

NARROMINE SHIRE COUNCIL

FLOOD POLICY FOR DEVELOPMENTS IN URBAN FLOODPLAINS

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1 INTRODUCTION

This Flood Policy was prepared to provide specific development controls to guide development of land in flood prone areas in Narromine.

The Flood Policy incorporates the findings of the *Narromine Flood Study, 2006*, the *Narromine Floodplain Risk Management Study and Plan, 2009*, the procedures set out in the *NSW Floodplain Development Manual, 2005* and the revised ministerial direction regarding flood prone land (issued on 31 January 2008 under Section 117 of the EP&A Act, 1979).

1.1 What does the Plan do?

The Flood Policy provides information and guidelines to assist people who want to develop or use land affected by potential flooding within the town of Narromine. Development may include, among other things:

- dwelling construction;
- filling land to provide building platforms above flood level;
- commercial and industrial development;
- subdividing land.

1.2 Objectives

The objectives of this Flood Policy are:

- (a) To provide detailed controls for the assessment of applications on land affected by floods in accordance with the provisions of *Narromine LEP 1997* (as amended) and the *Narromine Floodplain Risk Management Study and Plan, 2009*.
- (b) To alert the community to the hazard and extent of land affected by floods.
- (c) To inform the community of Council's policy in relation to the use and development of land affected by the potential floods in Narromine.
- (d) To reduce the risk to human life and damage to property caused by flooding through controlling development on land affected by floods.

1.3 Will the Plan affect my property?

The Flood Policy applies to all development permissible with the consent of Council on land in Narromine that would be inundated by the Extreme Flood, the approximate extent of which is shown in **Figure C1.1**. As shown on this figure, most of the urban

area of Narromine would be flooded in the event of a 1% AEP flood (a flood with a 1% chance of being equalled or exceeded in any year).

2 HOW TO USE THIS PLAN

The Flood Policy provides criteria which Council will use for the determination of development applications in flood prone areas in Narromine. The criteria recognise that different controls apply to different land uses, hydraulic category and levels of potential flood inundation or hazard.

The procedure Council will apply for determining the specific controls applying to proposed development in flood prone areas in Narromine is set out below. Upon enquiry by a prospective applicant, Council will make an initial assessment of the flood affectation and flood levels at the site (to be confirmed when surveyed natural surface levels for the property are provided when the Development Application is formally lodged with Council) using the following procedure and the results of the *Narromine Flood Study, 2006*.

- i. Make a preliminary assessment of whether the development is located in Flood Prone land, that is, land within the approximate extent of the **Extreme Flood** from **Figure C1.1**.
- ii. Determine which part of the floodplain the development is located in from the **Flood Risk Precinct** diagram (**Figure C3.1**).
- iii. Identify the category of the development from **Annexure 1: Land Use Category**.
- iv. Confirm that the development conforms with the categories set out in **Annexure 2: Development Controls Matrix**. The matrix and development controls must be read in conjunction with Notes A – F under section 3.3.
- v. Providing the proposal meets with the criteria above, determine the appropriate **Flood Planning Level** for the category of development from **Annexure 2** and the flood level and other relevant controls from the Development Control Matrix at the site from the results of the *Narromine Flood Study, 2006*. Fees apply to the determination of the Flood Planning Level for a proposal. Please refer to Council's Fees and Charges for the prescribed fee.

With the benefit of this initial information from Council, the applicant will:

- vi. Prepare the Flood Related Documentation to support the Development Application according to **Annexures 2** and **4**. A survey plan showing natural surface levels over the site will be required as part of the DA Documentation. Provision of this plan by the applicant at the initial enquiry stage will assist Council in providing flood related information.

3 WHAT ARE THE CRITERIA FOR DETERMINING APPLICATIONS?

3.1 General

Development controls on flood prone land are set out in **Annexure 2** of this Flood Policy. The controls recognise that different controls are applicable to different land use, location within the floodplain and levels of potential flood inundation and flood hazard.

The controls applicable to proposed development depend upon:

- The type of development proposed.
- The **Flood Risk Precinct** in which the development is located.

3.2 Land Use Categories and Flood Planning Levels

Eight land use categories have been adopted. The specific land uses are listed in **Annexure 1**.

