowed at a fourth location about 200 metres upstream of Ross Hill Bridge. These waters crossed Campbell St and then flowed simultaneously down Evans and Rivers streets.

26. In addition, in the northern part of town a major overflow was observed to have occurred across Kamilaroi Park just upstream of the Ring St Bridge. This water flowed in a north-easterly direction to meet up with waters flowing down Byron, Oliver, Evans and River streets.
27. There was also significant local flooding unrelated to that in the river itself. In the northern part of the town, where a number of minor unnamed tributaries enter the Macintyre River, flooding occurred on the morning and early afternoon of February 7 due to the overloading of the urban drainage systems. Properties in this vicinity, especially near the hollow at the intersection of Wood and Oliver Streets, were inundated by local flood waters prior to the arrival of Macintyre River overflows. This area and the low-lying area to the north of Ring St sustained the greatest depths of flooding when the river broke its banks.

### **Comparison of the 1955 and 1991 Floods**

28. Prior to the February 1991 flood, the 1955 flood was the largest flood seen in Inverell by present residents. Floods in the intervening period were much smaller and caused relatively little damage.
29. The 1955 and 1991 peak flood levels at Ross Hill Bridge at the southern end of the town were virtually the same. However, at the northern end of Inverell, the 1991 flood levels were more than a metre higher than the 1955 levels. The reasons for this difference in behaviour are difficult to determine, but a number of factors should be considered:
  - a. The Macintyre River underwent significant changes in the vicinity of the Ross Hill Bridge after 1955 as a consequence of stream clearing, changing bed levels and structural changes associated with bridge, weir, and river bank construction, upgrading and raising.
  - b. Black Gully (Spring Creek) contributed to different degrees to flood levels at Ross Hill Bridge in the two floods. In the 1955 event it is believed that Black Gully peaked at the same time as the Macintyre River, producing higher than expected flood levels at the southern end of town. However, in the 1991 event Black Gully peaked well before the Macintyre and had little impact on the recorded levels at the bridge.
  - c. In 1991, the fences throughout the parklands and the industrial complex in the northern part of Inverell caused major obstructions to flow resulting from the collection of debris. The major fences included the fences around the swimming pool, Varley Oval, the tennis courts, behind the Technical College, Rugby Park, upstream of Swanbrook Rd and around Kamilaroi Park. Whilst some of the fences failed during the event they still caused obstructions to flow.
  - d. In the reach between the O'Connor St Bridge and the Ring St Bridge dense growth, consisting of privet, elms and willows, covered the entire reach both in channel and on banks in the period leading up to and during the February 1991 event. This dense vegetation is believed to have caused the significant breakout of flood waters through



Kamilaroi Park. This reach, with the exception of a small pocket, was cleared after the 1991 flood.

- e. In the reach downstream of the Ring St Bridge, two vegetation chokes were present during the February 1991 event. The choke opposite the Public Works Depot was later removed.

### Design Flood Levels

30. At Inverell the levels estimated to be reached at the Ross Hill Bridge gauge in floods of specified Annual Exceedence Probability (AEP) and Average Recurrence Interval (ARI) (in years) are as follows:

Height (metres)	AEP (%)	ARI (Years)
5.4	5	20
5.7	2	50
5.9	1	100
6.1	0.5	200
6.3	0.2	500

31. The AEP value for a particular height is the percent chance of a flood of that height being reached or exceeded in a particular year. For example, there is a 1% chance of a flood of 5.9 metres or more occurring at Inverell each year. Such a flood is expected to be experienced, on average, once in a 100-year period. In a particular 100-year period, however, it could occur several times or not at all.
32. The 1976 flood at Inverell roughly approximated the 5% flood there. This means that flooding to at least this level can be expected, on average, once in 20 years.
33. The 1955 and 1991 floods appear to have been slightly higher than the 1% event. The uneven occurrence of such floods is illustrated by the fact that these two events happened only 36 years apart. Future flooding to a similar gauge height could occur at any time, as is true of flooding to other heights.
34. The heights which could be reached in larger and rarer floods than these are noted below in the section on Extreme Flooding.
35. Design flood levels have not been assessed for Ashford, Yetman or other locations within the shire. Where there is a century or more of flood records, however, as at Yetman, the flood of record is sometimes taken as an approximation of the 1% AEP event. In Yetman's case the record flood reached a gauge height of 12.8 metres.

## Flood Mitigation Systems

36. There are few formal flood mitigation structures within the Inverell Shire. Pindari Dam has some capacity to mitigate floods on the Severn River but Copeton Dam is not designed to mitigate flooding within the Inverell Shire. Contour banking in rural areas helps delay the entry of flood waters into creeks and rivers in the hilly southern and eastern parts of the shire, however.

## Extreme Flooding

37. Worse floods than have been seen in the Inverell Shire must be regarded as inevitable. They will occur when particularly severe weather conditions of the sorts described above are experienced. An indication that flooding much worse than that experienced at Inverell in 1955 and 1991 could occur is provided by the following estimates of depth at the Ross Hill Bridge gauge.
38. **Probable Maximum Flood (PMF):** 8-10 metres above the 1991 level (order of accuracy + 2 metres). Such a flood has an AEP of 0.0001% and corresponds to the once-in-1,000,000-years event.
39. **Half PMF:** 5-6 metres above the 1991 level (order of accuracy + 2 metres). Such a flood has an AEP of 0.001% and corresponds to the once-in-100,000-years event.
40. **A flood with three times the peak flow volume of the 1% AEP flood** is estimated to reach a level of 8.1 metres. Such a flood would be expected to occur, on average, only once in several thousand years.
41. Floods much greater than were experienced in record events at other locations within the shire are possible. At these locations, calculations of the heights which would be reached by PMF and near-PMF events have not been made.

### Peak Gauge Heights of Significant Floods in the Inverell Shire, 1864-2000

	DUMARESQ RIVER		SEVERN RIVER	MACINTYRE RIVER		
	Roseneath	Bonshaw Weir	Ashford	Inverell	Wallangra	Yetman
1864 (Feb)				6.00		
1872 (Dec)				6.30		
1879(Apr. Mar)				5.99, 5.50		
1890 (Jan)				5.85		
1890 (Mar)						12.80
1916 (Mar)				5.06		
1921 (July)				5.50		
1933 (Oct)						10.36
1950	7.39		7.47		3.73	
1950 (Jul)	5.04, 5.46		7.47		6.15	
1953 (Feb)						10.77
1954	6.40		6.10		4.34	
1955 (Feb)				6.02	7.42	11.23
1956 (Feb)	8.84		8.03	5.44	5.28	11.10
1956 (Jun)	5.47				5.11	9.86
1962 (Jan)	4.88				4.67	
1963 (May)						9.53
1966 (Nov)	5.06		7.44		4.69	10.41
1970 (Sept)			6.88		6.02	
1970 (Dec)						9.70
1975	6.07				4.92	
1976 (Feb)	10.44	7.87	9.56	5.44	8.64	11.70
1978 (Jan)			8.11			10.35
1983 (May)	4.79	5.38	6.85		6.13	10.57
1984 (Jan)	4.95	5.59			5.58	
1988 (Jan)	5.33	5.49				
1991 (Feb)			5.95	6.00		10.40
2000 (Nov)		4.06	8.85		7.32	10.99

## ANNEX B - EFFECTS OF FLOODING ON THE COMMUNITY

### Community Profile

Census Description	LGA	Ashford	Gilgai	Inverell
Total Persons	15040	476	271	9537
Total Dwellings	6557	230	100	4091
Total persons aged 65 years and over	2379	98	41	1597
Total persons aged below 15 years	3448	108	74	2170
Total persons of indigenous origin	734	66	23	547
Total persons using Internet	3264	48	37	2027
Single parent families	674	21	17	498
Persons living alone	1442	50	24	1038
Total persons who do not speak English well	16	3	0	7
Total persons who lived at a different address 5 years ago	5448	167	79	3682
Households without vehicles	584	8	8	372
Total persons residing in caravans, cabins or houseboats	110	3	0	72
Mean household size	2.5	2.3	3.1	2.4

**Table B-1: Census of Housing and Population data (2001)**

### Specific Risk Areas

1. Large areas of the Inverell Shire are affected by flooding, whether by the nuisance of isolation or by the more severe consequences which result from inundation. The problems are many. They range from the closure of roads and bridges and the disruption of farming operations even in relatively frequent low-level events to catastrophic effects in rare, very severe floods. These may include substantial stock losses on farms, the inundation of numerous houses and commercial premises in towns and villages, and damage to infrastructure and private property.

## Ashford

2. Ashford is located on the banks of Frazers Creek about 2.5 kilometres south-west of the confluence of the creek and the Severn River. Flooding can result from Frazers Creek directly or from back-up flow up the creek from the Severn River. Low-lying areas in Inverell, Albury, Bukkula, Frome, Bala, Ely, David, Frazier, Duff and Martyn streets are subject to occasional flooding. During the highest flood in living memory (the 1976 event), a caravan park and about 20 houses were flooded. At least one dwelling suffered over-floor flooding and was evacuated in the much lower 1991 flood.
3. The table following notes the principal effects of flooding from the Severn River in Ashford and its vicinity at various heights on the gauge north of 3-Mile Bridge. The heights must be taken as approximate. Note that severe flooding in Ashford can occur solely from Frazers Creek, to which this table does not apply. A flood from the creek caused overfloor flooding of 13 dwellings in Ashford in November 2000. Flooding a metre higher could inundate an additional 30 dwellings and the Ashford SES/RFS headquarters.

