NSW STATE EMERGENCY SERVICE

Dubbo City

Local Flood Plan

FloodSafe

DUBBO CITY FLOOD EMERGENCY SUB PLAN

A Sub-Plan of the Dubbo City Local Emergency Management Plan (EMPLAN)

Volume 1 of the Dubbo City Local Flood Plan

AUTHORISATION

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

Recommended

NSW SES Local Controller

Date: 26/11/13

Approved

Chair, Local Emergency Management Committee

Date: 26/11/2013

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DISTRIBUTION LIST

Recipient	Number of copies
Ambulance Service of NSW, Dubbo	1
Australian Rail Track Corporation	1
Caravan Parks	1 each
Department of Environment and Climate Change, Dubbo	1
Department of Family and Community Services, Dubbo	1
Department of Infrastructure and Transport, Dubbo	1
Department of Primary Industry, Dubbo	1
Dubbo City Council, Director Technical Services	1
Dubbo City Council, General Manager	1
Dubbo City Council, Local Emergency Management Officer	1
Dubbo City Council, Local Emergency Operations Centre	1
Dubbo City Council, Mayor	1
Dubbo Local Aboriginal Land Council	1
Evacuation Centres	1 each
Fire and Rescue NSW, Delroy Station	1
Fire and Rescue NSW, Dubbo Station	1
Hospitals	1 each
John Holland Rail	1
Macquarie Area Health Service	1
Macquarie Regional Library, Dubbo	1
National Parkes and Wildlife Service, Dubbo	1
NSW Office of Water	1
NSW Police Force, Local Emergency Operations Controller	1
NSW Police Force, Orana Local Area Command	1
NSW Rural Fire Service, Orana Zone	1
NSW SES Dubbo Local Controller	1
NSW SES Dubbo Unit Headquarters	1
NSW SES Macquarie Region Headquarters	1
NSW SES State Headquarters	1
Office of Environment and Heritage	1
Origin Energy, Dubbo	1
Rail Corporation New South Wales	1
Roads and Maritime Services, Dubbo	1
RSPCA, Dubbo	1
Schools	1 each
State Water Corporation, Dubbo	1
Telstra, Dubbo	1
Volunteer Rescue Association, Dubbo	1

VERSION HISTORY

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

Description	Date
Draft Dubbo Local Flood Plan	**2003**

AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

The Dubbo Local Controller
NSW State Emergency Service
PO Box 7035, DUBBO NSW 2830

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

Amendment Number	Description	Updated by	Date

Document Issue: V28112012

LIST OF ABBREVIATIONS

The following abbreviations have been used in this plan:

AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AIIMS	Australasian Inter-service Incident Management System
ARI	Average Recurrence Interval (Years)
ALERT	Automated Local Evaluation in Real Time
AWRC	Australian Water Resources Council
BUREAU	Australian Government Bureau of Meteorology
CBR	Chemical, Biological or Radiation
DCF	Dam Crest Flood
DSC	Dams Safety Committee
DSEP	Dam Safety Emergency Plan
DVR	Disaster Victim Registration
EMPLAN	Emerency Management Plan
FRNSW	Fire and Rescue NSW
GIS	Geographic Information System
GRN	Government Radio Network
IAP	Incident Action Plan
IFF	Imminent Failure Flood
LEMC	Local Emergency Management Committee
LEOCON	Local Emergency Operations Controller
LGA	Local Government Area
MHL	Manly Hydraulics Laboratory
NOW	NSW Office of Water
NSW SES	NSW State Emergency Service

OEH	Office of Environment and Heritage (previously DECCW)
PMF	Probable Maximum Flood
PMR	Private Mobile Radio
PMP	Probable Maximum Precipitation
RFS	NSW Rural Fire Service
RMS	Roads and Maritime Services
SEOCON	State Emergency Operations Controller
SERCON	State Emergency Recovery Controller
SEWS	Standard Emergency Warning Signal
VRA	Volunteer Rescue Association

GLOSSARY

Annual Exceedance Probability (AEP). The chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. For example, if a peak flood level (height) has an AEP of 5%, there is a 5% chance (that is, a one-in-20 chance) of such a level or higher occurring in any one year (see also Average Recurrence Interval).

Assistance Animal. A guide dog, a hearing assistance dog or any other animal trained to assist a person to alleviate the effect of a disability (Refer to Section 9 of the Disability Discrimination Act 1992).

Australian Height Datum (AHD). A common national surface level datum approximately corresponding to mean sea level.

Average Recurrence Interval (ARI). The long-term **average** number of years between the occurrence of a flood as big as, or larger than, the selected event. For example, floods reaching a height as great as, or greater than, the 20 year ARI flood event will occur **on average** once every 20 years.

Catchment (river basin). The land area draining through the main stream, as well as tributary streams, to a particular site. It always relates to an area above a specific location.

Coastal Erosion. The loss of land along the shoreline predominantly by the offshore movement of sand during storms.

Dambreak Study. A Dambreak Study is undertaken to determine the likely downstream inundation areas in case of a dam failure. Modelling is undertaken for a range of dam breach possibilities and design floods. The dambreak study includes information such as the extent of flooding, flood travel times and flood water velocities. The study can assist dam owners, regulators, and emergency agencies in the preparations of evacuation plans, dam break and other flood warning systems, and hazard classification of affected areas.

Dam Failure. The uncontrolled release of a water storage. The failure may consist of the collapse of the dam or some part of it, or excessive seepage or discharges. The most likely causes of dam failure are:

- **Flood Induced Dam Failure**: Dam failure caused by flood, either due to overtopping erosion or by subsequent structural failure.
- **Sunny Day Dam Failure**: Dam Failure as a result of factors other than flood ie other than flood flow into the reservoir. Causes of "Sunny Day" dam failure can include internal erosion, landslide, piping, earthquake or sabotage.

Dam Safety Emergency Plan (DSEP). A DSEP outlines the required actions of owners and their personnel at dams in response to a range of possible emergency situations. The NSW Dam Safety Committee requires a quality controlled DSEP, with associated dambreak warning procedures to be prepared for prescribed dams where persons may be at risk downstream, if the dam failed.

Design Flood (or Flood Standard). A flood of specified magnitude that is adopted for planning purposes. Selections should be based on an understanding of flood behaviour and the associated flood risk, and take account of social, economic and environmental considerations. There may be several design floods for an individual area.

EMPLAN (Emergency Management Plan). The object of an EMPLAN is to ensure the coordinated response by all agencies having responsibilities and functions in emergencies.

Emergency Alert. A national telephony based alerting system available for use by emergency service agencies to send SMS and voice messages to landlines and/or mobile telephones (by billing address) in times of emergency.

Essential Services. Those services, often provided by local government authorities, that are considered essential to the life of organised communities. Such services include power, lighting, water, gas, sewerage and sanitation clearance.

Evacuation. The temporary movement of people from a dangerous or potentially dangerous place to a safe location, and their eventual return. It is a safety strategy which uses distance to separate people from the danger created by the hazard.

Evacuation Order. Notification to the community, authorised by the NSW SES, when the intent of an Incident Controller is to instruct a community to immediately evacuate in response to an imminent threat.

Evacuation Warning. Notification to the community, authorised by the NSW SES, when the intent of an Incident Controller is to warn a community of the need to prepare for a possible evacuation.

Flash Flooding. Flooding which is sudden and often unexpected because it is caused by sudden local or nearby heavy rainfall. It is sometimes defined as flooding which occurs within six hours of the rain that causes it.

Flood. 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 overtopping coastline defences, including Tsunami.

Flood Classifications. Locally defined flood levels used in flood warnings to give an indication of the severity of flooding (minor, moderate or major) expected. These levels are used by the State Emergency Service and the Australian Government Bureau of Meteorology in flood bulletins and flood warnings.

Flood Intelligence. The product of collecting, collating, analysing and interpreting flood-related data to produce meaningful information (intelligence) to allow for the timely preparation, planning and warning for and response to a flood.

FloodF. The remaining area of flood prone land after floodway and flood storage have been defined.

Flood Liable Land (also referred to as flood prone land). Land susceptible to flooding by the Probable Maximum Flood (PMF) event. This term also describes the maximum extent of a **floodplain** which is an area of a river valley, adjacent to the river channel, which is subject to inundation in floods up to this event.

Flood of Record. Maximum observed historical flood.

Floodplain Management Plan. A plan developed in accordance with the principles and guidelines in the New South Wales Floodplain Development Manual. Such a plan usually includes both written and diagrammatic information describing how particular areas of flood prone land can be used and managed to achieve defined objectives.

Flood Plan. A response strategy plan that deals specifically with flooding and is a sub-plan of an Emergency Management Plan. Flood plans describe agreed roles, responsibilities, functions, strategies and management arrangements for the conduct of flood operations and for preparing for them. A flood plan contains information and arrangements for all floods whereas an IAP is for a specific flood/event.

Flood Rescue. The rescue or retrieval of persons trapped by floodwaters.

Flood Storage Areas. Those parts of the floodplain that are important for the temporary storage of floodwaters during the passage of a flood. The extent and behaviour of flood storage areas may change with flood severity, and loss of flood storage can increase the severity of flood impacts by reducing natural flood attenuation.

Floodway. An area where a significant volume of water flows during floods. Such areas are often aligned with obvious naturally-defined channels and are areas that, if partially blocked, would cause a significant redistribution of flood flow which may in turn adversely affect other areas. They are often, but not necessarily, the areas of deeper flow or the areas where higher velocities occur.

Flood Watch. A Flood Watch is a notification of the potential for a flood to occur as a result of a developing weather situation and consists of short generalised statements about the developing weather including forecast rainfall totals, description of catchment conditions and indicates streams at risk. The Bureau will also attempt to estimate the magnitude of likely flooding in terms of the adopted flood classifications. Flood Watches are normally issued 24 to 36 hours in advance of likely flooding. Flood watches are issued on a catchment wide basis.

Flood Warning. A Flood Warning is a gauge specific forecast of actual or imminent flooding. Flood Warnings specify the river valley, the locations expected to be flooded, the likely severity of flooding and when it will occur.

Functional Area. means a category of services involved in the preparations for an emergency, including the following:

- Agriculture and Animal Services;
- Energy and Utility Services;
- Engineering Services;
- Environmental Services;
- Health Services;
- Public Information Services;
- Telecommunication Services;
- Transport Services; and
- Welfare Services.

Geographic Information System (GIS). A geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analysing, and displaying all forms of geographically referenced information.

Incident Action Plan (IAP). An action plan for managing a specific event. Information from the Local Flood Plan is used to develop the flood IAP.

Indirect Effect. Indirect effects are generally a consequence of infrastructure damage or interruption of services and can affect communities distant from the actual flood footprint i.e. floodplain. Indirect effects can also refer to indirect losses due to disruption of economic activity, both in areas which are inundated or isolated. Indirect effects are one of the three primary sources of risk in the context of flooding (the other two are inundation and isolation).

Inundation. See definition for Flood.

Isolation. Properties and/or communities where flooding cuts access to essential services or means of supply. Isolation is one of the three primary sources of risk in the context of flooding (the other two are inundation and indirect effects).

Local Overland Flooding. Inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam.

Major Flooding. Flooding which causes inundation of extensive rural areas, with properties, villages and towns isolated and/or appreciable urban areas flooded.

Minor Flooding. Flooding which causes inconvenience such as closing of minor roads and the submergence of low-level bridges. The lower limit of this class of flooding, on the reference gauge, is the initial flood level at which landholders and/or townspeople begin to be affected in a significant manner that necessitates the issuing of a public flood warning by the Australian Government Bureau of Meteorology.

Moderate Flooding. Flooding which inundates low-lying areas, requiring removal of stock and/or evacuation of some houses. Main traffic routes may be covered.

Peak Height. The highest level reached, at a nominated gauging station, during a particular flood event.

Prescribed Dam. "Prescribed" dams are those listed in Schedule 1 of the Dams Safety Act 1978. The NSW Dam Safety Committee will prescribe those dams with the potential for a failure which could have a significant adverse effect on community interests.

Probable Maximum Flood (PMF). The largest flood that could conceivably be expected to occur at a particular location, usually estimated from probable maximum precipitation. The PMF defines the maximum extent of flood prone land, that is, the floodplain. It is difficult to define a meaningful Annual Exceedance Probability for the PMF, but it is commonly assumed to be of the order of 10^4 to 10^7 (once in 10,000 to 10,000,000 years).

Runoff. The amount of rainfall which ends up as stream flow, also known as 'rainfall excess' since it is the amount remaining after accounting for other processes such as evaporation and infiltration.

Stage Height. A level reached, at a nominated gauging station, during the development of a particular flood event.

Stream Gauging Station. A place on a river or stream at which the stage height is routinely measured, either daily or continuously, and where the discharge is measured from time to time so as to develop a relationship between stage and discharge or rating curve.

PART 1 - INTRODUCTION

1.1 PURPOSE

1.1.1 This plan covers preparedness measures, the conduct of response operations and the coordination of immediate recovery measures from flooding within the Dubbo City Council area. It covers operations for all levels of flooding within the council area.

1.2 AUTHORITY

1.2.1 This plan is issued under the authority of the State Emergency and Rescue Management Act 1989 and the State Emergency Service Act 1989. It has been approved by the NSW SES Local Controller and the NSW SES Region Controller as a NSW SES plan and endorsed by the Dubbo City Council Local Emergency Management Committee as a sub plan of the Local EMPLAN.

1.3 AREA COVERED BY THE PLAN

1.3.1 The area covered by the plan is the Dubbo City Council area which includes: the urban centre of Dubbo and the villages of Ballimore, Brocklehurst, Eumungerie, Mogriguy and Wongarbon and intervening rural areas.

1.3.2 The council area and its principal rivers and creeks are shown in Attachment 3. The Dubbo City Council area includes:

a. The Macquarie River from a point approximately 33km upstream of Dubbo at its confluence with the Little River to a point approximately 52km downstream where the Brummagen Creek discharges into the Macquarie River, and

b. Its principle tributaries - the Talbragar River, Little River and Coolbaggie Creek.

1.3.3 The Dubbo City Council area is in the NSW SES Macquarie Region and for emergency management purposes is part of the Central West Emergency Management Region.

1.4 DESCRIPTION OF FLOODING AND ITS EFFECTS

1.4.1 The NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Dubbo City Council area.

1.5 RESPONSIBILITIES

1.5.1 The general responsibilities of emergency service organisations and supporting services (functional areas) are listed in the Local and State Emergency Management Plans (EMPLAN). Some specific responsibilities are expanded upon in the following paragraphs. The extent of their

implementation will depend on the severity of the flooding.

1.5.2 NSW SES Local Controller:

The NSW SES Local Controller is responsible for dealing with floods as detailed in the State Flood Plan, and will:

Preparedness

a. Maintain a Local Headquarters at 15-19 Depot Road, Dubbo in accordance with the NSW SES Controllers' Guide and the NSW SES Operations Manual.

b. Ensure that NSW SES members are trained to undertake operations in accordance with current policy as laid down in the NSW SES Controllers' Guide and the NSW SES Operations Manual.

c. Coordinate the development and operation of a flood warning service for the community.

d. Participate in floodplain risk management initiatives organised by the Dubbo City Council.

e. Coordinate a public education program.

f. Identify and monitor people and/or communities at risk of flooding.

g. Maintain an adequate supply of sandbags.

h. Ensure that the currency of this plan is maintained.

Response

i. Appoint an appropriate Local Incident Controller to undertake response roles. The Local Incident Controller will:

j. Control flood and storm response operations. This includes:

- Directing the activities of the NSW SES units operating within the council area.
- Coordinating the activities of supporting agencies and organisations and ensuring that liaison is established with them.
- Contribute to the preparation of the Region IAP.

k. Provide an information service in relation to:

- Flood heights and flood behaviour.
- Road conditions and closures for internal use only.
- Advice on methods of limiting property damage.
- Confirmation of evacuation warnings and evacuation orders.

l. Direct the conduct of flood rescue operations.

m. Direct the evacuation of people and/or communities.

n. Provide immediate welfare support for evacuated people.

o. Coordinate the provision of emergency food and medical supplies to isolated people and/or communities.

p. Coordinate operations to protect property, for example by:

- Arranging resources for sandbagging operations.
- Arranging resources for the lifting or moving household furniture.
- Arranging resources for the lifting or moving commercial stock and equipment.

q. Arrange for support (eg, accommodation and meals) for emergency service organisation members and volunteers assisting them.

r. Ensure that the managers of caravan parks are advised of flood warnings and the details of any evacuation order.

s. If NSW SES resources are available, assist with emergency fodder supply operations conducted by Agriculture and Animal Services.

t. If NSW SES resources are available, assist the NSW Police Force, RMS and Council with road closure and traffic control operations.

u. Exercise financial delegations relating to the use of emergency orders as laid down in the NSW SES Controllers' Guide.

v. Coordinate the collection of flood information for development of intelligence.

w. Submit Situation Reports to the NSW SES Region Headquarters and agencies assisting within the council area. These will contain information on:

- Current flood behaviour.
- Road conditions and closures as provided by RMS, Council or NSW Police Force.
- Current operational activities.
- Likely future flood behaviour.
- Likely future operational activities.
- Probable resource needs.

x. Keep the Local Emergency Operations Controller advised of the flood situation and the operational response being undertaken.

y. Issue the 'All Clear' when flood operations have been completed.