The **Flood Planning Level (FPL)** is the minimum floor level for the land uses, based on Council's adopted level of protection:

- For new residential development in Narromine, the **FPL** is the peak 1% AEP flood level at the particular development site, plus an allowance of 500 mm for freeboard.
- For commercial and industrial development the **FPL** is the peak 2% AEP flood level plus an allowance of 500 mm for freeboard. Additional requirements apply for flood protection of property for these types of developments (refer **Note B** of **Section 3.3**).
- Essential Community Facilities and Critical Utilities require a higher level of flood protection. The **FPL** for these types of developments is the 0.5% AEP flood plus 500 mm freeboard. In addition, these uses are to have flood compatible building components and the structure is to be adequately designed to withstand the force of floodwaters up to the extreme flood level.
- Like for essential community facilities and critical utilities, Flood Vulnerable Residential Development (nursing homes, aged care facilities and the like) usually requires a higher level of flood protection due to the limited mobility of inhabitants. However in the case of Narromine for the reasons above, the **FPL** is the peak 1% AEP flood level plus an allowance of 500 mm for freeboard. In addition, these uses are to have flood compatible building components and the structure is to be adequately designed to withstand the force of floodwaters up to

the extreme flood level. This requirement recognises that the minimum finished floor level will be adequate to protect life and property in this frequency of flood but also with the added protection that the elderly and less mobile will be able to move back into their residences soon after flood waters have subsided and that less damage would be caused to their buildings during any frequency of flood due to the flood compatible building components.

3.3 What Controls Apply to Proposed Development?

The Flood Policy applies to all flood prone land (that is, land inundated by flood events up to the magnitude of the **Extreme Flood**.) The types of controls have been graded relative to the severity and frequency of potential floods, having regard to six **Flood Risk Precincts** within the floodplain, shown on **Figure C3.1** and defined below:

- The “**Macquarie River Floodway**”. This is the area conveying most of the flow in the Macquarie River in the event of a 1% AEP flood. The Flood Policy does not permit new development in this area.
- The “**Manildra Street/River Drive Precinct**” is the area on the southern floodplain between the river and the Mitchell Highway. This Precinct includes two flow paths which act as conveyances for floodwaters breaking out from the low points in the river bank between Manildra Street and River Drive. Some of the flow travels eastwards to Manildra Street via the Manildra Floodway flow path (shown as green dashed lines on **Figure C3.1**) and the remainder is conveyed via the Town Cowal Floodway (shown as red dashed lines) through the railway culverts to the southern side of town. **Note A** below provides further commentary on development controls in this precinct.
- The “**Town Cowal Floodway**” This area, shown shaded light blue on **Figure C3.1**, was zoned as a floodway according to the Narromine LEP, 1997 and was defined using survey data available at that time. (A floodway is an area where significant flow velocities would be expected at the 1% AEP flood and which should be kept clear of future development as the obstruction of floodways can create significant problems elsewhere). More recent survey data has allowed a better assessment to be made of the location of the floodway (in a hydraulic sense), which is shown as red dashed lines on **Figure C3.1**. Until such time as Council further defines the floodway by a more accurate survey of contours along the length of the zoned Floodway from the Narromine LEP 1997 (down to 100mm accuracy), this policy will allow for an interpretation by Council (at its discretion) of the true extent of the land which should be defined as a floodway (and hence kept clear), based on this new information, as well as natural surface levels identified in the site survey to be provided by applicants in support a

Development Application. The procedure Council will adopt in its interpretation is described in **Note D**.

- The “**High Hazard Ponding Area**” is the precinct on the eastern side of the Parkes Narromine railway embankment. There are sparse data on natural surface levels available in this area. However, on the basis of available information it appears that although flow velocities would be low, peak depths of inundation in excess of 1 m would be expected in the event of the 1% AEP flood. In this area in-fill residential development would be permitted. An upper limit needs to be applied for infill development in this area to ensure the cumulative impacts on infilling this ponding area can be adequately assessed. Council is to document each and every application submitted for this area to ensure that no more than 20% of infill development of this whole area occurs prior to the flood model needing to be re-run (at full cost to Council) to determine the cumulative impacts of infilling in this area.
- The “**Intermediate Floodplain**” is the remaining land inundated by the 1% AEP flood and not falling in the above categories of flood prone land. All land uses would be permitted in this zone, subject to minimum floor level requirements for the various categories of development. Refer **Note B** and **Note C** which discuss requirements for commercial and industrial development and uses requiring a higher level of protection than the residential **FPL**.
- The “**Outer Floodplain**” is the remainder of the floodplain between the 1% AEP flood extent and the Extreme Flood. In this area the same controls would apply over minimum floor levels as for the **Intermediate Floodplain**. The purpose of the **Outer Floodplain** would mainly be to define the potential flooded area, i.e. the extent of the “Floodplain”. This should not pose an impost on those developing in this area, provided the natural ground surface levels in the land parcels (where developments are proposed) are higher than the 1% AEP flood plus 500mm in any case.