Height (metres)	Effect
3.1	News Crossing (3-Mile Bridge) over the Severn River closed.
4.0	Widespread shallow inundation of low level farmlands on both banks of the Severn River; beginnings of property isolation.
5.5	Water begins to enter low-lying houses in Ashford by backwater flooding.
6.0	Inundation of caravan park from backwater flooding.
8.3	Water begins to enter farm houses and outbuildings along the Severn River.

## Bonshaw

4. Bonshaw is unaffected by frequent, low-level floods but was partially inundated from the Dumaresq River in 1976. Little damage to buildings occurred in the event. The village was cut off from all road access, however.
5. In an extreme flood, including a flood resulting from the failure of Glenlyon Dam, there would be catastrophic flooding of the entire village of Bonshaw.

## Yetman

6. Flood waters from the Macintyre River enter Yetman during floods with an AEP of about 10%. Seven or eight floods since 1890 have entered the village and caused real concern, the worst of them (1890 and 1976) covering the whole village to a depth of more than a metre. Only about ten of approximately 60 houses have floor levels which are above the level reached in 1976. In serious floods such as this one the duration of inundation is likely to be for several days.

7. The table below lists the principal known effects of flooding at the approximate heights noted. The heights relate to the gauge on the bridge over the Macintyre River.

Height (metres)	Effect
2.5	Holdfast Crossing and local fords closed.
6.7	Bruxner Highway and Old Bruxner Highway closed; no direct access available between Yetman and Boggabilla.
7.0-7.6	Extensive rural flooding; farm properties isolated.
9.1	Yetman isolated from road access to the south.
10.4	Flood waters enter the village from the lagoon on the western side.
11.0	24 houses and 2 churches inundated by depths up to 0.5m; caravan park inundated.
11.3	Police station and school inundated.
11.7	Most houses in village inundated over floor levels in 1976.

## Inverell

8. Apart from the caravan park, which is inundated even in minor floods, the town of Inverell experiences no inundation until the river breaks its banks at a height of about 5.0 metres at the Ross Hill Bridge gauge. When this height is reached, flooding occurs quickly in and around the Central Business District and along a narrow strip of land at the foot of Ross Hill on the left bank. Progressively greater heights see increased depth of flooding in the lower lying areas and the inundation of additional areas in Belgravia to the east of the business area.
9. Severe floods have very serious consequences in Inverell (2001 population about 9500). In 1991, a total of 233 residential properties and 375 commercial ones were damaged by flood water. Even considerably lower floods are very damaging to the CBD and nearby areas.
10. The table below indicates the approximate heights (measured at the Ross Hill Bridge) at which significant effects occur within the town.

Height (metres)	Effect
2.0	Water closes O'Conner St low level bridge
3.0	Water closes the Ring St bridge
4.0	Water enters the Inverell Caravan Park.
4.8	Flooding begins in the Sweaney St area between Mansfield St and Lawrence St.
5.0	Overbank flow begins in the Captain Cook Dr and Ross Hill Bridge areas and water flows down CBD streets. Homes and shops are flooded.
6.0	Water is 1-2 metres deep in parts of the CBD and numerous commercial, residential and public buildings are flooded in Belgravia, the Ashford Rd and Edward St areas, South Inverell and the lower areas of Ross Hill.

11. The town's flood liable areas are described below.
12. **Central Business District.** This area includes properties on the right bank of the river extending from the Tingha Road Bridge to Arthur St and as far east as Rivers St. Once the river bank is overtopped, the lower parts of this area can fill with fast-flowing water in as little as 20 to 30 minutes. During an extreme flood the area from the right bank up to and including Oliver St would be categorised as a floodway. All commercial premises plus the Catherine Campbell Centre in Campbell St, the Jack and Jill Pre-School in Rivers St, the Inverell Pre-School in Campbell St and the TAFE College would require special attention in terms of warning, actions to protect property and facilities and the evacuation of people.
13. **Ashford Road Area.** Areas along and intersecting with the Ashford Rd in the northern part of Inverell are also liable to inundation. This includes land in Swanbrook, Brissett, Evans and Wyndham streets. The industrial area can be affected.
14. **Ross Hill.** A narrow strip of land along the left bank between the Ross Hill Bridge and Ring St could become part of the high hazard flood fringe, particularly along Queen St during an extreme flood event.
15. **Edward Street Area.** This area on the left bank downstream of the Ring St Bridge, including Edward St and the intersection of King and Ring streets, could become part of the high hazard flood fringe during an extreme flood event.
16. **Belgravia.** This area on the right bank extends from Rivers St away from the river towards Albion Hill. The lower parts between Rivers St and Henderson St are likely to be inundated during a 1% AEP flood with the Inverell Primary School and the Coinda Homes for the Aged requiring special attention. During an extreme flood event this whole area would be categorised as a high hazard flood fringe area, and flooding could be experienced as far east as Henderson St and the southern ends of Granville and Chester streets.
17. **South Inverell.** This area covers all properties on the left bank of the Macintyre River between the Tingha Road Bridge and Black Gully. A significant part of this area houses the Homes for the Aged Complex and is inundated during a 1% AEP flood. During even higher flood events than this one the residential units on the river side of Macintyre Street between Cameron and Raglan streets would be within a floodway area. Extensive flooding could also occur to the south and east of the Racecourse.

## Rural Areas

18. Flooding affects large areas of farmland in the low-lying northern parts of the Shire, leading to a need to move livestock and equipment before inundation occurs. Numerous minor roads are subject to closure. In the south and east of the Shire, periods of inundation are brief and roads are closed for only a few hours. In the more severe events both the Bruxner and the Gwydir highways can be closed within the shire, the Bruxner Highway for some days at a time.

## Road Closures

19. Numerous roads in the Shire can be closed by flooding. In the southern and eastern areas the closures are of short duration, but in the low-lying northern areas roads may remain closed for some days. In the cases indicated in the table below there are no practical detours available.

Road	Usual Points of Closure
SH 16 Bruxner Highway	Beardy River Bridge (Shire boundary Inverell and Tenterfield Shire Councils)
TR 63 Yetman to Warialda	Yetman, causeway near SR 9, 3 Mile Creek
	Rocky Dam, 6 Mile Creek causeway
	Ottleys Creek, causeway overflow form Ottleys Creek
MR 137 Inverell to Ashford to Bonshaw	Severn River, 3 mile Bridge
	9 Mile Creek causeway
	Bukkula Creek culvert/causeway
	Frying Pan Creek at Dinton Vale
SR 36 Ashford to Wallangra	Arrawatta Creek, near SR 223
	Mcintyre River, at Wallangra Bridge
	Reedy Creek causeway
	Sandy Creek causeway
MR 382 Bruxner Highway to Yellow Dam Road	Honeysuckle Creek causeway
	Rocky Creek causeway
MR 138 Bruxner Highway to Texas	Dumaresq River overflow
SR 10	Dumaresq River, at Keetah crossing
	Campbells Creek causeway
	Sandy Creek causeway
	Dumaresq River overflow at Goondarin
SR 16	Borah Creek causeway
	Macintyre River, Keetah crossing
SR 9	Woolons Lagoon crossing
SR 12	Ottleys Creek at Blue Nobby Bridge
SR 23	Bural Creek causeway
SR 33	Reedy Creek causeway
SR 54 Ashford to Emmaville	Stevens Creek causeway
SR 48 Ashford to Pindari Dam	Oakey Creek causeway
	Dingo Creek causeway
	Duncanmara Creek causeway
	Frazers Creek, Ashford Bridge
SR 50 Bukkula to Pindari Dam	Frazers Creek crossing
SR 43	Macintyre River crossing
MR 134 Ashford to Graman	Macintyre River, at Tintott Bridge
MR 187 Inverell to Rocky Dam	Cucumber Creek culvert/causeway
	Graman Creek culvert/causeway
	Wyndhams Creek culvert/causeway
	Rob Roy Creek Bridge
	Unknown creek near Inverell Saleyard
SH 12	Dumboy Creek bridge crossing
SR 105	Warialda Creek causeway
SR 101	Warialda Creek culvert/causeway
MR 134 Delungra to Bingara	Low lying area near MR 554 intersection
SR 199 Auburn Vale Road	Black Gully Creek culvert/causeway
SR 154	Macintyre River crossing



<b>Road</b>	<b>Usual Points of Closure</b>
<b>SR 136</b>	Macintyre River crossing
<b>SR 234</b> Kings Plains Road	Long Plain Creek crossing
	Swan Brooke Creek Bridge
<b>SR 238</b> Woodstock Road	Swanbrooke Creek at Woodstock Bridge
<b>SR 246</b> Elsmore Road	Macintyre River Brodies Plains crossing
<b>SR 254</b>	Macintyre River at Elsmore Bridge
	Middle Creek crossing

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# **SES RESPONSE ARRANGEMENTS FOR INVERELL SHIRE**

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**Volume 3 of the Inverell Shire Local Flood Plan**

