

Lithgow City

Local Flood Plan



LITHGOW CITY FLOOD EMERGENCY SUB PLAN

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

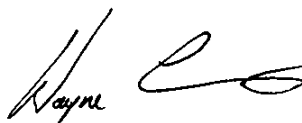
Volume 1 of the Lithgow City Local Flood Plan



AUTHORISATION

The Lithgow City Flood Emergency Sub Plan is a sub plan of the Lithgow City 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)**.

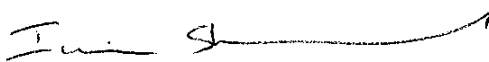
Recommended



NSW SES, Lithgow City Local Controller

Date: 10-9-14

Approved



Chair, Local Emergency Management Committee

Date: 18/9/14

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DISTRIBUTION LIST

Recipient	Number of copies
NSW SES Lithgow Local Controller	1
NSW SES Portland Unit Controller	1
NSW SES Lithgow and Portland Unit(s)	1
NSW SES Central West Region Headquarters	1
NSW SES State Headquarters	1
Lithgow City, Local Emergency Operations Controller	1
NSW Police Force, Chifley Local Area Command	1
Lithgow City, Local Emergency Management Committee Members	4
Lithgow, Local Emergency Management Officer	1
Lithgow, Local Emergency Operations Centre	1
Lithgow City Council Mayor	1
Lithgow City Council General Manager	1
Lithgow City Council Operations Department	1
Fire and Rescue NSW, Lithgow, Lithgow West, Portland, Wallerawang	1
NSW Rural Fire Service, Chifley Zone	1
Ambulance Service of NSW, Lithgow	1
Volunteer Rescue Association, Lithgow Rescue Squad	1
Office of Environment and Heritage	1
Evacuation Centres	1 each
Hospitals	1 each
Schools	1 each
Council Libraries	1 each
Centennial Coal - Pipers Flat Dam	1
Delta Electricity - Lyell Dam, Sawyers Dam, Thompson Creek Dam	1
State Water Corporation – Rydal Dam	1

VERSION HISTORY

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

Description	Date
City of Lithgow Local Flood Plan	1 May 2001

AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

The Lithgow Local Controller
 NSW State Emergency Service
 C/-Central West Region
 79 Corporation Avenue
 Bathurst, NSW 2795

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	Emergency 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
RMS	Roads and Maritime Services
NSW RFS	Rural Fire Service
SECON	State Emergency Operations Controller
SERCON	State Emergency Recovery Controller
SEWS	Standard Emergency Warning Signal
VRA	Volunteer Rescue Association
WICEN	Wireless Institute Civil Emergency Network

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 i.e. 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.

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.

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

Essential services. Those services, often provided by local government 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.

Flood fringe. 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 a 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. 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 Lithgow City 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* (NSW) and the *State Emergency Service Act 1989* (NSW). It has been approved by the NSW SES Lithgow Local Controller and the NSW SES Central West Region Controller as a NSW SES plan and endorsed by the Lithgow City 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 Lithgow City area which includes: the urban area of Lithgow and the towns and villages of Wallerawang, Portland, Cullen Bullen, Capertee, Rydal, Glen Davis, Hartley, Hampton, Marrangaroo, Blackmans Flat, Lowther, Ben Bullen, Mt Lambie, Tarana, Sodwalls and intervening rural areas.
- 1.3.2 The principal rivers and creeks in the Council area include:
- a. The upper reaches of the Cox's River system which flows generally south from the centre of the council area. This river is supplied with water from the Farmers Creek, River Lett, Thompsons Creek and Pipers Flat Creek.
 - b. The Capertee and Wolgan Rivers and their tributaries Coco, Carne and Umbrella creeks which drain to the east into the Colo River.
 - c. The upper reaches of the Turon River System which includes Round Swamp Creek, Coolamigal Creek and Palmers Oaky Creek. These drain towards the west, joining the Macquarie River outside the council area.
 - d. A section of the Fish River and its tributary Solitary Creek, which are part of the Macquarie River system.
- 1.3.3 The council area is in the NSW SES Central West 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 Lithgow City 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 Lithgow Local Controller.** The NSW SES Lithgow Local Controller is responsible for dealing with floods as detailed in the State Flood Plan, and will;

Preparedness

- a. Maintain a Local Headquarters at 3 Silcock Street, Lithgow 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 Lithgow City Council.
- e. Coordinate a public education program.
- f. Identify and monitor people and/or communities at risk of flooding.
- g. Ensure that the currency of this plan is maintained.

Response

- h. Appoint an appropriate Local Incident Controller to undertake response roles. The Incident Controller will;
 - 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 preparation of Region IAP.
 - Provide an information service in relation to;

-
- Flood heights and flood behaviour.
 - Road conditions and closures.
 - Advice on methods of limiting property damage.
 - Confirmation of evacuation warnings and evacuation orders.
 - Direct the conduct of flood rescue operations.
 - Direct the evacuation of people and/or communities.
 - Provide immediate welfare support for evacuated people.
 - Coordinate the provision of emergency food and medical supplies to isolated people and/or communities.
 - Coordinate operations to protect property, for example by:
 - Arranging resources for sandbagging operations.
 - Lifting or moving household furniture.
 - Lifting or moving commercial stock and equipment.
 - Arrange for support (for example, accommodation and meals) for emergency service organisation members and volunteers assisting them.
 - Ensure that the managers of caravan parks are advised of flood warnings and the details of any evacuation order.
 - If NSW SES resources are available, assist with emergency fodder supply operations conducted by Agriculture and Animal Services.
 - If NSW SES resources are available, assist the NSW Police Force, RMS and Council with road closure and traffic control operations.
 - Exercise financial delegations relating to the use of emergency orders as laid down in the NSW SES Controllers' Guide.
 - Coordinate the collection of flood information for development of intelligence.
 - Submit Situation Reports to the NSW SES Central West Region Headquarters and agencies assisting within the council area. These will contain information on:
 - Road conditions and closures.
 - Current flood behaviour.
 - Current operational activities.
 - Likely future flood behaviour.
 - Likely future operational activities.
 - Probable resource needs.
 - Keep the Local Emergency Operations Controller advised of the flood situation and the operational response.
 - Issue the 'All Clear' when flood operations have been completed.

Recovery

- i. Ensure that appropriate After Action Reviews are held after floods.
- j. 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 Lithgow and Portland Unit Controller(s):

- a. Assist the NSW SES Lithgow Local Controller with flood preparedness activities, including:
 - Flood planning.
 - Training of unit members.
 - The development of flood intelligence.
 - The development of warning services.
 - Floodplain risk management initiatives.
 - Public education.
- b. Conduct flood operations within the Lithgow City area as directed by the NSW SES Lithgow Local Incident Controller.
- c. Submit Situation Reports to the NSW SES Lithgow Local Headquarters, the NSW SES Central West Region Headquarters and agencies assisting within the local area.

1.5.4 NSW SES Lithgow and Portland Unit Members:

- a. Carry out flood response tasks. These may include;
 - The management of the NSW SES Lithgow and Portland Local and Unit Headquarters Operations Centres.
 - Assist in the collection of flood information for the development of intelligence.
 - Flood rescue.
 - Evacuation.
 - Providing immediate welfare for evacuated people.
 - Delivery of warnings and information.
 - Resupply.
 - Sandbagging.
 - Lifting and/or moving household furniture and commercial stock.
 - Animal rescue.
 - Assisting with road closure and traffic control operations.
 - Assisting with emergency fodder supply operations.

- b. Assist with preparedness activities.
- c. Undertake training in flood and storm response operations.

1.5.5 **Agriculture and Animal Services Functional Area:**

- a. When requested by NSW SES;
 - 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.
 - Advice on dealing with dead and injured farm animals.
 - Financial, welfare and damage assessment assistance to flood affected farmers.
 - Operation of animal shelter compound facilities for the domestic pets and companion animals of evacuees.

1.5.6 **Forestry Corporation of NSW:**

- a. Close and evacuate at risk camping grounds in Forestry Corporation of NSW managed areas.

1.5.7 **The 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 the NSW SES with flood rescue operations.

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

- a. Provide Flood Watches for the Hawkesbury River and Macquarie-Bogan River Basins.
- b. Provide Flood Warnings, incorporating height-time predictions, for gauges owned by the Bureau.
- c. Provide severe weather warnings when flash flooding is likely to occur.

1.5.9 **Child Care Centres and Preschools:**

- a. Childcare Centres are to be contacted by the NSW SES in the event of possible flooding or isolation.
- b. When notified the child care centres and preschools should:
 - 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.
 - Assist with coordinating the evacuation of preschools and child care centres.

1.5.10 Energy and Utility Services Functional Area:

- a. When requested by NSW SES;
 - 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.
 - Coordinate advice to the NSW SES of any need to disconnect electricity, gas, water or wastewater services.
 - Assist the NSW SES 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 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 and the relevant recovery committee and coordinator of the timetable for restoration.
- b. Local Providers (electricity, gas, water, waste water):
 - Endeavour Energy:
 - Provide advice to the NSW SES Lithgow Local Controller of any need to disconnect power supplies or of any timetable for reconnection.
 - Advise the NSW SES 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 electrical reticulation equipment.
 - Assess the necessity for and implement the disconnection of customers' electrical installations where these may present a hazard.
 - Inspect, test and reconnect customers' electrical installations as conditions allow.
 - Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.

- Energy Australia, Wallerawang and Mt Piper:
 - Test and maintain the Lyell Dam Automatic Alarm System, including the Master Control Units at Mt Piper and the NSW SES local headquarters, the repeater stations and the radio units in dwellings located downstream of the dam.
 - Monitor water levels at the Lyell Dam and provide information to the NSW SES Lithgow Local Headquarters on the water levels there and at other dams on the Cox's river.
 - Contribute information to ensure that the owners and occupiers of residences at risk of flooding in the event of dam failure are aware of the threat and of their evacuation arrangements.

- Fish River Water Supply, Wallerawang:
 - Test and maintain the telemetric system which measures water levels at Rydal Dam and the automatic dialler connected to it.
 - Monitor water levels at Rydal Dam and the structural integrity of the dam wall.
 - Provide information to the NSW SES Lithgow Local Headquarters on any abnormalities at the dam wall and on water levels once the White Alert level is reached.
 - Contribute information to ensure that owners and occupiers of residences at risk of flooding in the event of dam failure are aware of the threat and of their evacuation arrangements.
 - Provide or arrange for the provision of warnings for downstream houses when circumstances indicate that the dam may be at risk.

- Jemena:
 - Provide advice to the NSW SES Lithgow Local Controller of any need to disconnect gas supplies or of any timetable for reconnection.
 - Advise the NSW SES of any hazards from utility services during flooding.
 - Advise the public with regard to gas hazards during flooding and to the availability or otherwise of the gas supply.
 - Assess the necessity for and implement the disconnection of customers' gas installations where these may present a hazard.
 - Inspect, test and reconnect customers' gas installations as conditions allow.
 - Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.

- Lithgow City Council (Water/Wastewater):
 - Implement the Engineering Services Functional Area Supporting Plan.
 - Provide advice to the NSW SES Lithgow Local Controller of any need to disconnect water / wastewater supplies or of any timetable for reconnection.
 - Advise the NSW SES of any hazards from utility services during flooding.
 - Inspect, test and reconnect customers' water / wastewater installations as conditions allow.
 - Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.

1.5.11 Engineering Services Functional Area:

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

1.5.12 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.

1.5.13 Fire and Rescue NSW, Lithgow, Lithgow West, Portland and Wallerawang:

- a. FRNSW responsibilities are primarily confined to the FRNSW Fire District. Any deployment of FRNSW resources to assist NSW SES in flood events rests with the respective FRNSW Commander which must be a Senior Officer.
- b. The FRNSW Commander will assess the capability of FRNSW to assist NSW SES in the following tasks:
 - Assist the NSW SES with the warning and/or evacuation of at risk communities.

- Assist the NSW SES with the monitoring / reconnaissance of flood prone areas.
 - Assist the NSW SES with the resupply of isolated communities and/or properties.
 - Assist the NSW SES with property protection tasks including sandbagging.
 - Provide resources for pumping flood water out of buildings and from low-lying areas.
 - Assist with cleanup operations, including the hosing out of flood affected properties.
 - Coordinate the deployment of fire resources to communities within Fire and Rescue NSW fire districts if access is expected to be lost in consultation with the NSW SES.
- c. FRNSW will use its best endeavours to deploy appliances and or resources into locations where access is expected to be lost.

1.5.14 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.
 - Assist the NSW SES with the warning and evacuation of hospitals.

1.5.15 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.

1.5.16 NSW Police Force, Chifley Local Area Command (LAC):

- a. Assist the NSW SES with the delivery of evacuation warnings and evacuation orders.
- b. Assist the NSW SES with the conduct of evacuation operations.
- c. Conduct road and traffic control operations in conjunction with council and/or RMS.
- d. Coordinate the registration of evacuees.
- e. Secure evacuated areas.

1.5.17 NSW Rural Fire Service (RFS Lithgow District):

- a. Provide personnel in rural areas and villages to;
 - inform the NSW SES Lithgow Local Controller about flood conditions and response needs in their own communities, and
 - disseminate flood information.
- b. Provide 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. Provide equipment for pumping flood water out of buildings and from low-lying areas.
- f. Assist with the removal of caravans.
- g. Provide back-up radio communications.
- h. Assist with clean-up operations, including the hosing of flood affected properties.
- i. Deploy fire resources to appropriate locations if access is expected to be lost.

1.5.18 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 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 advice to the NSW SES about conditions which may lead to coastal flooding or retarded river drainage near the coast.
 - Collect and maintain flood data relating to flood heights, velocities and discharges in coastal areas of NSW (through a contract with MHL as discussed separately).
 - 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 (through a contract with MHL as described in the Response section of this plan).
- c. **National Parks and Wildlife Service:**
 - Close and evacuate at risk camping grounds in National Parks managed areas.

1.5.19 Lithgow Bus Lines, Lithgow:

- a. Assist with the provision of;
 - Bus transport and drivers for evacuation, resupply or commuting purposes.

1.5.20 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.