Note A. Assessing Developments in “Manildra Street/River Drive Precinct”

Maintenance of the flow path for the conveyance of floodwaters is required within the confines of the dashed lines representing the Manildra Floodway. Council will allow either of the following two methods of flood proofing individual allotments:

- Desirably, in the interest of the conveyance of flow, the building is to be constructed on piers with the area beneath left open for the conveyance of flow. The combined width of supporting piers and any obstructions in the north- south direction (i.e. normal to the direction of flow) is to be no more than 50 per cent of the gross width of the allotment.

- Alternatively, those wanting to set buildings on individual fill platforms may do so providing the platform extends over only the footprint of the building, with the balance of the allotment remaining at existing natural surface levels. No more than 50 per cent of the gross width of the allotment in the north- south direction (i.e. normal to the direction of flow – those lots facing east or west) is to be filled to minimise obstructions to flow. The minimum finished level of fill is to be the 1% AEP level, with the minimum floor level of the building to be the residential **FPL** (1% AEP plus 500 mm).

Note B. Assessing Commercial and Industrial Development Proposals

Most of the commercial and industrial development in Narromine is located in the “*Intermediate Floodplain*,” with an industrial area in the southern portion of the “*Manildra Street/River Drive Precinct*” in a location where flooding is of a ponding nature.

The *Flood Policy* nominates the 2% AEP flood plus 500mm for freeboard as the FPL for these proposals. As this level is less than the residential FPL of 1% AEP plus 500mm freeboard, the applicant is to provide an area within the development for the temporary storage of goods at a minimum level equal to the 1% AEP flood plus 500 mm of freeboard. This area should be the largest of 20 % of the gross floor area of the development, or 20 m².

Note: The Flood Policy is able to recommend a lesser degree of protection for commercial and industrial developments in accordance with the Floodplain Development Manual, as these types of developments can carry a greater level of risk in business planning for the future.

Note C. Developments usually requiring a Higher Level of Protection

Developments including nursing homes, aged care facilities and the like are usually recommended to be built at levels higher than the residential FPL, noting the limited mobility of occupants. However, in the case of Narromine, flood warning times are such that adequate notification of the need to evacuate in times of extreme flooding is available.

The policy therefore nominates the 1% AEP flood level plus 500 mm as the **FPL** for Flood Vulnerable Residential Development (which includes nursing homes, aged care facilities and the like). The applicant is to ensure that valuable equipment necessary for the operation of the facility is located at or above the nominated **FPL**, either permanently or via relocation to a temporary storage area suitable for this purpose. Additionally, these types of developments are to contain flood compatible building materials up to the extreme flood level to ensure that damage suffered by these important buildings is

lessened in a more severe flood and inhabitants can move back into their residences faster after flood waters have subsided.

Note D. Assessing Developments in “Town Cowal Floodway (LEP, 1997)”

Council recognises that the detailed survey of individual parcels of land in and bordering this area may reveal further inconsistencies between the limits of the **Town Cowal Floodway** as zoned in the LEP, 1997 and the Town Cowal Floodway (Hydraulic Categorisation) as shown by the red dashed lines on **Figure C3.1**. In such cases, Council may modify development controls to take into account inconsistencies of flood affectation of the land which may be revealed in the site survey. Council may (at its discretion and with the benefit of additional investigation and data provided by applicants) allow a modification using the following procedure:

