

Building	Site	Landmark	Heritage	Complementary	Comments
	Address	Site	Site	Building	
Terraces	310-312	No	Yes	No	NT Recorded
	Sloane Street				
St Claire	318 Sloane	Yes	Yes	No	AHC/HC/N
Museum	Street				T Classified
RC Bishop's	36 Verner	Yes	Yes	No	NT
Residence	Street				Classified/R
and					AIA
Presbytery					
St Peter and	Corner	Yes	Yes	No	NT
St Paul	Verner and				Recorded/A
Cathedral	Bourke				НС
	Streets				

# 9.9 Appendix J Flood Policy

#### Introduction

This draft flood policy defines planning controls to be applied to development on flood prone land within the Goulburn Mulwaree Local Government Area. The content of this document is outlined below:

- Section 9.9.1 Objectives
- Section 9.9.2 What are the Flood Planning Constraint Categories
- Section 9.9.3 How to use this Document
- Section 9.9.4 Definitions
- Section 9.9.5 Land Use Categories
- Section 9.9.6 Flood Planning Controls
- Section 9.9.7 flood Compatible materials
- Section 9.9.8 frequently Asked Questions
- Figure J1 Flood Planning Constraint Category Maps



## 9.9.1 Objectives

This draft flood policy aims to minimise the impact of flooding on development situated on flood prone land within the Goulburn Mulwaree Local Government Area. The policy applies controls that consider both the type of development and the associated flood risk.

The policy considers the range of possible flood events that can occur, up to and including the Probable Maximum Flood, which is the largest flood event that could conceivably occur at a given location and which delineates the extent of flood prone land.

The overarching objectives of the plan are:

- · To reduce the risk to life and damage to property caused by flooding through controlling development on land affected by potential floods.
- To incorporate the risk of flooding up to the Probable Maximum Flood in the planning and design of critical facilities and sensitive land uses.
- · To prevent intensification of inappropriate land uses within areas of high flood risk.
- · To permit certain types of development in portions of the floodplain with low to moderate flood risk, provided that suitable planning controls are applied that ensure the flood risk is managed.
- To ensure that ongoing development of the floodplain does not have a significant cumulative effect on flood storage or floodway, leading to increased flood risk.
- · To address the risk of riverine flooding through appropriate flood planning controls. The current policy does not include areas of overland flow flooding. These areas may be included in the future when the relevant flood study and floodplain risk management study and plan has been completed.
- · To provide a framework to manage the risk of flooding on future development, whilst acknowledging that flood prone land is a valuable asset which should not be unnecessarily sterilised.

## 9.9.2 What are the Flood Planning Constraint Categories

This flood policy implements the Flood Planning Constraint Category (FPCC) approach to flood planning as recommended in the 'Australian Disaster Resilience Guideline 7-5, Flood Information to Support Land-use Planning'.



FPCCs group similar types and scales of flood-related constraints to support land-use planning. They have been developed for use across Australia to understand the flooding constraints of flood prone land. Flood investigations typically produce a large number of maps, each focusing on a particular event magnitude and/or element of the flood behaviour. FPCCs use these findings to produce a succinct set of information that breaks the floodplain down into areas with similar degrees of constraint.

Four FPCCs have been developed to separate areas of the floodplain from the most constrained (and therefore least suitable for intensification of land use or development—FPCC1), to the least constrained (and therefore more suitable for intensification of land use or development—FPCC4). Details of the four FPCCs are presented in Table 47. Areas situated outside of FPCC4 are not flood prone and flood planning controls do not apply to these areas.

Category	Summary
FPCC1	FPCC1 identifies the most significantly constrained areas, with high hazard or significant flood flows present. Intensification of use in FPCC1 is generally very limited except where uses are compatible with flood function and hazard.
FPCC2	FPCC2 areas are the next least suitable for intensification of land use or development because of the effects of flooding on the land, and the consequences to any development and its users. In this document, FPCC2 is split into FPCC2 (Subcategory a,b,c,e) or FPCC2 (Subcategory d)
FPCC3	FPCC3 areas are suitable for most types of development. This is the area of the floodplain where more traditional flood-related development constraints, based on minimum floor and minimum fill levels, will apply.
FPCC4	FPCC4 is the area inundated by the PMF (extent of flood prone land), but outside FPCC1-3. Few flood-related development constraints would be applicable in this area for most development types. Constraints may apply to key community facilities and developments where there are significant consequences to the community if failed evacuations occur.