1.5.21 The Central West Transport Services Functional Area (TSFAC):

- a. The TSFAC will assist the NSW SES, emergency services and other functional areas through the provision of transport services, including:
 - The movement of emergency equipment and personnel.
 - The movement of emergency supplies and goods including water, fuel and food.
 - The evacuation of people and animals.
 - Assistance for medical transport.
 - Transportation of animals and infectious materials/dangerous goods.
 - Maintaining and operation a transport route advisory service to the NSW SES, emergency service organisations, other functional areas and members of the community.

1.5.22 NSW Train Link:

- a. Operate NSW regional and interstate rail services through the Lithgow Region including the management of railway services affected by flood waters and advise the NSW SES.
- b. Assist the NSW SES with the movement or evacuation of people during flood response operations if required.
- c. Convey flood information and flood warnings to passengers and travellers on NSW trains.
- d. Cooperate with, and assist the NSW SES Local Controller in relation to public safety during flood emergencies.
- e. Cooperate with the Central West Transport Services Functional Area Coordinator.

1.5.23 Roads and Maritime Services will:

- a. Assist in traffic management associated with evacuations where necessary;
- b. Enter state road closure information into the Live Traffic site;
- c. Manage traffic on state roads and state highways affected by flood waters and advise the NSW SES of their status;
- d. Assist the NSW SES and local councils with the communication of warnings and information provision to the public through variable message signs;
- e. Assist the NSW SES with identification of road infrastructure at risk of flooding;
- f. Facilitate the safe reliable access of emergency resources on RMS managed roads;

-
- g. Cooperate with the Central West Transport Services Functional Area Coordinator.
- 1.5.24 **School Administration Offices (including Catholic Education Office Diocese of Bathurst Catholic Education Office Kelso, Department of Education & Communities Western Region Dubbo and Private Schools):**
- a. Liaise with the NSW SES 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 to 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.
- 1.5.25 **Telecommunication Services Functional Area:**
- a. When requested by NSW SES;
 - Coordinate the restoration of telephone / internet facilities damaged by flooding.
 - Coordinate additional telecommunications support for the NSW SES Headquarters as required.
 - Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.
- 1.5.26 **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.
- 1.5.27 **Volunteer Rescue Association (VRA), Lithgow:**
- a. Assist the NSW SES Lithgow Local Controller with flood operations, where equipment and training are suitable.
- 1.5.28 **Lithgow City Local Emergency Operations Controller (LEOCON):**
- a. Monitor flood operations.
 - b. Coordinate support to the NSW SES Lithgow Local Controller if requested to do so.

1.5.29 Lithgow Local Emergency Management Officer:

- a. Provide executive support to the LEMC and LEOCON in accordance with the Lithgow Local Emergency Management Plan.
- b. At the request of the NSW SES Lithgow Local Controller, advise appropriate agencies and officers of the start of response operations.

1.5.30 Lithgow 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 Dam Safety Emergency Plans for the Number 1 and Number 2 Dams Lithgow and provide copies to the NSW SES.
- d. Provide information on the consequences of dam failure to the NSW SES for incorporation into planning and flood intelligence.
- e. Maintain a plant and equipment resource list for the council area.
- f. Contribute to the development and implementation of a public education program.

Response

- g. At the request of the NSW SES Local Controller, deploy personnel and resources for flood related activities.
- h. Close and reopen council roads (and other roads nominated by agreement with the RMS) and advise the NSW SES Lithgow Local Controller and NSW Police.
- i. Provide information on the status of roads through Council's website <http://www.council.lithgow.com> and/or telephone (02) 6354 9999.
- j. Provide sandbagging material to the NSW SES (and personnel to fill and distribute sandbags when available) for distribution to areas in which flooding is expected.
- k. Provide back-up radio communications.
- l. In the event of evacuations, assist with making facilities available for the domestic pets and companion animals of evacuees.

Recovery

- m. Provide for the management of health hazards associated with flooding. This includes removing debris and waste.
- n. Ensure premises are fit and safe for reoccupation and assess any need for demolition.

1.5.31 **Owners of Prescribed Dams within or upstream of Lithgow:**

Dam	Owner
Farmers Creek Number Dam	Lithgow City Council
Farmers Creek Number 2 Dam	Lithgow City Council
Pipers Flat Dam	Centennial Coal
Lyell Dam	Energy Australia
Sawyers Swamp Creek Ash Dam	Energy Australia
Thompsons Creek Dam	Energy Australia
Rydal Dam	State Water Corporation
Wallerawang	Energy Australia

- a. Maintain and operate the Dam Failure Warning System for their Dam(s).
- 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 within their managed areas.

1.5.32 **Mingaan / Wiradjuri Corporation:**

- a. Act as the point of contact between the NSW SES and the Mingaan / Wiradjuri community.
- b. Inform the NSW SES Lithgow Local Controller about flood conditions and response needs.
- c. Disseminate flood information, including flood and evacuation warnings, to the Mingaan / Wiradjuri community.

PART 2 - PREPAREDNESS

2.1 MAINTENANCE OF THIS PLAN

- 2.1.1 The NSW SES Lithgow 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 Lithgow 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 Central West 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 (i.e. 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 Lithgow Local Controller, with the assistance of the Lithgow City Council, the NSW SES Central West Region Headquarters and NSW SES State Headquarters, is responsible for ensuring that 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. Periodic reminders to residents downstream of Lyell Dam, by the testing of their radio alarm systems, of the danger posed by a potential failure of the dam.

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 Lithgow and Portland Unit(s). The NSW SES Lithgow 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 Lithgow Local Controller is responsible for maintaining the condition and state of readiness of NSW SES equipment and the NSW SES Portland Local Headquarters.
- 2.7.2 The NSW SES Lithgow and Portland Unit Controllers have similar responsibilities in relation to the Lithgow and Portland Unit Headquarters and equipment.

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.
 - 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 Central West Region Headquarters and/or NSW SES State 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 Central West Region Headquarters.
 - b. NSW SES Lithgow and Portland Controller(s).
 - c. NSW SES Lithgow and Portland Unit.
 - d. Lithgow Local Emergency Operations Controller (for transmission to the NSW Police Force Local Area Command Headquarters).
 - e. Lithgow City Local Emergency Management Officer (for transmission to appropriate council officers and departments).
 - f. Lithgow City Council Mayor.
 - g. Other agencies listed in this plan will be advised by the Local Emergency Management Officer on the request of the NSW SES Lithgow 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 and the 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 sector and/or 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 Lithgow Operations Centre is located at 3 Silcock Street, Lithgow.
- 3.5.2 NSW SES Unit Operations Centre(s) are located at;
- a. Lithgow 3 Silcock Street, Lithgow
 - b. Portland, Falnash Street, Portland
- 3.5.3 Supporting EOCs are located at;
- a. The Lithgow City Emergency Operations Centre is located at Lithgow Police Station, Mort St, Lithgow.
 - b. The Central West Region Operations Centre (NSW SES) is located at 79 Corporation Avenue Bathurst.

3.6 LIAISON

- 3.6.1 Any agency with responsibilities identified in this plan may be requested by the NSW SES to provide liaison (including a liaison officer where necessary) to the NSW SES Lithgow 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 Lithgow Local Incident Controller.
 - b. advise the NSW SES Lithgow Local Incident Controller on resource availability for their service.
 - 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. The message will be distributed through the same media outlets as earlier evacuation messages. The relevant 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 Lithgow Local Headquarters collates information on the current situation in the Lithgow City LGA and incorporates in Situation Reports.
- 3.8.3 The NSW SES Central West Region Headquarters collates Region-wide information for inclusion in Region NSW SES 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 Lithgow 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).
 - c. The **Bureau of Meteorology's Flood Warning Centre** provides river height and rainfall information, data is available on the website <http://www.bom.gov.au/nsw/flood/>.

- d. **Manly Hydraulics Laboratory (a business unit within NSW Public Works)** automated river watch system funded by the Office of Environment and Heritage. This system provides river height and rainfall readings for a number of gauges in the Lithgow City Council area. Recent data from this system is available on the Manly Hydraulic Laboratory website <http://www.mhl.nsw.gov.au>. A history of area floods is also available upon request via the website.
 - e. **NSW Office of Water.** This office advises flow rates and rates of rise for the Hawkesbury and Macquarie-Bogan Rivers. Daily river reports containing information on gauge heights and river flows are available from the website <http://waterinfo.nsw.gov.au/>
 - f. **Special Lyell Dam Warning and Alarm System.** Aurecon monitors the condition of Lyell Dam and water levels at the dam. Information on potential flooding is provided by Aurecon to the NSW SES Portland Local Controller. Further details of this system are provided in Volume 3. Aurecon also monitors flow into and the status of Thompsons Creek Dam and Lake Wallace.
 - g. **Special Rydal Dam Warning and Alarm System.** State Water Corporation monitors the condition of Rydal Dam and water levels at the dam. Information on potential flooding is provided by State Water Corporation to the Portland NSW SES Portland Local Controller.
 - h. **NSW SES Central West Region Headquarters.** The Region Headquarters provides information on flooding and its consequences, including those in nearby council areas (this information is documented in Bulletins and Situation Reports).
 - i. **Lithgow City Council.** Road Closure Bulletins
- 3.8.5 During flood operations sources of information on roads closed by flooding include;
- a. Lithgow City Council (<http://www.council.lithgow.com>).
 - b. Chifley Police Local Area Command.
 - c. Roads and Maritime Services (<http://www.rms.nsw.gov.au/>).
 - d. NSW SES Central West Region Headquarters.
 - e. NSW SES Lithgow and Portland 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 Lithgow and Portland Units provide advice to the NSW SES Central West Region Headquarters on current and expected impacts of flooding in the Lithgow City LGA.

- 3.9.2 The NSW SES Central West Region Headquarters issues NSW SES 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 Lithgow Local Incident Controller will ensure that the NSW SES Central West Region Incident Controller is regularly briefed on the progress of operations.
- 3.9.4 NSW SES Lithgow and Portland Units operations staff will be briefed regularly so that they can provide information in response to inquiries received in person or by other means such as phone or fax.
- 3.9.5 The NSW SES Lithgow Local Headquarters will operate a 'phone-in' information service for the community in relation to;
- a. River heights.
 - b. Flood behaviour.
 - c. Road conditions.
 - d. Closures of local and main roads and advice.
 - e. Advice on safety matters and means of protecting property.
- 3.9.6 The NSW SES Lithgow Local Incident Controller may request the NSW SES Central West Region Headquarters to provide an overflow 'phone-in' information service for the community in relation to;
- a. River heights.
 - b. Flood behaviour.
 - c. Road conditions.
 - d. Closures of local and main roads advice.
 - e. Advice on safety matters and means of protecting property.
- 3.9.7 **Bureau of Meteorology Severe Thunderstorm Warning.** These are issued direct to the 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.
- 3.9.8 **Bureau of Meteorology Severe Weather Warnings for Flash Flooding.** These are issued direct to the 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 with 6 to 24 hours. Severe Weather Warnings may also include other conditions such as Damaging Winds.
- 3.9.9 **Bureau of Meteorology Flood Watches.** Flood Watches are issued 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 Central West Region Headquarters.
- 3.9.10 **Bureau of Meteorology Flood Warnings.** The NSW SES Central West Region Headquarters will send a copy of Bureau Flood Warnings to the NSW SES Lithgow and Portland Units. On receipt the NSW SES Local Incident Controller will provide the NSW SES Central West Region Headquarters with information on the estimated impacts of flooding at the predicted heights for inclusion in NSW SES Region Flood Bulletins.
- 3.9.11 **NSW SES Livestock and Equipment Warnings.** Following heavy rain or when there are indications of significant creek or river rises (even to levels below Minor Flood heights), the NSW SES Lithgow Local Incident Controller will advise the NSW SES Central West Region Headquarters which will issue NSW SES Livestock and Equipment Warnings.
- 3.9.12 **NSW SES Local Flood Advices.** The NSW SES Local Incident Controller may issue Local Flood Advices for locations not covered by Bureau Flood Warnings. They may be provided verbally in response to phone inquiries but will normally be incorporated into NSW SES Region Flood Bulletins.
- 3.9.13 **NSW SES Flood Bulletins.** The NSW SES Central West 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) to NSW SES units, media outlets and agencies on behalf of all NSW SES units in the Region.
- 3.9.14 **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.
- 3.9.15 **Special Warnings.**
- a. **Special Lyell Dam Warning and Alarm System.** This system has been designed to provide warning of a potential failure of Lyell Dam. Details of the system are described in Volume 3 of this Plan.
 - b. **Special Rydal Dam Warning and Alarm System.** This system has been designed to provide warning of a potential failure of Rydal Dam. Details of the system are described in Volume 3 of this Plan.
- 3.9.16 **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 distribute the warning to the NSW SES Region Headquarters and NSW SES Unit Headquarters.
- 3.9.17 A flow chart illustrating the notification arrangements for potential dam failure is shown in Attachment 2.
- 3.9.18 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.

Table 1: Dam Failure Alert Levels

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.

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.

- 3.9.19 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).
- 3.9.20 **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.
- 3.9.21 **The Public Information and Inquiry Centre (PIIC)** (operated by the NSW Police Force) will answer calls from the public regarding registered evacuees.
- 3.9.22 **The Disaster Welfare Assistance line** is a central support and contact point for disaster affected people inquiring about welfare services advice and assistance.
- 3.9.23 **The RMS Transport Information Line** will provide advice to callers on the status of roads. The RMS website also lists road closure information.
- 3.9.24 **Lithgow City Council** website <http://www.council.lithgow.com> and/or telephone (02) 6354 9999 will provide information on the status of roads.
- 3.9.25 Collation and dissemination of road information is actioned as follows:

- a. As part of Situation Reports, the NSW SES Lithgow Local Incident Controller provides road status reports for main roads in the council area to the NSW SES Central West Region Headquarters.
- b. The NSW SES Central West Region Headquarters distributes information on main roads to NSW SES units, media outlets and agencies as part of 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 units if applicable.
- 3.10.3 NSW SES maintains the following information for the Lithgow City Council area:
 - a. Locations of suitable helicopter landing points. Suitable landing points are described in Aircraft Management volume 3. These are for emergency use only.
 - b. Locations of suitable airports and records detailing aircraft size and type that can land at airports. Access to Bathurst Airport, located 46 km to the west of Lithgow, generally remains open. The airport is capable of handling both rotary and fixed wing aircraft, has navigational aids, runway lighting and an all-weather surface.
 - 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. Lithgow City Council provides communications in radio equipped vehicles and a base station operator on council's own VHF network.
 - b. Chifley Rural Fire Service has a UHF PMR network.
 - c. Lithgow District UHF CB Radio has extensive coverage of the Council area via the repeater station on Mt Lambie.
 - d. Pacific Power has a UHF radio network which can give limited coverage to the area.
 - e. The Fish River Water Supply has available a VHF radio 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 Lithgow 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 Lithgow Local Incident Controller will advise appropriate agencies so that resources (including sandbags, fire fighting appliances, ambulances, etc.) are deployed to ensure that operational capability is maintained.
- 3.13.3 In the event of a potential failure of Lyell Dam the NSW SES Lithgow Local Controller, in consultation with the Local Emergency Operations Controller, will;
- a. Check helicopter fuel stocks in the region and arrange fuel to be transported to the helicopter landing area at Hartley (Grid Reference 391830 Hartley Map 8930-IV-N, scale 1:25,000). This area is located on the Karingal property, Hartley.
 - b. Establish Evacuation Centres at the Jenolan Half Way Motor Inn (Jenolan Caves Road, Hampton) and the Hartley Hall, Mid-Hartley Road and Great Western Highway, Little Hartley.