Last Update: February 2008

## ANNEX C - GAUGES MONITORED BY THE INVERELL SES LOCAL HEADQUARTERS

Gauge Name	AWRC No	Type	Stream	Flood Classifications			Alternate Reading Arrangements
				Min	Mod	Maj	
Tenterfield Dam	416053	Automatic	Tenterfield Creek				
Clifton	416003	Automatic	Tenterfield Creek				
Farnbro (Qld)	416310	Automatic	Severn River (Qld)				
Bolivia	416023	Automatic	Deepwater River				
Donaldson	416032	Automatic	Mole River				
Clearview (Qld)	416303	Automatic	Pike Creek				
Glenlyon Dam (Qld)		Automatic	Pike Creek				
Riverton (BOM)		Automatic	Dumaresq River				
Roseneath	416011	Automatic	Dumaresq River				
Haystack	416008	Automatic	Beardy River				
Bonshaw Weir	416007	Automatic	Dumaresq River				
Oaky Creek (Qld)	416312	Automatic	Oaky Creek				
Cunningham Weir	416308	Automatic	Dumaresq River				
Beebo (Qld)	416305	Automatic	Brush Creek				
Glenarbon	416040	Automatic	Dumaresq River				
Barongarook (Qld)		Automatic	Macintyre Brook				
Terraine (Qld)		Automatic	Bracker Creek				
Coolmunda Dam (Qld)		Automatic	Macintyre Brook				
Inglewood (Qld)		Automatic	Macintyre Brook				
Woodspring (Qld)		Automatic	Canning Creek				
Inglewood Weir (Qld)		Automatic	Macintyre Brook				
Booba Sands (Qld)	416415	Automatic	Macintyre Brook				
Keetah Bridge*		Automatic	Dumaresq River				Local Reader
Bengalla (BOM)		Automatic	Dumaresq River				
Wyoming	416063	Automatic	Macintyre River				Local Reader
Paradise Station	416061	Automatic	Paradise Creek				Local Reader
Gred	416059	Automatic	Kings Creek				Local Reader
Newstead North	416062	Automatic	Kings Creek				Local Reader
Little Valley	416056	Automatic	Macintyre River				Local Reader
Elsmore Bridge	416057	Automatic	Macintyre River				Local Reader
Riverstone		Automatic	Macintyre River				Local Reader
Stannifer	416064	Automatic	Middle Creek				Local Reader
Ferndale	416055	Automatic	Middle Creek				Inverell SES
Inverell (Middle Ck Junction)	416016	Automatic	Macintyre River				Inverell SES
Inverell (Ross Hill Bridge)		Manual	Macintyre River	3.0	4.3	5.2	Inverell SES
Campbells*		Automatic	Swanbrook				
Tintott Bridge		Automatic	Macintyre River				Local Reader
Wallangra	416010	Automatic	Macintyre River				Local Reader
Fladbury	416022	Automatic	Severn River				
Strathbogie	416039	Automatic	Severn River				
Pindari Storage	416030	Automatic	Severn River				OIC Pindari Dam
Pindari Downstream	416019	Automatic	Severn River				
Wean*		Automatic	Kings Plains Creek				Local Reader
Nullamanna*		Automatic	Frazers Creek				Local Reader
Bukkulla		Automatic	Frazers Creek				
Westholme		Automatic	Frazers Creek				Ashford SES
Ashford	416006	Automatic	Severn River	2.2	4.0	6.0	Ashford SES

Gauge Name	AWRC No	Type	Stream	Flood Classifications			Alternate Reading Arrangements
				Min	Mod	Maj	
Bedwell Downs (Ridgeland)	416031	Automatic	Macintyre River				Local Reader
Yetman	416058	Automatic	Macintyre River	2.4	7.6	9.1	Yetman SES
Holdfast	416012	Automatic	Macintyre River				
Coolatai	416020	Automatic	Ottleys Creek				Local Reader
Carmya*		Automatic	Macintyre River				Local Reader
Boggabilla	416002	Automatic	Macintyre River				
Goondiwindi	416301	Automatic	Macintyre River				
* Not yet operational							

## ANNEX D - DISSEMINATION OF SES FLOOD BULLETINS

The Inverell SES Local Controller or nominated person (in liaison with North West Region SES Headquarters) issues SES Local Flood Bulletins to radio stations 2NZ and GEM FM.

The North West Region SES Headquarters, in consultation with Namoi Region Controller and Inverell SES Local Controller, distributes SES Flood Bulletins and other flood related information (including Flood Warnings) to the following regional media outlets:

### Television Stations:

Station	Location
ABC1	Sydney
NBN TV	Tamworth
PRIME TV	Tamworth
NRTV	Lismore
QTV	Toowoomba
Sunshine TV	Maroochydore
NRTV	Coffs Harbour
QTV	Queensland
Sunshine TV	Queensland

### Radio Stations:

Station	Location
2NZ (AM 1188)	Inverell
GEM FM (95.1)	Inverell
ABC New England/North West (AM648)	Tamworth
2VM (AM 1530)	Moree
NOW FM (98.3)	Moree
2TM (AM 1287)	Tamworth
2TM FM (92.9)	Tamworth
2TEN FM (107.5)	Tenterfield

### Newspapers:

Name	Location
The Inverell Times	Inverell
The Moree Champion	Moree
The Northern Daily Leader	Tamworth
The Warialda Standard	Warialda

### Other Agencies:

Inverell SES Local Headquarters	Inverell
Ashford SES Unit Headquarters	Ashford
Yetman SES Unit Headquarters	Yetman
New England Police District Headquarters	Armidale
Inverell Local Area Command Headquarters	Inverell
Barwon Local Area Command Headquarters	Moree
NRMA	Inverell

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

This template is held on computer at the Inverell SES Local Headquarters. It is designed to guide the construction of evacuation warning messages which will follow a broadcast of the Standard Emergency Warning Signal or be read over radio stations. Evacuation warning messages derived from this template may also be distributed by doorknockers to dwellings or business premises.

**Evacuation Warning for** [ ]

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

**Authorised By:** [ ]

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

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

To prepare for evacuation, you should:

- Raise belongings by placing them on tables, beds and benches. Put electrical items on top. Some items may be able to be placed in ceilings.
- Gather medicines, personal and financial documents and mementos together to take with you.
- Listen to radio stations 2NZ (AM 1188), GEM FM (95.1), or ABC Radio New England/North West (AM 648) for further information and to confirm this warning.
- If possible, check to see whether your neighbours need help.
- Make arrangements for care of pets or companion animals. (note Pound facilities if appropriate).

If evacuation is necessary:

- Turn off the electricity, gas and water.
- Take three days' supply of clothes with you.
- If you have a car, drive to the evacuation centre at [ ] (*specify route if appropriate*).
- If you don't have a car, buses will operate on normal routes. Special transport can also be provided on request if necessary, telephone [ ].

- So that you can be accounted for, it is important that you register at the evacuation centre.
- After registering, you may go to the house of a friend or relative. Alternatively, accommodation will be arranged for you.
- The Police will provide security for your property while you are away.

## **ANNEX F - DETAILS OF WARNING AND EVACUATION ARRANGEMENTS IN THE INVERELL OPERATIONAL SECTOR**

### **The Sector and the Flood Problem**

1. The Inverell Sector includes:
  - a. The Macintyre River and its tributaries above Bukkula.
  - b. Lake Copeton
  - c. Inverell township as well as Delungra, Gilgai, Stannifer, Elsmore, Nullamanna, Gum Flat, Mt Russel and Oakwood villages.
2. The most severe flood problems in the Sector are at Inverell, where the entire CBD and substantial numbers of industrial and residential properties are liable to flooding. Belgravia, the lower parts of Ross Hill, the Ashford Rd and Edward St areas and Southside are all affected. Above Inverell, small numbers of farm houses on the Elsmore Common and (in very severe events) Brodies Plains are flood liable.
3. Flood information is obtained by the Inverell SES:
  - a. From BoM warnings for Inverell.
  - b. From a network of automatic rain and stream gauges. The stream gauges are alarmed to set off the phones of key SES personnel when specified stream levels are reached. Data from the gauges is used to predict flood heights and the arrival of flood peaks at Inverell.

### **Warnings**

4. Warnings of impending flooding within Inverell are provided by the Inverell Town Flood Advice System, which is a multi-mode system devised to alert the business community and residents to impending flooding and provide advice when flood waters are expected to enter the town. Normally this advice will include advice to protect property and then to evacuate. Information is provided by the following means:
  - a. Announcements broadcast over radio stations 2NZ, GEM FM and ABC New England/North West. These will be preceded by the playing of the Standard Emergency Warning Signal.
  - b. The Council's fixed Public Address system, which has speakers in Otho St and Byron St. The system is activated by 2NZ, and announcements are preceded by the playing of the SEWS. It is activated fortnightly for the purposes of checks and to remind the community of its purpose.



- c. Mobile public address systems in police vehicles travelling through the CBD and nearby streets.
  - d. Faxstream to commercial and industrial premises.
  - e. Phone calls to commercial and industrial premises and to dwellings. These calls are made in a priority order intended to match as far as possible the order in which properties are likely to be inundated. Calls are made only to those areas likely to experience inundation in the particular flood event which is pending.
  - f. The Inverell Shire Council website, on which flood predictions are posted along with information on the status of roads.
  - g. Doorknocks conducted by SES, RFS, NSWFB, Inverell Rescue Squad, Council and Police personnel. As far as possible, doorknockers will provide written advice based on the template in Annex E. Doorknocking will start in the Sweaney St area, followed by Byron St, and will then move away from the river towards Rivers St.
5. Warning information about impending floods is expressed in terms of likely depths relative to those experienced in February 1991. People will be advised to note the flood depth indicators and 1991 flood level markers on telephone poles in and around the CBD.