Table 47: Flood Planning Constraint Categories Overview



#### 9.9.3 How to use this Document

Flood planning controls depend on the type of development proposed, and what Flood Planning Constraint Category (or categories) are present at the site. The following procedure can be used to determine the controls for development:

- 1. Determine if the proposed development is situated on flood prone land. Council has flood information available for some locations within their Local Government Area. The FPCC map contained in Figure J1 of this document show the extent of available information.
- 2. For areas where no existing flood information is available, a flood assessment is required to be undertaken to determine the flood liability of the development site. If the development is not flood prone, flood planning controls do not apply.
- 3. Determine which Flood Planning Constraint Categories (FPCCs) are present at the development site. Some development sites may be situated in multiple FPCCs. There are four different FPCC and FPCC2 is split into FPCC2 (Subcategory a,b,c,e) or FPCC2 (Subcategory d).
- 4. Determine what category (or categories) of land use are proposed as part of the development. Land Use categories are presented in Table 49.
- 5. List the flood planning controls that apply to the development using the controls listed under Table 50. Some sites will also be located outside all FPCC and therefore have no flood planning controls that apply.

Council will then assess whether the development complies with each of the flood planning controls. The applicant is required to provide relevant information to Council as part of the Development Application, demonstrating compliance.



# 9.9.4 Definitions

Amazzal	The probability of an ayent being acyallad as ayeneded within a given year
Annual	The probability of an event being equalled or exceeded within a given year.
Exceedance	The 1% AEP flood is approximately equal to 1 in 100 year Average
Probability (AEP)	Recurrence Interval (ARI) flood event (or simply 100 year flood).
Flood Planning	FPCCs group similar types and scales of flood-related constraints to
Constraint	support land-use planning activities.
Categories (FPCC)	
FPCC1	FPCC1 identifies the most significantly constrained areas, with high hazard or
	significant flood flow. Intensification of use in FPCC1 is generally very limited
	except where uses are compatible with flood function and hazard.
FPCC2	FPCC2 areas are the next least suitable for intensification of land use or
	development because of the effects of flooding on the land, and the
	consequences to any development and its users. Note that FPCC2 is split into
	FPCC2 (Subcategory a,b,c,e) or FPCC2 (Subcategory d).
FPCC3	FPCC3 areas are suitable for most types of development. This is the area of
	the floodplain where more traditional flood-related development
	constraints, based on minimum floor and minimum fill levels, will apply.
FPCC4	FPCC4 is the area inundated by the PMF (extent of flood prone land), but
11 664	outside FPCC1-3. Few flood-related development constraints would be
	applicable in this area for most development types. Constraints may apply to
	1 ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
	key community facilities and developments where there are significant
	consequences to the community if failed evacuations occur.
	i e
Mainstream	Inundation of normally dry land occurring when water overflows the natural
Mainstream Flooding	Inundation of normally dry land occurring when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam.
	, ,
Flooding	or artificial banks of a stream, river, estuary, lake or dam.
Flooding Probable	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and
Flooding Probable	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level.
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action;
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related,
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related, such as levee and embankment settlement; cumulative impacts of fill in
Probable Maximum Flood (PMF)	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related, such as levee and embankment settlement; cumulative impacts of fill in floodplains and other effects such as changes in rainfall patterns as a result
Flooding  Probable  Maximum Flood	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related, such as levee and embankment settlement; cumulative impacts of fill in floodplains and other effects such as changes in rainfall patterns as a result of climate change. Freeboard for the Flood Planning Level in areas of
Probable Maximum Flood (PMF)	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related, such as levee and embankment settlement; cumulative impacts of fill in floodplains and other effects such as changes in rainfall patterns as a result of climate change. Freeboard for the Flood Planning Level in areas of mainstream flooding has been determined to be 0.8 m at Goulburn. This
Probable Maximum Flood (PMF)	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related, such as levee and embankment settlement; cumulative impacts of fill in floodplains and other effects such as changes in rainfall patterns as a result of climate change. Freeboard for the Flood Planning Level in areas of mainstream flooding has been determined to be 0.8 m at Goulburn. This value is based on the findings of a joint probability analysis as part of the
Probable Maximum Flood (PMF)	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related, such as levee and embankment settlement; cumulative impacts of fill in floodplains and other effects such as changes in rainfall patterns as a result of climate change. Freeboard for the Flood Planning Level in areas of mainstream flooding has been determined to be 0.8 m at Goulburn. This value is based on the findings of a joint probability analysis as part of the Goulburn Floodplain Risk Management Study and Plan.
Probable Maximum Flood (PMF)	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related, such as levee and embankment settlement; cumulative impacts of fill in floodplains and other effects such as changes in rainfall patterns as a result of climate change. Freeboard for the Flood Planning Level in areas of mainstream flooding has been determined to be 0.8 m at Goulburn. This value is based on the findings of a joint probability analysis as part of the Goulburn Floodplain Risk Management Study and Plan.  For unstudied catchments outside the Goulburn Floodplain Risk
Probable Maximum Flood (PMF)	or artificial banks of a stream, river, estuary, lake or dam.  The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.  A factor of safety expressed as the height above the design flood level. Freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels across the floodplain, such as wave action; localised hydraulic behaviour and impacts that are specific event related, such as levee and embankment settlement; cumulative impacts of fill in floodplains and other effects such as changes in rainfall patterns as a result of climate change. Freeboard for the Flood Planning Level in areas of mainstream flooding has been determined to be 0.8 m at Goulburn. This value is based on the findings of a joint probability analysis as part of the Goulburn Floodplain Risk Management Study and Plan.