Recovery

z. Ensure that appropriate After Action Reviews are held after floods.

aa. Provide appropriate representation to the recovery committee for the duration of the response phase of an event and as agreed during the recovery phase.

1.5.3 NSW SES Dubbo Unit Members:

a. Undertake training in flood and storm response operations.

b. Assist with preparedness activities.

c. Carry out flood response tasks. These may include:

- The management of the NSW SES Local Operations Centre.
- Assist in the collection of flood information for the development of intellgience to be incorporated in plans.
- Flood rescue.
- Evacuation.
- Providing immediate welfare for evacuated people.
- Delivery of warnings and information.
- Resupply.
- Sandbagging.
- Assist in the lifting and/or moving household furniture and commercial stock.
- Domestic Animal rescue.
- Assisting with road closure and traffic control operations.
- Assisting with emergency fodder supply operations.

d. Participate and contribute to After Action Reviews.

1.5.4 Agriculture and Animal Services Functional Area:

a. Activate the Agriculture and Animal Services Supporting Plan as required and coordinate the provision of required services which may include:

- Supply and delivery of emergency fodder.
- Coordinate the management of livestock and farm animals.
- Provide advice on dealing with dead and injured farm animals.
- Provide financial, welfare and damage assessment assistance to flood affected rural persons and/or communities.
- Operation of animal shelter compound facilities for domestic pets and companion animals of evacuees.

1.5.5 **Forestry Corporation of NSW:**

- Close and evacuate at risk camping grounds managed by Forestry Corporation of NSW.

1.5.6 **Ambulance Service of NSW**:

a. Assist with the evacuation of at risk communities (in particular elderly and/or infirm people).

b. Deploy ambulance resources to appropriate locations if access is expected to be lost.

c. Assist NSW SES with flood rescue operations where training and resources are appropriate.

1.5.7 **Australian Government Bureau of Meteorology (The Bureau):**

a. Provide Flood Watches for the Macquarie River Basin.

b. Provide Flood Warnings, incorporating height-time predictions, for Dubbo gauge (AWRC no. 421001).

c. Provide severe weather warnings when flash flooding is likely to occur.

1.5.8 **Burrendong Dam (State Water):**

a. Maintain and operate the Dam Failure Warning System for Burrendong Dam.

b. Contribute to the development and implementation of a public education program on flooding within the council area.

c. Consult with NSW SES on the determination of dam failure alert levels and notification arrangements when developing Dam Safety Emergency Plans.

d. Maintain a Dam Safety Emergency Plan and provide copies to the NSW SES.

e. Provide information on the consequences of dam failure to the NSW SES for incorporation into planning and flood intelligence.

f. Close and evacuate at risk camping grounds/recreational areas managed by State Water.

g. Provide advice to the NSW SES Region Incident Controller on controlled releases and flood mitigation strategies for Burrendong Dam.

1.5.9 **Caravan Park Proprietor(s)**:

a. Prepare a Flood Management Plan for the Caravan Park.

b. Install flood depth indicators and road alignment markers within their caravan parks.

c. Ensure that owners and occupiers of caravans are 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.
- Displaying this notice prominently in each van.

d. Ensure that owners and occupiers of caravans are 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 an emergency contact address and telephone number.
- Inform the manager if a tow vehicle will be required to relocate the van during floods.
- Leave any mobile van in a condition allowing it to be towed in an emergency (ie: tyres inflated, jacks wound up, personal effects secured and annexes and lines for water, sewer, electricity and gas readily detachable).

e. Ensure that occupiers are informed of Flood Warnings and Flood Watches. At this time, occupiers should be advised to:

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

f. Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and van relocation when flooding occurs. Owners of vans which are incapable of being relocated, should ensure they are securely anchored to their site to avoid been swept away.

g. Coordinate the evacuation of people and the relocation of moveable vans when floods are rising and their return when flood waters have subsided. Vans will be towed back to the caravan park(s) by van owners or by vehicles and drivers arranged by the park managers.

h. Inform the NSW SES of the progress of evacuation and/or van relocation operations and of any need for assistance in the conduct of these tasks.

1.5.10 **Child Care Centres and Preschools**:

a. Liaise with the NSW SES and arrange for the early release of children whose travel arrangements are likely to be disrupted by flooding and/or road closures (or where required, arrange for children to be moved to a suitable location until normal centre closing time).

b. Pass information on to parents and provide advice on expected or actual impacts of flooding.

c. Assist with coordinating the evacuation of preschools and childcare centres when flooding or isolation is expected to occur.

1.5.11 Dubbo Aboriginal Community Groups including Dubbo Local Aboriginal Lands Council, Wirrimbah Direct Descendants and Wiradjuri Group

a. Act as the point of contact between the NSW SES Local Incident Controller and the Aboriginal community.

b. Inform the NSW SES Local Incident Controller about flood conditions and response needs.

c. Disseminate NSW SES flood information, including flood and evacuation warnings, to the Aboriginal community.

1.5.12 Dubbo City Council:

Preparedness

a. Establish and maintain floodplain risk management committees and ensure that key agencies are represented on such committees.

b. Provide levee studies, flood studies, and floodplain management studies to the NSW SES.

c. Maintain a plant and equipment resource list for the council area.

d. Contribute to the development and implementation of a public education program.

Response

e. At the request of the NSW SES Local Incident Controller, deploy personnel and resources for flood related activities.

f. Close and reopen council managed roads (and other roads nominated by agreement with the RMS) and advise the NSW SES Local Incident Controller, RMS Transport Management Centre (TMC) and the Police of their status.

g. Provide information to the public on the status of roads using council's website and/or a 24Hr telephone service.

h. Provide and maintain temporary sand dumps in urban and village areas in which flooding is expected in consultation with the NSW SES Local Incident Controller. The NSW SES Local Incident Controller will arrange for the deployment of sandbags and/or the unit sandbagging machine.

i. Assist with the removal of caravans from caravan parks where required.

j. Provide back-up radio communications where required.

k. Arrange for the removal of waste bins from river side parks and ovals when flooding is predicted.

l. In the event of evacuations, assist by making facilities available for domestic pets and companion animals of evacuees.

m. Close and evacuate at risk camping grounds, sporting grounds and recreational areas managed by Council.

Recovery

n. Provide for the management of health hazards associated with flooding. This includes removing debris and waste.

o. Ensure premises are fit and safe for reoccupation and assess any need for demolition.

p. Arrange for storage of evacuees' furniture as required.

1.5.13 **Dubbo Showground Trust (Dubbo City Council):**

a. At the request of the NSW SES Local Incident Controller, prepare and arrange for the temporary housing of evacuated caravans and their occupants at the showground.

b. Make storage space available at the showground for furniture and commercial stock.

c. Provide pens for large domestic and companion animals during large-scale evacuations. Distribute flood warnings and flood information provided by the NSW SES Local Incident Controller.

1.5.14 **Energy and Utility Services Functional Area:**

a. Implement the Energy and Utilities Services Functional Area Supporting Plan.

- Where required, coordinate energy and utility services emergency management planning, preparation, response and recovery, including the restoration of services following a flood event.
- Provide advice to the NSW SES Local Incident Controller of any need to disconnect electricity, gas, water or wastewater services.
- Assist the NSW SES Local Incident Controller to identify infrastructure at risk of flooding for incorporation into planning and intelligence.
- Identify interdependencies between flooding and utility services due to secondary impacts of flooding and advise the NSW SES.
- Assist the NSW SES Local Incident Controller with advisory notices relating to hazards from utility services during flooding.

- Coordinate with utilities on restoration of services, including advisory notices relating to estimated time for restoration and mandatory safety checks prior to reconnection.
- Advise the NSW SES Local Incident Controller and the relevant recovery committee coordinator of the timetable for restoration.

b. Local Utility Service Distribution Providers (electricity, gas, water, waste water):

- Provide advice to the NSW SES Local Incident Controller of any need to disconnect power/gas/water/waste water supplies or of any timetable for reconnection.
- Advise the NSW SES Local Incident Controller of any hazards from utility services during flooding.
- Advise the public with regard to electrical hazards during flooding and to the availability or otherwise of the electricity supply.
- Clear or make safe any hazard caused by power lines or electricity distribution equipment.
- Reconnect customers' electrical/ gas/ water/waste water installations, when certified safe to do so and as conditions allow.
- Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.

1.5.15 **Engineering Services Functional Area**:

a. When requested by NSW SES:

- Provide engineering advice regarding the integrity of damaged structures.
- Assist the NSW SES Local Incident Controller with damage assessment.
- Acquire and/or provide specialist technical engineering expertise.
- Assist the NSW SES Local Incident Controller and council with the assessment and operation of flood protection levees when requested.
- Assist the NSW SES Local Incident Controller with property protection, including the construction or repair of levees.
- Coordinate the restoration of critical public facilities.
- Establish recovery centre facilities.

1.5.16 **Environmental Services Functional Area**:

a. When requested by NSW SES:

- Implement the Environmental Services Functional Area (Enviroplan) Supporting Plan if required.
- Activate the Hazmat/CBR Emergency Sub Plan if required.

1.5.17 **Fire and Rescue NSW:**

a. When requested by NSW SES:

- Assist with the delivery of evacuation warnings and evacuation orders.
- Assist with the conduct of evacuations.
- Assist with the provision of equipment for pumping flood water out of buildings and from low-lying areas.
- Assist with clean-up operations, including the hosing out of flood affected properties.

b. FRNSW will use it's best endeavours to deploy appliances and/or resources into locations where access is expected to be lost.

1.5.18 **Health Services Functional Area**:

a. When requested by NSW SES:

- Activate Healthplan if required.
- Ensure that appropriate business continuity plans are developed for essential health infrastructure and are activated during floods.
- Provide medical support to the NSW SES.
- Establish health surveillance in affected areas.
- Assess potential public health risks that either acutely endanger the health of human populations or are thought to have longer term consequences.
- Provide environmental health advice.
- Provide public health warnings and advice to affected communities.
- Provide psychological counselling support to the community and emergency response workers impacted, via NSW Health Mental Health Division.
- Assist the NSW SES with the warning and evacuation of public hospitals, private hospitals and residential aged care facilities.
- Undertake vulnerable person assessment for Mental Health and Drug and Alcohol dependant persons, dialysis, frail and/or aged and oxygen dependant persons in the community, known to the health service.

1.5.19 **Local Emergency Operations Controller (LEOCON):**

a. Monitor flood operations.

b. Coordinate support to the NSW SES Incident Local Controller if requested to do so.

1.5.20 **Local Emergency Management Officer:**

a. Provide executive support to the Local Emergency Operations Controller and Local Emergency Management Committee in accordance with the NSW State Emergency Management Plan (EMPLAN).

b. At the request of the NSW SES Local Incident Controller, advise appropriate agencies and officers of the start of response operations.

1.5.21 **NSW Office of Water:**

a. Collect and maintain flood data including data relating to flood heights, velocities and discharges.

b. Provide the Bureau of Meteorology and NSW SES real-time or near real-time access to river height gauges and height data for the development of official flood warnings.

c. Provide flow rating charts for river height gauges.

d. Manage (with technical support from OEH) the approval process under the Water Act 1912 and Water Management Act 2000 for flood control works (earthworks, embankments and levees which can affect the distribution of floodwaters) including:

- Assessment and approval of flood control works (including flood mitigation works) in rural areas designated under the Acts.
- Use of floodplain management plans prepared by OEH in rural areas designated under the Acts to assess flood control work approvals.
- Giving the NSW SES access to relevant studies regarding flooding and studies supporting floodplain management plans prepared by OEH including flood studies, floodplain risk management studies and flood behaviour investigations.

1.5.22 **NSW Police Force:**

a. Assist the NSW SES Local Incident Controller with the delivery of evacuation warnings and evacuation orders.

b. Assist the NSW SES Local Incident Controller with the conduct of evacuation operations.

c. Conduct road and traffic control operations in conjunction with council and/or RMS.

d. Coordinate and manage the registration of evacuees.

e. Secure evacuated areas.

1.5.23 **NSW Rural Fire Service:**

a. When requested by NSW SES:

Assist the NSW SES by providing personnel in rural areas and villages to:

- inform the NSW SES Local Incident Controller about current flood conditions and response needs in their own communities, and
- disseminate NSW SES flood information.

b. Assist the NSW SES by providing personnel and high-clearance vehicles for flood related activities.

c. Assist the NSW SES with the delivery of evacuation warnings and evacuation orders.

d. Assist the NSW SES with the conduct of evacuations.

e. Assist the NSW SES with the provision of equipment for pumping flood water out of buildings and from low-lying areas.

f. Assist the NSW SES with the removal of caravans.

g. Assist the NSW SES by providing back-up radio communications where required.

h. Assist the NSW SES with clean-up operations, including the hosing out of flood affected properties.

i. Deploy fire resources to appropriate locations if access is expected to be lost.

j. Provide fire protection for aircraft at established airbases managed by NSW SES.

1.5.24 **Office of Environment and Heritage**:

a. Provide specialist policy, engineering and scientific advice to councils and the NSW SES on flood related matters including assistance with:

- The identification of flood problems.
- The preparation of Floodplain Risk Management Plans and associated studies.
- The implementation of floodplain risk management plans. This involves floodplain management projects which include flood mitigation works, flood warning, strategic land use planning and upgrade of evacuation routes.
- The exercising of Local Flood Plans.

b. Provide specialist advice on flood related matters as follows:

- Provide the NSW SES with access to relevant studies regarding flooding, including Flood Studies and Floodplain Risk Management Studies.
- Coordinate the collection of post event flood data, in consultation with the NSW SES.
- Provide data to the Bureau of Meteorology and NSW SES real-time or near real-time access to river height gauges and height data for the development of official flood warnings.

c. **National Parks and Wildlife Service:**

Close and evacuate at risk camping grounds managed by the National Parks and Wildlife Service.

1.5.25 **Public Information Services Functional Area:**

a. When requested by NSW SES:

- Assist the NSW SES in the establishment and operation of a Joint Media Information Centre.

1.5.26 **Rail Corporation New South Wales (Railcorp)** will close and reopen urban and metropolitan railway lines affected by flood waters and advise the NSW SES of their status.

a. **Australian Rail Track Corporation (ARTC)** will close and reopen rural and regional railway lines affected by flood waters and advise the NSW SES of their status.

b. **John Holland Rail** will close and reopen grain transport, mining transport and heavy haul railway lines affected by flood waters and advise the NSW SES of their status.

1.5.27 **Roads and Maritime Services (RMS)** will:

- Close and reopen highways, and other RMS managed roads/highways when affected by flood waters and advise the NSW SES of their status.
- Facilitate the safe reliable access of emergency resources on RMS managed roads.
- Assist the NSW SES with identification of road infrastructure at risk of flooding.
- Manage traffic.
- Assist the NSW SES with the communication of warnings and road closure information to the public through variable message signs and the RMS Website.

1.5.28 **School Administration Offices (including Public Schools, Private Schools and Department of Education & Communities Offices):**

a. Liaise with the NSW SES Local Incident Controller and arrange for the early release of students whose travel arrangements are likely to be disrupted by flooding and/or road closures (or where required, for students to be moved to a suitable location until normal school closing time).

b. Pass information on to parents, school bus drivers/companies and/or other schools on expected or actual impacts of flooding.

c. Assist with coordinating the evacuation of schools when flooding or isolation is expected to occur.

d. Provide space in schools for evacuation centres where necessary.

1.5.29 **Service and Sporting Clubs:**

a. When requested by NSW SES Local Incident Controller, assist with:

- Delivery of evacuation warnings.
- Conduct of evacuations.
- Lifting and/or moving household furniture and commercial stock.
- Sandbagging.
- Relocation of caravans.

1.5.30 **Telecommunication Services Functional Area**:

a. Assist the NSW SES Local Incident Controller to identify infrastructure at risk of flooding for incorporation into planning and intelligence.

b. Coordinate additional telecommunications support to the NSW SES as required.

c. Coordinate the restoration of telephone facilities damaged by flooding.

1.5.31 **Transport Services Functional Area:**

a. When requested by NSW SES:

- Assist with the coordination of transport for evacuation purposes.
- Assist with the resupply of isolated communities and/or properties.

1.5.32 **Welfare Services Functional Area:**

a. When requested by NSW SES:

- Establish and manage evacuation centres, and provide disaster welfare services from recovery centres.

- Administer the Personal Hardship and Distress component of the NSW Disaster Relief Scheme established to provide financial assistance to people affected by emergencies.

1.5.33 **Volunteer Rescue Association (VRA):**

a. When requested by NSW SES:

- Assist the NSW SES with flood operations, where equipment and training are suitable at the direction of the NSW SES Local Incident Controller.

PART 2 - PREPAREDNESS

2.1 MAINTENANCE OF THIS PLAN

2.1.1 The NSW SES Local Controller will maintain the currency of this plan by:

a. Ensuring that all agencies, organisations and officers mentioned in it are aware of their roles and responsibilities.

b. Conducting exercises to test arrangements.

c. Reviewing the contents of the plan:

- After each flood operation.
- When significant changes in land-use or community characteristics occur.
- When new information from flood studies become available.
- When flood control or mitigation works are implemented or altered.
- When there are changes that alter agreed plan arrangements.