## **Evacuations**

6. If flooding in Inverell is expected:
- a. Persons in the CBD will be directed to return to their homes.
  - b. Proprietors of commercial premises will be advised to prepare their premises for flooding and then return to their homes.
  - c. The CBD will then be cleared.
7. Evacuations will be in the private vehicles of evacuees and their neighbours and by bus and taxi. Evacuees will be taken or advised to go to evacuation centres as follows:
- a. From the CBD to Holy Trinity and/or Macintyre High School
  - b. From the Ross Hill Area to Inverell High School.
  - c. From the Edward Street Area to Inverell High School.
  - d. From Belgravia to Holy Trinity School.
  - e. From the South Inverell area to the South Inverell Community Centre.
8. Helicopter landing points can be established at the Inverell Hospital (Swanbrook Rd), the Shire Works Centre (Burtenshaws Rd) Inverell Shire EOC

(Burtenshaws Rd) and Varley Oval. The Varley Oval site can operate only in floods up to 5.8 metres.

9. The Inverell Caravan Park located at the Tingha Rd/Gwydir Highway intersection is inundated in floods lower than those which affect the rest of Inverell. Vans are moved by their owners and Council personnel to high ground on nearby streets. The occupants of caravans and tents can be given assistance at the evacuation centre established at the Holy Trinity School or by DoCS in smaller events in which no evacuation centre is established.
10. Evacuations from farm houses outside Inverell are to the homes of neighbours.

# **ANNEX G - DETAILS OF WARNING, EVACUATION AND RESUPPLY ARRANGEMENTS IN THE ASHFORD OPERATIONAL SECTOR**

## **The Sector and the Flood Problem**

1. The Ashford Sector includes:
  - a. The Severn River and the tributary Frazers Creek, including the villages of Ashford, Bukkulla, Graman, Bonshaw, Wallangra, numerous farm properties and Pindari Dam.
  - b. The Macintyre River from Bukkulla to Bedwell Downs, including the communities of Bukkulla, Graman, Wallangra and numerous farm properties.
  - c. The left (south) bank of the Dumaresq River above Texas, including the village of Bonshaw and a portion of the tributary Beardy River. A number of farm properties and non-farm dwellings are located along these rivers.
2. Flooding often restricts access from Ashford to other parts of the Sector and assistance by the SES when this occurs may be restricted to the provision of information and advice. Access to the Bonshaw area may be achieved by the Yetman and Tenterfield SES Units when Bonshaw is cut off from Ashford.
3. Much of the village of Ashford is flood liable, with more than 40 dwellings and some non-residential premises potentially being flooded in severe events and the village sometimes being cut in two. There are also a number of flood liable houses along the short reach of the Beardy River which falls within the Shire, along the Macintyre in and near Wallangra, and along the Severn River. The total number of flood liable dwellings outside Ashford itself within the Sector is between 40 and 50. Farmers' pumps and livestock are also at risk from floods.
4. Flood information is obtained by the Ashford SES:
  - a. From BOM warnings for the vicinity of Ashford on the Severn River.
  - b. From Pindari Dam, which provides information on inflows, outflows, the level of water in the storage and predicted peak levels downstream.
  - c. From farmers who provide information on rainfalls and stream flows.

## **Warnings**

5. Warnings to potentially flood affected people are provided via Radio 2NZ, by telephone calls to farm properties and in severe events in Ashford by doorknocking carried out by the SES, RFS, and Police. When flood-waters are expected to enter Ashford, advice is provided about raising belongings and evacuating.

## Evacuations

6. Evacuations in the village of Ashford are carried out using residents' vehicles and Shire vehicles. Evacuees usually go to the houses of friends and relatives within the village or to the Ashford Hotel. In very severe floods, an evacuation centre could be set up at the Ashford Central School or the Town Hall. Most evacuations are for only one or two days.
7. In and near Ashford itself:
  - a. Assistance can be provided by the SES and RFS in lifting belongings within dwellings.
  - b. Caravans are moved by the SES, casual volunteers and van owners from the Council Caravan Park in Bukkulla St to flood-free streets within the village. At the summer peak, the caravan park could contain 25-30 vans, all of which are likely to be moveable. The occupants of caravans and tents can be given assistance in any evacuation centre which is established.
  - c. Assistance can be provided by the SES in rescuing farm livestock and domestic pets especially in and adjacent to Ashford.
  - d. A helicopter landing point can be established adjacent to the Ashford Police Station.
8. Evacuations from farm houses and in the smaller communities are to the homes of neighbours.
9. Evacuations in Bonshaw in a severe event (including any possible failure of Glenlyon Dam) may need to be managed initially by the Bonshaw RFS under the control of the Inverell Shire SES Local Controller or a police officer from Yetman. If dam failure were possible, the entire village would need to be evacuated to private homes above the assessed likely flood level which is 8.5 metres above the general floodplain level in the vicinity of Bonshaw. Further details to guide operations are in Annex A.

## Resupply

10. Resupply operations are sometimes necessary for up to 2-3 days, especially to properties affected by flooding on the Beardy River in the east of the Sector but sometimes over larger areas. Food and other essentials are supplied by floodboat and Police vehicles and in some cases by helicopter.

## **ANNEX H - DETAILS OF WARNING, EVACUATION AND RESUPPLY ARRANGEMENTS IN THE YETMAN OPERATIONAL SECTOR**

### **The Sector and the Flood Problem**

1. The Yetman Sector includes:
  - a. The Macintyre River from Bedwell Downs (25 kilometres above Yetman) to the point at which the river leaves the Shire 25 kilometres below the village. This reach includes Yetman and a large number of farm properties, including some on the left (south) bank of the river in Yallaroi Shire.
  - b. Ottleys Creek downstream of Coolatai (Yallaroi Shire).
  - c. The left (southern) bank of the Dumaresq River below Texas. This reach also contains numerous farm properties.
2. The Yetman SES may need to respond when Bonshaw is inaccessible from Ashford because of flooding on the Severn River and from Tenterfield as a result of flooding on the Beardy River.
3. All of the village of Yetman is flood liable and some farm houses along the river could also be inundated above floor level. Flood waters enter Yetman at a gauge height of 10.4 metres. At a height of 11.0 metres, about 24 dwellings and two churches are inundated. At greater heights progressively more dwellings are inundated including the school, the village hall, the Police Station and the store, and in severe events the whole village must be evacuated. The SES maintains a list of dwellings which can be inundated, and the approximate gauge heights at which inundation occurs.
4. Flood information is obtained by the Yetman SES:
  - a. From BOM warnings for Yetman.
  - b. By monitoring of the gauge on the Macintyre River at Bedwell Downs. Flows usually take 6-8 hours from Bedwell Downs to Yetman.
  - c. From the Inverell and Ashford SES Units via the Inverell Shire Local Controller.
  - d. By monitoring of the Dumaresq River by the RFS at Twin Rivers.
  - e. From farmers who provide information on rainfalls and streamflows.

5. Operations in the Yetman area can be severely hampered by communication difficulties. Back-up repeater facilities can be organised by the North West SES Region Headquarters.

## **Warnings**

6. Warnings to potentially flood-affected people are provided via 2NZ, by telephone calls to farm properties and in severe events in Yetman by doorknocks carried out by the SES and Police. When flood waters are expected to enter Yetman, advice is provided about raising belongings and moving cars out of the village and about potential evacuations.

## **Evacuations**

7. There are three evacuation options when people in the village of Yetman need to be evacuated. In all cases, evacuations will be by residents' vehicles.
  - a. Within the town from low-set houses to high-set ones or to the Yetman Memorial Hall. This option applies for floods expected to peak at less than 10.8 metres.
  - b. To the Inverness property 1 kilometre from Yetman. This property contains three dwellings and a concrete-floored shed. In severe floods most of the village population could be accommodated here and supplied from outside for up to three days. Access to Inverness is available across the Richard Coventry Bridge east of Yetman to a flood height of 12.0 metres.
  - c. To Texas, via the Richard Coventry Bridge and the Bruxner Highway. The Inglewood Shire and the Inverell SES would organise accommodation. This options is not available if there is a serious flood on the Dumaresq River.
8. In Yetman:
  - a. Residents will be required to remove their vehicles from the village before a height of 10.4 metres is reached.
  - b. Roads into the village will be closed at a height of 10.8 metres to prevent sightseers from gaining access.
  - c. Assistance can usually be provided by the SES and the RFS to lift belongings within dwellings. There is little storage space above potential flood levels, though people can use their own vehicles to transport belongings to Inverness unless this property is required to accommodate evacuees.
  - d. Caravans can be moved by the SES and van owners from the Council Caravan Park in Macintyre St to high ground across the Richard Coventry Bridge. The occupants of tents and caravans can be given assistance at the operating Evacuation Centre.

- e. Helicopter landing points exist at the Yetman Recreation Ground, the Inverell Shire Depot or on the high ground to the east of the village.
9. Evacuations from farm houses along the Dumaresq and Macintyre rivers and Ottleys Creek are usually to the homes of neighbours, or to Texas or Goondiwindi.