Flood	Planning	The Flood Planning Area defines properties that are subject to flood related development controls. The use of FPCC does not rely on the Flood Planning
Area		Area but its definition has been included here for clarity.
Flood Level	Planning	The Flood Planning Level is a height used to set minimum floor levels for flood affected properties. It is based on a design flood event with freeboard added.

Table 48: Definitions

# 9.9.5 Land Use Categories

Flood planning controls will vary depending on the proposed land use category. There are 8 categories of land use, as set out in Table 49. The development types are based on the Goulburn Mulwaree Local Environment Plan 2009 land use categories.

Land Use	Development Types							
Critical Uses and Facilities  Sensitive Uses and Facilities	<ul> <li>Emergency services including police, fire, rescue and ambulance</li> <li>Medical facilities that provide a critical role</li> <li>Community facilities that provide a critical role during a flood event, in relation to notifications or evacuation</li> <li>Airstrips or air transport facilities that provide a critical role</li> <li>Electricity generating works</li> <li>Correctional centres</li> <li>Centre-based child care facilities</li> <li>Medical facilities that provide care outside normal working hours, including any facilities that provide for overnight stays</li> <li>Schools</li> <li>Seniors housing</li> <li>Group homes and other care facilities that house vulnerable groups</li> <li>Respite day care centres</li> </ul>							
Lot Subdivisions	Subdivision of land, which involves the creation of new allotments, with potential for further development							
Residential Development	<ul> <li>Attached dwellings</li> <li>Bed and breakfast accommodation</li> <li>Boarding houses</li> <li>Community facilities that include habitable space</li> <li>Dual occupancies</li> <li>Dwelling houses</li> <li>Exhibition homes</li> <li>Home occupations</li> <li>Home occupations</li> <li>Home occupations</li> <li>Resvices</li> <li>Rulti dwelling housing</li> <li>Residential flat buildings</li> <li>Rural workers' dwellings</li> <li>Semi-detached dwellings</li> <li>Serviced apartments</li> <li>Shop top housing</li> <li>Tourist and visitor</li> </ul>							



	Home industries	accommodation								
Commercial and Industrial	<ul> <li>Air transport facilities</li> <li>Airstrips</li> <li>Amusement centres</li> <li>Animal boarding or training establishments</li> <li>Boat building and repair facilities</li> <li>Business premises</li> <li>Camping grounds</li> <li>Cellar door premises</li> <li>Charter and tourism boating facilities</li> <li>Commercial premises</li> <li>Community facilities</li> <li>Crematoria</li> <li>Entertainment facilities</li> <li>Environmental protection works</li> <li>Food and drink premises</li> <li>Freight transport facilities</li> <li>Function centres</li> <li>Funeral homes</li> <li>Garden Centres</li> </ul>	<ul> <li>Kiosks</li> <li>Light industries</li> <li>Mortuaries</li> <li>Neighbourhood shops</li> <li>Passenger transport facilities</li> <li>Places of public worship</li> <li>Plant nurseries</li> <li>Recreation Facility (indoor)</li> <li>Registered clubs</li> <li>Restricted premises</li> <li>Roadside stalls</li> <li>Rural industries</li> <li>Self-storage units</li> <li>Service stations</li> <li>Sewerage systems</li> <li>Storage premises</li> <li>Tank-based aquaculture</li> <li>Timber yards</li> <li>Transport depots</li> <li>Vehicle body repair workshops</li> <li>Vehicle repair stations</li> <li>Veterinary hospitals</li> </ul>								
Commercial and Industrial (Cont.)	<ul> <li>Hardware and building supplies</li> <li>Highway service centres</li> <li>Home industries</li> <li>Industrial retail outlets</li> <li>Industrial training facilities</li> </ul>	<ul> <li>Warehouse or distribution centres</li> <li>Waste or resource management facilities</li> <li>Water supply systems</li> </ul>								
Recreation and Non-urban	<ul> <li>Agriculture</li> <li>Aquaculture</li> <li>Boat sheds</li> <li>Environmental facilities</li> <li>Extractive Industries</li> <li>Extensive Agriculture</li> <li>Forestry</li> <li>Open cut mining</li> <li>Helipads</li> <li>Intensive livestock agriculture</li> <li>Intensive plant agriculture</li> </ul>	<ul> <li>Jetties</li> <li>Landscaping material supplies</li> <li>Marinas</li> <li>Moorings</li> <li>Oyster Aquaculture</li> <li>Pond-based aquaculture</li> <li>Recreation facility (outdoor)</li> <li>Swimming pools</li> <li>Roads</li> <li>Water recreation structures</li> <li>Wharf or boating facilities</li> </ul>								
Sheds & Outbuildings	<ul> <li>Sheds and outbuildings of up to 40 m² area.</li> <li>Farm buildings that are not used to store vehicles and other equipment</li> </ul>									