3.14 ROAD AND TRAFFIC CONTROL

- 3.14.1 A number of roads within the council area are affected by flooding. NSW SES maintains details of these roads.
- 3.14.2 The council closes and re-opens its own roads and, acting as agent for the RMS, does the same for the Great Western Highway, Bells Line of Road and the Castlereagh Highway.

- 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 When resources permit, the NSW SES assists Council, RMS or NSW Police by erecting road closure signs and barriers.
- 3.14.5 In flood events, the NSW SES Lithgow 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 NSW Police, RMS or Council officers closing or re-opening roads or bridges affected by flooding are to advise the NSW SES Lithgow and Portland Units, which will then provide a road information service to local emergency services, the public and the NSW SES Central West Region Headquarters. All such information will also be passed to NSW Police, RMS and the Council.

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.

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.

3.17 MANAGING FLOOD RESCUE OPERATIONS

Strategy

- 3.17.1 Rescue of people from floods.

Actions

- 3.17.2 The NSW SES Lithgow Local Incident Controller controls flood rescue in Lithgow City local government area.

- 3.17.3 Flood rescues, may be carried out by accredited units in accordance with appropriate standards.
- 3.17.4 Additional flood boats and crews can be requested through the NSW SES Central West Region Headquarters.
- 3.17.5 There may be some residual population which did not evacuate during the early stages of flooding and which 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 flood.
 - 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. Small-scale evacuations will be controlled by the NSW SES Lithgow Local Incident Controller. Should the scale of evacuation operations be beyond the capabilities of local resources control may be escalated to the NSW SES Central West Region Incident Controller.

Decision to evacuate

- 3.18.4 In most cases the decision to evacuate rests with the NSW SES Lithgow 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 Central West Region Incident Controller and the Local Emergency Operations Controller.

- 3.18.5 In events that require large scale evacuations, the decision to evacuate may be escalated to the Region or the State Incident Controller.
- 3.18.6 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

- 3.18.7 The NSW SES Local Incident Controller will mobilise the following to provide personnel for doorknock teams for designated Sectors/locations:
- a. NSW SES Portland Unit members.
 - b. RFS Chifley Zone District members via the RFS Fire Control Officer.
 - c. Local Police Force officers.
- 3.18.8 The NSW SES Central West Region Incident Controller will mobilise any additional personnel required to assist with doorknock teams using;
- a. NSW SES members from the NSW SES Central West Region and surrounding NSW SES Regions.
 - b. FRNSW personnel arranged via the FRNSW Liaison Officer located at NSW SES Central West Region Headquarters. These roles will be carried out where possible, having regard for core FRNSW roles.
 - c. RFS personnel arranged via the RFS Liaison Officer located at NSW SES Central West Region Headquarters.
- 3.18.9 The NSW SES Local Incident Controller will request the Local Emergency Management Officer to provide Council personnel to assist with traffic coordination within Sector(s)/Community.
- 3.18.10 The NSW SES Local Incident Controller will arrange liaison officers for Sector Command Centres.
- 3.18.11 The NSW SES Central West Region Incident Controller will mobilise the required number of buses for Sectors via the Central West Transport Services Functional Area Coordination Centre.

Delivery of Evacuation Warnings and Evacuation Orders

- 3.18.12 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.
- 3.18.13 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.
- 3.18.14 The NSW SES Local Incident Controller will distribute Evacuation Warnings and Evacuation Orders to;
- a. Sector/Division Command Centres (where established).

- b. Lithgow City Local Emergency Operations Centre.
 - c. Lithgow City Council.
 - d. Chifley Police Local Area Command.
 - e. Chifley Zone Rural Fire Service Control Centre.
 - f. Radio Stations.
 - g. Television Stations and Newspapers
 - h. Other local agencies and specified individuals.
- 3.18.15 The NSW SES Central West Region Incident Controller will distribute Evacuation Warnings and Evacuation Orders to;
- a. The NSW SES State Operations Centre.
 - b. The NSW SES Lithgow Local Incident Controller.
 - c. Affected communities via dial-out warning systems where installed or applicable.
 - d. Relevant media outlets and agencies.
- 3.18.16 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 Stations

Table 2: Radio Stations in Lithgow

Station	Location	Frequency	Modulation
Move FM	Lithgow	107.9	FM
2LT	Lithgow	900	AM
Ezy FM	Lithgow	90.5	FM
2BS - B-Rock FM	Bathurst	99.3	FM
2BS	Bathurst	1503	AM
2GZ	Orange	105.1	FM
ABC Central West (2CR)	Orange	549	AM
ABC Central West (2CR)	Lithgow	1395	AM
ABC Central West (2CR)	Portland/Wallerawang	94.1	FM

-
- 3.18.17 The Standard Emergency Warning Signal (SEWS) may be used to precede all Evacuation Orders broadcast on Radio Stations.
- 3.18.18 Sector Command Centres, where established, will distribute Evacuation Orders via Emergency Service personnel in doorknock teams to areas under threat of inundation.
- 3.18.19 Doorknock teams will work at the direction of;
- a. The NSW SES Lithgow and Portland Unit Controllers.
- 3.18.20 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.
- 3.18.21 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

- 3.18.22 Evacuations will generally be carried out in stages starting from the lowest areas, low flood islands and low trapped perimeters; and progressively from higher areas.
- 3.18.23 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 (e.g. by foot, rail, air).
- 3.18.24 Evacuees who require emergency accommodation or disaster welfare assistance will be directed to designated evacuation centres. Evacuees who have made their own accommodation arrangements will not be directed to evacuation centres. It is not possible to determine in advance how many will fall into this category.
- 3.18.25 Evacuees will;
- a. Move under local traffic arrangements from the relevant Sectors/Community.
 - b. Continue along the suburban/regional/rural road network to allocated Evacuation Centres.
- 3.18.26 **Health Services.** The Health Services Functional Area will coordinate the evacuation of hospitals, health centres and aged care facilities (including nursing homes).

- 3.18.27 **Schools.** School administration offices (Department of Education and Communities, Catholic Education Office and Private Schools) will coordinate the evacuation of schools if not already closed.
- 3.18.28 If there is sufficient time between the start of response operations and the evacuation of communities, the NSW SES Central West Region Incident Controller will discuss the temporary closure of appropriate schools with the Regional Director, Department of Education and Communities. This will enable pupils to stay at home or be returned home so they can be evacuated (if required) with their families.
- 3.18.29 Note that in the Lithgow City LGA, school principals may close some schools affected by flooding in the early stages of flooding.
- 3.18.30 **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.
- 3.18.31 **Transport and storage:** Transport and storage of furniture from flood threatened properties will be arranged as time and resources permit.
- 3.18.32 **Security:** The NSW Police Force will provide security for evacuated areas.
- 3.18.33 The NSW SES Local Incident Controller is to provide the following reports to the NSW SES Central West Region Headquarters:
- 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

- 3.18.34 **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 Lithgow Local Incident Controller, but managed as soon as possible by Welfare Services.
- 3.18.35 The following locations are suitable for use as flood evacuation centres:
- a. Lithgow Workmen's Club, Tank Street, Lithgow.
 - b. Lithgow Police Citizens' Youth Club, Hoskins Ave, Lithgow.
 - c. Seventh Day Adventist Church Hall, Albert Street, Lithgow.
 - d. Zig Zag Primary School, Victoria Avenue, Lithgow.

- e. Jenolan Half Way Motor Inn, Hampton, Jenolan Caves Road.
- f. Hartley Hall, Little Hartley, Mid-Hartley Road.
- g. Portland Community Centre, Portland.
- h. Capertee Public Hall, Capertee.
- i. Wallerawang Community Sports Centre, Barton Avenue, Wallerawang
- j. Memorial Hall, Bathurst Street, Wallerawang.
- k. Rydal Hotel, Rydal.
- l. Rydal Showground

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

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

Return

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

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

- a. 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. Lithgow City LEOCON.
- g. Lithgow 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).

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

3.18.41 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 that 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 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 Lithgow Local Controller will ensure that 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 (SEOCN) 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 SEOCN, 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 Lithgow Local Controller and Local Emergency Operations Controller (LEOCN) 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.

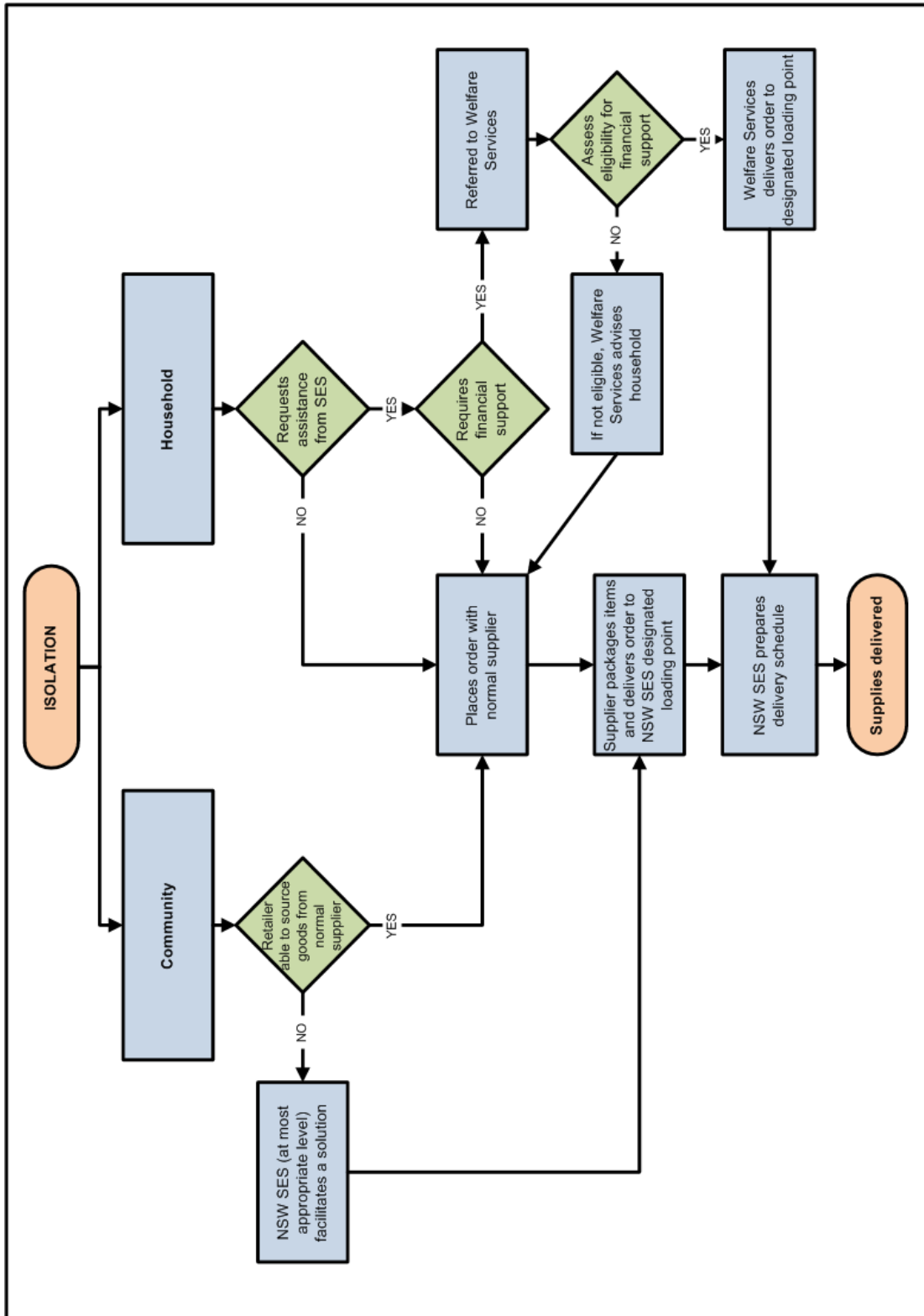
4.2 RECOVERY COORDINATION AT THE REGION AND STATE LEVEL

- 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 SEOCN 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