2.1.2 The plan is to be reviewed no less frequently than every five years.

2.2 FLOODPLAIN RISK MANAGEMENT

2.2.1 The NSW SES Local Controller will ensure that:

a. NSW SES participates in local floodplain risk management committee activities when those committees are formed, in accordance with the protocols outlined in the NSW SES Controllers Guide.

b. The NSW SES Region Headquarters is informed of involvement in floodplain risk management activities.

2.3 DEVELOPMENT OF FLOOD INTELLIGENCE

2.3.1 Flood intelligence describes flood behaviour and its effects on the community.

2.3.2 The NSW SES maintains a centralised flood intelligence system.

2.4 DEVELOPMENT OF WARNING SYSTEMS

2.4.1 The NSW SES may establish a total flood warning system for areas affected by flooding. This requires:

a. An identification of the potential clients of flood warning information at different levels of flooding (ie. who would be affected in floods of differing severities).

b. Available information about the estimated impacts of flooding at different heights.

c. Identification of required actions and the amounts of time needed to carry them out.

d. Appropriate means of disseminating warnings to different clients and at different flood levels.

2.5 PUBLIC EDUCATION

2.5.1 The NSW SES Local Controller, with the assistance of Dubbo City Council, NSW SES Region Headquarters and NSW SES State Headquarters, is responsible for ensuring the residents of the council area are aware of the flood threat in their vicinity and how to protect themselves from it.

2.5.2 Specific strategies to be employed include:

a. Dissemination of flood-related brochures and booklets in flood liable areas.

b. Talks and displays orientated to community organisations, businesses and schools.

c. Publicity given to this plan and to flood-orientated NSW SES activities through local media outlets, including articles in local newspapers about the flood threat and appropriate responses.

d. Targeting of specific high-risk areas/groups by door-to-door canvassing or pamphlet drops.

2.6 TRAINING

2.6.1 Throughout this document there are references to functions that must be carried out by the members of the NSW SES Local Unit. The NSW SES Local Controller is responsible for ensuring that the members are:

a. Familiar with the contents of this plan.

b. Trained in the skills necessary to carry out the tasks allocated to the NSW SES.

2.7 RESOURCES

2.7.1 The NSW SES Local Controller is responsible for maintaining the condition and state of readiness of NSW SES equipment and the NSW SES Local Headquarters.

PART 3 - RESPONSE

CONTROL

3.1 CONTROL ARRANGEMENTS

3.1.1 The NSW SES is the legislated Combat Agency for floods and is responsible for the control of flood operations. This includes the coordination of other agencies and organisations for flood management tasks.

3.1.2 The Local EMPLAN will operate to provide support as requested by the NSW SES Local Incident Controller.

3.2 OPERATIONAL MANAGEMENT

3.2.1 NSW SES utilises the Australasian Inter-service Incident Management System (AIIMS), which is based on three principles:

a. functional management;

b. management by objectives; and

c. span of control.

3.2.2 AIIMS provides for different incident levels based on the complexity of management.

3.2.3 The Local Government Area may be divided into sectors and divisions to manage the flood event (divisions are usually a group of sectors).

3.2.4 Sectors and divisions may be based on floodplain classifications, geographical, physical or functional boundaries. A town, city or suburb may be one sector or split into several sectors and divisions.

3.3 START OF RESPONSE OPERATIONS

3.3.1 This plan is always active to ensure that preparedness actions detailed in this plan are completed.

3.3.2 Response operations will begin:

a. On receipt of a Bureau of Meteorology Preliminary Flood Warning, Flood Warning, Flood Watch, Severe Thunderstorm Warning or a Severe Weather Warning for flash flooding.

b. On receipt of a dam failure alert.

c. When other evidence leads to an expectation of flooding within the council area.

3.3.3 Contact with the Bureau of Meteorology to discuss the development of flood warnings will normally be through the NSW SES Region Headquarters and/or NSW SES Stte Headquarters

3.3.4 The following persons and organisations will be advised of the start of response operations regardless of the location and severity of the flooding anticipated:

a. NSW SES Region Headquarters.

b. NSW SES Local Headquarters.

c. Dubbo City Council Local Emergency Operations Controller (for transmission to the NSW Police Force Local Area Command Headquarters).

d. Dubbo City Council Local Emergency Management Officer (for transmission to appropriate council officers and departments).

e. Dubbo City Council Mayor.

f. Other agencies listed in this plan will be advised by the Local Emergency Management Officer on the request of the NSW SES Local Incident Controller and as appropriate to the location and nature of the threat.

3.4 RESPONSE STRATEGIES

3.4.1 The main response strategies for NSW SES flood operations include:

a. Information Provision and Warning

- Provision of warnings, information and advice to communities.
- Inform the community regarding the potential impacts of a flood and what actions to undertake in preparation for flooding.
- Provide timely and accurate information to the community.

b. Property protection

- Protect the property of residents and businesses at risk of flood damage.
- Assistance with property protection by way of sandbagging, lifting or transporting of furniture, personal effects, commercial stock and caravans.
- Assistance with the protection of essential infrastructure.

c. Evacuation

- The temporary movement of people from a dangerous or potentially dangerous place to a safe location, and their eventual return. It is a safety strategy which uses distance to separate people from the danger created by the hazard.

d. Rescue

- The rescue or retrieval of persons trapped by floodwaters.

e. Resupply

- Minimise disruption upon the community by resupplying towns and villages which have become isolated as a consequence of flooding.
- Ensure supplies are maintained to property owners by coordinating the resupply of properties which have become isolated as a consequence of flooding.

3.4.2 The NSW SES Local Incident Controller will select the appropriate response strategy to deal with the expected impact of the flood in each community. The impact may vary so a number of different strategies may need to be selected and implemented across the whole operational area. The available strategies for each sector and/or community are maintained by the NSW SES.

3.4.3 Supporting strategies may include:

a. Protect the community from incidents involving fire and hazardous materials

b. Maintain the welfare of communities and individuals affected by the impact of a flood.

c. Minimise disruption to the community by ensuring supply of essential energy and utility services.

d. Ensure coordinated health services are available to and accessible by the flood affected communities.

e. Maintain the welfare of animals affected by the impact of a flood.

3.5 OPERATIONS CENTRES

3.5.1 The NSW SES Dubbo Operations Centre is located at 15-19 Depot Road, Dubbo.

3.5.2 Supporting EOCs are located at:

a. The Dubbo City Local Emergency Operations Centre (LEOC), Rural Fire Service Headquarters, Dubbo Airport.

b. The District Emergency Operations Center located at the Dubbo Showground may be used as a forward HQ in the event that West Dubbo becomes isolated by floodwaters or as an alternative operations centre if the NSW SES Local Headquarters or LEOC is rendered inoperative.

3.6 LIAISON

3.6.1 Any agency with responsibilities identified in this plan may be requested by thenNSW SES to provide liaison (including a liaison officer where necessary) to the NSW SES Local Operations Centre.

3.6.2 Liaison officers are to:

a. have the authority to deploy the resources of their parent organisations at the request of the NSW SES Local Incident Controller,

b. advise the NSW SES Local Incident Controller on resource availability for their service, and

c. be able to provide communications to their own organisations.

3.7 END OF RESPONSE OPERATIONS

3.7.1 When the immediate danger to life and property has passed, the NSW SES Region Incident Controller or the NSW SES Local Incident Controller will issue an 'all clear' message signifying that response operations have been completed.

3.7.2 The message will be distributed through the same media outlets as earlier evacuation messages. The relevant Incident Controller will also advise details of recovery coordination arrangements, arrangements made for clean-up operations prior to evacuees being allowed to return to their homes, and stand-down instructions for agencies not required for recovery operations.

PLANNING

3.8 COLLATING SITUATIONAL INFORMATION

Strategy

3.8.1 The NSW SES maintains and records situational awareness of current impacts and response activities.

Actions

3.8.2 The NSW SES Local Headquarters collates information on the current situation within the Dubbo City Council LGA and incorporates this information into Situation Reports.

3.8.3 The NSW SES Region Headquarters collates Region-wide information for inclusion in Region Situation Reports.

3.8.4 Sources of situational information during times of flooding are:

a. **Agency Situation Reports**. Agencies and functional areas provide regular situation reports (SITREPs) to the NSW SES.

b. **Active Reconnaissance**. The NSW SES Local Incident Controller is responsible for coordinating the reconnaissance of impact areas, recording and communicating observations. Reconnaissance can be performed on the ground and using remote sensing (more commonly aerial). The NSW SES monitors the following problem areas:

- Residences and commercial premises located along the floodplain east of the Macquarie River (between Huckle Street and Troy Bridge Road).
- Poplars Caravan Park in Lower Bultje Street.
- Rear of the commercial premises in Bligh Street.
- Serisier Bridge.
- Low points on the Newell Highway between Troy Bridge Road and Brisbane Street, North Dubbo.
- Dubbo Midstate Caravan Park 21 Bourke St, North Dubbo.
- Ballimore Village.
- North Burrabadine rural residential estate west of Dubbo.
- Bulters Falls rural residential estate south of Dubbo.
- Troy Bridge.

c. The **Bureau of Meteorology's Flood Warning Centre** provides river height and rainfall information, data is available from the website http://www.bom.gov.au/nsw/flood/.

d. **NSW Office of Water**. This office advises of flow rates and rates of rise for the Macquarie River and provides river height and rainfall readings for a number of gauges in the Dubbo City Council area. Daily river reports containing information on gauge heights and river flows are also available from the website: http://waterinfo.nsw.gov.au/.

e. **Burrendong Dam Storage Monitoring System.** This system provides current storage capacity, inflow and release flow rate information on Burrendong Dam.

f. **NSW SES Region Headquarters**. The Region Headquarters provides information on flooding and its consequences, including those in nearby council areas. This information is usually documented in Bulletins and Situation Reports.

g. **NSW SES Local Headquarters.** The NSW SES Dubbo Local Headquarters monitors a number of stream gauges on the Macquarie, Little and Talbragar Rivers and their tributaries within and immediately upstream of the Dubbo City local government area.

h. **Dubbo City Council.** Provides information on the status of roads and impacts of flooding within the Dubbo City Council area.

3.8.5 During flood operations sources of information on roads closed by flooding include:

a. Dubbo City Council

b. Orana Police Local Area Command

c. Roads and Maritime Services

d. NSW SES Region Headquarters

e. NSW SES Local Headquarters

3.8.6 Situational information relating to consequences of flooding should be used to verify and validate NSW SES Flood Intelligence records.

3.9 PROVISION OF FLOOD INFORMATION AND WARNINGS

Strategy

3.9.1 The NSW SES Local Headquarters provides advice to the NSW SES Region Headquarters on current and expected impacts of flooding in the Dubbo City Council area.

3.9.2 The NSW SES Region Headquarters issues Flood Bulletins, NSW SES Livestock and Equipment Warnings, Evacuation Warnings and Evacuation Orders to media outlets and agencies on behalf of all NSW SES units in the Region.

Actions

3.9.3 The NSW SES Local Incident Controller will ensure that the NSW SES Region Incident Controller is regularly briefed on the progress of operations.

3.9.4 The NSW SES Local Incident Controller will ensure that the NSW SES Local Headquarters staff are regularly briefed so they can provide information in response to inquiries received in person or by other means such as phone, fax or email.

3.9.5 **Bureau of Meteorology Severe Thunderstorm Warning**. These are issued direct to the NSW SES and media by the Bureau when severe thunderstorms are expected to produce dangerous or damaging conditions, including flash flooding. Severe thunderstorms are usually smaller in scale than events covered by Flood Watches and Severe Weather Warnings.

3.9.6 **Bureau of Meteorology Severe Weather Warnings for Flash Flooding**. These are issued direct to the NSW SES and media by the Bureau and provide a warning of the possibility for flash flooding as a result of intense rainfall. These warnings are issued when severe weather is expected to affect land based communities within 6 to 24 hours. Severe Weather Warnings may also include other conditions such as Damaging Winds.

3.9.7 **Bureau of Meteorology Flood Watches**. These are issued direct to the NSW SES and media by the Bureau to advise people of the potential for flooding in a catchment area based on predicted or actual rainfall. Flood Watches will be included in NSW SES Flood Bulletins issued by the NSW SES Region Headquarters.

3.9.8 **Bureau of Meteorology Flood Warnings.** These are issued direct to the NSW SES and media by the Bureau. The NSW SES Region Headquarters forwards a copy of Bureau issued Flood Warnings to the NSW SES Local Headquarters. On receipt, the NSW SES Local Headquarters will provide the NSW SES Region Headquarters with information on the estimated impacts of flooding expected at the predicted heights for inclusion in NSW SES Region Flood Bulletins.

3.9.9 **NSW SES Livestock and Equipment Warnings**. These are issued following heavy rain or when there are indications of significant creek or river rises (even to levels below Minor Flood heights). The NSW SES Local Headquarters will advise the NSW SES Region Headquarters who will then issue a NSW SES Livestock and Equipment Warning.

3.9.10 **NSW SES Local Flood Advices**. The NSW SES Local Incident Controller may issue Local Flood Advices for locations not covered by Bureau Flood Warnings following heavy rain or when there are indications of significant creek or river rises. These may be provided verbally in response to phone inquiries but will normally be incorporated into a NSW SES Region Flood Bulletin.

3.9.11 **NSW SES Flood Bulletins**. The NSW SES Region Headquarters will regularly issue NSW SES Flood Bulletins which describe information on the estimated impacts of flooding at the predicted heights using information from Bureau Flood Warnings and NSW SES Local Flood Advices. These are distributed to local media outlets, councils, emergency services, supporting agencies, information centres, caravan parks and surrounding NSW SES Units on behalf of the NSW SES Local Incident Controller.

3.9.12 **NSW SES Evacuation Warnings and Evacuation Orders**. These are usually issued to the media by the NSW SES Region Incident Controller on behalf of the NSW SES Local Incident Controller.

3.9.13 **Dam Failure Alerts**. Dam failure alerts are issued to NSW SES by the dam owner, in accordance with arrangements in the Dam Safety Emergency Plan (DSEP). The system involves the Dam Owner notifying NSW SES State Headquarters Operations Communications Centre, who in turn, distributes the warning to the NSW SES Region Headquarters and the NSW SES Unit Headquarters.

3.9.14 A flow chart illustrating the notification arrangements for potential dam failure is shown in Attachment 2.

3.9.15 Dam failure alert levels are set in consultation with the NSW SES and are used to trigger appropriate response actions. The conditions that define each of the alert levels are listed in the relevant DSEP. Responses escalate as the alert level migrates from white to amber to red. Table 1 briefly outlines example defining conditions and appropriate NSW SES responses associated with each alert.

Alert Level	Example Defining Condition	NSW SES Response	NSW SES Warning Product
White	May be a structural anomaly. May be increased monitoring in response to a heavy rainfall event	Implements notification flowchart. Check operational readiness.	This is a preliminary alert to assist the NSW SES in its preparation. This is not a public alert.
Amber	Failure possible if storage level continues to rise or structural anomaly not fixed	Implements notification flowchart. Warn downstream population at risk to prepare to evacuate	NSW SES Evacuation Warning
Red	Failure imminent or occurred	Implements notification flowchart. Evacuation of downstream populations	NSW SES Evacuation Order

Table 1: Dam Failure Alert Levels

Note: Some DSEPs will have alert levels that proceed directly from White to Red. This is the case if adequate time does not exist between the three alert levels to evacuate the downstream population at risk. The decision to omit the Amber Alert level, and the general setting of Alert levels should be undertaken in consultation with the NSW SES.

3.9.16 The NSW SES / Dam Owner will disseminate warnings to the population at risk of dam failure (these arrangements are specific to each dam, are negotiated between the Dam Owner and NSW SES, and are documented in the DSEP).

3.9.17 Special arrangements apply in the case of severe flooding that may have the potential to cause the failure of Burrendong Dam. Details of these arrangements are maintained by the NSW SES.

3.9.18 **Standard Emergency Warning Signal (SEWS).** This signal may be played over radio and television stations to alert communities to Evacuation Warnings, Evacuation Orders, Special Warnings or Dam-Failure Warnings. Approval to use the signal is associated with who approves the warning/order message.

3.9.19 **The Public Information and Inquiry Centre (PIIC)** (operated by the NSW Police Force) will answer calls from the public regarding registered evacuees.

3.9.20 **The Disaster Welfare Assistance line** is a central support and contact point for disaster affected people inquiring about welfare services advice and assistance.

3.9.21 **The Roads and Martime Service Transport Management Centre (TMC)** will provide advice to callers on the status of roads. The RMS Live Traffic website also lists road closure information: http://livetraffic.rta.nsw.gov.au/

3.9.22 **Dubbo City Council** will provide advice on the status of roads to the general public and the Roads and Maritime Service Transport Management Centre (TMC). The Dubbo City Council website also lists road closure information.

3.9.23 The collation and dissemination of main road information is actioned as follows:

a. As part of Situation Reports, the NSW SES Local Incident Controller will provide road status reports for major roads in the council area to the NSW SES Region Headquarters.

b. The NSW SES Region Headquarters will include this information in NSW SES Flood Bulletins.

OPERATIONS

3.10 AIRCRAFT MANAGEMENT

3.10.1 Aircraft can be used for a variety of purposes during flood operations including evacuation, rescue, resupply, reconnaissance and emergency travel.

3.10.2 Air support operations will be conducted under the control of the NSW SES Region Headquarters, which may allocate aircraft to local units if applicable.