Minor Additions • An addition in habitable floor area to an existing development of not more than 40m<sup>2</sup> or 10% of existing floor area, whichever is greater. Only one addition can be categorised as a minor addition per property.

Table 49: Land use Categories



### 9.9.6 Flood Planning Controls

After determining the FPCC present at the site, and the land use category, the Flood Planning Controls are set out in Table 50. The full controls are listed below the table. FPCC are shown on Figure J1.

				FF	PCC 1					FPC	CC 2	(Subc	atego	ory a,	b,c,e	)		F	PCC	2 (Su	ıbcat	tegory	y d)					FP(	CC 3							FP	CC 4			
	Critical Uses & Facilities	Sensitive Uses & Facilities	Lot Subdivisions	Residential Development	Commercial & Industrial	Recreation & Non-urban	Sheds & Outbuildings	Minor Additions	Critical Uses & Facilities	Sensitive Uses & Facilities	Lot Subdivisions	Residential Development	Commercial & Industrial	Recreation & Non-urban	Sheds & Outbuildings	Minor Additions	Critical Uses & Facilities	Sensitive Uses & Facilities	Lot Subdivisions	Residential Development	Commercial & Industrial	Recreation & Non-urban	Sheds & Outbuildings	Minor Additions	Critical Uses & Facilities	Sensitive Uses & Facilities	Lot Subdivisions	Residential Development	Commercial & Industrial	Recreation & Non-urban	Sheds & Outbuildings	Minor Additions	Critical Uses & Facilities	Sensitive Uses & Facilities	Lot Subdivisions	Residential Development	Commercial & Industrial	Recreation & Non-urban	Sheds & Outbuildings	Minor Additions
Floor Level						,	A1	A1					A2 A6	A	λ1 A	.2 A	.2			A4 A6			A1 A	A2 A3	3			A4 A6	A2 A6	Д	A1 A	.2 A		45 A	\5 \6					
Building Components													С	)1 D	)1 [	01 [	01				01	D1	D1 I	D1 D	1			D.	1 D	)1 D	D1 [	)1 D	D1 [	)2 [	)2					
Structural Soundness													E	1 E	1 1	E1 I	1				E1	E1	E1	E1 E	1			E:	1 E	:1 E	E1 [	E1 E	E1 [	2 1	<u> </u>					
Parking & Driveway Access							F2 F5	F1 F3 F4					F F F	51 3 F 4 F		٠.	5		F F		-	F1 F3 F2 F4 F5 F5		F1 F3 F4			F F F	51 F 3 F3 4 F4 5 F5	1 F 3 F: 4 F4 5 F:	7 3 F 4 F	F2 F	=1 :3		-2 I	<del>-</del> 2 -3					
Evacuation and Refuge						(	G1 G3 G4	G1					G G	(-		G1 G3			0	G3 G4	63	G3 (	G3				G G	3 G2	2 Gi		i3 i4	61		63 (	62 63 64					
Management and Design						 	H2   H3   H4	H2 H3 H4					H H H			12 13 14			H	H1 H5		H3 F	12	H2 H3 H4			Н	11 5	H3 H3 H4	2 H 3 H 4 H		12 13 14			ŀ	H1 I5				
Flood Impacts							J1	J1					J	. 11	J1	J1	J1			J1 .	J1	J1	J1	J1 J	1			J <sup>1</sup>	1 J	. 11	J1 .	J1 J	J1							

### Floor Level Controls

A1. All floor levels to be no lower than the 5% AEP flood unless justified by site-specific assessment.

A2.All floor levels to be equal to or greater than the FPL (1% AEP flood level plus 0.8 m freeboard). If significant access issues or other constraints are present, a reduced floor level no lower than the 1% AEP flood level may be considered if justified by a site-specific assessment.