## **Resupply**

10. Resupply operations can be required for up to 50 farm dwellings cut off by floods on the Dumaresq and Macintyre rivers and Ottleys Creek. Resupply is carried out by truck, floodboat or (on some occasions) helicopters and in severe events could last for up to a week.

# **ANNEX I - ARRANGEMENTS FOR THE EVACUATION OF CARAVAN PARKS AND THE RELOCATION OF CARAVANS**

## **General**

1. Flood liable caravan parks exist in Inverell, Ashford, and Yetman.

## **Advising Procedures**

2. Caravan Park proprietors are encouraged to ensure that the owners and occupiers of caravans are:
  - a. Made aware that the caravan park is flood liable by:
    - Handing a printed notice to occupiers taking up residence. The notice will indicate that the caravan park is liable to flooding and outline the evacuation and van relocation arrangements as detailed in this Annex.
    - Displaying this notice prominently in each van.
  - b. Made aware that if they are expecting to be absent from their vans for extended periods, they must:
    - Provide the manager with a key; in a sealed envelope; to the van.
    - Provide a contact address and telephone number.
    - Inform the manager if a vehicle will be required to relocate the van during flood time.
    - Leave any mobile van in a condition allowing it to be towed in an emergency (i.e.: tyres inflated, jacks wound up, personal effects secured and annexes and lines for water, sewer, electricity and gas readily detachable).
  - c. Informed when a flood is rising. 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 van relocation.
3. The Inverell SES Local Controller will ensure that the managers of caravan parks are advised of flood warnings and the details of any evacuation order.



## **Evacuation of Occupants and Relocation of Vans**

4. Caravan park proprietors are encouraged to install flood depth indicators and road alignment markers within their caravan parks.
5. When an evacuation order is given:
  - a. Occupiers of non-movable vans should:
    - Secure their vans by tying them down to prevent flotation.
    - Isolate power to their vans.
    - Collect personal papers, medicines, a change of clothing, toiletries and bedclothes.
    - Lift the other contents of their vans as high as possible within the van.
    - Move to a designated evacuation centre if they have their own transport, or move to the caravan office to await transport.
  - b. Where possible, vans that can be moved will be relocated by their owners. Park managers will arrange for the relocation of mobile vans whose owners do not have a vehicle. SES and other personnel will assist if required and may be able to provide additional vehicles.
6. Caravan park managers will:
  - a. Ensure that their caravan park is capable of being evacuated within 2 hours.
  - b. Advise the Inverell SES Local Controller of:
    - The number of people requiring transport.
    - Details of any medical evacuations required.
    - Whether additional assistance is required to effect the evacuation.
  - c. Check that no people remain in non-removable vans that are likely to be inundated.
  - d. Inform the Inverell SES Local Controller when the evacuation of the caravan park has been completed.
  - e. Provide the Inverell SES Local Controller with a register of people that have been evacuated.

## **Return of Occupants and Vans**

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

8. Vans will be towed back to the caravan parks by van owners or by vehicles and drivers arranged by the park managers. Again, SES and other personnel will assist if available.

## **ANNEX J - STANDING OPERATING PROCEDURES FOR ROAD CLOSURES AND RE-OPENINGS**

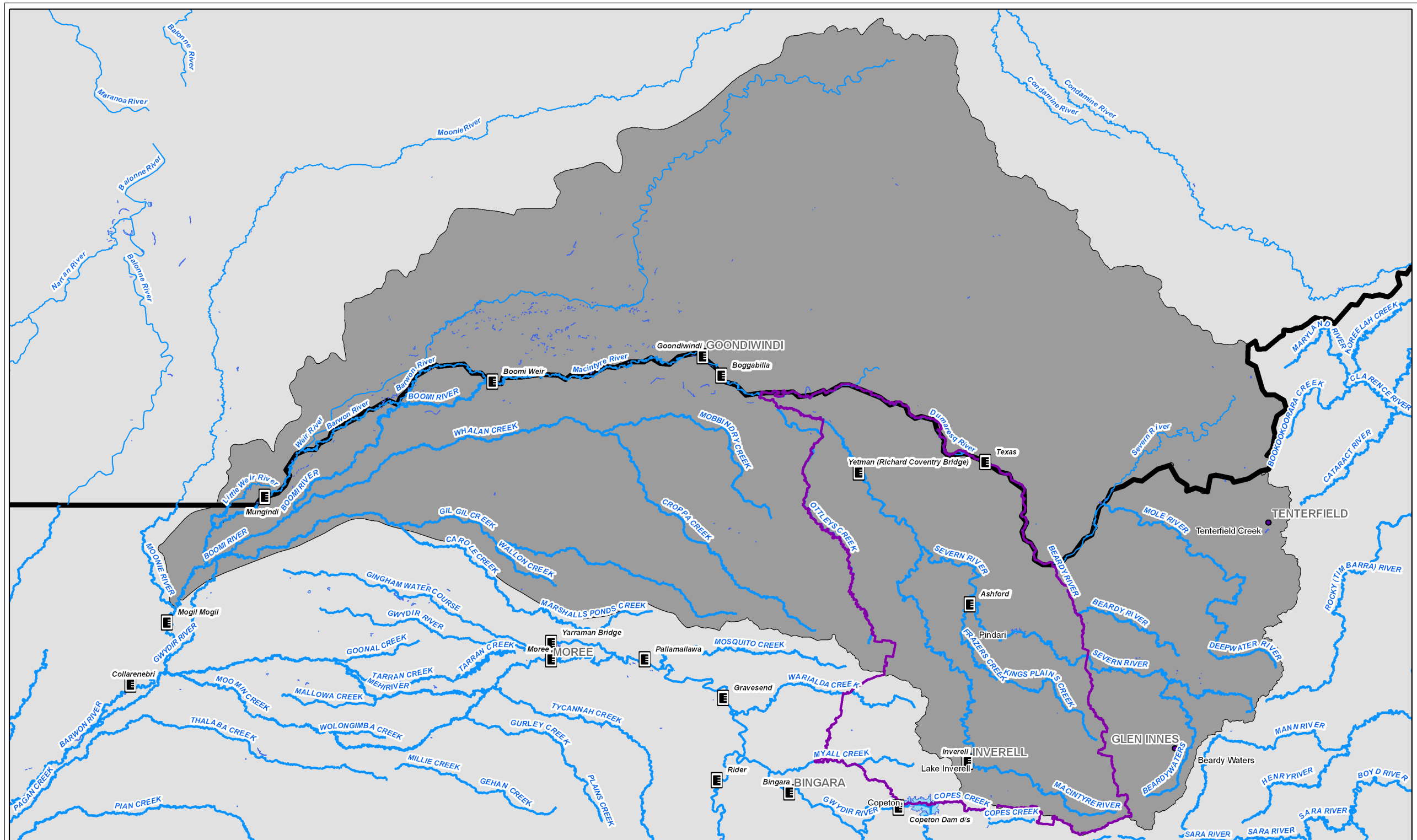
### **Aim**

1. These Standing Operating Procedures have been formulated to ensure that all SES and Council personnel are familiar with the procedures to be utilised when roads need to be closed and re-opened.

### **Method**

2. In the event that roads or causeways need to be closed because of floods, it is the responsibility primarily of Council staff to patrol and then formally close the affected roads and bridges. Information on closures must then be relayed to Council and the relevant SES Unit Controller for inclusion in the latest Situation Report to the Inverell Shire SES Local Headquarters.
3. Whilst Council undertakes the primary role for road closures and re-openings, SES personnel may, if resources are available, assist the Police and Council with road closures and traffic control operations (see Section 1.5.2s).
4. It is also Council's role to re-open roads and remove signs and barricades when they are opened. Information on re-openings should be immediately relayed to the relevant Unit Controller and Council for dissemination. The current information on road conditions will also be made available to the North West SES Region Headquarters. As this information may be disseminated by a pre-recorded message on an answering machine it will be necessary for all road closures and re-openings, whether carried out by Council or SES staff, to be relayed to the Unit Controller/Local Controller for inclusion in Situation Reports. The pre-recorded message will be altered at appropriate times during each day.
5. Note that the Council in conjunction with the Queensland Department of Main Roads and other local councils has implemented a consistent method of providing signage for road and bridge closures throughout the area. Council will arrange for the in situ signs to be activated by the appropriate staff and community representatives to close roads and advise the travelling public of imminent safety hazards relating to flooding.