3.10.3 NSW SES maintains the following information for the Dubbo City Council area:

a. Locations of suitable helicopter landing points.

b. Locations of suitable airports and records detailing aircraft size and type that can land at airports.

c. Intelligence on when access to these locations is expected to be lost.

3.11 ASSISTANCE FOR ANIMALS

3.11.1 Matters relating to the welfare of livestock, companion animals and wildlife are to be referred to Agriculture and Animal Services.

3.11.2 Requests for emergency supply and/or delivery of fodder to stranded livestock, or for livestock rescue, are to be referred to Agriculture and Animal Services.

3.11.3 Requests for animal rescue should be referred to the NSW SES.

3.12 COMMUNICATION SYSTEMS

3.12.1 The primary means of communications between fixed locations is by telephone, email and facsimile.

3.12.2 The primary means of communication to and between deployed NSW SES resources is by GRN.

3.12.3 All liaison officers will provide their own communication links back to their parent agencies.

3.12.4 All other organisations will provide communications as necessary to their deployed field teams.

3.12.5 Back-up communications are provided as follows:

a. Mobile Phone

b. UHF-CB for radio communications.

c. Dubbo City Council VHF.

d. NSW RFS Private Mobile Radio (PMR) network.

3.13 PRELIMINARY DEPLOYMENTS

3.13.1 When flooding is expected to be severe enough to cut road access to towns, within towns and/or rural communities, the NSW SES Local Incident Controller will ensure that resources are in place for the distribution of foodstuffs and medical supplies to the areas that could become isolated.

3.13.2 When access between locations is expected to be cut, the NSW SES Local Incident Controller will advise appropriate agencies so that resources (including sandbags, fire fighting appliances, ambulances, etc.) can be deployed to ensure operational capability is maintained.

3.14 ROAD AND TRAFFIC CONTROL.

3.14.1 A number of roads within the council area are affected by flooding. NSW SES and Dubbo City Council maintains details of these roads.

3.14.2 The council closes and re-opens its own roads and, when authorised by the RMS, the Newell Highway (SH17) and Mitchell Highway (SH7).

3.14.3 The NSW Police Force has the authority to close and re-open roads but will normally only do so (if the Council or the RMS have not already acted) if public safety requires such action.

3.14.4 Police, RMS or Council officers closing or re-opening roads or bridges affected by flooding are to advise the NSW SES Local Incident Controller. All such information must also be passed to Dubbo City Council for transmission to the RMS Transport Management Centre (TMC).

3.14.5 During flood events, the NSW SES Local Incident Controller may direct the imposition of traffic control measures. The entry into flood affected areas will be controlled in accordance with the provisions of the State Emergency

Service Act, 1989 (Part 5, Sections 19, 20, 21 and 22) and the State Emergency Rescue Management Act, 1989 (Part 4, Sections 60KA, 60L and 61).

3.14.6 When resources permit, the NSW SES may assist Council, RMS or the Police by erecting road closure signs and barriers.

3.15 STRANDED TRAVELLERS

3.15.1 Flood waters can strand travellers. Travellers seeking assistance will be referred to the Welfare Services Functional Area for the arrangement of emergency accommodation if required.

3.16 MANAGING PROPERTY PROTECTION OPERATIONS

Strategy

3.16.1 Protect the property of residents and businesses at risk of flood damage.

Actions

3.16.2 The NSW SES is the responsible agency for the coordination of operations to protect property.

3.16.3 Property may be protected from floods by:

a. Lifting or moving of household furniture.

b. Lifting or moving commercial stock and equipment.

c. Sandbagging to minimise entry of water into buildings.

3.16.4 The NSW SES maintains stocks of sandbags and a small amount of the Pallet Barrier System.

3.16.5 Property protection options are however very limited in the Dubbo City Council Area due to the large number of properties that can be affected and the depth of floodwaters arising from severe flooding on the Macquarie and Talbragar Rivers.

3.17 MANAGING FLOOD RESCUE OPERATIONS

Strategy

3.17.1 Rescue of people from floods.

Actions

3.17.2 The NSW SES Local Incident Controller controls flood rescue in the Dubbo City Council local government area.

3.17.3 Flood rescues, may be carried out by accredited rescue units in accordance with State Rescue Board policies and standards.

3.17.4 Additional flood boats and crews can be requested through the NSW SES Region Headquarters.

3.17.5 There may be some residual population which did not evacuate during the early stages of flooding and may require rescue.

3.18 MANAGING EVACUATION OPERATIONS

Strategy

3.18.1 When there is a risk to public safety, evacuation is the primary strategy. Circumstances may include:

a. Evacuation of people when their homes or businesses are likely to be flooded.

b. Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access.

c. Evacuation of people where essential energy and utility services are likely to fail, have failed or where buildings have been made uninhabitable.

Actions

3.18.2 The evacuation operation will have the following stages:

a. Decision to evacuate.

b. Mobilisation (mobilisation may begin prior to the decision to evacuate).

c. Evacuation Warning delivery.

d. Evacuation Order delivery.

e. Withdrawal.

f. Shelter.

g. Return.

3.18.3 During floods, evacuations will be controlled by the NSW SES.

3.18.4 Small-scale evacuations will be controlled by the NSW SES Local Incident Controller.

3.18.5 Should the scale of evacuation operations be beyond the capabilities of local resources, control may be escalated to the NSW SES Region Incident Controller.

Decision to evacuate

3.18.6 In most cases the decision to evacuate rests with the NSW SES Local Incident Controller who exercises his/her authority in accordance with Section 22(1) of The State Emergency Service Act 1989. However, the decision to evacuate will usually be made after consultation with the NSW SES Region Incident Controller and the Local Emergency Operations Controller.

3.18.7 In events that require large scale evacuations, the decision to evacuate may be escalated to the NSW SES Region Incident Controller or the NSW SES State Incident Controller.

3.18.8 Some people will make their own decision to evacuate earlier and move to alternate accommodation, using their own transport. This is referred to as self-motivated evacuation.

Mobilisation

3.18.9 The NSW SES Local Incident Controller will mobilise the following to provide personnel for doorknock teams for designated Sectors/locations:

a. NSW SES Local Unit members,

b. RFS Dubbo District members via the RFS Fire Control Officer,

c. Local Police Force officers

3.18.10 The NSW SES Region Incident Controller will mobilise any additional personnel required to assist with doorknock teams using:

a. NSW SES members from within the NSW SES Region and surrounding NSW SES Regions

b. FRNSW personnel arranged via the FRNSW Liaison Officer.

c. RFS personnel arranged via the RFS Liaison Officer.

3.18.11 The NSW SES Local Incident Controller will request the Chairperson of the LEMC to provide Council personnel to assist with traffic coordination within the Sectors/Locations.

3.18.12 The NSW SES Local Incident Controller will arrange liaison officers for Sector Command Centres.

3.18.13 The NSW SES Region Incident Controller will mobilise the required number of buses for Sectors via the Transport Services Functional Area Coordination Centre.

Delivery of Evacuation Warnings and Evacuation Orders

3.18.14 The NSW SES will advise the community of the requirements to evacuate. The NSW SES will issue an **Evacuation Warning** when the intent of an NSW SES Incident Controller is to warn the community of the need to prepare for a possible evacuation.

3.18.15 The NSW SES will issue an **Evacuation Order** when the intent of the NSW SES Incident Controller is to instruct a community to immediately evacuate in response to an imminent threat.

3.18.16 The NSW SES Local Incident Controller will distribute Evacuation Warnings and Evacuation Orders to:

a. Sector/Division Command Centres (where established).

b. Dubbo City Council Local Emergency Operations Centre.

c. Dubbo City Council.

d. Orana Police Local Area Command.

e. Dubbo Rural Fire Service Control Centre.

f. Radio Stations - 2DU, ZooFM, ABC Western Plains and StarFM.

g. Other local agencies and specified individuals.

3.18.17 The NSW SES Region Incident Controller will distribute Evacuation Warnings and Evacuation Orders to:

a. The NSW SES State Operations Centre.

b. The NSW SES Local Incident Controller.

c. Affected communities via automated warning systems where installed or applicable.

d. Relevant media outlets and agencies.

3.18.18 Evacuation Warnings and Evacuation Orders may be delivered through:

a. Radio and television stations.

b. Doorknocking by emergency service personnel.

c. Public address systems (fixed or mobile).

d. Telephony-based systems (including Emergency Alert).

e. Two-way Radio.

f. Direct access to Radio Station ABC Western Plains.

3.18.19 The Standard Emergency Warning Signal (SEWS) may be used to precede all Evacuation Orders broadcast on Radio Stations.

3.18.20 Sector Command Centres, where established, will distribute Evacuation Orders via Emergency Service personnel in doorknock teams to areas under threat of inundation.

3.18.21 Doorknock teams will work at the direction of:

a. The Sector Commander if a Sector Command Centre is established;

b. The relevant Division Commander where a Sector Command Centre has not been established; or

c. The Local Incident Controller.

3.18.22 Field teams conducting doorknocks will record and report back the following information to their Sector Commander/Division Commander/Local Incident Controller:

a. Addresses and locations of houses doorknocked and/or evacuated.

b. The number of occupants.

c. Details of support required (such as transport, medical evacuation, assistance to secure house and/or property and raise or move belongings).

d. Details of residents who refuse to comply with the Evacuation Order.

3.18.23 Refusal to evacuate. Field teams cannot afford to waste time dealing with people who are reluctant or refuse to comply with any Evacuation Order. These cases are to be referred to the NSW Police Force.

Withdrawal

3.18.24 Evacuations will generally be carried out in stages starting from the lowest areas, low flood islands and low trapped perimeters; and progressively to higher areas.

3.18.25 The most desirable method of evacuation is via road using private transport. This may be supplemented by buses for car-less people. However, other means of evacuation may also be used if available and as necessary (eg by foot, rail, air).

3.18.26 Evacuees who require emergency accommodation or disaster welfare assistance will be directed to designated evacuation centres.

3.18.27 Evacuees will:

a. Move under local traffic arrangements from the relevant Sectors/Community via managed evacuation routes;

b. Continue along the suburban/regional/rural road network to allocated Evacuation Centres.

3.18.28 **Health Services**. The Health Services Functional Area will coordinate the evacuation of hospitals, health centres, and aged care facilities (including nursing homes).

3.18.29 **Schools.** School administration offices (Department of Education and Training, Catholic Education Office and Private Schools) will coordinate the evacuation of schools if not already closed.

3.18.30 If there is sufficient time between the start of response operations and the evacuation of communities, the NSW SES Region Incident Controller will discuss the temporary closure of appropriate schools with the Regional Director, Western NSW Region, Department of Education and Training. This will enable pupils to stay at home or be returned home so they can be evacuated (if required) with their families.

3.18.31 Note that in the Dubbo City Council LGA, school principals may close some schools affected by flooding in the early stages of flooding.

3.18.32 **Caravan parks**. When an evacuation order is given occupiers of non-movable vans should:

a. Secure their vans by tying them down to prevent flotation.

b. Isolate power to their vans.

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

d. Lift the other contents of their vans as high as possible within the van.

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

3.18.33 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 tow vehicle. Council and NSW SES personnel will assist if required and may be able to provide additional tow vehicles.

3.18.34 Caravan park managers will ensure their caravan park is capable of being evacuated within the allocated time of 6-10 hours.

3.18.35 Caravan park managers are to advise the NSW SES Local Incident Controller of:

a. The number of people requiring transport.

b. Details of any medical evacuations required.

c. Whether additional assistance is required to effect the evacuation.

3.18.36 Check that no people remain in non-removable vans that are likely to be inundated.

3.18.37 Inform the NSW SES Local Incident Controller when the evacuation of the caravan park has been completed.

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

3.18.39 **Assistance Animals, Pets and Companion Animals of Evacuees:** Assistance animals (guide dogs, hearing assistance animals, etc) will remain in the care of their owners throughout the evacuation. This includes transport and access into evacuation centres etc. Due to safety restrictions, it may not be possible to allow companion animals to accompany their owners when being transported via aircraft or flood rescue boats. Agriculture and Animal Services will make separate arrangements for the evacuation and care of companion animals. Evacuees managing their own evacuations should be encouraged to take their pets with them. However, pets cannot be managed at evacuation centres. In the event of a large-scale evacuations, companion animals (domestic pets) will be accommodated in the Dubbo City Council animal pound in Boothenba Road. The Dubbo City Council will operate these facilities with assistance from the RSPCA. An alternative animal compound may be established at the Dubbo Showground.

3.18.40 **Transport and Storage:** Transport and storage of furniture from flood threatened properties will be arranged as time and resources permit.

3.18.41 **Security:** The NSW Police Force will provide security for evacuated areas.

3.18.42 The NSW SES Local Incident Controller is to provide the following reports to the NSW SES Region Incident Controller:

a. Advice of commencement of the evacuation of each Sector;

b. Half-hourly progress reports (by Sectors) during evacuations;

c. Advice of completion of the evacuation of each Sector.

Shelter

3.18.43 **Evacuation Centres / Assembly Areas.** The usual purpose of evacuation centres or assembly areas is to meet the immediate needs of disaster affected people following evacuation from an emergency situation, not to provide them with accommodation. Evacuees will be advised to go to or be taken to the nearest accessible evacuation centre, which may initially be established at the direction of the NSW SES Local Incident Controller, but managed as soon as possible by Welfare Services.

3.18.44 The following locations are suitable for use as flood evacuation centres:

a. Dubbo Civic Centre - Darling Street;

b. Police and Citizens Youth Club - Cnr Darling and Erskine streets;

c. Wesley Centre - Cnr Church Street and Carrington Avenue;

d. Masonic Hall - Wingewarra Street; and

e. Pipe Band Hall - Darling Street.

3.18.45 In extreme floods necessitating large-scale evacuations and rendering the above locations unuseable, the following may function as evacuation centres:

a. South Dubbo High School Hall - Fitzroy Street;

b. Christian High School Hall - Sheraton Road;

c. St. Johns High School Hall - Sheraton Road;

d. Delroy High School Hall - East Street;

e. Seventh Day Evangelists Hall - Cnr Cobra and Sterling streets; and

f. Girl Guides Hall - Boundary Road.

3.18.46 Premises suitable for use as an Evacuation Centre in the Villages are listed below:

a. Eumungerie Hall - Railway Street, Eumungerie;

b. Eumungerie Primary School - Wheaton Street, Eumungerie;

c. Terramungamine RFS Building - Burraway Road, Brocklehurst;

d. St. Johns Ambulance Centre - Newell Highway, Brocklehurst;

e. Wongarbon Public Hall - Gundong Street, Wongarbon;

f. Wongarbon Scout/Tennis Club - Beni Street, Wongarbon; and

g. Ballimore Hall - Cnr Federation and Bunyip streets, Ballimore.

3.18.47 **Registration:** The NSW Police Force will ensure that evacuees are registered on arrival at the designated evacuation centres.

3.18.48 **Animal Shelter Compounds:** Animal shelter compounds will be set up for domestic pets and companion animals of evacuees if required. Facilities will be managed by Agriculture and Animal Services.

Return

3.18.49 The NSW SES Local Incident Controller will advise when the return to evacuated areas is safe after flood waters have receded and reliable access is available.

3.18.50 The NSW SES Local Incident Controller will determine when it is safe for evacuees to return to their homes in consultation with:

a. the Recovery Coordinating Committee (if established),

b. Welfare Services Functional Area Coordinator (welfare of evacuees),

c. Engineering Services Functional Area Co-coordinator (electrical safety of buildings, structural integrity of levees/dams),

d. Health Service Functional Area Coordinator (public health),

e. Transport Services Functional Areas Coordinator (arrangement of transport),

f. Local Emergency Operations Controller (LEOCON),

g. Dubbo City Council,

h. NSW SES Region Incident Controller,

i. Other appropriate agencies/functional areas as required (mitigation and advice regarding identified risks resulting from the flood event).

3.18.51 Once it is considered safe to do so, the NSW SES Region Incident Controller will authorise the return of evacuees.

3.18.52 The return will be controlled by the NSW SES Local Incident Controller and may be conducted, at their request, by the Recovery Coordinator.

3.19 MANAGING RESUPPLY OPERATIONS

3.19.1 The NSW SES is responsible for the coordination of the resupply of isolated communities and properties.

3.19.2 If isolation is expected to occur, residents should be encouraged to consider their needs and suitability for an unknown period of isolation.

3.19.3 If properties/communities are going to remain in locations expected to become isolated, households/retailers should be encouraged to stock up on essential supplies.

3.19.4 Where practicable, once supplies are delivered to the NSW SES designated loading point, the NSW SES Local Incident Controller will arrange for the delivery of essential foodstuffs, fuels or urgent medical supplies required by an isolated property or community.

3.19.5 All reasonable effects will be made to deliver supplies, however where necessary the NSW SES will prioritise the delivery of items.

Resupply of Isolated Towns and Villages

Strategy

3.19.6 Minimise disruption upon the community by resupplying towns and villages which have become isolated as a consequence of flooding.

Actions

3.19.7 The NSW SES is responsible for the coordination of the resupply of isolated communities.

3.19.8 If flood predictions indicate that areas are likely to become isolated, the NSW SES Local Incident Controller should advise retailers they should stock up.

3.19.9 When isolation occurs, retailers will be expected to place orders with suppliers where they have a line of credit and to instruct those suppliers to package their goods and deliver them to loading points designated by the NSW SES.