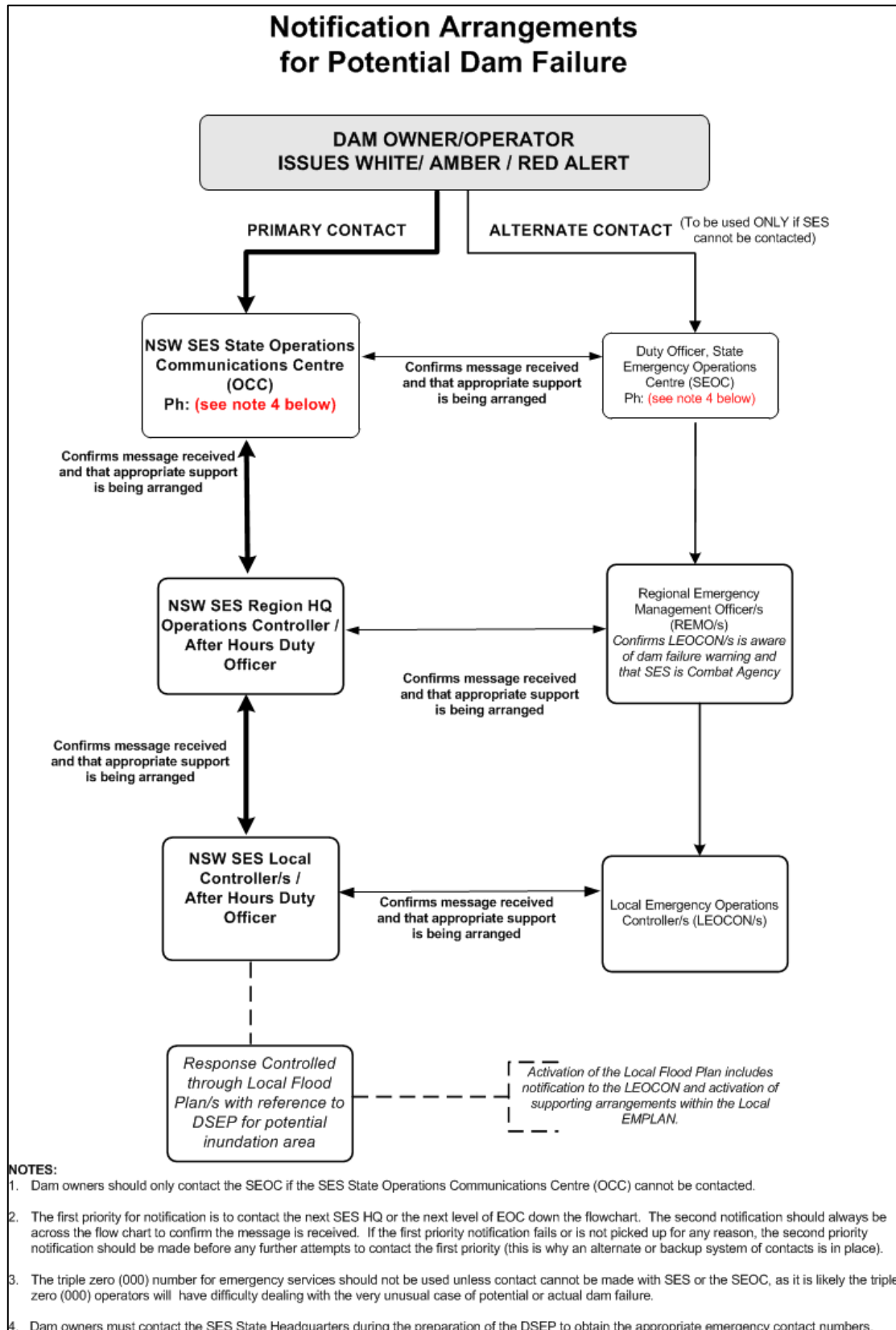
- 4.3.1 As soon as possible after flooding has abated, the NSW SES Lithgow Local Controller will advise participating organisations of details of response operation after action review arrangements.
- 4.3.2 The NSW SES Lithgow Local Controller will ensure that adequate arrangements are in place to record 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 Lithgow City Local Emergency Management Committee.

ATTACHMENT 1 - RESUPPLY FLOWCHART

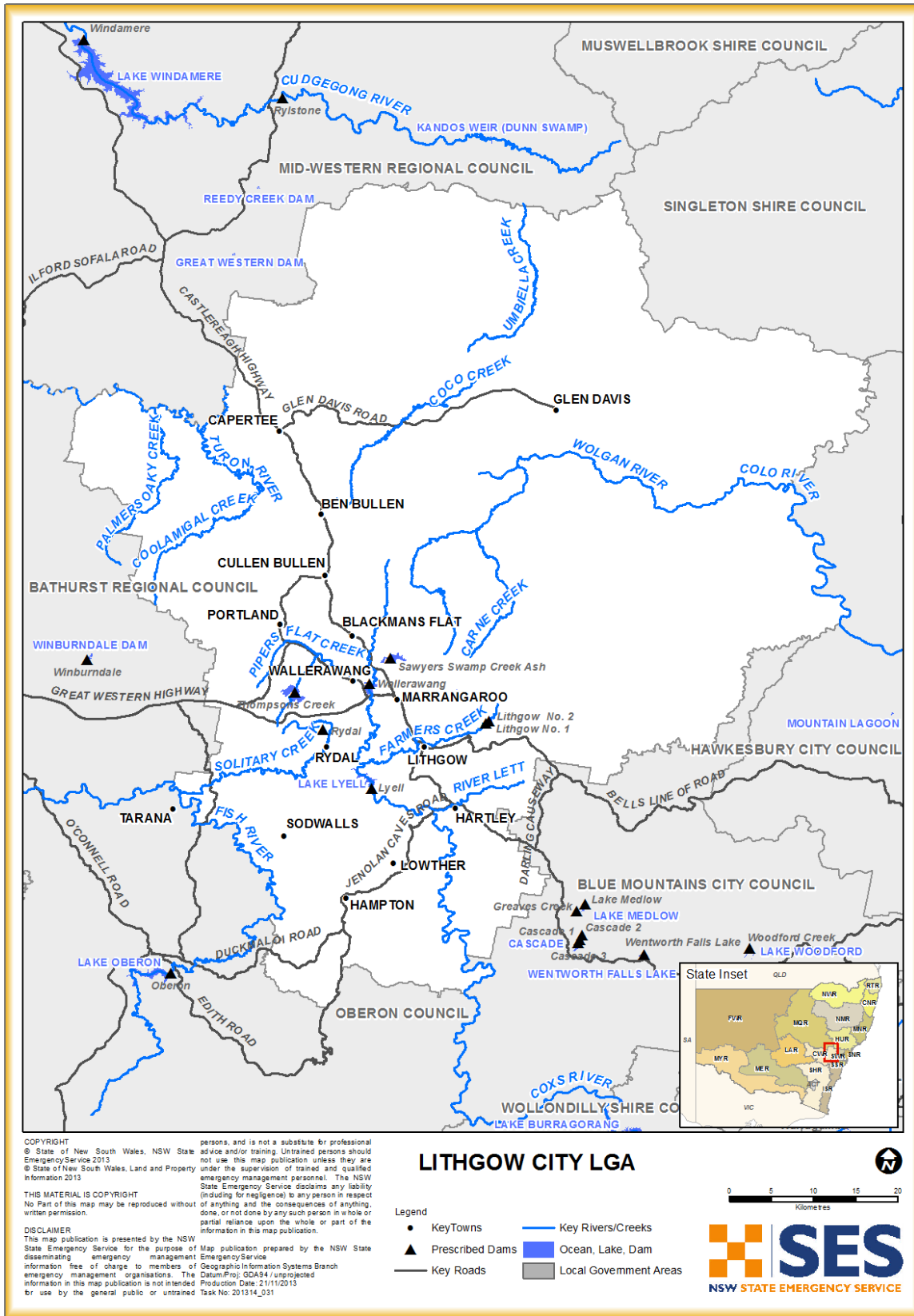


Please Note: The chart outlines the resupply process, but does not encompass all potential situations and outcomes.

ATTACHMENT 2 - DAM FAILURE ALERT NOTIFICATION ARRANGEMENTS FLOWCHART



ATTACHMENT 3 - LITHGOW CITY LGA MAP



HAZARD AND RISK IN LITHGOW CITY

Volume 2 of the Lithgow City Local Flood Plan

Last Update: May 2011

ANNEX A - THE FLOOD THREAT

LANDFORMS AND RIVER SYSTEMS

1. Most of the territory of the Lithgow Council area is steep, mountainous and forested. There are some areas of undulating country but very little floodplain development. The drainage pattern is complex and includes the following rivers:
 - a) The **Cox's River** and its tributaries (Farmers, Pipers Flat, Marrangaroo, Thompsons and Ganbenang Creeks and River Lett) which drain the south-eastern portion of the Council area. Important tributaries of Farmers Creek include Ida Falls, Vale of Clwydd and State Mine Creeks. The Cox's River, part of the Nepean-Hawkesbury river system (Basin No 212), flows into Lake Burrangorang.
 - b) The **Capertee-Wolgan River System**, including the tributaries Coco, Carne, Umbeliella, Red Rock, Rocky, Tambo and Woolongambe Creeks which drain the northern and eastern portions of the Council area towards the Colo River (part of the Nepean-Hawkesbury river system) to the east.
 - c) The **Turon River** and its principal tributaries, Palmers Oakey, Round Swamp and Coolamingal Creeks. These streams drain the Airly, Turon and Sunny Corner State Forests and the Great Dividing Range and Ben Bullen Range in the north-west of the Council area. They are part of the Macquarie River system (Basin No 421).
 - d) The **Fish River and Solitary Creek**, which drain the south-west of the Council area west from the Great Dividing Range. The watercourses are also part of the Macquarie River system.
2. A defining characteristic of flooding within the Lithgow Council area is the speed with which floods rise and fall. Because the whole area is elevated and the streams are short and steep within the Council boundaries, flash and near-flash flooding are the norm and flood velocities are usually high. There is little warning apart from that provided by the rain which causes the floods.

A1. STORAGE DAMS

Lyell Dam (also known as Lake Lyell)

Lyell Dam is located on the Cox's River about 10kms southwest of Lithgow. The dam is owned by Delta Electricity and is a cooling water storage that supplies cooling water to Mount Piper and Wallerawang Power Stations. The spillway consists of a dual concrete ogee crest with flip bucket controller by six 3.2m high Hydroplus fusegates. The storage capacity at Full Supply Level is 33,500 ML. Downstream from the dam there are Sixteen (16) residences along the Cox's River and four (4) camping reserves at McKanes Falls, Glenroy, Murdering Creek, and Blue Mountains National Park between the Megalong Valley and Warragamba Reservoir. There is a Flood Warning System that is tested and monitored by Delta Electricity. Inspection, maintenance and operation of the dam is conducted by Delta Electricity.

Pipers Flat Dam

Pipers Flat Dam is located on the Pipers Flat Creek and is owned and operated by Centennial Coal Company Ltd. The dam is used for water storage for mining operations at Centennial Coal Colliery. The dam is of earth-fill construction with a primary concrete sill and chute spillway. The storage capacity at Full Supply Level is 816 ML. Downstream from the dam is the Pipers Flat Creek Valley which comprises of broad flood plain, and Lake Wallace (Wallerawang Dam). There is no Flood Warning System in place and inspection, maintenance and operation of the dam is conducted by Centennial Coal Company Ltd.

Rydal Dam

Rydal Dam is located about 2kms north of Rydal. The dam is operated by the Department of Public Works and Services (DPWS) on behalf of the Department of Land and Water Conservation (DLWS) as part of the Fish River Water Supply (FRWS) Scheme. The dam is an off-stream storage, which is fed by the FRWS Stage 2 pipeline main from Oberon and supplies water to Wallerawang and Mount Piper power stations. The spillway consists of an open controlled channel. The storage capacity at Full Supply Level is 370 ML. Downstream from the dam is the Solitary Creek and the village of Rydal. There is no Flood Warning System in place and inspection, maintenance and operation of the dam is conducted by the Department of Public Works and Services.

Sawyers Swamp Creek Ash Dam

Sawyers Swamp Creek Dam is located on Sawyers Swamp Creek about 12kms north-west of Lithgow. The dam is owned by Delta Electricity and stores bottom and fly ash from Wallerawang Power Station. The spillway consists of a curved broad concrete crest with 0.6m high fusible clay embankment on top.

The storage capacity at Full Supply Level is 8,500 ML. Downstream from the dam there are thirty-six (36) residences along the Sawyers Swamp Creek, the Cox's River and Lake Wallace are both downstream from the dam. There are no warning systems in place and inspection, maintenance and operation of the dam is conducted by Delta Electricity.

Thompsons Creek Dam

Thompsons Creek Dam is located on Thompsons Creek about 5kms west of Wallerawang. The dam is owned by Delta Electricity and is an off-river storage that supplies cooling water to Mount Piper and Wallerawang Power Stations. The dam is filled by pumping water through a pipeline from Lyell Dam. The spillway consists of a concrete sill. The storage capacity at Full Supply Level is 28,000 ML. There are no warning systems in place and inspection, maintenance and operation of the dam is conducted by Delta Electricity.

WEATHER SYSTEMS AND FLOODING

3. Most parts of the Lithgow City Council area have an average annual rainfall of between 700 and 800mm. This rainfall is distributed in a fairly uniform manner across the seasons, but there are tendencies towards higher flood frequencies in the February-April and June-August periods than at other times of year. Almost all of the severe flood events recorded have been in these periods.
4. These main types of weather regime can produce flooding within the area:
 - a) In summer, deep depressions moving south from tropical regions can bring very high daily precipitation totals leading to flooding. Such intrusions are not annual events, however, and flooding from this mechanism is not common.
 - b) More often, high-intensity, short-duration convective thunderstorms occur in summer and bring flooding to limited areas. Such storms are concentrated in the November-March period and may cause town and village drainage systems to surcharge and small creeks to flood. They rarely cause pronounced rises in major streams, however.
 - c) Winter floods tend to be the result of sequences of troughs associated with southern depressions and crossing the council area from west to east. These systems rarely produce very high daily rainfalls but they can bring substantial falls over longer periods.
5. Most flooding within the council area has followed periods of extended wet weather. A local rule of thumb in the valley of Farmers Creek is that rainfall of 100 mm in three days or less creates a significantly increased probability of

flooding if further rain occurs. Heavy daily falls not occurring on already wet catchments can cause flooding but frequently do not.

6. Detailed records of flooding within the council area are few except for the urban centre of Lithgow. It is known, however, that flooding is irregular on all streams, with long virtually flood-free periods separated by shorter periods of frequent and sometimes severe flooding. The 1986 flood at Lyell Dam is estimated to have been a once-in-100 years (1%) event; that is, a flood of the severity of this event would be expected to have only a 1% chance of occurring at the dam in any single year.

FLOODING ON FARMERS CREEK

7. Historically, the most damaging floods to occur in the council area have been on those on Farmers Creek within the urban centre of **Lithgow**. This creek has a catchment of only 50 square kilometres at Lithgow and a valley floor less than 300 metres in width. The valley is subject to heavy, short-duration storms which are often extremely localised. Damage may occur in areas distant from Farmers Creek itself, including the **Vale of Clwydd, Doctors Gap** and the valley of **State Mine Creek** as a result of these thunderstorms.
8. Built-up land along a 5.5 kilometre stretch of this creek is subject to inundation in events no more severe than those which occur, on average, about once five years. Flood severity has been worsened by human activity, large areas of the creek's floodplain having been filled to create ovals and reserves, and these act to constrict flood flows and raise flow velocities. Velocities of more than 3 metres per second have been recorded in the steeper, narrower sections and even in lower parts of the valley flows can be at rates of over 2 metres per second. Heavy rain associated with flooding periodically creates landslides in the hills around the town.