A3.Additions with a habitable floor area of up to 30 m<sup>2</sup> may be approved with floor levels below the 1% AEP flood level if the applicant can demonstrate that no practical alternatives exist for constructing the extension above the 1% AEP flood level. For additions with habitable floor areas exceeding 30 m<sup>2</sup>, floor levels are to be equal or greater than the FPL (1% AEP flood level plus 0.8 m freeboard).

A4. All floor levels to be equal to or greater than the FPL (1% AEP flood level plus 0.8 m freeboard).

A5.All floor levels to be equal to or greater than the PMF flood level.

A6.Entrance levels to underground spaces (basements, carparking etc.) are required to be above the level of the FPL (1% AEP flood level plus 0.8 m freeboard) or PMF level, whichever is higher. Building Components

D1. All structures to have flood compatible building components below the FPL (1% AEP flood level plus 0.8 m freeboard).

D2. All structures to have flood compatible building components below the FPL (1% AEP flood level plus 0.8 m freeboard) or the PMF level, whichever is the highest.



#### Structural Soundness

- E1. Engineers report to certify that any structure can withstand the forces of floodwater, debris and buoyancy up to and including the FPL (1% AEP flood level plus 0.8 m freeboard).
- E2. Engineers report to certify that any structure can withstand the forces of floodwater, debris and buoyancy up to and including the FPL (1% AEP flood level plus 0.8 m freeboard) or a PMF, whichever is greater.

#### Parking and Driveway Access

- F1. The minimum surface level of open car parking spaces or carports shall be as high as practical, but no lower than the 5% AEP flood or the level of the crest of the road at the location where the site has access. In the case of garages, the minimum surface level shall be as high as practical but no lower than the 5% AEP flood.
- F2. The minimum surface level of open car parking spaces, carports or garages shall be as high as practical. The driveway providing access between the road and parking space shall be as high as practical and generally rising in the egress direction.
- F3. Garages capable of accommodating more than three motor vehicles on land zoned for urban purposes, or enclosed car parking, must be protected from inundation by floods up to the FPL (1% AEP flood level plus 0.8 m freeboard).
- F4. The level of the driveway providing access between the road and parking space shall be no lower than 0.3 m below the 1% AEP flood or such that the depth of inundation during a 1% AEP flood is not greater than either the depth at the road or the depth at the car parking space. A lesser standard may be accepted for single detached dwelling houses where it can be demonstrated that risk to human life would not be compromised.
- F5. Enclosed car parking and car parking areas accommodating more than three vehicles (other than on Rural zoned land), with a floor level below the 5% AEP flood or more than 0.3 m below the 1% AEP flood level, shall have adequate warning systems, signage and exits. Restraints or vehicle barriers are to be provided to prevent floating vehicles leaving the site during a 1% AEP flood.

#### Evacuation and Refuge

- G1. Reliable access for pedestrians or vehicles required to a publicly accessible location above the PMF via a rising road.
- G2. Reliable access for pedestrians or vehicles required during a 1% AEP flood to a publicly accessible location above the PMF.
- G3. The development is to be consistent with any relevant flood evacuation strategy or similar plan.
- G4. The evacuation requirements of the development are to be considered. An engineer's report will be required if circumstances are possible where the evacuation of persons might not be achieved within the effective warning time.

#### Management and Design

- H1. Applicant to demonstrate that potential development as a consequence of a subdivision proposal can be undertaken in accordance with this DCP.
- H2. Site Emergency Response Flood Plan required where floor levels are below the FPL (1% AEP flood level plus 0.8 m freeboard), except for single dwelling-houses.
- H3. Applicant to demonstrate that area is available to store goods above the FPL (1% AEP flood level plus 0.8 m freeboard).
- H4. No storage of materials below the FPL (1% AEP flood level plus 0.8 m freeboard) which may cause pollution or be potentially hazardous during any flood.
- H5. Finished land levels in new release areas shall be not less than the 1% AEP mainstream flood plus 0.5 m, unless justified by site specific assessment. A surveyor's certificate will be required upon completion certifying that the final levels are not less than the required level.

#### Flood Impacts

- J1. Provision of a report developed by an engineer who specialises in hydrology and floodplain modelling is required to certify that the development will not adversely affect flooding elsewhere. The report must show the:
- 1. Loss of storage in the floodplain. For sites located in areas of 1% AEP flood storage, assessment is to include consideration of the loss of storage resulting from cumulative development of the area.
- 2. Changes in flood levels and flow velocities caused by alteration of conveyance of flood waters. The capacity and conveyance of existing flowpaths shall be maintained.
- 3. Impacts of urbanisation on peak flood flows and volumes.