3.19.10 The NSW SES is prepared to deliver mail to isolated communities but may not be able to do so according to normal Australia Post timetables.

3.19.11 The NSW SES will assist hospitals with the resupply of linen and other consumables where able.

Resupply of Isolated Properties

Strategy

3.19.12 Ensure supplies are maintained to properties by coordinating the resupply of properties which have become isolated as a consequence of flooding.

Actions

3.19.13 The resupply of isolated properties is a common requirement during floods and coordination can be difficult because requests can emanate from a variety of sources. Isolated properties may call their suppliers direct, place their orders through their own social networks or contact the NSW SES.

3.19.14 The principles to be applied when planning for the resupply of isolated properties are:

a. The NSW SES will coordinate resupply and establish a schedule.

b. Some isolated households will not have the ability to purchase essential grocery items due to financial hardship. If an isolated household seeks resupply from the NSW SES and claims to be, or is considered to be, in dire circumstances, he/she is to be referred to Welfare Services for assessment of eligibility. Where financial eligibility criteria are met, Welfare Services will assist with the purchase of essential grocery items.

Welfare Services will deliver the essential grocery items to the NSW SES designated loading point for transport.

c. Local suppliers will liaise with the NSW SES regarding delivery of resupply items to the designated loading point.

d. Local suppliers are responsible for packaging resupply items for delivery.

3.19.15 A flowchart illustrating the Resupply process is shown in Attachment 1. Please note that the flowchart outlines the resupply process but does not encompass all potential situations and/or outcomes.

PART 4 - RECOVERY

4.1 RECOVERY COORDINATION AT THE LOCAL LEVEL

4.1.1 The NSW SES Local Incident Controller will ensure planning for long-term recovery operations begins at the earliest opportunity, initially through briefing the Local Emergency Management Committee (LEMC). As soon as possible the LEMC will meet to discuss recovery implications including the need for a Local Recovery Committee. The LEMC will consider any impact assessment in determining the need for recovery arrangements. This is conveyed in the first instance to the State Emergency Operations Controller (SEOCON) for confirmation with the State Emergency Recovery Controller (SERCON).

4.1.2 Once the need for recovery has been identified, the SERCON, in consultation with the SEOCON, may recommend the appointment of a Local Recovery Coordinator and nominate an appropriate candidate to the Minister for Police and Emergency Services.

4.1.3 The SERCON may send a representative to the LEMC and subsequent recovery meetings to provide expert recovery advice and guidance.

4.1.4 The NSW SES Local Incident Controller and Local Emergency Operations Controller (LEOCON) attend recovery meetings to provide an overview of the emergency response operation.

4.1.5 The NSW SES Region Incident Controller, the Regional Emergency Management Officer and appropriate Regional Functional Area Coordinators will be invited to the initial local meeting and to subsequent meetings as required.

4.1.6 The recovery committee will:

a. develop and maintain a Recovery Action Plan with an agreed exit strategy

b. monitor and coordinate the activities of agencies with responsibility for the delivery of services during recovery

c. ensure that relevant stakeholders, especially the communities affected, are involved in the development and implementation of recovery objectives and strategies and are informed of progress made

d. provide the SERCON with an end of recovery report

e. ensure the recovery is in line with the National Principles of Disaster Recovery and the NSW tenets

4.2 RECOVERY COORDINATION AT THE REGION AND STATE LEVEL

4.2.1 In the event that an emergency affects several local areas, a Region Emergency Management Committee (REMC) will meet to discuss recovery implications including the need for a Region Recovery Committee. This is conveyed in the first instance to the SEOCON for confirmation with the SERCON.

4.2.2 In the event of an emergency which affects multiple regions, or is of state or national consequence, or where complex, long term recovery and reconstruction is required, it may be necessary to establish a State Recovery Committee and the appointment of a State Recovery Coordinator.

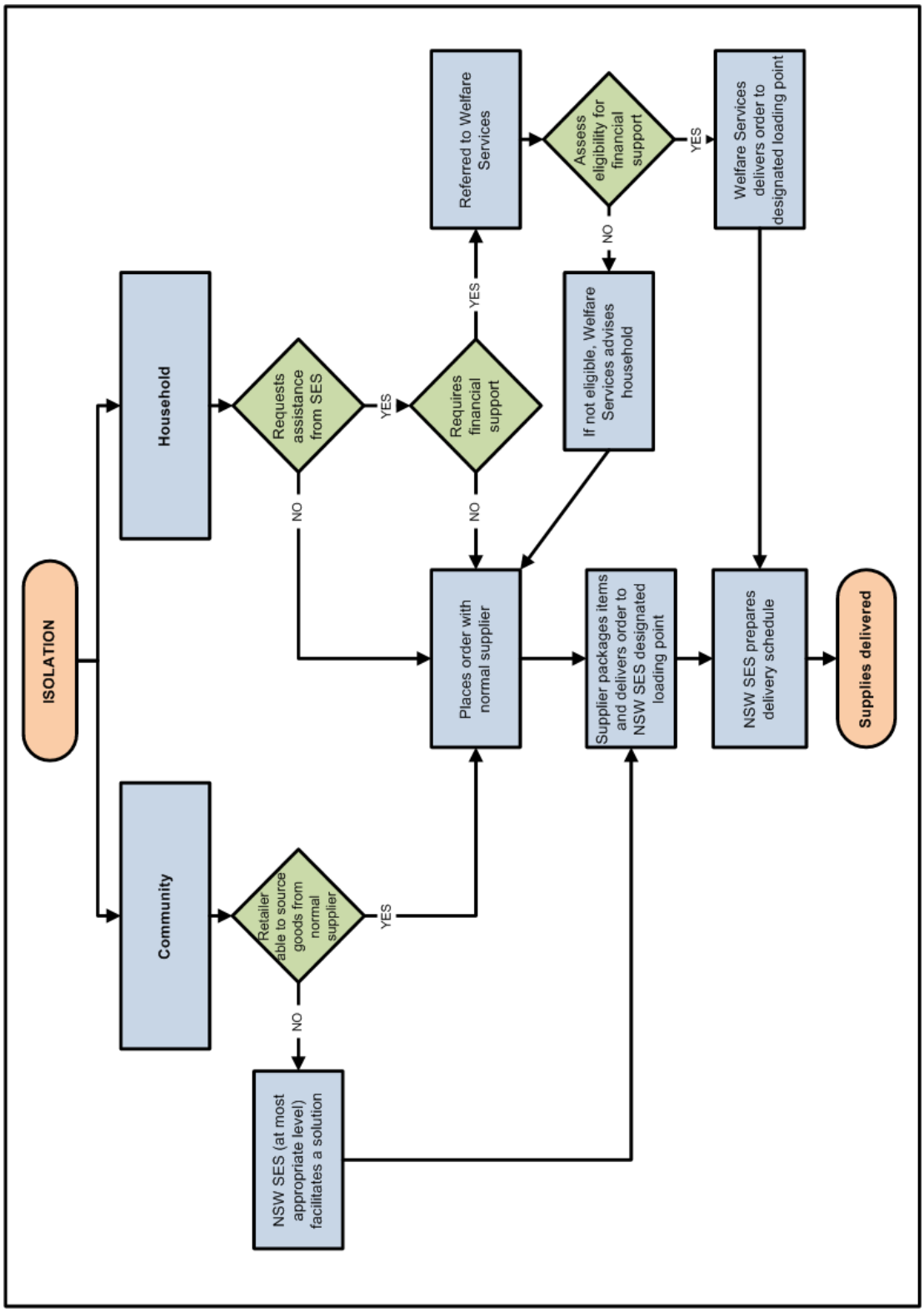
4.3 ARRANGEMENTS FOR DEBRIEFS / AFTER ACTION REVIEWS

4.3.1 As soon as possible after flooding has abated, the NSW SES Local Controller will advise participating organisations of details of response operation after action review arrangements.

4.3.2 The NSW SES Local Controller will ensure that adequate arrangements are in place to record details of the after action review and each item requiring further action is delegated to an organisation or individual to implement.

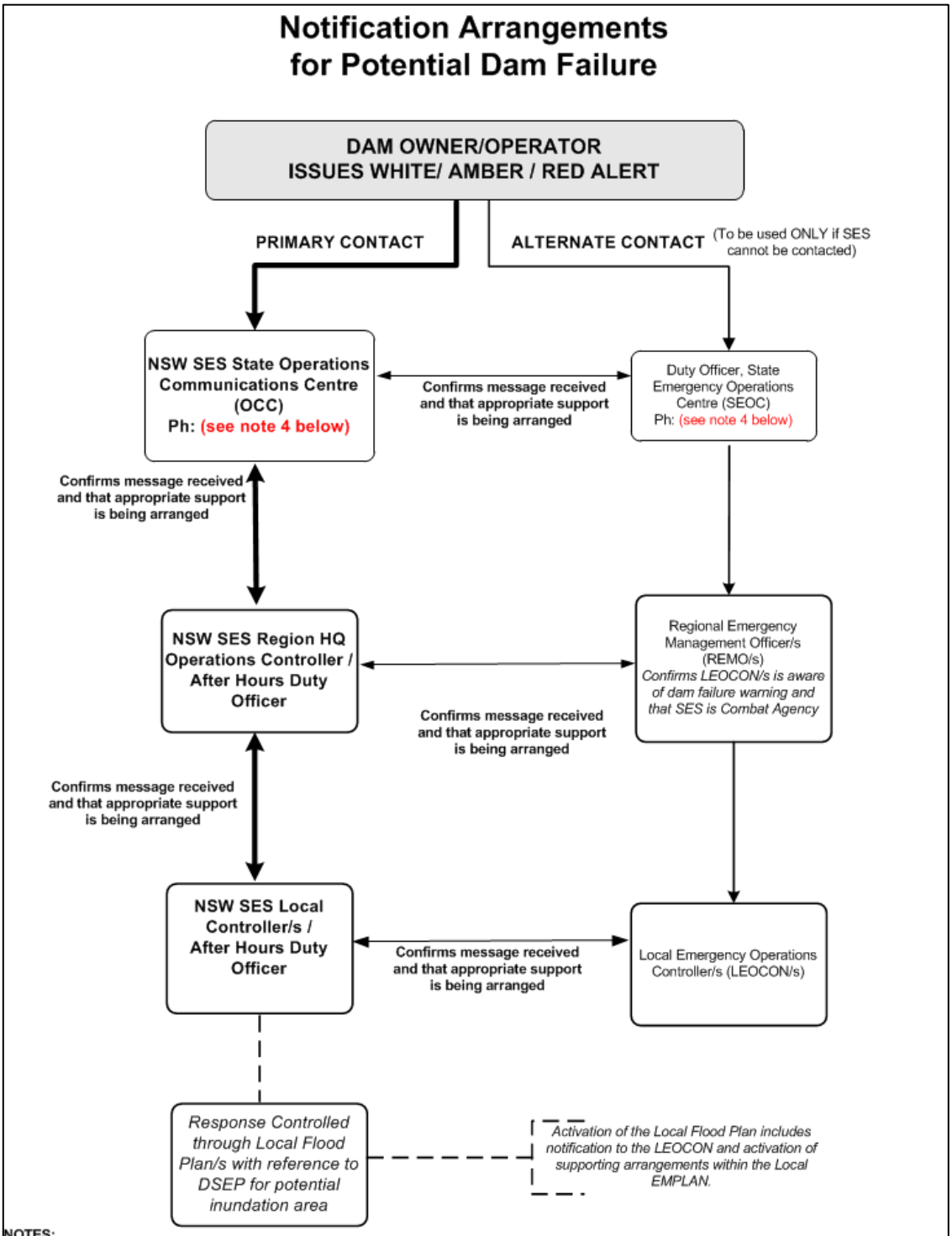
4.3.3 Follow-up to ensure the satisfactory completion of these actions will be undertaken by the Local Emergency Management Committee.

ATTACHMENT 1 - RESUPPLY FLOWCHART



Please Note: **The chart outlines the resupply process, but does not encompass all potential situations and outcomes.**

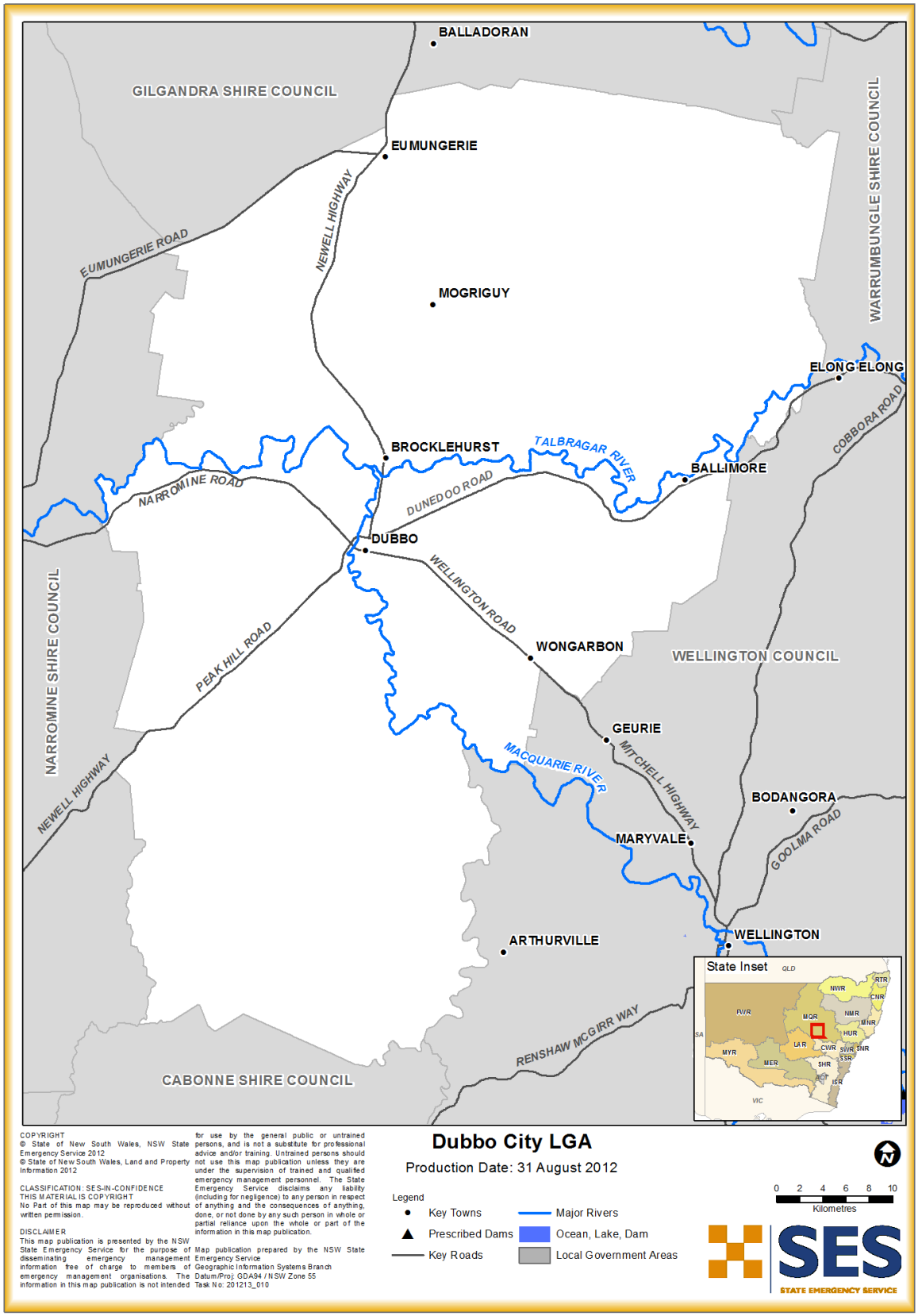
ATTACHMENT 2 - DAM FAILURE ALERT NOTIFICATION ARRANGEMENTS FLOWCHART



NOTES:

1. Dam owners should only contact the SEOC if the SES State Operations Communications Centre (OCC) cannot be contacted.
2. The first priority for notification is to contact the next SES HQ or the next level of EOC down the flowchart. The second notification should always be across the flow chart to confirm the message is received. If the first priority notification fails or is not picked up for any reason, the second priority notification should be made before any further attempts to contact the first priority (this is why an alternate or backup system of contacts is in place).
3. The triple zero (000) number for emergency services should not be used unless contact cannot be made with SES or the SEOC, as it is likely the triple zero (000) operators will have difficulty dealing with the very unusual case of potential or actual dam failure.
4. Dam owners must contact the SES State Headquarters during the preparation of the DSEP to obtain the appropriate emergency contact numbers.

ATTACHMENT 3 - DUBBO CITY COUNCIL LGA MAP



NSW STATE EMERGENCY SERVICE

HAZARD AND RISK IN DUBBO CITY

Volume 2 of the Dubbo City Local Flood Plan

Last Update: June 2003 (DRAFT)

FloodSafe

ANNEX A - THE FLOOD THREAT

Landforms and River Systems

1. The Macquarie River is formed near Bathurst by the joining of the Fish and Campbell's Rivers. These two streams drain a high plateau consisting largely of undulating to hilly terrain. From Bathurst to Burrendong Dam the river is confined to a very narrow and steep sided valley. At the dam the Macquarie is joined from the east by the Cudgegong River, which rises in uplands around Rylstone.