CHARACTERISTICS OF FLOODING

1. Historically, the most damaging floods to occur in the council area have been those on Farmers Creek within the urban centre of Lithgow. This creek has a catchment of only 50 square kilometres at Lithgow and a valley floor less than 300 metres in width. The valley is subject to severe, short-duration thunderstorms which are often extremely localised. Damage resulting from these storms may occur in areas distant from Farmers Creek itself, including the Vale of Clwydd, Doctors Gap and the valley of State Mine Creek.

Built-up land along a 5.5 kilometre stretch of this creek is subject to inundation in events no more severe than those which occur, on average, about once in five years. Flood severity has been worsened by human activity; large areas of the

creek's floodplain have been filled in to create ovals and reserves, and these act to constrict flood flows and raise flow velocities. Velocities of more than 3 metres per second have been recorded in the steeper, narrower sections and even in the lower parts of the valley flows can be at rates of over 2 metres per second. Heavy rain associated with flooding periodically creates landslides in the hills around the town.

FLOOD HISTORY

9. On Farmers Creek the record of major floods causing inundation of residential property is incomplete but the following events are known to have occurred:

Month, Year	Average Recurrence Interval (years)	Annual Exceedence Probability (%)	Impacts
Feb-28	Not known		Very severe, widespread damage; water broke through colliery roof.
Jun-63	Not known		Roads cut.
Jun-64	Not known		Roads cut; water broke through colliery roof.
Mar-78	14	7	Caused landslides, extensive damage to cars, houses and roads.
Feb-81	Not known, but possibly similar to Feb 1990 event.		
Oct-83	Not known		Hail and torrential rain – local drainage problems caused widespread damage to cars, houses, businesses, and roads. Farmers Creek rose 2 metres in 30 minutes.
Aug 1986*	5-Oct	Oct-20	Heavy rain, snow and ice. Houses/businesses inundated from Farmers Creek and local drainage problems. Widespread damage.
Feb-90	1-Feb	50-90	Heavy rain – 36mm falling in 35 mins. About 50 houses/businesses suffered flood damage from Farmers Creek and local drainage problems.
April, 1990	Not Known		Heavy rain and hail. Houses/businesses inundated from Farmers Creek and local drainage problems. Road closures. Landslips.
Aug-90	Not Known		Heavy rain and hail – 112mm falling in 24 hour period. Houses/businesses inundated from Farmers Creek and local drainage problems. Road closures. Landslips. Glen Davis, Wolgan Valley, Kanimbla Valley isolated.
Jan-06	Not Known		Heavy rain – 63mm < 1 hour. Less than 10 houses/businesses threatened or inundated from Farmers Creek and local drainage problems.

Jan-08	Not known	Heavy rain – 50mm < 1 hour. Less than 10 houses/businesses threatened or inundated from Farmers Creek and local drainage problems. Heavy rain and hail. Less than 10 houses/businesses threatened or inundated from Farmers Creek and local drainage problems.
	Not known	Very severe, widespread damage; water broke through colliery roof.

10. * At this time there was also major flooring on most of the other streams of the council area, including the Fish, Turon and Cox's Rivers.
11. Note: A flood of a particular Annual Exceedance Probability has that % chance of occurring in any one year. The Annual Recurrence Interval is the average length of time which is estimated to elapse between floods of a given magnitude or greater. A 14% flood is expected to occur, on average, about seven times in a 100-year period. In a particular 100-year period it may occur more or less often than this.

FLOOD MITIGATION SYSTEMS

In the 1930's Farmers Creek was realigned and lined with concrete for about 2.5km from Montague Street to the Geordie Street low level crossing. This section is 1.4m deep and varies in width from 4.8m to 6.1m. Immediately upstream is a further 150m of formed channel, 2.3m deep and 11.8m wide

While various studies have been completed and recommendations made, no flood mitigation systems exist in the urban areas of Lithgow.

EXTREME FLOODING

12. The worst floods over in the Lithgow Council area since European settlement should not be considered to be the most serious which will ever occur. Floods as severe as the 1978 event in Lithgow or the 1986 event on the Cox's River will be equalled in the future and on occasions exceeded in their severity. When genuinely severe floods occur, they often reach much greater heights than was true of previous recorded floods. Moreover, they are generally both faster to rise and more dangerous in terms of depth and velocity than previously know events. An extreme flood in Farmers Creek could produce flood heights more than two metres higher than were seen in Lithgow in 1978 along with much greater inundation.

13. On the Cox's River it has been determined that an extreme flood far greater in magnitude than the record flood of 1986 in the valley could cause the Lyell Dam to fail. The dam is a 47-metre high concrete-faced rock fill embankment located seven kilometres west of Lithgow and commanding a catchment area of 380 square kilometres. In the unlikely event that failure occurred, a large volume of water would be released and would travel down the valley as a flood wave inundating large areas close to the river. The dam's owner, Pacific Power, has begun a program of works to ensure that a massive flood will not cause the dam to fail. This program is scheduled for complete in 1995.
14. Rydal Dam, a small storage on Solitary Creek (a tributary of the Fish River), is also at a very slight risk of failure. In this case failure could occur as a result of a failure. In this case failure could occur as a result of a failure of the earth embankment (perhaps after a major earthquake) or during a very severe flood.

ANNEX B - EFFECTS ON THE COMMUNITY

COMMUNITY PROFILE

Census Description	LGA	Lithgow	Portland	Wallerawang
Total Persons	19756	11298	1882	1906
Total Dwellings	7439	4553	670	690
Total persons aged 65 years and over	3038	1988	316	196
Total persons aged below 15 years	3860	2181	361	449
Total persons with a need for assistance (profound / severe disability)	1078	690	108	114
Total persons of indigenous origin	606	363	68	50
Total persons using Internet	3669	2064	287	362
Single parent families	885	620	63	79
Persons living alone	2163	1473	193	168
Total persons who do not speak English well	51	29	3	3
Total persons who lived at a different address 5 years ago	5615	3348	470	533
Households without vehicles	918	750	70	58
Total persons residing in caravans, cabins or houseboats	36	12	0	3
Mean household size	2	2	2	3

Table B-1: Census of Housing and Population data (2006)

SPECIFIC RISK AREAS - FLOOD

Large parts of the Lithgow Council area are affected by flooding, within the urban centre of Lithgow, many dwellings and businesses are liable to inundation. Outside the town, some localities are periodically isolated as a result of rises on rivers and creeks and resupply of food is required. These areas include Glen Davis, on the Capertee River, Turon Gates, a popular holiday and camping area on Turon River and the Kanimbla Valley area in the valley of the Cox's River. In farming areas, moving and feeding stock is necessary during periods of flooding.

LITHGOW

1. By far the most serious flood problems are within Lithgow, where scores of properties can be inundated when floods occur on Farmers Creek. The number of properties which have been assessed as being as being liable to over-floor

inundation in floods of different annual exceedance probabilities and average recurrence intervals is as follows:

ANNUAL EXCEEDENCE PROBABILITY	AVERAGE RECURRENCE INTERVAL (YEARS)	NUMBER OF PROPERTIES	
		RESIDENTIAL	INDUSTRIAL/ COMMERCIAL
100%	1	48	1
50%	2	87	1
20%	5	121	4
5%	20	170	9
1%	100	233	12

2. The 200-year and 500-year ARI floods are only slightly more serious in their inundation consequences than the 100-year event. In the 100-year event, some 700 people would need to evacuate from their homes.
3. The areas which are prone to inundation within the valley of Farmers Creek are identified below. Most are on the northern side of the creek.
4. Oakley Park: this is the uppermost urbanised section of Farmers Creek, and channel capacity is lower here than in downstream areas. More than 40 properties could experience over-floor flooding in the area upstream of the junction of Farmers and Vale of Clwydd creeks in a 1% flood event. The number affected in lesser events is much lower, only about 10 dwellings being inundated beyond floor level in a 20% (once-in-five-years) event.

Inundation

5. Properties likely to experience flooding of yards or buildings in a 1% flood are located in Bells Rd, Island Pde, Bragg, Brisbane, Mills, Hay and Brooks street and Victoria Ave. Part of the site of the Zig Zag Public School would also be inundated.
6. Vale of Clwydd Creek: three properties (one residential and two commercial) in the area upstream of Chifley Rd can be flooded in a 1% event. Chifley Road (the Bells Line of Road) can be closed between Hartley Valley Road and Clwydd Street.
7. Morts Estate: more than 80 properties, including several premises, could experience over-floor inundation in this area in a 1% event. About 30 of these would be flooded in a 20 % flood.
8. Properties likely to experience inundation of yards or buildings in a 1% event are located in Willes, Laidley, Atkinson, Guy, Macaulay and Montague streets and Sandford Ave on the north side of Farmers Creek and Inch, Burton, Union,

Tank and Gay streets on the south side. More than half of the properties are to the north of the creek.

9. Hermitage Flat: this is the area of Lithgow which has suffered most severely from flooding in the past. About 40% of the town's flood-labile properties are located here, more than 100 properties being likely to experience flooding beyond floor level in a 1% event. Two thirds of these are flooded in a 50% (once-in-two-years) flood.
10. The affected properties are located in Sandford Ave and Coalbrook, Stephenson, Wear, Geordie and Davey streets to the north of Farmers Creek. The Tank Street, Sandford Avenue and Alvert Street bridges are liable to closure.
11. Bowenfels: two dwellings to the south of Farmers Creek in Coerwul Rd (the old Great Western Highway) could experience over-floor inundation.
12. South Bowenfels: the channel here is relatively large and incised, but a low-lying, flat portion of Lockyer St and Tweed Rd could be inundated in a 1% event. About 10 properties would be affected but none are expected to experience over-floor flooding in such a flood. The Coerwall Road Bridge could be affected.
13. The flood prone community within Lithgow has the following characteristics:
 - a) Most are long-term residents of Lithgow who own their own houses. Some 45 per cent have lived in their present house for more than 20 years.
 - b) A significant proportion are elderly and live alone or with one other person. About half receive their income from pensions, special benefits and retirement incomes. There are few young families.
 - c) Many are flood-experienced (about 40 per cent had their land inundation in the flood of February 1990) but because of their age will probably need assistance to raise belongings and/or evacuate during the onset of a flood.

Isolation

14. There is a potential for isolation of community and/or rural properties within the Lithgow area.

Dams

15. Dwellings below Lyell Dam - Seventeen dwellings within the Lithgow Council area (and a further three in the Oberon Council area and one in the Blue Mountains Council area) would be inundated in the event of a failure of Lyell Dam. An additional six dwellings are located above the expected flood height

but their occupants may need to move stock from low-lying parts of their properties.

16. It is expected that there would be difficulties associated with evacuation because of concurrent flooding on minor creeks, which would cause inundation of low-level bridges and low portions of roads.
17. About a third of the dwellings at risk are not permanently occupied. Most of these are used as weekend or occasional residences. One is utilised occasionally by a school for outdoor education and camping purposes. Of those which are permanently occupied, most contain only a couple or a single individual for the majority of the time.
18. Dwellings below Rydal Dam - three dwellings in the village of Rydal would be at risk of over-floor inundation in the event of a failure of Rydal Dam in a very severe flood. One of these would be flooded if the dam's wall collapsed for reasons other than flooding (for example because of an earthquake).

OTHER COMMUNITIEWS WITHIN LITHGOW LGA

Outside the Lithgow urban area, some localities are periodically isolated as a result of rises in rivers and creeks and re-supply of food is required. These areas include **Glen Davis**, on the Capertee River; **Turon Gates**, a popular holiday and camping area on the Turon River, **Newnes** on the Wolgan River and the **Kanimbla Valley** area in the valley of the Coxs River.

A number of rural communities can be affected by localised flooding. These include:

Community	Population	Community	Population
Hampton		Lowther	
Clarence	210 (2006 Census)	Hartley	
Hartley Vale	498 (2006 Census)	Little Hartley	
Kanimbla Valley	398	Tarana	
Wallerawang	542 (2006 Census)	Rydal	
Marrangaroo	292 (2006 Census)	Lidsdale	

Portland	1878 (2006 Census)	Cullen Bullen	199 (2006 Census)
Ben Bullen		Capertee	71 (2006 Census)
Dark Corner		Newnes	
Glen Davis		Glen Alice	353
Bogee	108	Emirates Resort	96 Guests & 200 Staff

Farm Inundation

In rural areas during periods of flooding, low-lying areas along creeks may become inundated, necessitating the movement of pumps, equipment and livestock to higher ground and the necessity for feeding of stock. This can be anticipated from time to time on all of the creeks in the council area.

During very severe events, small numbers of properties and some farm dwellings could be flooded necessitating evacuations.

ROAD CLOSURES

19. The following table B-2 lists roads liable to flooding in the Lithgow City area:

TOWN or LOCALITY	ROAD NAME	LOCATION(S) OF CLOSURE	ALTERNATIVE ROUTE/S	REMARKS
Capertee	Glen Davis Road	Bridge over Capertee River. Up to 12 hours		Caused by localised flooding after heavy rain
Cullen Bullen	Palmer's Oakey Road	Various locations. Up to 12 hours		Caused by flash flooding after heavy rain
Hartley	Castlereagh	Lidsdale and		Caused by localised flooding

	Highway (Mudgee Road)	Cullen Bullen. Up to 12 hours		after heavy rain
Kanimbla Valley	Portland Road	Cullen Bullen. Up to 12 hours		Caused by localised flooding after heavy rain
Wallerawang Meadow Flat	Coxs River Road	Various locations Up to 12 hours.		Caused by localised flooding after heavy rain
	Cullenbenbong Road	Various creek crossings. Up to 12 hours		Caused by localised flooding after heavy rain
	Pipers Flat Road (Portland Road)	Thompsons Creek crossing (between Portland and Willowvale Lane). Up to 12 hours		Caused by localised flooding after heavy rain
	Sunny Corner Road	Near intersection with Great Western Highway [2 – 3 hours].	To <u>Portland</u> via Range Road. To <u>Sunny Corner</u> via Sunny Corner Road Kirkconnell.	Caused by localised flooding after heavy rain at small diameter pipe under roadway.