# MAP 1 - BORDER RIVERS BASIN



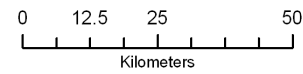
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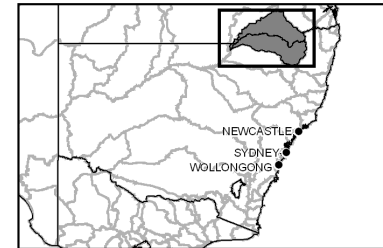
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## Border Rivers Basin



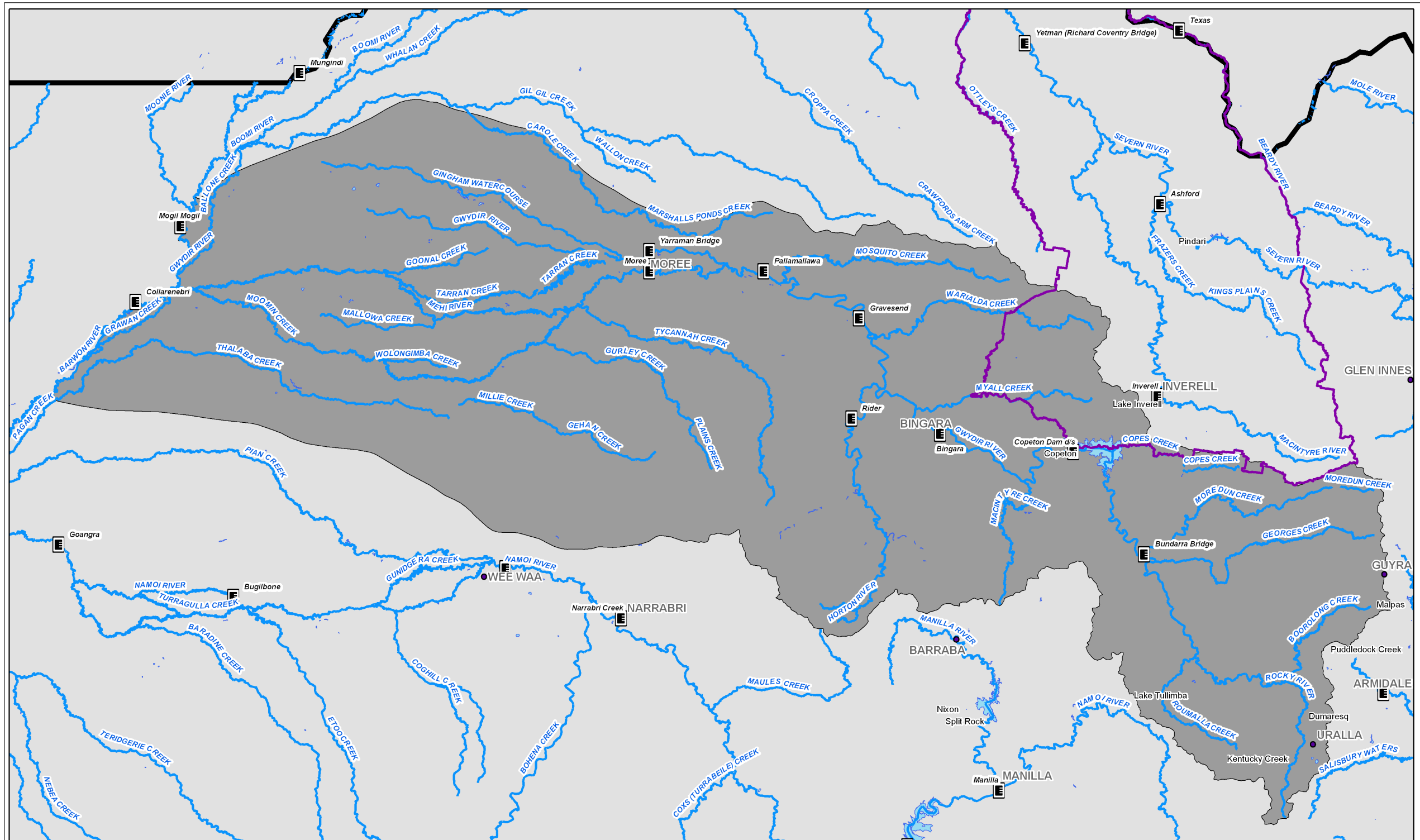
Print Date: 10 October 2007



## Legend

- Warning Gauges
- Dams
- Major Rivers
- Border Rivers Basin
- Inverell Shire LGA

# MAP 2 - GWYDIR RIVER BASIN



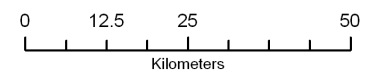
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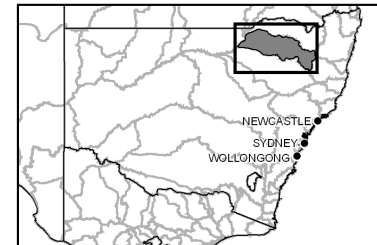
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### Gwydir River Basin



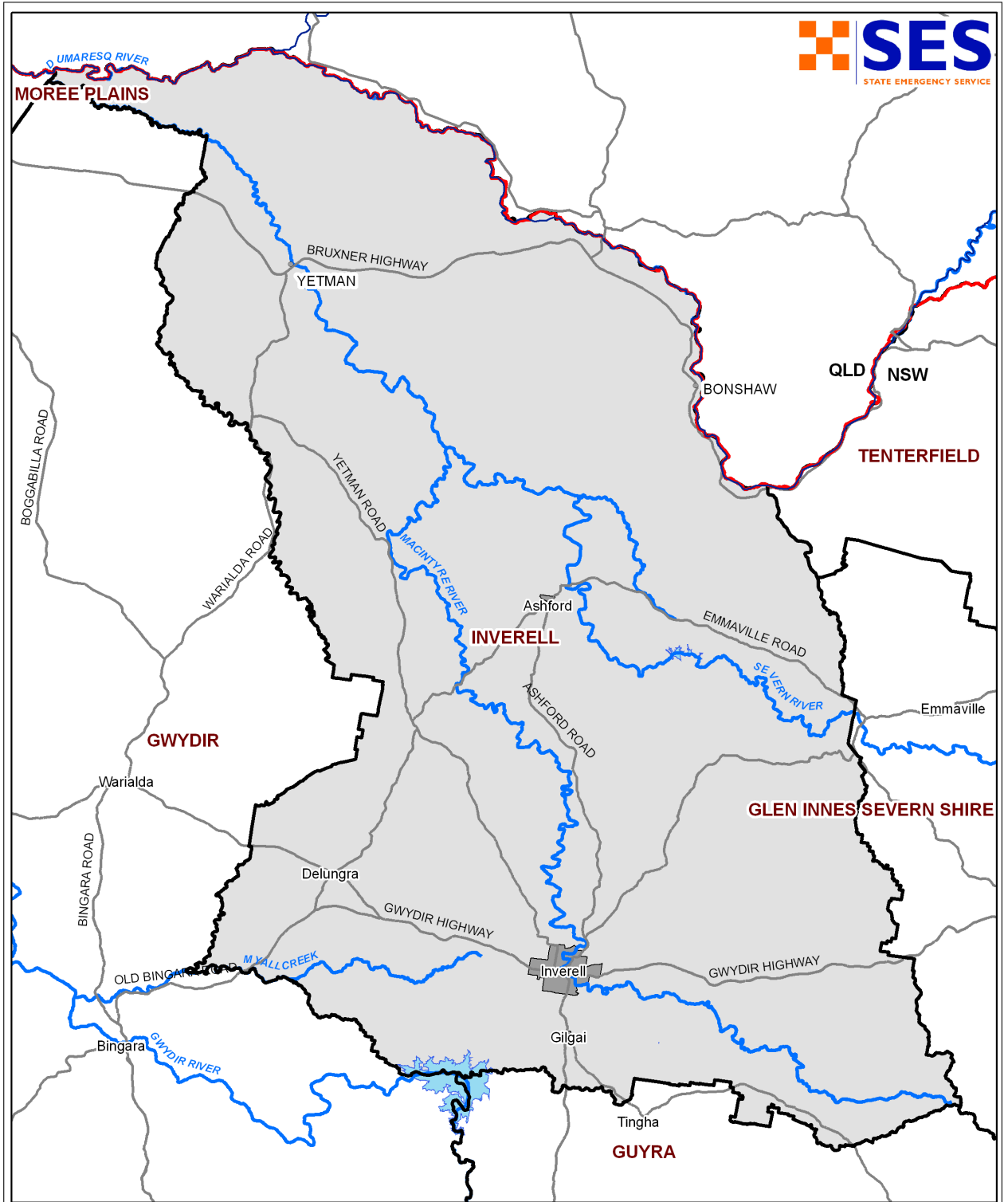
Print Date: 10 October 2007



### Legend

- Warning Gauges
- Dams
- Major Rivers
- Gwydir River Basin
- Inverell Shire LGA

# MAP 3 - INVERELL SHIRE COUNCIL AREA



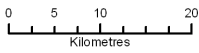
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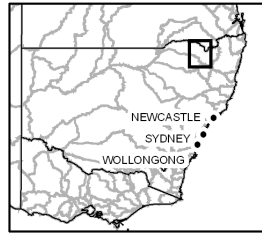
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**Inverell Shire Council**