2. From Burrendong Dam the Macquarie flows in north-westerly direction through Wellington being joined from the south by the Bell and Little Rivers. The Bell River rises in the flat to undulating country surrounding Mount Canobolas near Orange. The Bell River catchment is comparatively steep and floodwaters are confined mostly within the river channel until they reach Wellington. Consequently the river tends to rise and fall very rapidly. Overnight rain can result in a flood the following morning, with the floodwater gone by the same afternoon.

3. The Macquarie continues northwards for a few kilometres before turning westwards to cut through the Catombal Range after which it meanders through gently undulating country in a north-westerly direction towards Dubbo. Below Wellington the valley widens, the river flats gradually becoming more extensive and in places are several kilometres wide. Upon entering the broader, flatter valley, the river also changes, its cross-section is now broader and shallower.

Draft

4. Apart from the Bell, the only tributary of any significance joining the Macquarie in this reach is the Little River, which joins from the south at Terra Bella. This river is normally dry, but can contribute substantial volumes of water during floods. The Little rises in undulating to hilly country west of Molong and flows north to the Macquarie upstream of Dubbo. The Little River also serves as part of the eastern boundary of the Dubbo City council area with the Wellington Council area.

5. After flowing in a north-westerly direction through Dubbo, it is joined a few kilo metres north of Dubbo by the Talbragar River. This river rises in mountainous country at the junction of the Liverpool Range and the Warrumbungle Range. The Talbragar flows in a south-westerly direction with the mountainous slopes rapidly giving way to undulating country near Coolah Passing Dunedoo its valley is broad and flat, bordered by undulating hills which become less apparent as the river progresses towards Dubbo. Downstream of the Sandy Creek confluence halfway between Elong Elong and Dunedoo, the valley has a particularly broad floor with the flood plain averaging about one kilometre wide in this reach.

6. At the confluence with the Talbragar River the Macquarie turns due west until it reaches Narromine. A number of creeks join the river, most notably Coolbaggie Creek, which joins midway between Dubbo and Narromine.

Weather Systems and Flooding

7. Flooding within the Dubbo Council area can occur at any time of the year. In summer, low-pressure troughs extending southwards from northern Australia can cause intense short-period rainfall leading to flooding. Winter floods are more often the result of a number of troughs associated with southern depressions and crossing the region from west to east. These systems rarely produce high daily rainfalls but can bring substantial falls over longer periods. In general, it is these winter systems which are the more significant in terms of flood production, and there is a tendency towards a concentration of flooding in June, July and August. Some of the most severe floods however, have occurred in the summer months.

8. Most of the severe floods have resulted from sequences of rain events rather than from individual ones. The early events wet the catchment, and the later ones often generate the significant flooding. Significant rainfalls preceded the August 1990 flood in April and July resulting in minor flooding events in these months.

9. Although flood events are usually the result of extended rainfall periods, localised flooding from sudden severe thunderstorms does occur. High flows in the Bell and Little Rivers are common when such thunderstorm cross their headwaters. Also, the Villages of Wongarbon and Eumungerie have suffered severe localised flooding as a consequence of these types of events. Such thunderstorms occur mainly in summer and with very little warning. They have no appreciable impact on levels in the major rivers.

Draft

10. Major floods have been most common during the winter months, more than half having occurred during this period. However, the relatively flood free months of February and March have recorded the two highest floods on record. The monthly distribution of floods that have exceeded 8m at Dubbo between 1885 and 1990 is shown below:

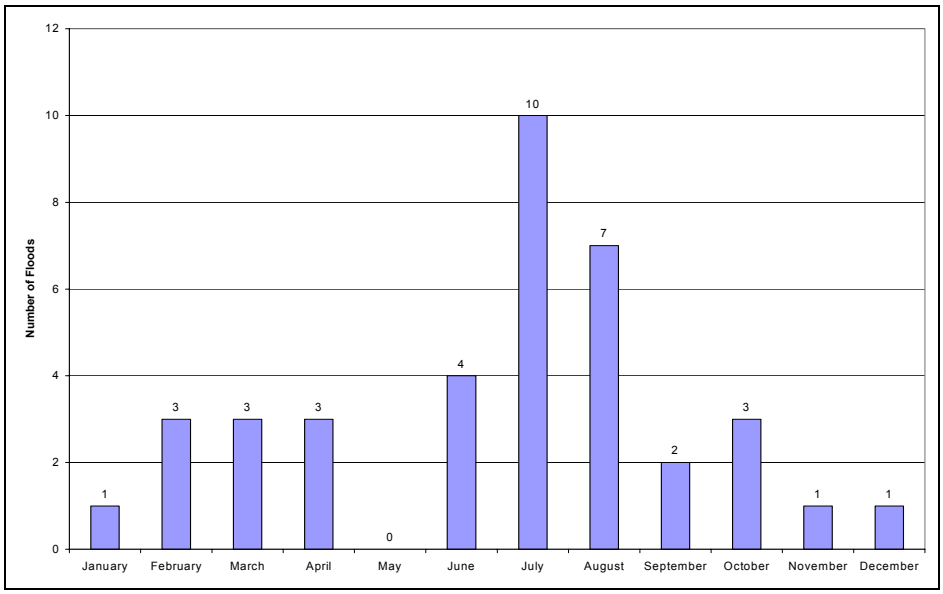


Figure 1 - Monthly distribution of floods recorded at Dubbo

Characteristics of Flooding – Macquarie River

11. The Burrendong Dam since its construction in 1965 has had a significant mitigating effect on flood levels at Dubbo. The Dam commands a catchment of 13,900 km^2, which is approximately 70% of the catchment upstream of Dubbo. Due to the physical control exerted by the Dam, its resultant outflow discharges are invariably lower than its corresponding peak inflows. This, together with its usual ability to delay releases so flood peaks from downstream tributaries are not compounded, permits the actual reduction of the flood crest. However, 30% of the catchment above Dubbo by-passes the Dam and therefore is not directly influenced by it. In addition, releases from the Dam are inevitable when its nominal flood storage is exceeded and although still less than the inflow into the Dam, such discharges can be substantial in volume and capable of causing flooding downstream in there own right, as occurred in 1971 and 1990.

12. The extent of flooding in the Macquarie River from the Dam to Wellington is limited by the steeply rising ground on both sides of the river. Below Wellington the topography is less rugged, but the river remains confined between high banks until just above Ponto Bridge near Geurie. Downstream of this point, moderate floods cause inundation in a narrow strip along the river as well as backing up and flowing through some cowals further away from the river. Major floods such as occurred in 1955 cause extensive inundation. This flood resulted in extensive inundation below the Little River with areas covered between one and four kilometres wide.

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13. The flood liable areas of the urban centre of Dubbo are not subject to frequent inundation because of the mitigating affect of the Burrendong Dam. Between the L.H. Ford Bridge and Railway Bridge, floods smaller than the 12 year ARI event are contained within the banks of the river. A flood having a magnitude of a 20 year ARI event will begin to affect low-lying commercial premises. The flood situation at Dubbo can be aggravated by the coincidence of high flows in both the Macquarie and Talbragar Rivers. However, this is a rare occurrence with the February 1955 flood only known to have reflected such conditions -the Talbragar backed-up the Macquarie to cause extensive inundation of parts of Central and North Dubbo.

Characteristics of Flooding – Talbragar River

14. Although floods within the river generally occur every few years, only the floods of 1870, 1920, 1926, 1950 and 1955 are known to have broken the banks. The flood of 1955 was the largest on record. It was produced by record rainfalls in the upper catchment and caused extensive damage. Water flowed with a high velocity across the valley floor removing large areas of topsoil and damaging houses. The whole of the Village of Ballimore was inundated to depths exceeding 1 metre. By comparison, the floods of 1920 and 1950, which were the next highest, only backed up into the low spots along the river.

River Distances – Crest Travel Times

15. The river distances and crest travel times are detailed in the following table:

Gauges	River Distance (km)	Travel Time Range (hours)	Median Travel Times (hours)
Macquarie River			
Burrendong Dam – Wellington	38	8—12	
Wellington – Wollombi	42	10—12	
Wollombi – Dubbo	32	6—16	9
Dubbo – Baroona	52	9—27	13.5
Baroona – Narromine	23	4—12	
Bell River			
Neurea – Wellington	25	1.5—11.5	6
Little River			
Obley – Allandale	56	6—11.5	9
Allandale – Wollombi	25	4—8	
Talbragar River			
Dunedoo – Narranmore	53	16—24	
Narranmore – Barbigal	49	10—20	
Barbigal – Ganarrin	36	12—20	

Figure 2 - River distances and crest travel times

Flood History

Draft

16. Between 1885 and 1990, 38 floods have reached 8.0 metres at Dubbo but these have occurred in only 23 years. Around four out of five years are therefore free of significant floods. The maximum continuous period without any floods was the 15 years from 1901 to 1915, while the maximum number of floods in anyone year was eight in 1950. Four floods above 8.0 metres occurred in 1990.

17. The most serious floods experienced in the Dubbo City Council area occurred in 1870, 1892, 1926, 1950, 1955 and 1956. Of these the 1955 flood was the most severe, reaching a height of 12.67 metres on the Dubbo Pump Station gauge. The flood-producing rains on this occasion fell largely over the catchments of the Cudgegong and Talbragar rivers, with only minor falls over the upper Macquarie. The coincidence of a major flood in the Talbragar River with high flows in the Macquarie River resulted in the backing-up of floodwaters into large portions of the Dubbo urban area.

18. Since the completion of Burrendong Dam at the junction of the Macquarie and Cudgegong Rivers in 1965, the dam has had a significant affect in attenuating flood events. Where as the 1956 flood (the second highest on record at 11.90 metres) principally resulted from high flows originating in the Macquarie River catchments before the dam was built, the 1990 event was mitigated as a consequence of the dam. The 1990 event similarly arose from rain mostly falling over the Macquarie upstream of Bathurst and over the Bell and Little River catchments. The Talbragar contributed virtually nothing on this occasion. Inflow to Burrendong Dam reached record levels in 1990. Peak releases were also at record levels, and the dam reached its highest storage level. This flood however, reached 10.06 metres at Dubbo while it is estimated that without the dam, it would have exceeded 12 metres.

19. Floods differ not only in terms of heights reached and the contributions of particular tributaries, but also in terms of volume of discharge and duration. The 1950 and 1956 floods were larger in terms of total discharge and lasted longer than the 1955 event but did not reach the same height. In accordance with seasonal differences in the nature of the major weather systems, it is the winter floods which have tended to be longer-lasting and of greater discharge.

Recorded Flood Events at Dubbo Exceeding 11 metres (Gauge heights relate to the Dubbo gauge)		
Year	**Date**	**Height (m)**
1870	22 June 1870	11.90
1892	26 September 1892	11.42
1926	26 March 1926	11.31
1950	5 April 1950	11.10
1955	25 February 1955	12.67
1956	14 March 1956	11.90

Figure 3 - Recorded flood events at Dubbo exceeding 11 metres

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Significant Flood Events at Dubbo Since the Construction of Burrendong Dam (Gauge heights relate to the Dubbo gauge)		
Year	**Date**	**Height (m)**
1971	11 February 1971	9.78
1976	25 January 1976	7.30
1990	21 April 1990	8.96
1990	25 July 1990	8.34
1990	3 August 1990	10.06

Figure 4 - Significant flood events at Dubbo post Burrendong Dam

Flood Mitigation Systems and Extreme Flooding

20. Burrendong Dam is located on the Macquarie River just below its confluence with the Cudgegong River. The dam has a total catchment area of 13,890 km^2. The town of Wellington, which has a population of 5,600, is about 30 km downstream. The city of Dubbo, which has a population of about 32,000, is about 50 km downstream of Wellington.

21. In 1949, the then Water Conservation and Irrigation Commission undertook the planning and investigations for Burrendong Dam. The project was envisaged as a single purpose storage of 640,000 ML capacity, mainly for grazing and grain irrigation. Later because of the consequences of flood damage during the 1955 flood, the conservation storage capacity of the dam was increased to 1,118,000 ML and a flood mitigation storage of 489,000 ML was provided by seven radial gates in the spillway. The dam's construction was completed in 1963.

22. In 1989, the Burrendong Dam storage was supplemented by the completion of Windamere Dam, which is located on the Cudgegong River, an upstream tributary of the Macquarie River.

23. Both Burrendong and Windamere Dams are now owned by the Department of Land and Water Conservation and operated and maintained by State Water, the department's bulk water delivery business. Studies are now underway to examine the capability of the Burrendong Dam spillway to accommodate extreme floods.

24. Burrendong Dam is the single most important floodplain mitigation measure available to the City of Dubbo and has dramatically altered the extent, frequency and pattern of flooding within the city. The operation of Burrendong Dam as a flood mitigation storage is crucial to the flood security of Dubbo.

25. At Dubbo, the magnitude of the peak discharge of the February 1955 flood under pre-dam conditions would have a frequency of a 80 year ARI event. Under post-dam conditions it would have an ARI frequency of 500 years.

26. It is important to realise that the dam does not control all of the catchment above Dubbo. Therefore, major flooding can still occur from streams draining this uncontrolled area. Furthermore, although a rare event, the coincidence of high flows in both the Macquarie and Talbragar Rivers with resulting extreme flooding of Dubbo, is still a real and plausible threat. Despite the mitigating effect of Burrendong Dam, major flooding of the urban area of Dubbo and rural areas will occur, with the exceedance of the 1955 flood event also being a real but remote possibility.

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27. Burrendong Dam is estimated to be able to withstand a flood volume up to 70-80% of that in the Probable Maximum Flood (PMF) at the dam site. The flow in such a flood would be vastly greater than has ever been recorded there and would be extremely rare. Failure would add further to the previously existing flow volume but is extremely unlikely because one of the saddle dams would be deliberately breached to save the main dam. This too would, however, add to the seriousness of an already very severe flood downstream.

28. If a failure were to occur the effects would be very severe for scores of kilometres downstream for a wide area and result in a flood of extreme proportions in the Macquarie River. Although some attenuation of the height of the flood wave could be expected by the time of arrival at Dubbo, the flood nevertheless would be of great severity to not only the urban area of Dubbo but the rural areas as well. Under such circumstances, the City of Dubbo would experience its worst flooding in recorded history with the highest known flood (1955) being exceeded by metres.

29. When studies of the potential effects of such flooding are completed, this plan will be revised to develop appropriate warning and evacuation procedures. It must be stressed however, that the risk of dam failure is extremely slight.

ANNEX B - EFFECTS OF FLOODING ON THE COMMUNITY

General

1. Floods smaller than the 12-year ARI flood event are contained within the banks of the Macquarie River. Following overtopping of the riverbanks some evacuations of low-lying residences and the Poplar Caravan Park is necessary when moderate flood level (7.9 metres) is reached. At 8.5 – 9.0 metres the low-lying commercial premises begin to be affected by the inundation of basement areas and necessitating the removal of vehicles from several car yards.

2. Flood heights in excess of 10.5 metres would cause severe disruption to the Central Business District. Floodwaters are expected to enter Macquarie Street at heights between 11.2 – 11.5 metres. At heights between the 2% AEP (10.94 metres) and the 1% AEP level (11.75 metres), flood waters begin to back-up the underground stormwater system resulting in the creation of 'lakes' up to 300mm in depth in the CBD outside the main line of river inundation.

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3. In excess of 11.75 metres the scale of river inundation increases significantly with floodwaters breaking out across the city. North of the railway line the flood limit will spread more quickly reflecting the flatter and lower lying ground. Large portions of the CBD business premises and North Dubbo residences will require evacuation.

4. The location of flood level markers in the CBD for the 1955 and 1990 flood events is shown in Map 4.

5. The Dubbo SES Local Controller maintains a list of residential and commercial premises requiring warning if floods exceeding the moderate flood classification level are expected.

Dubbo Rural Area

6. The Villages of Wongarbon and Eumungerie experience some inundation from local watercourses, particularly Eumungerie where the Drillwarrina Creek can inundate the majority of the residences situated between the creek and the railway line.

7. The Village of Ballimore is subject to flooding by the Talbragar River at Major Flood level and above, having been inundated at least once in recorded history, that being 1955. The lower parts of the Village of Brocklehurst are subject to inundation from the Talbragar River for a 2% AEP event or greater.

8. The North Burrabadine subdivision is subject to isolation at Major Flood level by the severing of the only road access by a flood cowal. Some residences within the subdivision are also at risk of inundation above the major flood level.

9. Extensive rural areas on the Macquarie and Talbragar Rivers floodplains are inundated during the more severe events.

Roads Affected by Flooding

10. **Road Closures**. Dubbo City Council will close major arterial roads just prior to them being inundated with floodwater in order to prevent excessive damage to the road surface and to minimise risk to the road users. Road closures will occur around Dubbo as the result of a combination of both riverine flooding from the Macquarie River and localised flooding. Three areas receive special attention during periods of flooding. They are:

a. **Bligh Street**. Vehicles and caravans have to be moved from the area before inundation commences. When it is predicted that Bligh Street will be inundated during the day it will be closed prior to the morning traffic to reduce the requirement to shift vehicles from the area as the floodwaters rise.

b. **Emile Serisier Bridge**. Every attempt will be made to keep the bridge open for as long as possible. However, once the floodwaters reach the bottom of the bridge deck the bridge will be closed. This is because the usual build up of flood debris will quickly cause the floodwaters to flow over the bridge deck.