20. Table B-2 – Road Closures in Lithgow LGA

SES RESPONSE ARRANGEMENTS FOR LITHGOW CITY

Volume 3 of the Lithgow City Local Flood Plan

Last Update: May 2011

ANNEX C - GAUGES MONITORED BY THE LITHGOW & PORTLAND SES UNIT HEADQUARTERS

Gauge Name	Type	AWRC No.	Stream	Flood level classification			Special Reading Arrangements	Owner
				Minor	Moderate	Major		
Glen Davis ‡	Manual	212018	Capertee					DLWC
Turon Gates ‡	Manual	10389	Turon					SES
Lyell Dam	Manual	10222	Cox's					Pacific Power
Rydal Dam	Manual	10337	Solitary					FRWS
Geordie Street	Manual	10154	Farmers Creek					Council
Albert Street	Manual	10002	Farmers Creek					Council
Sandford Street	Manual	10340	Farmers Creek					Council
Tank Street	Manual	10364	Farmers Creek					Council
Atkinson Street	Manual	10009	Farmers Creek					Council

Table C-1: Gauges monitored by the Lithgow and Portland SES Unit Headquarters

Notes: The Bureau of Meteorology provides flood warnings for the gauges marked with an asterisk (*). SES Local Flood Advices are provided for the gauges marked with a single cross (+). The SES holds a Flood Intelligence Card for the gauges marked with a double cross (‡).

ANNEX D - DISSEMINATION OPTIONS FOR SES FLOOD INFORMATION AND WARNING PRODUCTS

The Central West SES Region Headquarters distributes SES Flood Bulletins, SES Evacuation Warnings and SES Evacuation Orders to the following regional media outlets and agencies:

Television Stations:

Station	Location
Capital TV	Orange
Prime TV	Orange
Win TV	Orange
ABC TV	Orange

Radio Stations:

Station	Location	Frequency	Modulation
2CR	Orange	1395	AM
2LT	Lithgow	107.9	FM
2BS	Bathurst	1503	AM
2GZ	Orange	105.1	FM

Newspapers:

Name	Location
Lithgow Mercury	Lithgow

ANNEX E - TEMPLATE EVACUATION WARNING, EVACUATION ORDER AND ALL CLEAR

Flood Evacuation Warning



[name] SES Region Headquarters

[Enter address]

Telephone: (02) [#####]

Fax: (02) [#####]

Issued [day] [date] at [time in civilian format (am,pm)]

Email: [#####]

Radio stations are asked to immediately broadcast this message and repeat it.

Use of the Standard Emergency Warning Signal (SEWS) with this message is authorized.

Flood Evacuation Warning for [Enter location/s]

Authorised By: [(name and operational position title)]

As a result of the flood level predicted by the Bureau of Meteorology for [*location*] at [*date/time*] the State Emergency Service recommends that residents within the nominated areas should prepare to evacuate within the next [*number*] hours.

Residents should monitor the situation and be prepared to evacuate when instructed to do so. A Flood Evacuation Order will be issued by the SES if evacuation is required.

You can choose to go to friends or relatives. Alternatively, evacuation centres will be established at [*location/s*] where you can obtain temporary accommodation and other help.

To prepare for possible evacuation you should:

- Raise belongings by placing them on tables, beds and benches. Put electrical items on top. You may be able to place light weight items in the roof space.
- Collect together medicines, personal and financial documents, mementos and photos
- If possible, check to see if your neighbours need help
- Make arrangements for care of pets or other animals, or take your pets with you when you evacuate
- Take three days' supply of clothing and medicines
- Find out where to turn off the electricity and gas
- Continue to listen to a local radio station for updates

Don't walk ride or drive through floodwaters – this is the main cause of death and injury during floods

For emergency assistance telephone the SES on 132 500

Web site: www.ses.nsw.gov.au

End SES Flood Evacuation Warning _____

[Enter next update and currency details]

Flood Evacuation Order



[name] SES Region Headquarters

[Enter address]

Telephone: (02) [#####]

Fax: (02) [#####]

Issued [day] [date] at [time in civilian format (am,pm)]

Email: [#####]

Radio stations are asked to immediately broadcast this message and repeat it.

Use of the Standard Emergency Warning Signal (SEWS) with this message is authorized.

Flood Evacuation Order for [Enter locations]

Authorised By: [(name & operational position title)]

As a result of the flood level predicted by the Bureau of Meteorology for [*location*] at [*date/time*] the State Emergency Service is directing residents within the nominated areas to evacuate within the next [*number*] hours.

Do not delay your evacuation. Roads will be congested or closed. You could become trapped and need rescue. Remaining in flooded areas is dangerous and may place your life at risk.

You can choose to go to friends or relatives. Alternatively, evacuation centres will be established at [*location/s*] where you can obtain temporary accommodation and other help.

Delete as required {If you don't have a car, buses may operate where possible on normal routes. Special transport can also be provided on request if necessary, telephone [*telephone number*]}

As you evacuate you should:

- Take your important documents, mementos and photos
- Take your spare clothing and medicines
- If possible, check to see if your neighbours need help
- Turn off the electricity and gas
- Don't walk ride or drive through floodwater
- Continue to listen to a local radio station for updates

For emergency assistance telephone the SES on 132500

SES web site: www.ses.nsw.gov.au

End SES Flood Evacuation Order

This Flood Evacuation Order remains current until the All Clear has been issued

ALL CLEAR



[name] SES Region Headquarters

[Enter address]

Telephone: (02) [#####]

Fax: (02) [#####]

Issued [day] [date] at [time in civilian format (am,pm)]

Email: [#####]

Radio stations are asked to immediately broadcast this message and repeat it.

All Clear for [Enter locations]

Authorised By: [(name & operational position title)]

[Describe the condition that justify the All Clear including any special precautions/conditions and safety advices that people must take]

The SES has issued the ALL CLEAR for [enter locations] at [time / date]. This means that it is now safe to return to [enter locations].

People with access to transport can return to their properties now.

[People who/If you] require transport assistance you should contact [insert contact details] for further information on arrangement for return.

For emergency assistance telephone the SES on 132500

SES web site: www.ses.nsw.gov.au

End SES All Clear _____

ANNEX F - DETAILS OF THE DAM FAILURE WARNING SYSTEM FOR LYELL DAM

The Special Lyell Dam Warning and Alarm System has been developed to warn people below the dam of potential or actual dam failure flooding. It consists of an automatic alarm system and a set of arrangements.

INUNDATION MAPPING.

1. Dam break flood inundation mapping has been prepared for Lyell Dam and is contained in the Lyell Dam Safety Emergency Plan.

MONITORING

2. The dam owner/operator is responsible for monitoring and managing any potential emergency at the dam site.

NOTIFICATION PROCEDURES

3. The primary contact for dam failure warning notification by the dam owner to the SES is the NSW SES 24hr Operations Communications Centre. The SES Operations Communications Centre will subsequently notify the Central West SES Region Headquarters Duty Officer who will contact the Lithgow SES Local Controller. An alternate NSW Police contact is available if this notification procedure was to fail.
4. A flow chart illustrating the notification arrangements for potential dam failure is shown in Annex H.

WARNING

5. Dam failure alerts are issued to SES and are used to trigger appropriate response actions. Alert levels from the DSEP for flood failure have been reproduced against SES responses. Responses escalate as the alert level migrates from white to red. The conditions that define each of the alert levels (as identified in the DSEP) are listed in Table F-1. The meaning of each alert level is as follows:
 - White: Preliminary alert to assist the SES in its preparation. This is not a public alert. It indicates a potential issue/condition has been observed at the dam and is being investigated.
 - Amber: Alert level necessitating the warning of the population at risk to prepare for evacuation.

- Red: Alert level requiring the immediate evacuation of the downstream population at risk.

6. Actions indicated as occurring at particular Alert Levels may be brought forward if the development of a flood warrants.

Alert	Defining Conditions	Min Time to Reach Alert Levels (approx)
White Alert	784.5 meters AHD. At this level, alarms will be triggered in the two control units only. The depth of water in the spillway at this level would be 2.5 metres, the resulting flood being of approximately 5% (AEP) severity. The SES Local Controller will also be phoned or paged.	
Amber Alert	784.5 metres AHD. At this level the alarms will be triggered in the two control units as well as in the residences below the dam. The depth of water in spillway at this point would be five metres and the flood would be of greater than 1% (AEP) severity. This event would be equal in severity to the record flood which occurred at the dam in 1986. The SES Local Controller will also be phoned or paged.	
Red Alert	792 meters AHD. At this level the alarms will be triggered as for the Amber alert. Water would be at the crest of the dam. This is taken as the flood level at which dam failure would begin to occur.	

Table F-1: Lyell Dam Flood Failure Alert levels

7. The SES and Pacific Power will disseminate dam failure warnings.
8. Pacific Power Staff will keep the SES informed of the details that include discharge through the spillway. The dam alerts will be activated in sequence as the storage level rises during the course of a major flood event and will be sent to the SES as they occur.
9. The following table outlines the notification, warning and evacuation arrangements for a potential failure of Lyell.

Alerts	Defining Conditions	Notification Arrangements and Actions for Lyell Dam					
		Pacific Power	SES OCC	SES Region Controller	SES Local Controller	LEOCON / Other agencies	People at risk
WHITE ALERT	784.5 meters AHD. At this level, alarms will be triggered in the two control units only. The depth of water in the spillway at this level would be 2.5 metres, the resulting flood being of approximately 5% (AEP) severity.	Advise SES Communications Centre of White Alert Level being reached and provide regular updates on the situation at the dam	Receive notification from dam operator Advise SES Region Controller Advise SEOC	Receive notification from SES SHQ Advise SES Local Controller, SES Units SES Local Headquarters Advise the District Emergency Management Officer (DEMO). Consider need for OAAA for warning and evacuation operations.	Confirm SES RHQ has been notified. Activate Local Flood Plan. Refer to Local Flood Plan for agencies to notify that the White Alert Level has been reached. (See Annex I, Dam Failure Alert Notification Arrangements Flowchart).	When requested by SES Local Controller, coordinate support	No action required. Some evacuations may be necessary due to mainstream riverine flooding.
AMBER ALERT	784.5 metres AHD. At this level the alarms will be triggered in the two control units as well as in the residences below the dam.	Advise SES Operations Communications Centre of Amber Alert Level being reached and provide regular updates on the situation at the	Receive notification from dam operator Advise SES Region Controller	Notify SES Local Controller, SES units SES LHQ. Provides SES Flood Bulletins and evacuation warnings to the media	Confirm SES RHQ has been notified. Coordinate the delivery of warnings to at-risk residents. Coordinate the	When requested by SES Local Controller, coordinate support	Prepare homes for inundation, pack valuables, mementos and pets and prepare to evacuate. Notify SES

	The depth of water in spillway at this point would be five metres and the flood would be of greater than 1% (AEP) severity. This event would be equal in severity to the record flood which occurred at the dam in 1986.	dam Closely monitor the condition of Lyell Dam and implement preventative measures to return it to a safe condition as soon as possible.	Advise SEOC	organisations listed in Annex D. Coordinate provision of out of area assistance for warning and evacuation operations.	notification of other agencies as listed in Local Flood Plan		doorknockers if transport to evacuation centres will be required. Some evacuations may be necessary due to mainstream riverine flooding.
RED ALERT	792 meters AHD. At this level the alarms will be triggered as for the Amber alert. Water would be at the crest of the dam. This is taken as the flood level at which dam failure would begin to occur	Advise SES Communications Centre of Red Alert Level being reached and provide regular updates on the situation at the dam	Receive notification from dam operator Advise SES Region Controller Advise SEOC	Notify SES Local Controller, SES units, SES LHQ. Advise the DEMO. Confirm that residents immediately downstream of the dam have been notified of Red Alert Level being reached. Activate the Standard	Confirm SES RHQ has been notified. Evacuate at-risk residents. Coordinate the notification of other agencies as per the Local Flood Plan Ensure that evacuation centres are ready to receive evacuees.	When requested by SES Local Controller, coordinate support	Evacuate to nearest evacuation centre or assembly area.

				Emergency Warning Signal (SEWS) and ensure that evacuation warnings are broadcast over the radio stations listed in Annex D. Coordinate provision of out of area assistance for evacuation operations	Conduct warning and evacuation of downstream residents by doorknock and public address systems from emergency service vehicles. Coordinate transport of evacuees without their own vehicles.		
DAM FAILURE ALERT CANCELLATION	Dam owner assesses threat and advises whether the risk to the dam structure has passed.	Advise SES OCC of the outcome of the risk assessment	Receive notification from dam operator Advise SES Region Controller Advise SEOC	Following risk assessment of the dam, decide in consultation with Local and State Controller whether to issue an All Clear. Issue 'All Clear' message to SES Local Controller, SES units, SES Local HQ and SES State HQ Advise the	Deliver 'All Clear' message to other agencies as necessary. Coordinate issue of 'All Clear' message at evacuation centres or by phone/doorknock.	When requested by SES Local Controller, coordinate support	Stay home, return home or await further advice.

				<p>DEMO that 'All Clear' has been issued.</p> <p>Issue 'All Clear' message over radio stations listed in Annex D.</p>			
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Table F-2: Notification, warning and evacuation arrangements for a potential failure of Lyell

ANNEX G - DETAILS OF THE DAM FAILURE WARNING SYSTEM FOR RYDAL DAM

The Special Rydal Dam Warning and Alarm System have been devised to warn three at-risk households below Rydal Dam of potential or actual dam failure flooding. The system consists of a series of arrangements for monitoring the dam and passing warning messages to the households downstream.

Residents of the three houses at risk have been issued with a written summary of the circumstances under which dam failure could occur and of the arrangements governing the passage of warnings. In addition, they have been advised as to what to take with them when they evacuate and where they should go.

INUNDATION MAPPING.

1. Dam break flood inundation mapping has been prepared for Rydal Dam and is contained in the Rydal Dam Safety Emergency Plan.