There is an exception to this requirement – no report is required for small developments such as a car port, in ground swimming pool or backyard shed less than 9 m<sup>2</sup>, that do not alter the existing ground level.



## 9.9.7 Flood Compatible Materials

For areas where flood planning controls require the use of flood compatible materials, the materials outlined in Table 51 shall be used. Materials not listed may be accepted by Council subject to certification of the suitability of the material of the manufacturer.

Flooring and sub-floor  Concrete slab-on-ground monolith construction Suspended reinforced concrete slab  Concrete, precast or in situ concrete tiles epoxy, formed—in—place mastic flooring, formed—in—place rubber sheets or tiles with chemical set adhesives silicone floors formed—in—place vinyl sheets or tiles with chemical—set adhesive ceramic tiles, fixed with mortar or chemical—set adhesive asphalt tiles, fixed with water resistant adhesive  Solid brickwork, blockwork, reinforced concrete or mass concrete  Wall and Ceiling Linings  Flood Compatible Material Concrete Tolor Concrete Suspended reinforced concrete tiles rubber sheets or in situ concrete tiles epoxy, formed—in—place rubber sheets or tiles with chemical—set adhesive silicone floors formed—in—place silicone floors formed—in—place rubber sheets or tiles with chemical—set adhesive sphalt tiles, fixed with mortar or chemical—set adhesive sphalt tiles, fixed with water resistant adhesive  Fibro-cement board Brick, face or glazed Clay tile glazed in waterproof mortar Concrete Concrete Concrete Concrete block Steel with waterproof applications Stone, natural solid or veneer, waterproof grout Glass blocks Glass Plastic sheeting or wall with waterproof adhesive
Floor Covering  clay tiles concrete, precast or in situ concrete tiles epoxy, formed—in—place mastic flooring, formed—in—place rubber sheets or tiles with chemical set adhesives silicone floors formed—in—place vinyl sheets or tiles with chemical—set adhesive ceramic tiles, fixed with mortar or chemical—set adhesive ceramic tiles, fixed with water resistant adhesive asphalt tiles, fixed with water resistant adhesive  Wall Structure  Vall and Ceiling Linings  Fibro-cement board Ceiling Linings  Fibro-cement board Concrete Concrete Concrete Concrete Steel with waterproof applications Stone, natural solid or veneer, waterproof grout Glass blocks Glass Glass
Floor Covering
concrete, precast or in situ concrete tiles     epoxy, formed—in—place     mastic flooring, formed—in—place     rubber sheets or tiles with chemical set adhesives     silicone floors formed—in—place     vinyl sheets or tiles with chemical—set adhesive     ceramic tiles, fixed with mortar or chemical—set adhesive     asphalt tiles, fixed with water resistant adhesive  Wall Structure  Solid brickwork, blockwork, reinforced concrete or mass concrete  Wall and Ceiling Linings  Fibro-cement board Ceiling Linings  Fibro-cement board Colay tile glazed in waterproof mortar Concrete Concrete Concrete Concrete Goncrete block Steel with waterproof applications Stone, natural solid or veneer, waterproof grout Glass blocks Glass
concrete, precast or in situ concrete tiles     epoxy, formed—in—place     mastic flooring, formed—in—place     rubber sheets or tiles with chemical set adhesives     silicone floors formed—in—place     vinyl sheets or tiles with chemical—set adhesive     ceramic tiles, fixed with mortar or chemical—set adhesive     asphalt tiles, fixed with water resistant adhesive  Wall Structure  Solid brickwork, blockwork, reinforced concrete or mass concrete  Wall and Ceiling Linings  Fibro-cement board Ceiling Linings  Fibro-cement board Colay tile glazed in waterproof mortar Concrete Concrete Concrete Concrete Goncrete block Steel with waterproof applications Stone, natural solid or veneer, waterproof grout Glass blocks Glass
epoxy, formed-in-place     mastic flooring, formed-in-place     rubber sheets or tiles with chemical set adhesives     silicone floors formed-in-place     vinyl sheets or tiles with chemical-set adhesive     ceramic tiles, fixed with mortar or chemical-set adhesive     asphalt tiles, fixed with water resistant adhesive  Wall Structure  Solid brickwork, blockwork, reinforced concrete or mass concrete  Wall and Ceiling Linings  Fibro-cement board     Brick, face or glazed     Clay tile glazed in waterproof mortar     Concrete     Concrete     Concrete block     Steel with waterproof applications     Stone, natural solid or veneer, waterproof grout     Glass blocks     Glass
<ul> <li>mastic flooring, formed-in-place</li> <li>rubber sheets or tiles with chemical set adhesives</li> <li>silicone floors formed-in-place</li> <li>vinyl sheets or tiles with chemical-set adhesive</li> <li>ceramic tiles, fixed with mortar or chemical-set adhesive</li> <li>asphalt tiles, fixed with water resistant adhesive</li> <li>Wall Structure</li> <li>Solid brickwork, blockwork, reinforced concrete or mass concrete</li> <li>Wall and</li> <li>Fibro-cement board</li> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>rubber sheets or tiles with chemical set adhesives</li> <li>silicone floors formed—in—place</li> <li>vinyl sheets or tiles with chemical—set adhesive</li> <li>ceramic tiles, fixed with mortar or chemical—set adhesive</li> <li>asphalt tiles, fixed with water resistant adhesive</li> <li>Wall Structure</li> <li>Solid brickwork, blockwork, reinforced concrete or mass concrete</li> <li>Wall and</li> <li>Fibro-cement board</li> <li>Brick, face or glazed</li> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>silicone floors formed-in-place</li> <li>vinyl sheets or tiles with chemical-set adhesive</li> <li>ceramic tiles, fixed with mortar or chemical-set adhesive</li> <li>asphalt tiles, fixed with water resistant adhesive</li> <li>Wall Structure</li> <li>Solid brickwork, blockwork, reinforced concrete or mass concrete</li> <li>Wall and</li> <li>Fibro-cement board</li> <li>Brick, face or glazed</li> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>vinyl sheets or tiles with chemical–set adhesive</li> <li>ceramic tiles, fixed with mortar or chemical–set adhesive</li> <li>asphalt tiles, fixed with water resistant adhesive</li> <li>Wall Structure</li> <li>Solid brickwork, blockwork, reinforced concrete or mass concrete</li> <li>Wall and</li> <li>Fibro-cement board</li> <li>Brick, face or glazed</li> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>ceramic tiles, fixed with mortar or chemical–set adhesive</li> <li>asphalt tiles, fixed with water resistant adhesive</li> <li>Wall Structure</li> <li>Solid brickwork, blockwork, reinforced concrete or mass concrete</li> <li>Wall and</li> <li>Fibro-cement board</li> <li>Brick, face or glazed</li> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>asphalt tiles, fixed with water resistant adhesive</li> <li>Wall Structure</li> <li>Solid brickwork, blockwork, reinforced concrete or mass concrete</li> <li>Wall and</li> <li>Fibro-cement board</li> <li>Brick, face or glazed</li> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
Wall Structure  • Solid brickwork, blockwork, reinforced concrete or mass concrete  • Fibro-cement board • Brick, face or glazed • Clay tile glazed in waterproof mortar • Concrete • Concrete block • Steel with waterproof applications • Stone, natural solid or veneer, waterproof grout • Glass blocks • Glass
Wall and Ceiling Linings  Pribro-cement board  Ceiling Linings  Rick, face or glazed Clay tile glazed in waterproof mortar Concrete Concrete Concrete block Steel with waterproof applications Stone, natural solid or veneer, waterproof grout Glass blocks Glass
<ul> <li>Brick, face or glazed</li> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>Brick, face or glazed</li> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>Clay tile glazed in waterproof mortar</li> <li>Concrete</li> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
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<ul> <li>Concrete block</li> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>Steel with waterproof applications</li> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul> <li>Stone, natural solid or veneer, waterproof grout</li> <li>Glass blocks</li> <li>Glass</li> </ul>
<ul><li>Glass blocks</li><li>Glass</li></ul>
• Glass
, were successing as well with the succession of
Roof Structure • Reinforced concrete construction
Galvanised metal construction
Insulation • Closed cell solid insulation
<ul> <li>Plastic/polystyrene boards</li> </ul>
Doors  • Solid panel with water proof adhesives  [In the document of the proof of t
Flush door with marine ply filled with closed cell foam  Painted marks and the state of the
Painted metal construction     Aluminium or calvanised steel frame
Aluminium or galvanised steel frame
Windows  • Aluminium frame with stainless steel rollers or similar corrosion and
water-resistant material.