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11. **Highway Detours**. When the Newell Highway north of Dubbo is closed by floodwaters the RTA implement a highway detour which diverts the traffic from the north at the Stockmarket turn-off. The detour diverts vehicles via Boothenba Road, Yarrandale Road, Cobbora Road, Wheelers Lane and back onto the Mitchell Highway.

12. Roads that may be affected by flooding are detailed in the following tables:

Urban Roads			
Gauge Height	**Road**	**Designation**	**Location of Closure**
6.8	Bligh Street		Talbragar & Bultje streets
7.4	Bligh Street		Remaining section
7.4	Mitchell Hwy (Emile Serisier Bridge)		Whyandra & Erskine streets
8.0	Brisbane Street		Macleay & Bourke streets
8.4	Newell Highway		River Street & Purvis Lane
8.5	Fitzroy Street		River Street & Purvis Lane

Figure 5 - Urban roads affected by flooding

Rural Roads			
Gauge Height	**Road**	**Designation**	**Location of Closure**
6.9	Troy Bridge		Troy Bridge Road & Newell Hwy
7.0	Angle Road		

Rural Roads			
Gauge Height	**Road**	**Designation**	**Location of Closure**
7.5	Old Dubbo Road		Hennessy's Road & Angle Park Road
8.0	Rawsonville Road		Burroway Road & Mitchell Hwy
8.0	Benelong Road		
8.5	Bunglegumbie Road		At Sandy Creek
9.5	North Burrabadine Road		
9.5	Burroway Road		

Figure 6 - Rural roads affected by flooding

Main Access Routes within the Dubbo Urban Area			
Road	**Designation**	**Affected At**	**Comments**
Newell Hwy		L.H.Ford Bridge	Eastern approach cut in minor floods.
Newell Hwy		North Dubbo & Troy	Inundated in floods above the moderate flood classification level.
Mitchell Hwy		Emile Serisier Bridge	Inundated moderate floods.

Figure 7 - Main access routes within the Dubbo urban area affected by flooding

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Main Access Routes within the Dubbo Rural Area			
Road	**Designation**	**Affected At**	**Comments**
Mitchell Hwy		Brummagen Creek Bridge	Backwater from the Macquarie River.
Dunedoo Road	MR 206	5 km east of the Beni Rail crossing	Local flooding.
Troy Bridge Road		Troy Bridge	Inundated before the moderate flood classification level is reached.
Old Dubbo Road		Eulomogo Creek	
Obley Road		Several locations	Local and riverine flooding.
Rawsonville Road		Rawsonville Bridge	The northern approach is cut.
Benelong Road		Terra Bella bridge	Cut at Little River.
Bunglegumbie Road		Several locations	Affected by general overbank inundation.
Mogriguy – Eumungerie Road		Coalbaggie Creek	Local flooding.
Mogriguy – Eumungerie Road		Mogriguy & Sandy creeks	Local flooding.
Old Mendooran Road		Talbragar River Crossing	Inundated by minor flooding.
Barbigal Road		1 km south of Dunedoo Road	Local flooding.
Minore Road		Whylandra Creek Crossing	Local flooding.
Burroway Road		Mogriguy Creek	Backwater from Macquarie River.

Figure 8 - Main access routes within the Dubbo rural area affected by flooding

Air Transport

13. Access to the Dubbo airport from areas east of the Macquarie River remains until access to West Dubbo is lost when the eastern approaches to the L.H.Ford Bridge is inundated at 11.75 metres. The airport is capable of handling 767, 737, Airbus and C130 Hercules aircraft depending upon the condition of the pavement.

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NSW STATE EMERGENCY SERVICE

SES RESPONSE ARRANGEMENTS FOR DUBBO CITY

Volume 3 of the Dubbo City Local Flood Plan

Last Update: June 2003 (DRAFT)

FloodSafe

ANNEX C - GAUGES MONITORED BY THE DUBBO SES LOCAL HEADQUARTERS

Gauge Name	Type	AWRC No	Stream	Flood Classification			Reading Arrangements
				Min	Mod	Maj	
Wellington Bridge*	Manual	421003	Macquarie River	6.0	11.0	13.0	BoM, SES
Geurie (Wollombi)	Manual	421900	Macquarie River	5.0	10.2	12.0	SES
Dubbo*	Telemeter	421001	Macquarie River	5.5	7.9	11.0	DLWC, BoM, SES
Ganarrin	Manual	421901	Macquarie River	-	-	-	SES
Baroona	Telemeter	421127	Macquarie River	4.0	10.0	12.0	DLWC, BoM
Rawsonville	Telemeter	421055	Coolbaggie Creek	-	-	-	DLWC
Newrea (Bell R)	Telemeter	421018	Bell River	4.9	5.4	6.4	DLWC, BoM
Wellington (Bell River)	Manual	421008	Bell River	3.4	5.9	8.4	SES

Note:

1. The Bureau of Meteorology provides flood warnings for the gauges marked with an asterisk (*).

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ANNEX D - DISSEMINATION OF SES FLOOD BULLETINS

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

Television Stations:

Station	Location
Prime	Dubbo
ABC	Sydney
Capital	Sydney
WIN	Dubbo

Radio Stations:

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Station	Location	Frequency	Modulation
2DU	Dubbo	1251	AM
2CR	Orange	548	AM
Zoo FM	Dubbo	92.7	FM
Star FM	Dubbo	93.5	FM
RHEMA	Dubbo		FM
Aussie	Dubbo	88.1	FM

Newspapers:

Name	Location
Daily Liberal	Dubbo

Other Agencies:

- RTA Dubbo
- NRMA Dubbo
- Dubbo City Council
- Orana Police District HQ
- NSW Ambulance Service Regional Office, Dubbo
- NSWFB, Dubbo
- NSWFB, Central Region, Young
- Australia Post, Dubbo
- Tourist Information Centre, Dubbo

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

Evacuation Warning for [ ]

Date/Time of Issue: [ ]

Authorised By: [ ]

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

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

To prepare for evacuation, you should:

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- 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 [ ] 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 other animals.

If evacuation is necessary:

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

ANNEX F - EVACUATION ARRANGEMENTS FOR THE DUBBO CITY AREA

Situation

1. A number of residences and properties will need to be evacuated during significant flood events up to the 1% AEP flood level. In most floods, the evacuation task would involve only a relatively small number of people living on the floodplain in the urban area and urban fringes of Dubbo. However, floods exceeding the 1% AEP level would require the evacuation of a large proportion of North Dubbo and the Central Business District and cause significant disruption.

2. A flood inundating the same urban area of Dubbo as the 1955 event would be expected to require the maximum evacuation of approximately 2,000 people.

3. Individual rural properties on the Macquarie and Talbragar River floodplains can expect to suffer inundation and/or short-term isolation depending on the severity of the flood. Affected persons will usually evacuate to friends or relatives located either in Dubbo or in the general vicinity. Disruption to telephone communications can be expected in the Benolong – Terrabella area following the breaking-out of floodwaters from the Macquarie River in those localities. Isolation of residences in the North Burrabadine Sub-division will occur during a major flood event together with inundation of some low-lying premises. Evacuation of residents to Dubbo prior to the severing of the only road access into that sub-division will need to be considered.

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4. Portions of the Villages of Eumungerie and Wongarbon are prone to local flooding and may require partial evacuation whilst the lower parts of the Village of Brocklehurst are threatened by a 2% AEP event or greater in the Talbragar River. Evacuees in these Villages would normally be accommodated by friends or relatives in the locality, but if necessary, could be moved to Dubbo. The village of Ballimore however, is threatened by wide-spread inundation should an extreme event occur in the Talbragar River, and is likely to necessitate a complete evacuation of the village occupants to Dubbo. The maximum number of evacuees expected from the villages are approximately:

a. Eumungerie – 40 persons;

b. Brocklehurst – 30 persons;

c. Wongarbon – 30 persons; and

d. Ballimore – 120 persons.

5. As a regional centre serving a large area of north-western New South Wales, Dubbo is the nominated reception and initial billeting centre for evacuees from towns and villages in the surrounding local government areas of Coonamble, Gilgandra, Nyngan, Walgett, Warren, Wellington and Narromine. The maximum number of evacuees from the surrounding urban centres and villages is estimated to be as follows:

a. Collarenebri – 600 persons;

b. Coonamble – 500 persons;

c. Gilgandra – 2,000 persons;

d. Mendooran – 350 persons;

e. Narromine – 3,300 persons;

f. Nyngan – 2,300 persons;

g. Walgett – 2,000 persons; and

h. Warren – 2,000 persons.

Mission

6. The SES is to coordinate the evacuation of areas at risk of flooding in order to ensure the safety of residents.

Execution

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7. **Control.** During floods the NSW SES will control evacuations.

8. **Conduct.** Evacuations will be controlled by the Dubbo SES Local Controller with the assistance of the LEOCON and conducted by Police, SES, NSWFB, VRA & RFS personnel in four phases:

a. Phase 1 - Warning.

b. Phase 2 – Withdrawal.

c. Phase 3 – Shelter.

d. Phase 4 – Return.

9. **Coordinating Instructions.**

a. **The decision to evacuate.** The responsibility for issuing any general evacuation order during flooding rests with the Dubbo SES Local Controller who exercises his/her authority in accordance with Section 22(1) of The State Emergency Service Act 1989. However, the decision to evacuate will usually be made after consultation with the LEOCON, Dubbo City Mayor and the Macquarie SES Division Controller.

b. **When evacuation should occur.** As far as possible, evacuation will be carried out before inundation occurs.

c. **Self-motivated evacuation.** Some people will make their own decision to evacuate earlier and move to alternative accommodation using their

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

10. **Evacuation triggers.**

a. Following overtopping of the riverbanks some evacuations of low-lying residences and the Poplar Caravan Park is necessary when moderate flood level (7.9 metres) is reached.

b. At 8.5 – 9.0 metres, the low-lying commercial premises begin to be affected by the inundation of basement areas and necessitating the removal of vehicles from several car yards.

c. Flood heights in excess of 10.5 metres would cause severe disruption to the Central Business District. Floodwaters are expected to enter Macquarie Street at 11.2 – 11.5 metres. Between the 2% AEP (10.94 metres) and the 1% AEP level (11.75 metres), floodwaters begin to back-up the underground stormwater system resulting in the creation of 'lakes' up to 300mm in depth in the CBD outside the main line of river inundation.

d. In excess of 11.75 metres, the scale of river inundation increases significantly with floodwaters breaking out across the city. North of the railway line the flood limit will spread more quickly reflecting the flatter and lower lying ground. Large portions of the CBD business premises and North Dubbo residences will require evacuation.

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11. **Phase 1 – Warning**

a. **Evacuation warnings.** On the receipt of flood warnings predicting peak heights of 8.2 metres and above at the Dubbo gauge; the Dubbo SES Local Controller will consult as necessary to determine the level of the threat and the need to consider evacuations. As soon as possible after the decision to evacuate is made, the Dubbo SES Local Controller will issue evacuation warnings to the ‘at risk’ residents, indicating what people should do before evacuating and when actually doing so.

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

- The radio and TV stations listed in Annex D.
- Door-knocks by emergency service personnel.
- Public address systems from emergency service vehicles.
- Telephone.
- Two-way radio.
- SES Flood Bulletins.

12. **Phase 2 – Withdrawal**

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

b. **Movement.** Evacuees are to be encouraged to move using their own transport where possible. The Dubbo SES Local Controller will arrange transport for those people without their own vehicles.

c. **Special Needs Groups.** The Dubbo SES maintains a list of vulnerable residents and special needs groups (aged, infirm, handicapped and people requiring medical support). When evacuations are ordered Ambulance Service personnel will be deployed early to assist with the safe evacuation of these people.

d. **Animals.** Evacuees with their own transport will be encouraged to take their companion animals such as cats, dogs and horses with them as they evacuate. These animals will therefore be transported by car, truck or horse float along the evacuation routes designated in this plan. Companion animals so shifted will be collected from their owners at evacuation centres and taken to facilities to be arranged by the Dubbo City Council at either Boothenba Road or the Dubbo Showground. Due to safety restrictions, it may not be possible to allow companion animals to accompany their owners when being transported via aircraft or flood rescue boats. In these cases provision will be made for animals to be picked up as the people are evacuated. Arrangements will also be made to pick up animals that are left behind. Assistance animals (guide dogs, hearing assistance animals, etc) will remain in the care of their owners throughout the evacuation. This includes transport and access into evacuation centres etc.

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

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

f. **Refusal to evacuate.** Field teams should not waste time dealing with people who are reluctant or refuse to comply with any evacuation order. These cases should be referred to the Local Emergency Management

Operations Controller who will arrange for Police to ensure their evacuation.

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

h. **Helicopter Landing Points.** Suitable landing points are located at:

- The Dubbo Airport.
- Dubbo Base Hospital, Myall Street, Dubbo.
- No 1 Oval, Victoria Park, Darling Street, Dubbo.
- Dubbo Showground, Fitzroy Street, Dubbo.
- Elizabeth Park, Windsor Parade, Dubbo.
- Dawson Park Greyhound Track, Wheelers Lane, Dubbo.
- Jubilee Oval, Wheelers Lane, Dubbo.

i. **Airport.** Access to the Dubbo airport from areas east of the Macquarie River remains until access to West Dubbo is lost when the eastern approaches to the L.H.Ford Bridge is inundated at 11.75 metres. The airport is capable of handling 767, 737, Airbus and C130 Hercules aircraft depending upon the condition of the pavement.

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13. **Phase 3 – Shelter**

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

- **Dubbo**. For most floods any or all of the following locations could function as evacuation centres in the urban area of Dubbo:
  - Dubbo Civic Centre – Darling Street;
  - Police and Citizens Youth Club – Cnr Darling and Erskine streets;
  - Wesley Centre – Cnr Church Street and Carrington Avenue;
  - Masonic Hall – Wingewarra Street; and
  - Pipe Band Hall – Darling Street.

- In extreme floods necessitating large-scale evacuations and rendering the above locations unuseable, the following may function as evacuation centres:
    - South Dubbo High School Hall – Fitzroy Street;
    - Christian High School Hall – Sheraton Road;
    - St. Johns High School Hall – Sheraton Road;
    - Delroy High School Hall – East Street;
    - Ron Gordon Centre – Spears Drive;
    - Seventh Day Evangelists Hall – Cnr Cobra and Sterling streets; and
    - Girl Guides Hall – Boundary Road.
- **Villages**. Premises suitable for use as an Evacuation Centre in the Villages are listed below:
    - Eumungerie Hall – Railway Street, Eumungerie;
    - Eumungerie Primary School – Wheaton Street, Eumungerie;
    - Terramungamine BFB Building – Burraway Road, Brocklehurst;
    - St. Johns Ambulance Centre – Newell Highway, Brocklehurst;
    - Wongarbon Public Hall – Gundong Street, Wongarbon;
    - Wongarbon Scout/Tennis Club – Beni Street, Wongarbon; and
    - Ballimore Hall – Cnr Federation and Bunyip streets, Ballimore.

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b. **Action on arrival.** On arrival, evacuees will be:

- registered;
- medically checked, if necessary; and
- provided with their immediate welfare needs.

c. **Registration.** The NSW Police will ensure that all evacuees are registered on arrival at the designated evacuation centres and details of

the registrations are to be sent to the NSW Police Western Region Headquarters by the quickest means available.

d. **Evacuees' Pets.** Evacuees managing their own evacuations should be encouraged to take their pets with them. However, pets cannot be managed at evacuation centres. In the event of a large-scale evacuation from North Dubbo, companion animals (domestic pets) will be accommodated in the Dubbo City Council animal pound in Boothenba Road. The Dubbo City Council will operate these facilities with assistance from the RSPCA. An alternative animal compound may be established at the Dubbo Showground. Assistance animals can accompany their owners on non-private transport provided for evacuees and at evacuation centres.

14. **Phase 4 – Return**

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

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

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Administration and Logistics

15. **Transport and storage.** Transport and storage of furniture from flood threatened properties will be arranged as time and resources permit.

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

Control Arrangements

17. **Control.** Small-scale evacuations will be controlled by the Dubbo SES Local Controller. Should the evacuations operations escalate beyond the capabilities of local resources control may be handed over to the Macquarie SES Division Controller.

ANNEX G - ARRANGEMENTS FOR THE EVACUATION OF CARAVAN PARKS AND THE RELOCATION OF CARAVANS

General

1. The following caravan parks are flood liable in Moderate floods (7.9 metres and above at the Dubbo gauge):

a. Poplars Caravan Park in lower Bultje Street.

b. Mid state Caravan Park at 21 Bourke Street, Dubbo.

Advising Procedures

2. Caravan Park proprietors will 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; and

- 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 should:

- 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; and

- leave any mobile van in a condition allowing it to be towed in an emergency (ie: 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.

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- Listen to a local radio station for updated flood information.
- Prepare for evacuation and van relocation.

3. The Dubbo 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; and
- move to the 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. Council and SES personnel will assist if required and may be able to provide additional vehicles. Vans are to be moved to the Dubbo Showground.

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6. Occupants of vans that are being relocated should go to a designated evacuation centre if they have their own transport. Those without their own transport are to report to the caravan park office.