MONITORING

2. The dam owner/operator is responsible for monitoring and managing any potential emergency at the dam site.
3. Rydal Dam is monitored as follows:
4. Visually, at the dam itself, by Water Distribution Officers employed by the Fish River Water Supply and by a contractor carrying out remedial works at the dam. If abnormalities are noted in the condition of the dam wall, the Operations Manager of Fish River Water Supply (Wallerawang) is advised.
5. By telemeter surveillance of water levels. An automatic alarm dialler connected to a gauge at the dam dials the Fish River Water Supply office at Wallerawang during office hours and five employee's houses after hours.

NOTIFICATION PROCEDURES

6. The primary contact for dam failure warning notification by the dam owner to the SES is the NSW SES 24hr Operations Communications Centre. The SES Operations Communications Centre will subsequently notify the Central West SES Region Headquarters Duty Officer who will contact the Lithgow SES Local Controller. An alternate NSW Police contact is available if this notification procedure was to fail.
7. A flow chart illustrating the notification arrangements for potential dam failure is shown in Annex G.

WARNING

8. Dam failure alerts are issued to SES and are used to trigger appropriate response actions. Alert levels from the DSEP for flood failure have been reproduced against SES responses. Responses escalate as the alert level migrates from white to red. The conditions that define each of the alert levels (as identified in the DSEP) are listed in Table G-1. The meaning of each alert level is as follows:

- White: Preliminary alert to assist the SES in its preparation. This is not a public alert. It indicates a potential issue/condition has been observed at the dam and is being investigated.
- Amber: Alert level necessitating the warning of the population at risk to prepare for evacuation.
- Red: Alert level requiring the immediate evacuation of the downstream population at risk.

9. Actions indicated as occurring at particular Alert Levels may be brought forward if the development of a flood warrants.

Alert	Defining Conditions	Min Time to Reach Alert Levels (approx)
White Alert	9.8 metres. This level represents 300 mm depth of water in the spillway. This level is 300 mm above the Top Water Level at which Fish River Water Supply attempts to maintain the storage.	
Amber Alert	10.1 metres. This level represents 600 mm depth of water in the spillway.	
Red Alert	10.5 metres. At this level, which represents 1 metres depth of water in the spillway, failure of the dam would be expected to begin and a flood wave would reach Rydal about 15 minutes later.	

Table G-1: Rydal Dam Flood Failure Alert levels

10. The SES/Fish River Water Supply will disseminate dam failure warnings.
11. Fish River Water Supply Staff will keep the SES informed of details including discharge through the spillway. The dam alerts will be activated in sequence as the storage level rises during the course of a major flood event and will be sent to the SES as they occur.

12. The following table outlines the notification, warning and evacuation arrangements for a potential failure of Rydal.

Alerts	Defining Conditions	Notification Arrangements and Actions for Rydal Dam					
		Fish River Water Supply	SES OCC	SES Region Controller	SES Local Controller	LEOCON / Other agencies	People at risk
WHITE ALERT	9.8 meters. This level represents 300 mm depth of water in the spillway. This level is 300 mm above the Top Water Level at which Fish River Water Supply attempts to maintain the storage.	Advise SES Communications Centre of White Alert Level being reached and provide regular updates on the situation at the dam	Receive notification from dam operator Advise SES Region Controller Advise SEOC	Receive notification from SES SHQ Advise SES Local Controller, SES Units SES Local Headquarters Advise the District Emergency Management Officer (DEMO). Consider need for OAAA for warning and evacuation operations.	Confirm SES RHQ has been notified. Activate Local Flood Plan. Refer to Local Flood Plan for agencies to notify that the White Alert Level has been reached. (See Annex I, Dam Failure Alert Notification Arrangements Flowchart).	When requested by SES Local Controller, coordinate support	No action required. Some evacuations may be necessary due to mainstream riverine flooding.
AMBER ALERT	10.1 metres. This level represents 600 mm depth of water in the spillway.	Advise SES Operations Communications Centre of Amber Alert Level being reached and provide regular updates on the situation at the	Receive notification from dam operator Advise SES Region Controller	Notify SES Local Controller, SES units SES LHQ. Provides SES Flood Bulletins and evacuation warnings to the media	Confirm SES RHQ has been notified. Coordinate the delivery of warnings to at-risk residents. Coordinate the	When requested by SES Local Controller, coordinate support	Prepare homes for inundation, pack valuables, mementos and pets and prepare to evacuate. Notify SES

		<p>dam</p> <p>Closely monitor the condition of Rydal Dam and implement preventative measures to return it to a safe condition as soon as possible.</p>	<p>Advise SEOC</p>	<p>organisations listed in Annex D.</p> <p>Coordinate provision of out of area assistance for warning and evacuation operations.</p>	<p>notification of other agencies as listed in Local Flood Plan</p>		<p>doorknockers if transport to evacuation centres will be required.</p> <p>Some evacuations may be necessary due to mainstream riverine flooding.</p>
<p>RED ALERT</p>	<p>10.5 metres. At this level, which represents 1 metre depth of water in the spillway, failure of the dam would be expected to begin and a flood wave would reach Rydal about 15 minutes later.</p>	<p>Advise SES Communications Centre of Red Alert Level being reached and provide regular updates on the situation at the dam</p>	<p>Receive notification from dam operator</p> <p>Advise SES Region Controller</p> <p>Advise SEOC</p>	<p>Notify SES Local Controller, SES units, SES LHQ.</p> <p>Advise the DEMO.</p> <p>Confirm that residents immediately downstream of the dam have been notified of Red Alert Level being reached.</p> <p>Activate the Standard Emergency Warning Signal</p>	<p>Confirm SES RHQ has been notified.</p> <p>Evacuate at-risk residents.</p> <p>Coordinate the notification of other agencies as per the Local Flood Plan</p> <p>Ensure that evacuation centres are ready to receive evacuees.</p> <p>Conduct warning and evacuation of</p>	<p>When requested by SES Local Controller, coordinate support</p>	<p>Evacuate to nearest evacuation centre or assembly area.</p>

				<p>(SEWS) and ensure that evacuation warnings are broadcast over the radio stations listed in Annex D.</p> <p>Coordinate provision of out of area assistance for evacuation operations</p>	<p>downstream residents by doorknock and public address systems from emergency service vehicles.</p> <p>Coordinate transport of evacuees without their own vehicles.</p>		
DAM FAILURE ALERT CANCELLATION	Dam owner assesses threat and advises whether the risk to the dam structure has passed.	Advise SES OCC of the outcome of the risk assessment	<p>Receive notification from dam operator</p> <p>Advise SES Region Controller</p> <p>Advise SEOC</p>	<p>Following risk assessment of the dam, decide in consultation with Local and State Controller whether to issue an All Clear.</p> <p>Issue 'All Clear' message to SES Local Controller, SES units, SES Local HQ and SES State HQ</p> <p>Advise the</p>	<p>Deliver 'All Clear' message to other agencies as necessary.</p> <p>Coordinate issue of 'All Clear' message at evacuation centres or by phone/doorknock.</p>	When requested by SES Local Controller, coordinate support	Stay home, return home or await further advice.

				<p>DEMO that 'All Clear' has been issued.</p> <p>Issue 'All Clear' message over radio stations listed in Annex D.</p>			
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Table G-2: Notification, Warning and Evacuation arrangements for a potential failure of Rydal.

ANNEX H - RESUPPLY FLOWCHART

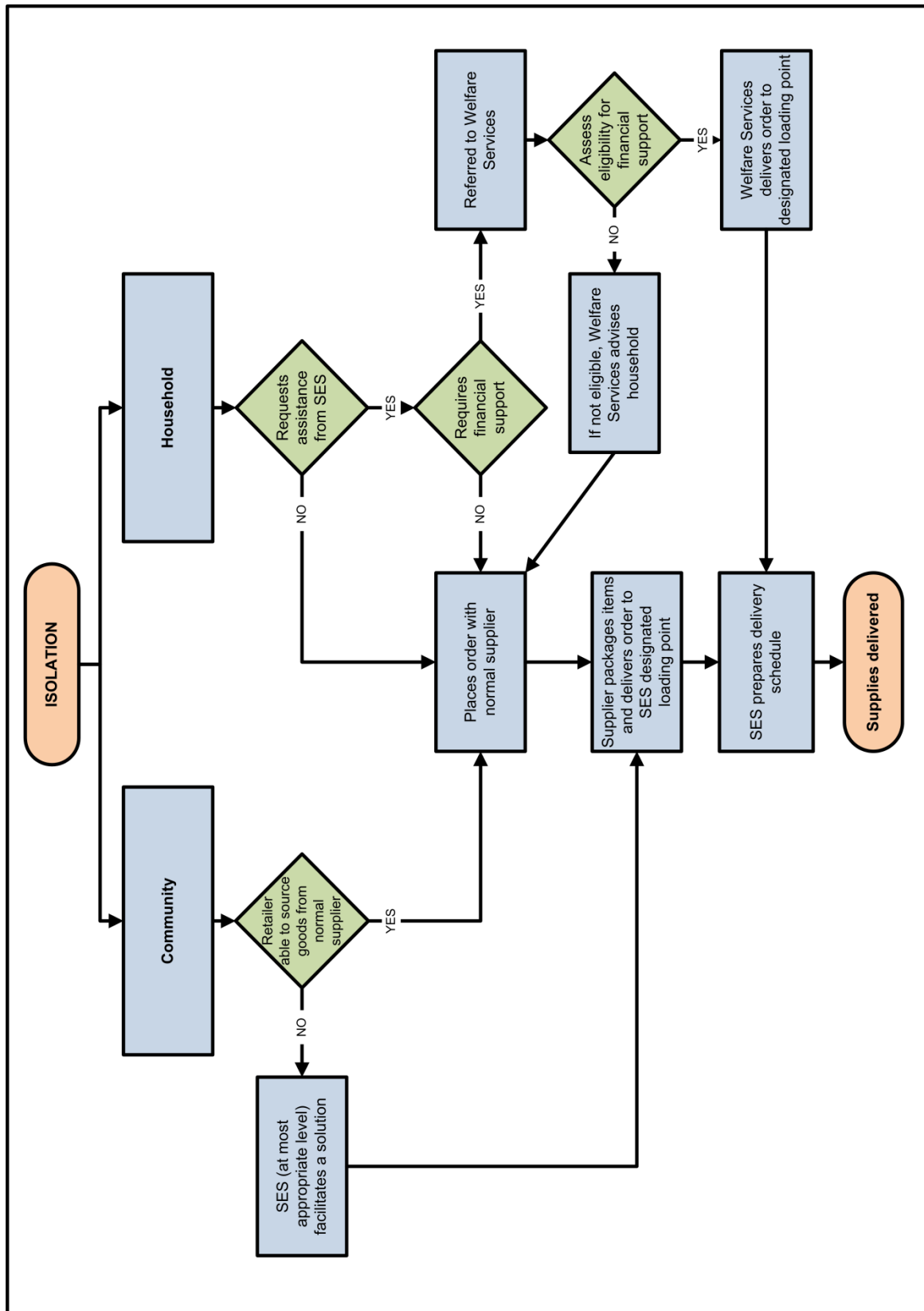
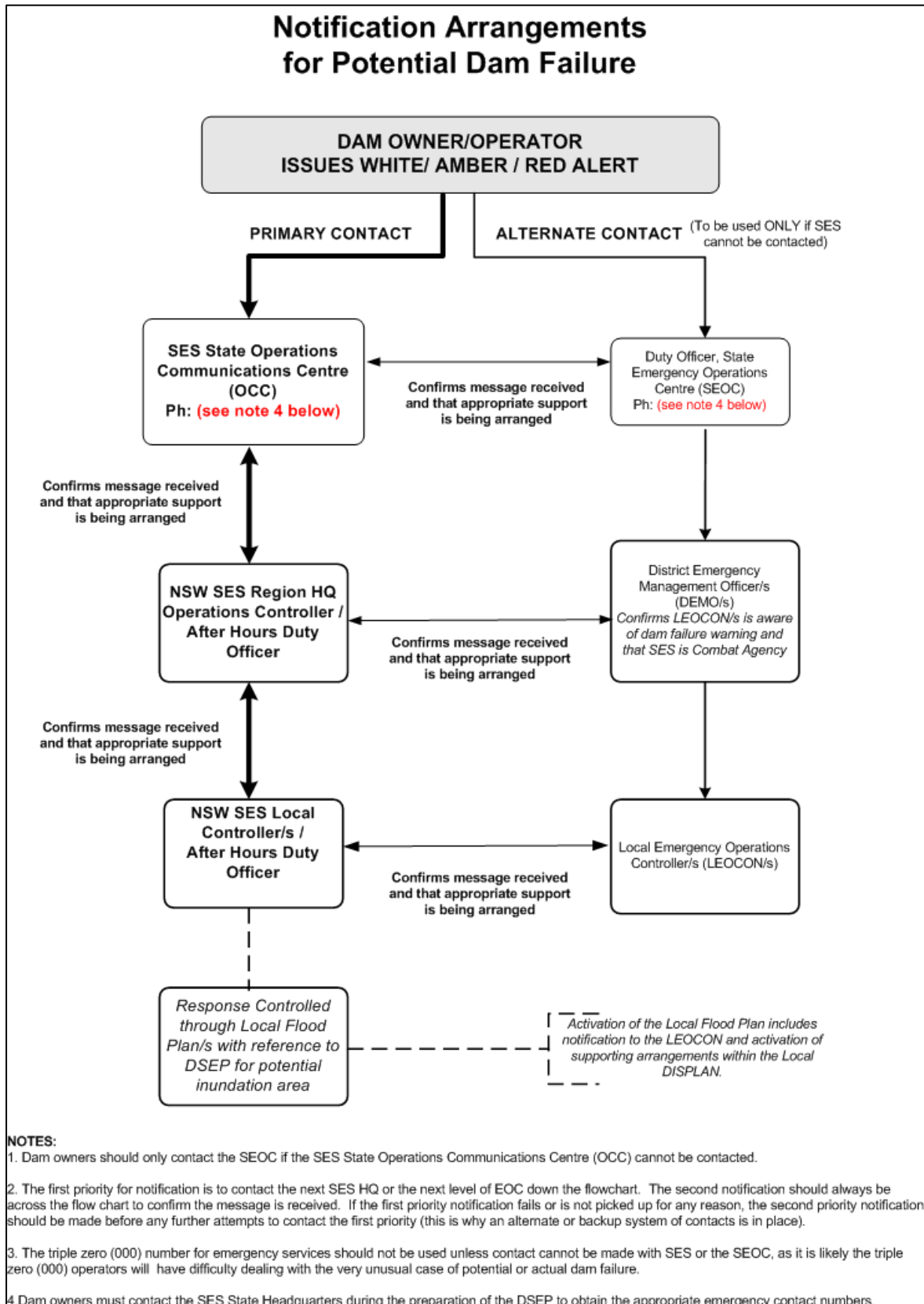


Figure I-1: Resupply Flowchart. Please note that the flowchart outlines the resupply process but does not encompass all potential situations and/or outcomes.