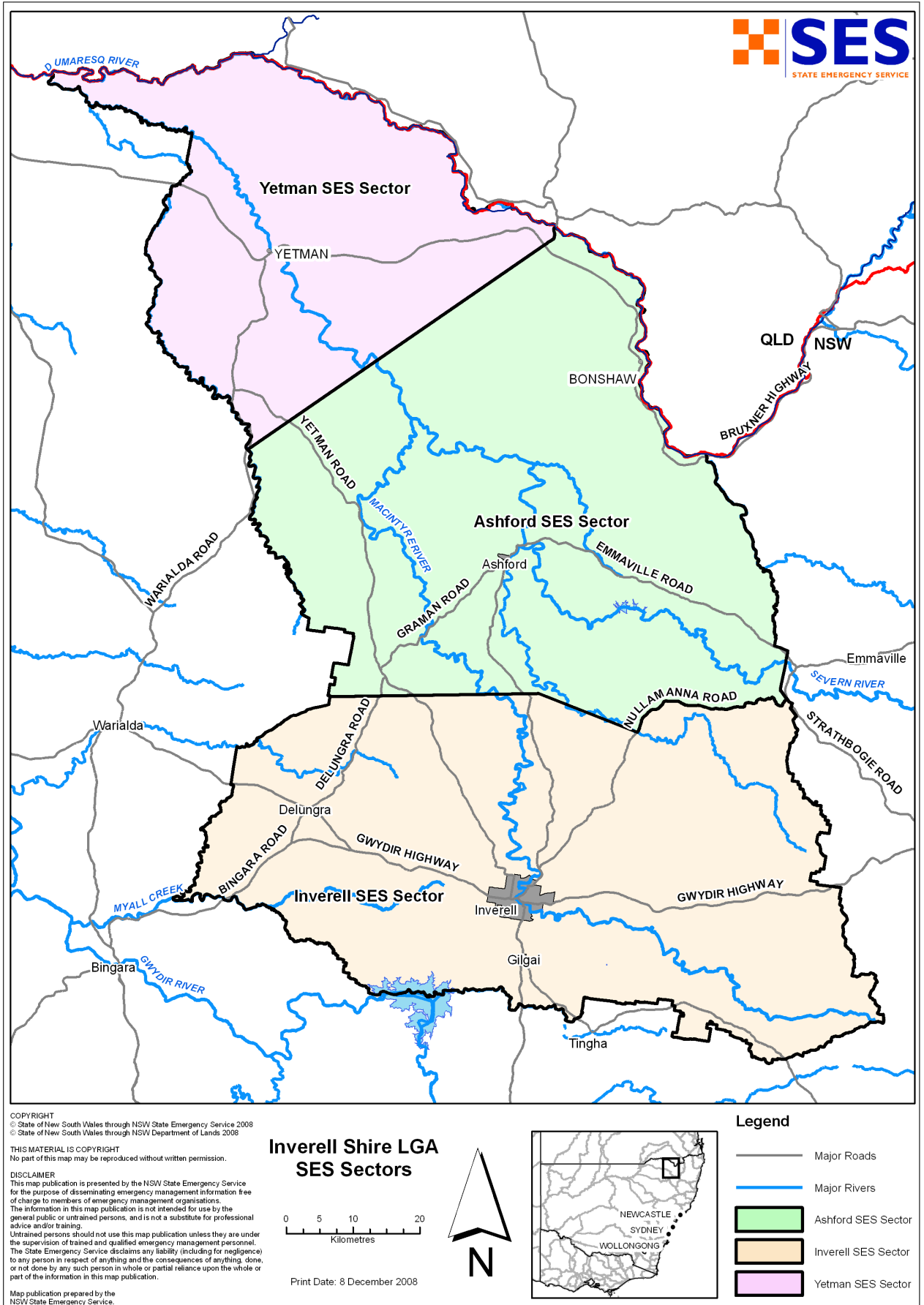
Print Date: 21 February 2008



**Legend**

- LGA Boundary
- Major Roads
- Major Rivers
- State Border

# MAP 4 - INVERELL SHIRE LGA SES SECTORS

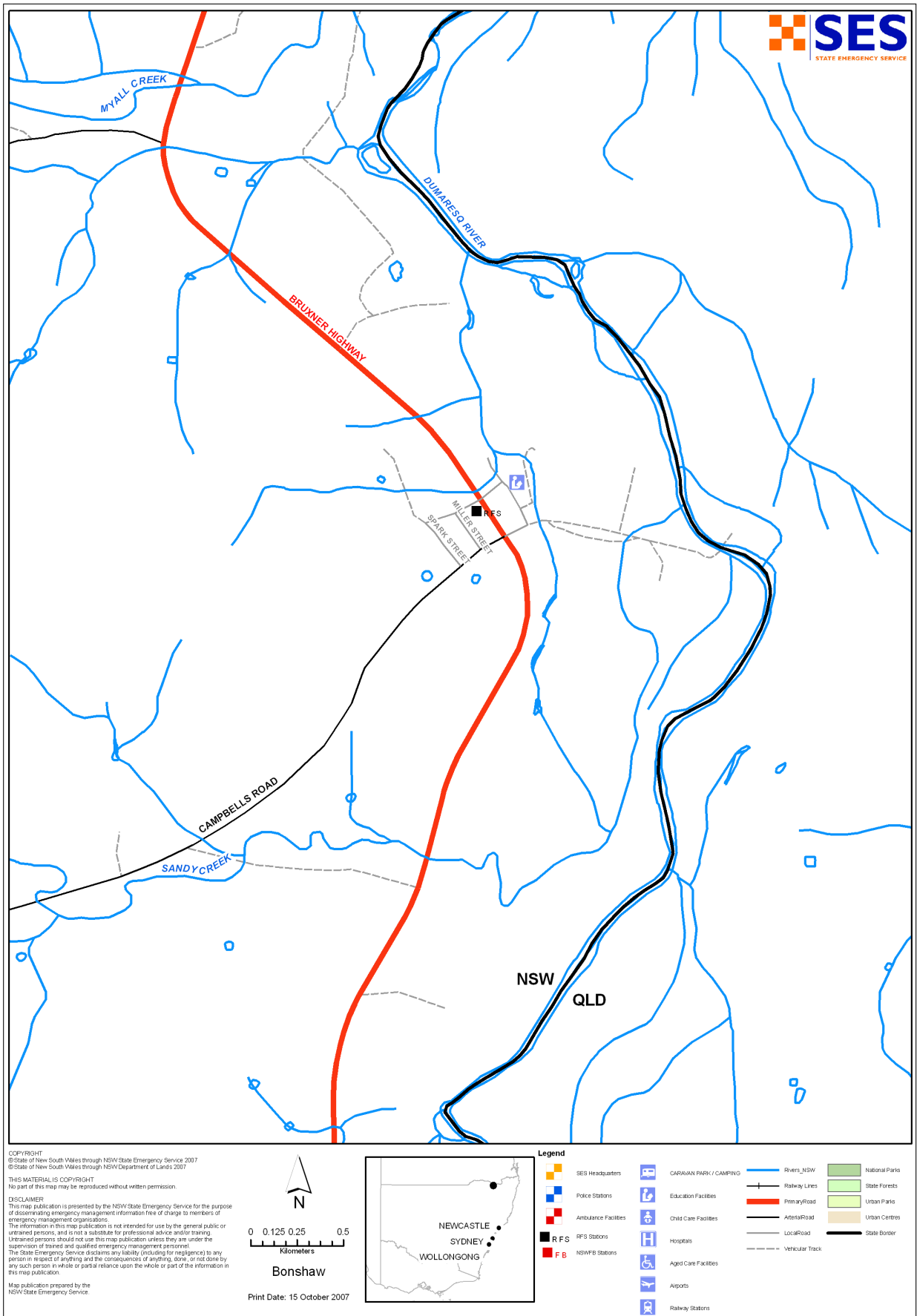