7. Caravan park managers will:

a. Ensure that their caravan park is capable of being evacuated within 6-10 hours.

b. Advise the Dubbo SES Local Controller of:

- the number of people requiring transport;
- details of any medical evacuations required; and
- 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 Dubbo SES Local Controller when the evacuation of the caravan park has been completed.

e. Provide the Dubbo SES Local Controller with a register of people that have been evacuated.

Return of Occupants and Vans

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

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

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ANNEX H - PROPERTY PROTECTION

Introduction

1. On Receipt of warnings of imminent flooding residents should be encouraged to prepare their property. The following paragraphs provide some useful checklists that can be conveyed to residential and commercial residents at risk of flooding.

Property Protection Checklist – Residential

2. Move as many household items as possible to a high a place as possible. **CAUTION**. The roof or upper floor may not be able to safely support the additional weight of heavy equipment or furniture unless it has been specially strengthened before hand.

3. Include cardboard boxes and newspapers as items to be moved to higher ground. Such material will disintegrate and clog drains when floodwaters recede.

4. Anchor, secure, or weigh-down any items that may become debris or battering rams in moving water. For example, tie furniture and personal items on top of a bed and then anchor the bed by tying it to the house structure.

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5. Tie down timber, metal and loose items in the yard to prevent them from being carried away by floodwater or battered against other items or structures (eg. plastic drums and containers etc).

6. Remove all wood drawers, even though empty, from built-ins (eg. cabinets) and furniture (eg. dressers) because wood swells when wet and the resulting pressure between the drawers and their containers can damage wood fibres.

7. Remove light-bulbs from permanently mounted light fixtures below flood level to prevent their breakage. Put the light-bulbs and other glass items in plastic bags to prevent glass from shattering and spreading if the item is broken.

8. Protect valuable machinery and equipment that cannot be relocated by enclosing them in waterproof covers or by coating them with grease to minimise damage and to facilitate cleaning and return to operation. If practical, consider encircling such equipment with a wall of sandbags.

9. Relocate chemicals that react with water to give off heat or form explosive or toxic gases and chemicals (such as weed killers and potassium) to the highest level in the home and ensure that they are in waterproof containers. This will prevent safety hazards, pollution, or damage to materials in the home.

10. Remove and dispose of perishable food items in cabinets, refrigerators, and indoor garbage cans or place in plastic bags or containers and seal shut. Tie the lids outdoor garbage containers shut and anchor them to minimise the spread of disease and unsanitary conditions. Leave refrigerator and freezer doors **OPEN**.

11. For those who have a boat, moor it in such a way that access to it can be gained easily during the flood.

12. People who evacuate voluntarily are encouraged to tell a number of the family, a friend, neighbour or emergency workers when they are going and, if known, where they are going.

Property Protection Checklist – Utilities

13. **Electrical System**:

    a. The flow of electricity through the home is controlled by either plug fuses or circuit breakers located within a meter board fuse box mounted on the wall of the home. If flooding is imminent, remove (don't just loosen) all fuses, including the one at the main switch and at the range switch, and put them in a place above the anticipated flood level. This will minimise the danger of short circuits when the power authority returns service to your home after the flood.

    b. If a circuit breaker panel board is present, switch each circuit breaker to the **OFF** position.

    c. Ensure all perishable food as been removed from the refrigerator and freezer.

    d. Ensure any outside hot water heaters are tied down.

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14. **Gas**:

    a. Close main gas valve on the cylinder.

    b. Gas cylinders/bottles should be tied down or disconnected and removed above predicted flood height.

15. **Water**:

    a. Close stop valve at the water meter.

    b. Disconnect any underground sprinkler watering systems connected to the supply.

    c. Close any stop valves/taps connecting rainwater tanks to the house.

16. **Fuel Tanks**.

    a. Anchor fuel tanks to prevent them from overturning or floating.

    b. Close fuel tank valves to prevent leaks, spills and floodwater in filtration.

Property Protection Checklist – Commercial Premises

17. On receipt of a warning of imminent flooding commercial operators should consider the following checklist to ensure that they are adequately prepared.

18. Move as many goods and equipment items as possible to higher levels before access to the storage/display areas are cut off by rising floodwaters.

19. Ensure basement areas are attended to and not forgotten.

20. Protect valuable machinery and equipment that cannot be relocated by enclosing them in waterproof covers or by coating them with grease to minimise damage and to facilitate cleaning and return to operation (if practical, consider encircling such equipment with a wall of sandbags).

21. Anchor, secure or weigh-down any items that may become debris or battering rams in moving water.

22. Relocate chemicals that react with water to give off heat or form explosive or toxic gases and chemicals.

23. Remove perishable food items from cool rooms, refrigerators and freezers that are at risk of being inundated.

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24. Tie down any loose items in the yard to prevent them from being carried away by floodwater.

25. If flooding is imminent, remove electrical fuses to all equipment and lighting in areas at risk of being inundated. If necessary, arrange an electrician to isolate such equipment or area from the remainder of the building. If the premise has a circuit breaker panel board, switch each appropriate circuit breaker to the **OFF** position.

26. Close the main gas valve on the gas cylinders/bottles.

27. Gas cylinders/bottles should be tied down or disconnected and removed above predicted flood height.

28. Close stop valves on water plumbing feeding areas likely to be inundated.

29. Disconnect any underground sprinkler watering systems connected to the water supply.

30. Anchor fuel tanks to prevent them from over turning or floating. Close fuel tank valves to prevent leaks, spills and floodwater infiltration.

ANNEX I - DETAILS OF EMERGENCY ACTIONS FOR BURRENDONG DAM

Introduction

1. Burrendong Dam is estimated to be able to withstand a flood volume up to 70-80% of that in the PMF (Probable Maximum Flood) at the dam site. The flow in such a flood would be vastly greater than has ever been recorded there and would be extremely rare. Failure would add further to the previously existing flow volume but is extremely unlikely because one of the saddle dams would be deliberately breached to save the main dam. This too would, however, add to the seriousness of an already very severe flood downstream.

2. If a failure were to occur the effects would be very severe for scores of kilometres downstream for a wide area and result in a flood of extreme proportions in the Macquarie River. Although some attenuation of the height of the flood wave could be expected by the time of arrival at Dubbo, the flood nevertheless would be of great severity to not only the urban area of Dubbo but the rural areas as well. Under such circumstances, the City of Dubbo would experience its worst flooding in recorded history with the highest known flood (1955) being exceeded by metres.

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3. When studies of the potential effects of such flooding are completed, this plan will be revised to develop appropriate warning and evacuation procedures.

Emergency Action

4. The prime means of detecting the development of a potential emergency condition is through the daily visual inspection of the dam by the Officer-in-Charge, Assistant Officer-in-Charge, and inspection and monitoring activities of the Asset Services Branch, State Water. The three major possible causes of dam failure are:

a. Failure due to extreme flood levels overtopping the embankments.

b. Flood failure due to the failure of Windamere Dam (upstream of Burrendong Dam on the Cudgegong River, a tributary of the Macquarie) in the event of an extreme flood.

c. Failure due to a rapidly deteriorating structural deficiency such as may be induced by an extreme earthquake, internal erosion, landslide or sabotage. This is the so-called "Sunny Day" failure (ie not induced by an inflow flood).

5. Although the dam is currently in good condition, it is recognised that an unsafe or emergency condition could occur at any time due to extreme natural events. The Dam Safety Emergency Plan (DSEP) details two emergency actions—Action 1 and Action 2.

Action 1

6. Action 1 is known as the Emergency Action and is used to advise appropriate emergency services and authorities of a potential dam failure due to:

a. uncontrolled seepage through the embankment, abutments or foundations;

b. cracking or instability of the embankment caused by earthquakes or other factors;

c. the failure of Windamere Dam in an extreme flood event; or

d. an expectation that the storage level will exceed RL 362.41m AHD.

7. When Action 1 is activated, the SES is to make the necessary arrangements to evacuate at risk residents without delay. The extreme flood event that would cause a flood-induced failure would mean that many downstream residents should already have been evacuated before Action 1 is reached.

Action 2

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8. Action 2 is activated when a significant incident occurs but immediate dam failure is unlikely and does not pose immediate danger. Action 2 may be activated because of significant incidents such as:

a. slips, cracking, increase in turbidity or volume of seepage flow or earthquake;

b. storage level reaches RL 358.5m AHD;

c. damage to the hoist bridge caused by earthquakes or other factors; or

d. major electrical or mechanical equipment failure or damage.

9. The main aim of Action 2 is for the dam staff to closely monitor the condition of the dam and implement preventative measures to return it to a safe condition as soon as possible.

Flood Operation

10. Under normal conditions, the operation of the storage is controlled from the dam. During flooding events, the dam will be continuously manned, and dam staff will receive instructions for operating the spillway gates from the Manager, Hydrologic Information and Audit. The Operations Engineer, Central Area and the Duty Officer at Burrendong Dam are in regular contact with each other. The gauging station network is a Telemeter, which can be interrogated by telephone. The storage water level is also displayed and recorded continuously on an automatic recorder in the dam office. If the storage behaviour from the storage level recorder appears suspect, the storage level indicator on the gauge boards at the storage is visually checked. The Burrendong Dam Duty Officer will keep the SES informed of the discharge through the spillway. Once all spillway gates are withdrawn from water, the

water level must be monitored by Burrendong Dam Staff, and the Manager, Safety and Audit, State Water and the State Emergency Service must be kept continually advised. The following alerts are sent to the State Emergency Service:

Water Level (metres AHD)	Alert or Action
Storage exceeds RL 344.73.	Storage exceeds Full Supply Level (concrete crest level). Water on the gates.
RL 350 and expected to exceed RL 350.83.	Water level expected to exceed the flood storage level. Spillway gates are raised to pass floods.
RL 356.92 and storage continues to rise.	Flood has reached the maximum induced surcharge level. The gates will be withdrawn from the water and releases will no longer be controlled by the gates.
RL 361.5 and storage continues to rise.	Flood has exceeded spillway design flood level. **ACTION 1** is activated.
Storage exceeds RL 361.5 and expected to exceed RL 362.41	Storage exceeds design flood level and is expected to overtop the dam wall. Saddle Dam "B" is breached.
RL 362.41	Storage at Design Crest Level (critical safety level). Imminent Failure Flood Level.

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Figure 9 - Burrendong Dam Alerts

Inundation Area

11. For the case where dam failure is brought about by an extreme flood, there would already be unprecedented flooding downstream of the dam due to spillway discharge and flow in the Macquarie River. Downstream flood inundation could occur as the result of a failure due to extreme flood (including the breaching of Saddle Dam B) or a "Sunny Day" failure.

a. **Failure Due to Extreme Flood.** It is extremely unlikely that a flood would occur that would overtop the Burrendong Dam Main Embankment and lead to dam failure by erosion of the dam's crest and downstream face. The failure of Windamere Dam would only pose a threat when the airspace in Burrendong Dam has already been filled by heavy inflow from the catchment. Before such an event, steps can be taken to lower the storage level in Burrendong Dam and/or to breach Saddle Dam B to reduce the possibility further.

b. **Breaching Of Saddle Dam B.** In the event of major electrical or mechanical failure or blockage of the spillway gates, or insufficient spillway capacity, breaching of Saddle Dam B may be necessary in an extreme flood event. Preparations for breaching occur when the water level reaches RL 360.5m AHD and inflows indicate that the flood is expected to overtop the dam wall. When the storage level reaches RL 361.5m AHD and is expected to exceed RL 362.41m AHD, failure of Saddle Dam B is initiated. This will lead to severe downstream flooding but with less damage than catastrophic failure of the main embankment.

c. **" Sunny Day" Failure.** Failure due to a rapidly deteriorating structural deficiency such as may be induced by an extreme earthquake, internal erosion, landslide or sabotage in which the dam fails under a normal inflow condition is referred to as a "sunny day" failure. In such an event, downstream flood inundation would result from water held in the storage. It is extremely unlikely that any earthquake-induced settlement of the dam would exceed the height of the flood mitigation storage plus freeboard. However, it is likely that some of the dam's ancillary structures may be severely damaged by an extreme earthquake. In the event of a "sunny day" failure of Windamere Dam, its discharge would be absorbed by the air space in Burrendong Dam.

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12. Dam break flood inundation mapping has not yet been finalised for Burrendong Dam. Therefore, accurate information on flood depths, velocities and travel times at various locations is not available to be included at this stage. However, the Dubbo SES holds an interim inundation map for planning purposes. Travel times for a dam failure flood would be substantially less than travel time for the 1:100 year event and other conditions would be far worse in the case of dam break. Note however that the travel time relates to only one component of the lead-up time before downstream flooding commences, and therefore of the possible warning time. The other components are listed below:

a. Rainfall duration, flood travel times upstream of the storage, and time to fill the storage (for flooding cases).

b. The lag time between the occurrence of an extreme earthquake and initiation of a consequential dam failure.

c. For other events not related to natural flooding, the lag between first observing a problem, and its development into a dam failure event.

13. Severe flooding would also be likely to damage electricity supply facilities in the area resulting in loss of power, to put telephone facilities out of action, and to cut off evacuation routes.

14. It should be noted that dam break resulting from extreme rainfall would be preceded by flooding many times more destructive than from a flood equivalent to the flood of record in the Macquarie Valley, and consequently vast areas downstream of Burrendong Dam would already have been evacuated.

MAP 1 - RIVER BASIN

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MAP 2 - DUBBO COUNCIL AREA

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MAP 3 - TOWN/VILLAGE/SUBURB AREA

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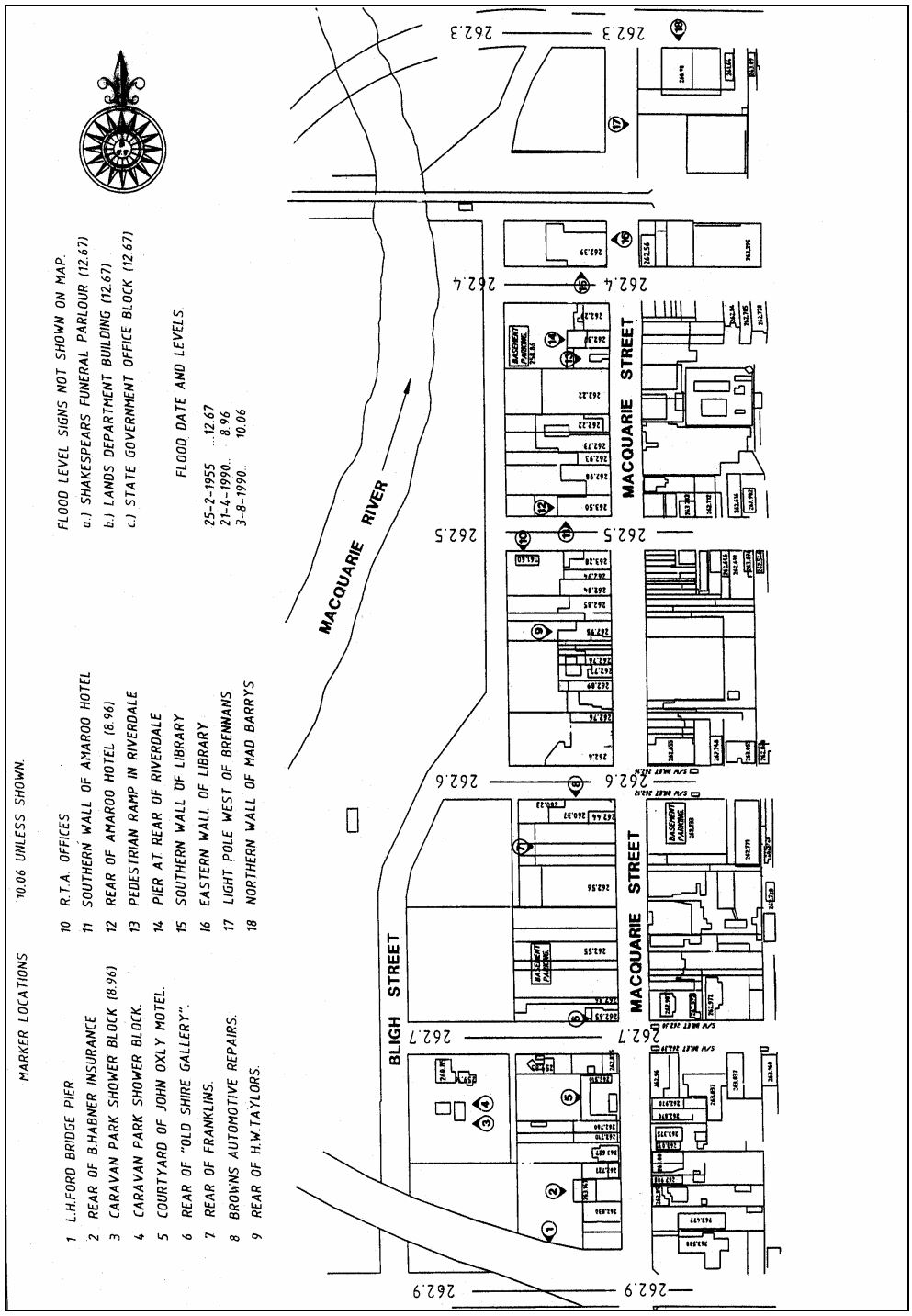
MAP 4 - LOCATION OF FLOOD LEVEL MARKERS