- The 1% AEP extent of inundation is to be drawn on the detailed contour survey (the applicant is to base this extent on flood level information supplied by Council and a survey plan showing natural surface contours at intervals of no more than 100 mm.)
- In recognition that flow velocities in the Floodway (Hydraulic Categorisation) are relatively mild, especially near the flood fringe, Council may permit development to intrude a small distance into the Floodway as explained further below.
- In setting limits for intrusion into the flood fringe, Council would require the width of flow after cumulative development along the Floodway (Hydraulic Categorisation) to be no less than 80 per cent of the undeveloped width. That is, Council may allow a 10 per cent intrusion into both the Northern and Southern sides of the Floodway (Hydraulic Categorisation), provided that the intrusion does not extend into land which is inundated by more than 500 mm in the event of a 1% AEP flood. The site survey will need to extend beyond the limits of the area of the particular site as directed by Council, so that the full width of waterway may be defined. In accordance with the requirements of the Floodplain Development Manual, 2005, Council will not evaluate the development in isolation, but in a cumulative manner, as if it was one of several developments along both sides of the Floodway (Hydraulic Categorisation).

Note E. Additions to Existing Dwellings and Ancillary Developments

For all new developments, it is recognised in this policy that the residential FPL is the minimum benchmark for floor levels. Additions are separately categorised in Annexure 1 for instances where building up to the residential FPL is impractical or unreasonable. Appendix I 6.3.2 of the Floodplain Development Manual 2005 states that additions can

be built below the FPL 'where, in the opinion of Council, the floor level requirement is impractical or unreasonable'.

A range of criteria has been applied to this section to clarify instances where Council is of the opinion that building up to the residential FPL would be impractical or unreasonable for various types of developments, as outlined below:

Dwelling Additions

- The addition is not to exceed 50% of the floor area of the existing dwelling (habitable floor area), and
- The addition is to be designed to withstand the force of floodwaters including debris and buoyancy forces. A detailed report from a practising structural engineer certifying that the addition can achieve this is required.
NOTE: For calculation of debris forces, assume a solid object of mass 250kg travelling at a velocity of 2.0 metres/second, and
- The addition is proposed to be built from flood compatible materials (as included in Annexure 3) up to the 1% plus 500mm level, and
- The addition is proposed in a precinct which allows such additions to be captured by this clause, as shown in the Development Controls Matrix in Annexure 2.

If an addition to a dwelling meets all of the above criteria, it may be built at the same floor level as the existing building. Council reserves the right to review each application submitted and potentially applying to this section on individual merits and in some cases, building up to the residential FPL may be warranted.

Applications submitted under this subsection (Dwelling Additions) may only be approved once for each individual allotment or building, to ensure cumulative impacts are minimised/controlled.

Outbuildings

- The outbuilding is proposed in a precinct which allows such development to be captured by this clause, as shown in the Development Controls Matrix in Annexure 2, and
- The outbuilding is proposed to be built from flood compatible building materials (as specified in Annexure 3) up to the 1% plus 500mm level, and
- The outbuilding is to be designed to withstand the force of floodwaters including debris and buoyancy forces. A detailed report from a practising structural engineer certifying that the addition can achieve this is required. NOTE: For calculation of debris forces, assume a solid object of mass 250kg travelling at a velocity of 2.0 metres/second, and
- A location for the storage of goods during a flood event is to be provided inside the outbuilding with a minimum floor area of 10% of the gross floor area of the outbuilding proposed. This area is to be built to at least the residential FPL, being the 1% plus 500mm level.

Change of Use

- If a change of use from one shop to another shop is proposed where no building work is required as part of the change of use, existing floor levels need not be changed.
- If a change of use is from a shop to another class of building such as residential is proposed, the same policies and requirements apply as for dwelling additions above.

Private Swimming Pools

Private swimming pools are not required to be built up to the residential FPL.

NOTE F. Special Requirements for the Skypark Development

Skypark is a special use development, unique in its concept of providing lots for residential dwellings with a hangar for aircraft storage in the backyard. Skypark is located off the Warren Road in Aerodrome land, zoned 5 (Special Use)(Aerodrome), under the Narromine LEP 1997.

Further flood modelling has been carried out over the Skypark site to determine flood levels for new residential development in this area.

In this area the Macquarie River surcharges its left bank and floodwaters flow in generally a westerly direction across the Warren Road and into the aerodrome.

Figure 1 shows the 1% AEP Flood Contours applicable over Skypark. It must be noted that in recommending a minimum floor height for a residential building in this area, a 500mm freeboard must be added to the 1% flood level.