# MAP 5 - ASHFORD

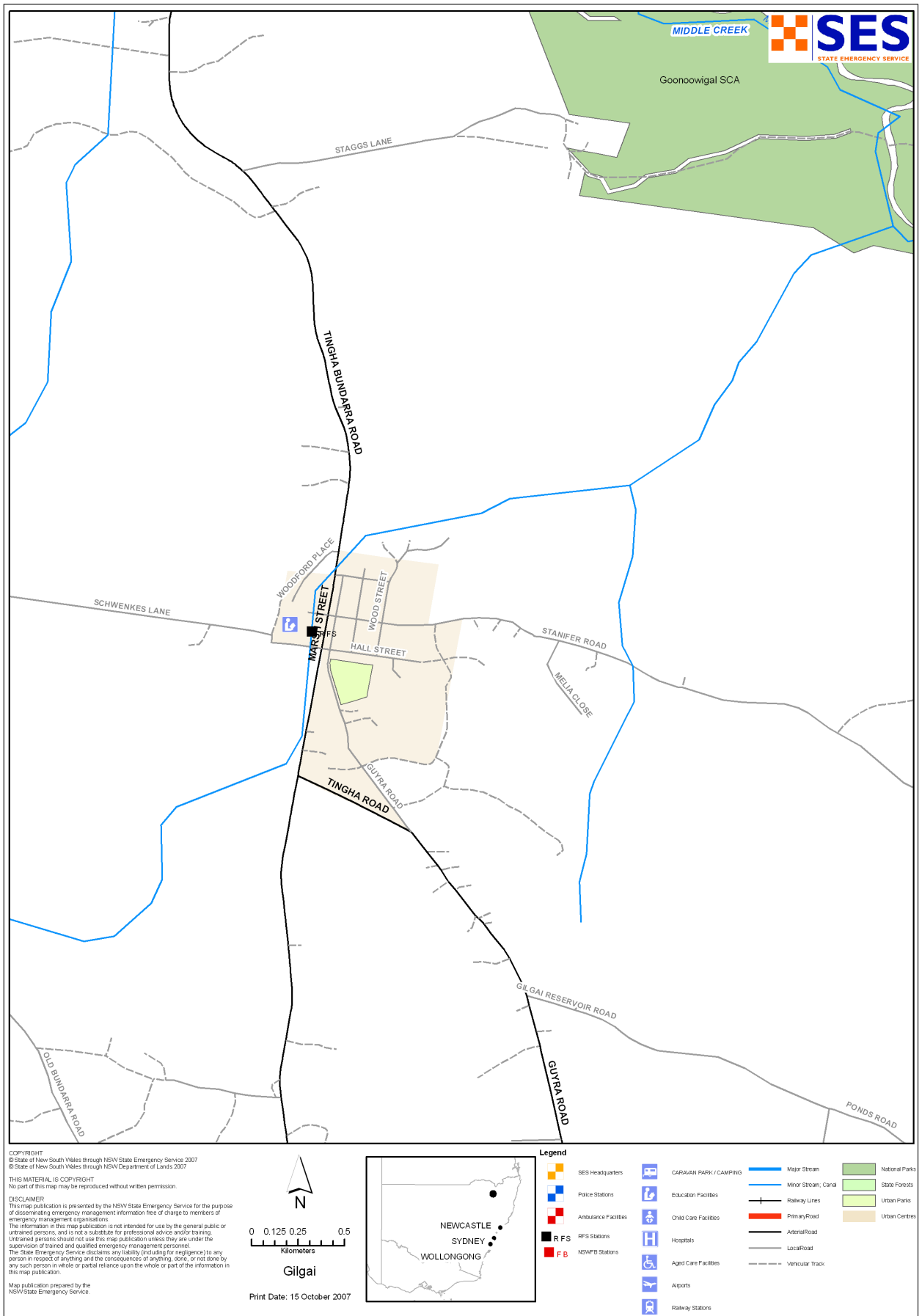




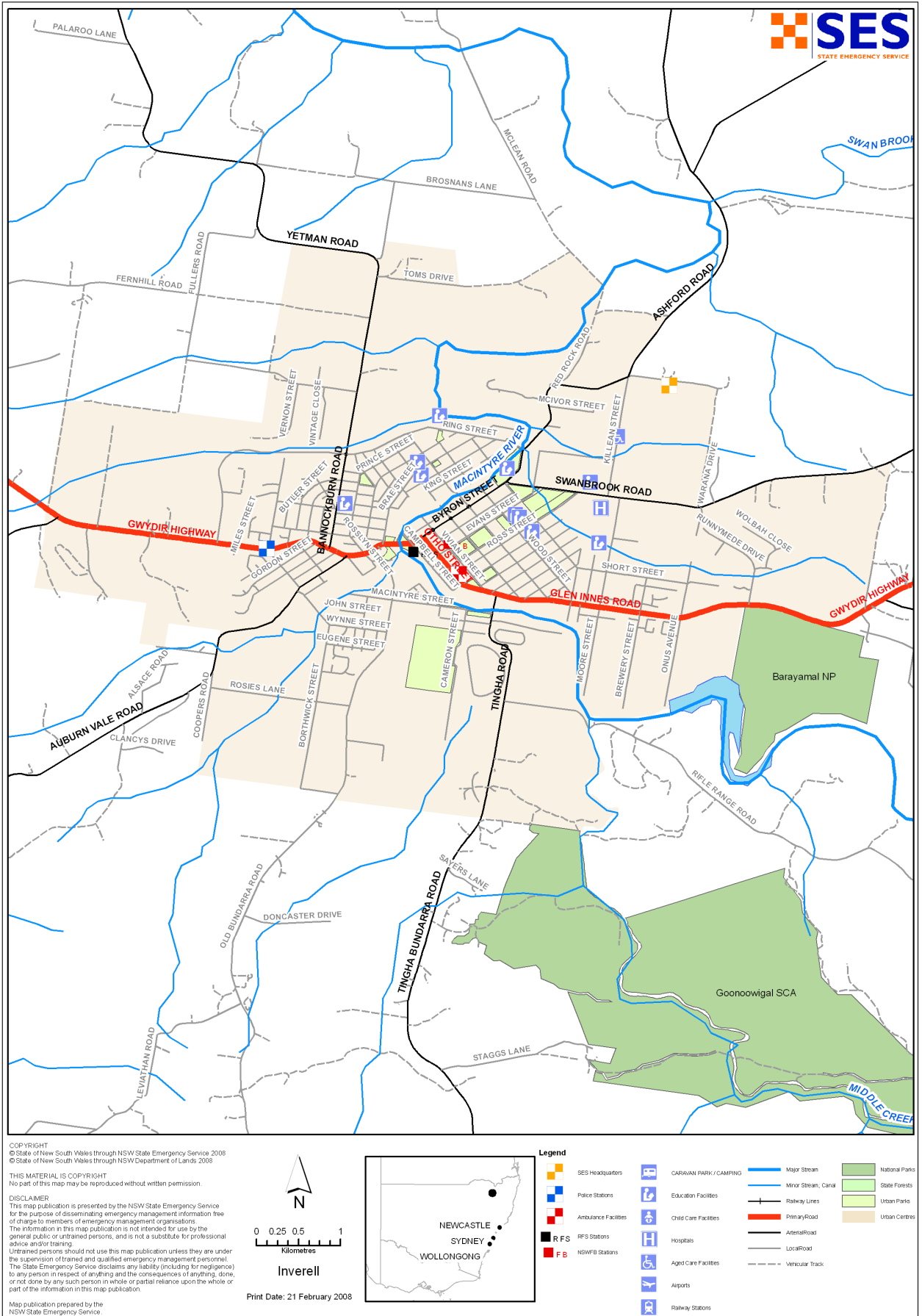
# MAP 6 - BONSHAW



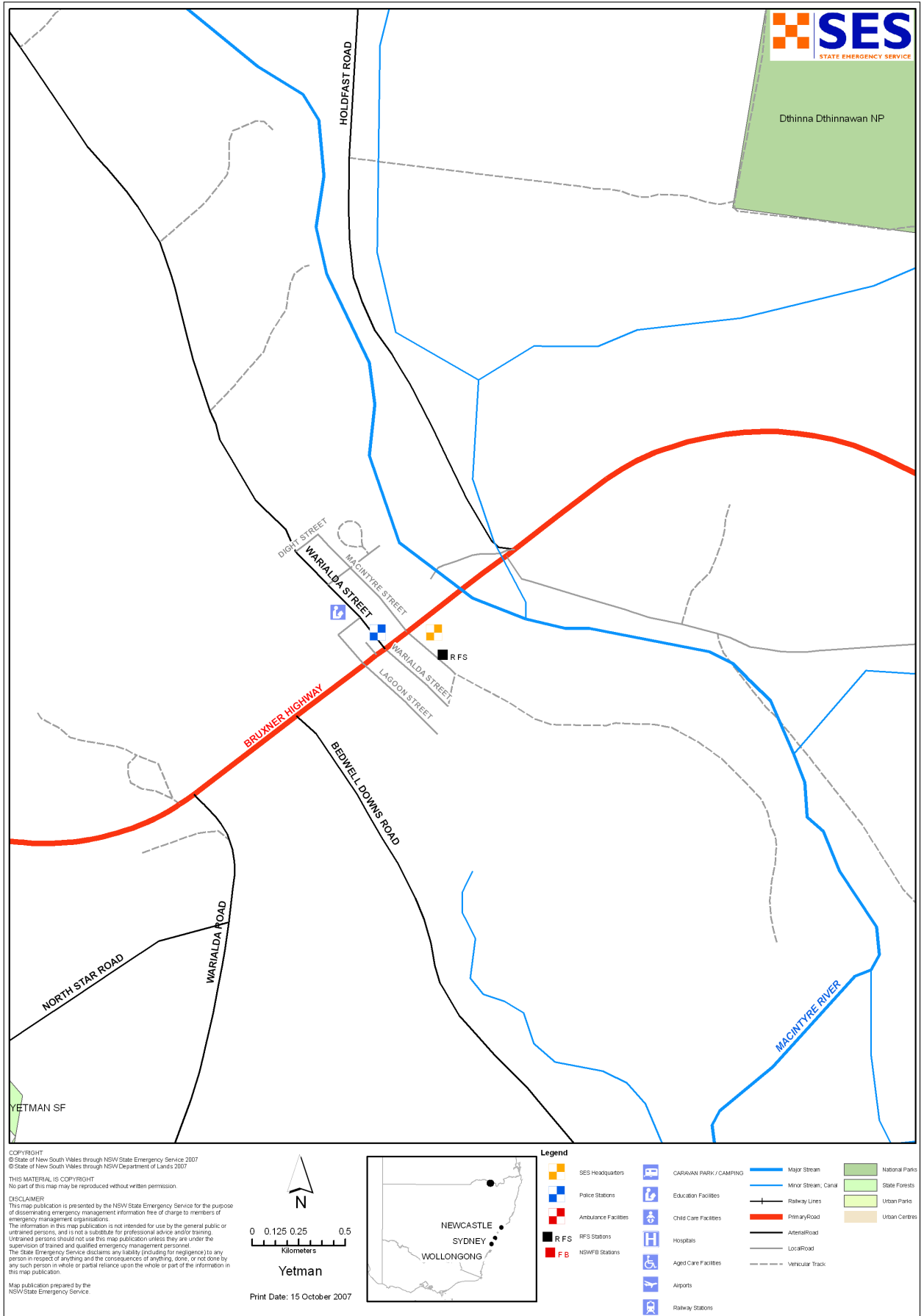
# MAP 7 - GILGAI



# MAP 8 - INVERELL



# MAP 9 - YETMAN



# MAP 10 - SCHEMATIC OF RIVERS AND STREAM GAUGES