ANNEX I - DAM FAILURE ALERT NOTIFICATION ARRANGEMENTS FLOWCHART



ANNEX J - AVIATION MANAGEMENT

PURPOSE

During floods aviation assets can be used to perform numerous tasks including re-supply, evacuation, personnel movement and reconnaissance.

COORDINATION OF AVIATION ASSETS

The Lithgow SES Local Controller may task aircraft for flood operations within the council area if other transport means are not available or not suitable. During floods affecting more than one council area, aircraft will normally be tasked centrally by the Central West SES Region Controller.

LANDING ZONES

The sites listed below should be used for the landing of aircraft in emergency situations only. A risk assessment should be carried out before use.

Landing Zone	Aircraft Suitability	Features
Ben Bullen	Helicopter	Located 14kms NE of Ben Bullen near Crown Creek
Capertee	Helicopter	Located at oval SW of Royal Hotel at Capertee
Glen Alice	Helicopter	Private airstrip located on 'Umbrella' at Glen Alice
Hartley	Helicopter	Private landing strip located south of the Great Western Highway at Little Hartley
Lithgow	Helicopter	Located behind SES Unit Headquarters at Silcock Street in Lithgow

ANNEX K - MAPS

MAP 1 - MACQUARIE RIVER BASIN

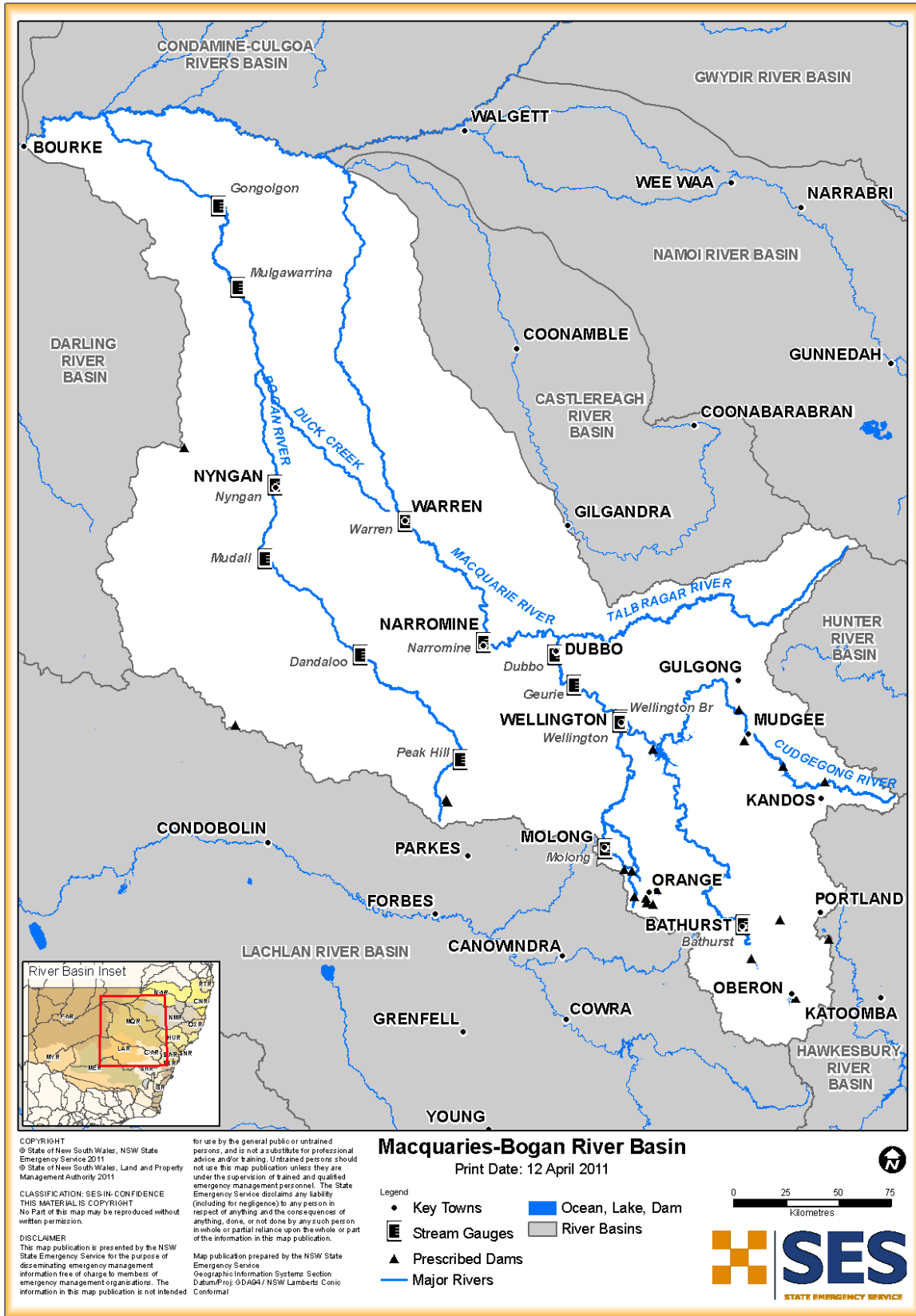
MAP 2 - HAWKESBURY RIVER BASIN

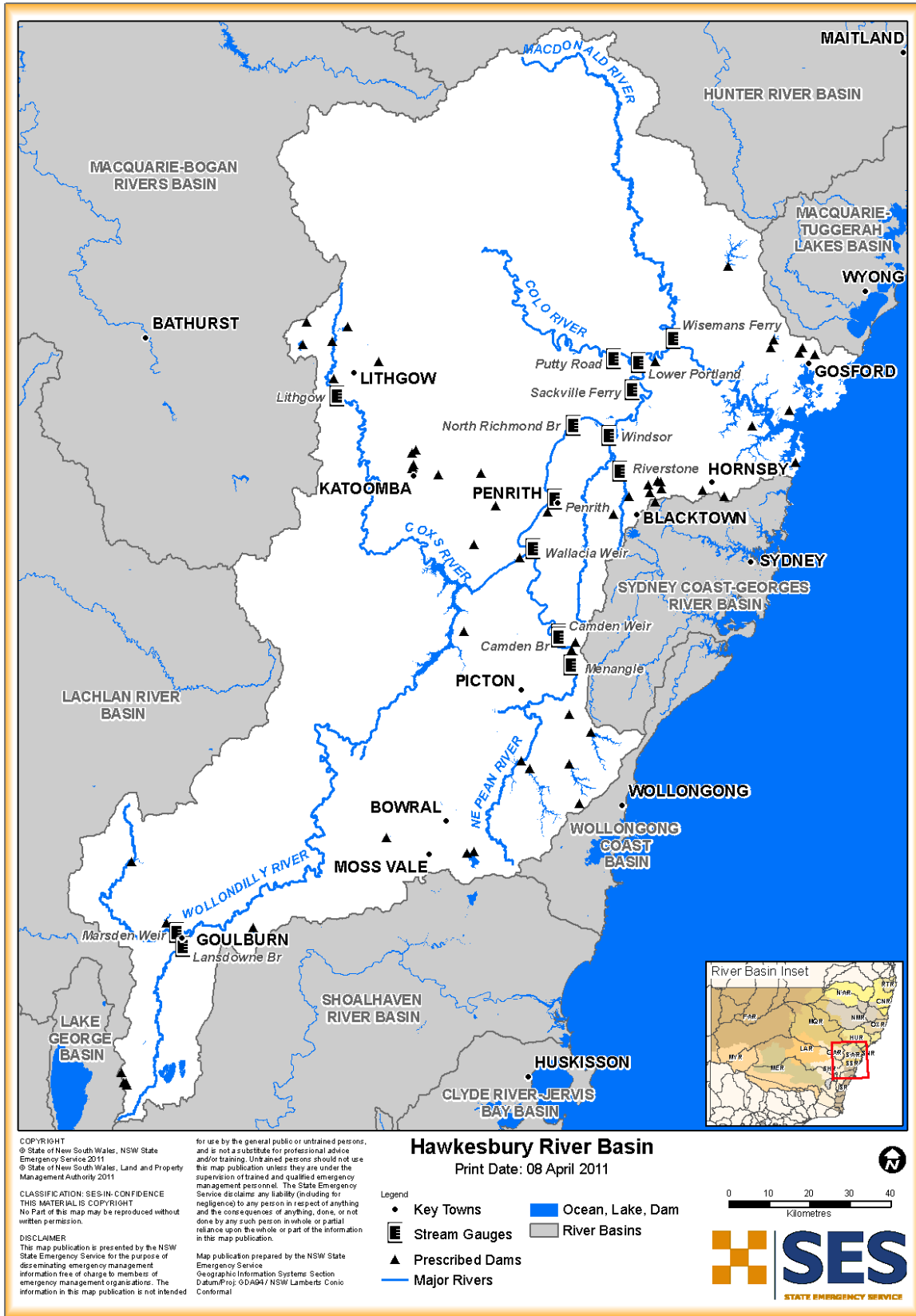
MAP 3 - LITHGOW CITY LOCAL GOVERNMENT AREA

MAP 4 - LITHGOW TOWN MAP

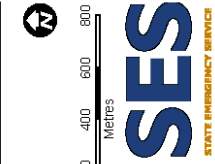
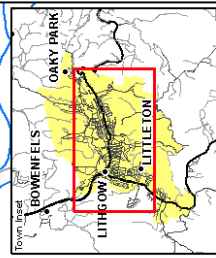
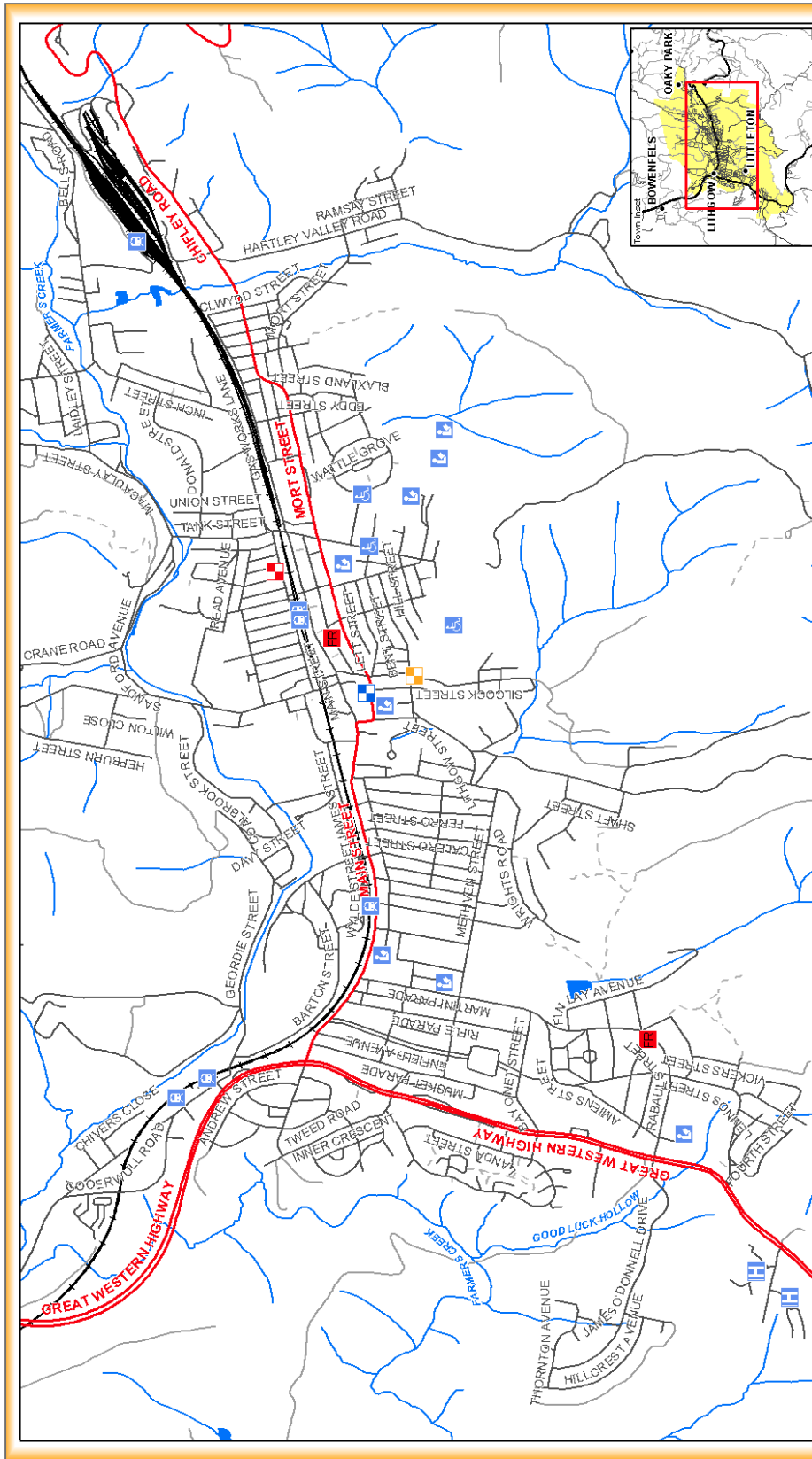
MAP 5 - PORTLAND VILLAGE MAP

MAP 6 - WALLERAWANG VILLAGE MAP









Lithgow Town
Print Date: 12 April 2011

- Major Road
- Lake, Dam, River
- Major Rivers
- All Rivers / Creeks
- Education Facilities
- Child Care Facilities
- Major Road
- Secondary Road
- Minor Road
- Track-Vehicular
- Path
- Railway Stations
- Hospitals
- Aged Care Facilities
- Airports
- Railway Lines
- Caravan Park / Camping
- Police Stations
- SES Headquarters
- Ambulance Facilities
- SES Stations
- RFS Stations
- Police Stations
- SES Headquarters
- Caravan Park / Camping

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