Development Controls

- (a) Hangars at Skypark are able to be built at natural ground surface levels. This is in recognition that the Skypark covenant does not allow a hangar to be built without a dwelling also being built on the site. The dwelling needs to be built to the 1% AEP flood level plus 500mm freeboard and as such, adequate storage for any important items in the hangar, is available in the dwelling.
- (b) For the lots which run in an east-westerly direction (being 20-25 inclusive, 59-61 incl, 51, 26-30 incl, 45-46, 58, 31-44 incl, 85), not more than 50% of the width of the lot frontage to the street is to be impeded by impenetrable walls or fences. This is to allow floodwaters to escape to the west in the design 1% AEP flood. Any fences proposed must ensure that 50% of the lot width is open. Any dwellings built on these lots are not to be more than 50% of the width of the lot frontage. Any hangars built on these lots must be able to be opened at both the eastern and western ends to a width of 50% of their allotment width. This can be done with roller or hangar doors or personal access doors.

3.4 Checking of Completed Finished Floor Height

After the building has been built to the relevant **FPL**, Council officers will check compliance with this requirement at the relevant inspection stage. The applicant is to provide a benchmark on the site, levelled to the Australian Height Datum (AHD).

3.5 Fencing

Any proposed fencing is to be shown on the plans accompanying a development application to allow Council to assess the likely effect of such fencing on flood behaviour.

In the **Town Cowal Floodway** and **Manildra Street/River Drive** precincts, where flow velocities may be larger, fences which minimise obstructions to flow are to be adopted. Where impermeable fences such as Colorbond, galvanised metal, timber or brush are proposed, fencing panels should be either:

- a) removable so that panels can be laid flat; or
- b) horizontally hinged where a portion of at least 1 m high is capable of swinging open to allow floodwater to pass. Trees/landscaping and other structures are not to impede the ability of a hinged fence to open.

3.6 Other Uses and Works

All other development, building or other works within any of the categories that require Council's consent will be considered on their merits. In consideration of such applications, Council must determine that the proposed development is in compliance with the objectives of this Policy.

3.7 Other Documents Which May Need to be Read in Conjunction with this Plan

- *Narromine Local Environmental Plan 1997;*
- *Relevant Council policies, development control plans and specifications;*
- *Narromine Flood Study, 2006;*
- *Narromine Floodplain Risk Management Study and Plan, 2009;*
- *NSW Government Floodplain Development Manual, 2005;*
- *Ministerial Direction regarding flood prone land (issued 31 January 2007 under Section 117 EP&A Act, 1979).*

3.8 What Information Do You Have to Submit to Council ?

Annexure 4 outlines the requirements for flood related data required by Council.

4 DESCRIPTION OF TERMS

Note: For expanded list of definitions, refer to Glossary contained within the NSW Government's Floodplain Development Manual, 2005.

TERM	DEFINITION
Annual Exceedence 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 discharge of 500 m ³ /s has an AEP of 5%, it means that there is a 5% chance (that is one-in-20 chance) of a peak flood discharge of 500 m ³ /s or larger occurring in any one year (see average recurrence interval).
Flood Affected Properties	Properties that are either encompassed or intersected by the relevant Flood Planning Level (FPL) and provides for FPLs based on the 1% and 0.5% events.
Floodplain	Area of land which is subject to inundation by floods up to and including the Extreme Flood event, that is, Flood Prone land.
Flood Planning Level (FPL) (General Definition)	The combinations of flood levels and freeboards selected for planning purposes, as determined in floodplain risk management studies and incorporated in floodplain risk management plans.
Flood Planning Level (for Narromine)	Flood levels selected for planning purposes, as determined in the <i>Narromine Flood Study, 2006</i> and referenced in the <i>Floodplain Risk Management Study 2009</i> and associated <i>Floodplain Risk Management Plan</i> . FPL's for the various land use categories are given in Sections 3.2 and 3.3 of this Policy.
Flood Prone/Liable Land	Land susceptible to flooding by the Extreme Flood. Flood prone land is synonymous with flood liable land.
Floodway	Those areas of the floodplain where a significant discharge of water occurs during floods. They are often aligned with naturally defined channels. Floodways are areas that, even if only partially blocked, would cause a significant redistribution of flood flow, or a significant increase in flood levels. In the Narromine urban area, there are three hydraulic floodway areas; The Macquarie River Floodway , the Town Cowl Floodway and the Manildra Floodway .
Freeboard	A factor of safety typically used in relation to the setting of floor