Nails, Bolts, Hinges and Fittings	<ul> <li>Brass, nylon or stainless steel</li> <li>Removable pin hinges</li> <li>Hot dipped galvanised steel wire nails or similar</li> </ul>
Main Power Supply	Subject to the approval of the relevant authority the incoming main commercial power service equipment, including all metering equipment, shall be located above the designated flood planning level. Means shall be available to easily disconnect the dwelling from the main power supply.
Wiring	All wiring, power outlets, switches, etc., shall be located above the designated flood planning level. All electrical wiring installed below this level shall be suitable for continuous underwater immersion and shall contain no fibrous components. This will not be applicable for below-ground car parks where the car park complies with flood planning level requirements.  Earth leakage circuit-breakers (core balance relays) or Residual Current Devices (RCD) must be installed.  Only submersible type splices shall be used below maximum flood level.  All conduits located below the relevant designated flood level must be so installed that they will be self-draining if subjected to flooding.
Electrical Equipment	All equipment installed below or partially below the designated flood planning level shall be capable of disconnection by a single plug and socket assembly.
Heating and Air Conditioning Systems	Heating and air conditioning systems shall be installed in areas and spaces of the house above the designated flood planning level
Fuel storage for heating purposes	Heating systems using gas or oil as a fuel shall have a manually operated valve located in the fuel supply line to enable fuel cut-off.  The heating equipment and related fuel storage tanks should be mounted on and securely anchored to a foundation pad of sufficient mass to overcome buoyancy and prevent movement that could damage the fuel supply line. The tanks should be vented above the flood planning level.
Ducting for heating/cooling purposes	All ductwork located below the relevant flood level shall be provided with openings for drainage and cleaning. Self-draining may be achieved by constructing the ductwork on a suitable grade. Where ductwork must pass through a water-tight wall or floor below the relevant flood level, a closure assembly operated from above relevant flood level shall protect the ductwork.
Fencing	Fencing must be designed to minimise flow obstruction and ensure that fencing does not become unsafe during flood. Fence design must ensure that the integrity of the fence structure is maintained during flood and that flood behaviour is not adversely affected.



### 9.9.8 Frequently Asked Questions

The following section is not part of the draft DCP section and has been provided to assist Council in community awareness of the FRMS&P and planning changes.

Q: What is Council's role in managing flooding in Goulburn?

A: Goulburn Mulwaree Council has a responsibility to manage flood risk with its Local Government Area (LGA) as per the requirements of the NSW Flood Prone Land Policy and NSW Floodplain Development Manual (2005). This means that Council undertakes studies to understand the range of flood events that can occur, with technical and financial assistance from the NSW government. Council can then develop a Floodplain Risk Management Plan for flood-affected areas, which aims to reduce or otherwise manage flood risk in the long term. This Plan could include flood managements measures ranging from large-scale civil works, such as the construction of levees, to non-works interventions, such as planning controls for new developments.

Q: Why is Council proposing different planning controls for different areas of Goulburn, based on their flood risk?

A: Flood planning controls are used by Council to ensure that new development does not increase flood risk. For example, flood risk to new buildings is managed by requiring that floor levels are set at or above the Flood Planning Level, or that new buildings are not constructed in hazardous flood areas. In accordance with national guidance on flood planning, Council is proposing to use different planning controls in areas with high flood risk, compared to areas with low risk. Examples of how this applies in practice are:

- Hospitals, aged care and emergency services can only be built in areas above the Probable Maximum Flood (the largest possible flood that can occur)
- Houses can be built in areas with low flood risk but will need to have a floor level at or above the Flood Planning Level. Houses would not be able to be built in areas that are considered too dangerous from a flood risk perspective.
- Subdivisions can be made on flood-prone land provided that new houses as a result of the subdivision can be built to ensure safety and that access and evacuation is considered in the design.

By using these different areas, Council aims to allow development of the floodplain while ensuring flood risk does not increase. This means preventing most types of development in low-lying areas with hazardous flow, while allowing for some development on the fringes of the floodplain.

Q: Will new flooding mapping increase my home insurance?

A: Council does not have a say in insurance prices, however, in general, the location of flood-liable land in Goulburn has been well-established for a number of years and new mapping is unlikely to affect insurance prices. Insurance companies estimate the risk of flooding using a range of sources. This could include information presented as part of the Flood Study completed in 2016, which have not changed significantly as part of the current study. Insurance companies and the Insurance Council of Australia can provide more information on this matter.

Q: Will new flooding mapping affect my property value?

A: It is possible that flood risk is a factor in valuing a property. Mapping of flood-liable land in Goulburn has been publicly available as part of the Flood Study completed in 2016, and for this reason, flood mapping in this study is unlikely to affect property prices.

Q: Why do Council's flood extent maps extend beyond any recorded flood event?

A: In mapping flood-liable areas, Council is obliged to consider the full range of possible floods that can occur. This includes small floods that happen every few years on average, but also very rare floods that may occur once or less in a person's lifetime. The state government's definition of flood liable land is all land affected in a Probable Maximum Flood, which is an extremely rare event. Use of this extreme flood event means that many properties in Goulburn will lie on what is technically flood-liable land despite not necessarily experiencing flooding in the last two hundred years.



## 9.9.9 Figure H.1 Flood Planning Constraint Category

(Please see next page)