	<p>levels, levee crest levels, etc. It is usually expressed as the difference in height between the adopted flood planning level and the flood used to determine the flood planning 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, and other effects such as “greenhouse” and climate change until benchmarks are determined. Freeboard is included in the Flood Planning Level.</p> <p>Note: once the impact of climate change on non tidal areas has been quantified with benchmarks, the planning floods (discharge/height) should be re-estimated.</p>
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TERM	DEFINITION
Intermediate Floodplain	This is defined as the remaining area which is inundated by the 1 % AEP flood and outside the extents of the Macquarie River Floodway , the Town Cowal Floodway and the Manildra Street/River Drive Precinct . In this zone there would still be a significant risk of flood damages, but these damages may be minimised by the application of appropriate minimum floor level and other development controls, as appropriate.
Extreme Flood	At Narromine it is difficult to estimate the Probable Maximum Flood to define the extent of flood prone land, that is, the floodplain. Accordingly a suitable Extreme Flood is used for this purpose. At Narromine a flood which has a peak discharge of 3 times that of the 1% AEP flood event has been adopted as the extreme flood.
Outer Floodplain	This is defined as all other land located in the Floodplain which lies within the extent of the Extreme Flood Event but not lying within the extent of the 1% AEP flood. In this area the risk of damages is low and land uses permitted by the Narromine LEP, 1997 would be permitted, subject to minimum floor level requirements.
Probable Maximum Flood (PMF)	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. The extent, nature and potential consequences of flooding associated with a range of events rarer than the flood used for designing mitigation works and controlling development, up to and including the PMF event should be addressed in a floodplain risk management study.

**ANNEXURE 1
LAND USE CATEGORIES**

Essential Community Facilities and Critical Utilities and landuses	Flood Vulnerable Residential	Residential	Commercial/ Industrial	Recreation or Non Urban	Subdivision and Filling	Additions to Dwellings and Ancillary Developments
Place of Assembly or Public building that may provide an important contribution to the notification and evacuation of the community during flood events; Hospitals; Telecommunication facilities; Public Utility Installation that may cause pollution of waterways during flooding, or if affected during flood events would significantly affect the ability of the community to return to normal activities after the flood events. Hazardous industry; Hazardous storage establishments,	Group home; Housing for aged or disabled persons; and Units for aged persons; Child care centre, Institutions, Educational establishments	Dwelling; Residential flat building; Home industry; Boarding house; Professional consulting rooms; Public utility undertakings (other than critical utilities); Utility installation (other than critical utilities); Caravan Park (vans do not have to be built up, only permanent structures with footings and/or tie-downs),	Bulk Store; Bus depot; Bus station; Car repair stations; Club; Commercial premises; General store; Health care professional; Hotel; Intensive livestock keeping; Junkyard; Liquid fuel depot; Motel; Motor showroom; Place of Assembly (other than essential community facilities; Place of public worship; Public building (other than essential community facilities); Recreation facility; Refreshment room; Road transport terminal; Rural industry; Service station; Shop; Tourist facilities; Warehouse, car repair station, church, light industry, industry, plant nursery, roadside stall, sawmill.	Agriculture; Extractive industry; Forestry; Mine; Plantation forest; Retail nursery; Recreation area; Roadside stall; Stock and saleyard, hangar.	Subdivision of land involving the creation of new allotments for residential purposes; Earthworks or filling operations covering 100 m ² or more than 0.3 m deep.	Dwelling Additions* Outbuildings* Change of Use* Private Swimming Pools* *For specific criteria on these, refer to Note E.

ANNEXURE 3

FLOOD COMPATIBLE MATERIALS

Building Component	Flood Compatible Material
Doors	<ul style="list-style-type: none"> • Solid panel with waterproof adhesives • Flush door with marine ply filled with closed cell foam • Painted material construction • Aluminium or galvanised steel frame
Floor Covering	<ul style="list-style-type: none"> • 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 adhesive • 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 • Removable rubber-backed carpet
Flooring and Sub Floor Structure	<ul style="list-style-type: none"> • Concrete slab-on-ground monolith construction. Note: clay filling is not permitted beneath slab-on-ground construction which could be inundated. • Pier and beam construction or • Suspended reinforced concrete slab
Insulation	<ul style="list-style-type: none"> • Foam or closed cell types
Nails, Bolts, Hinges and Fittings	<ul style="list-style-type: none"> • Galvanised • Removable pin hinges
Wall and Ceiling Linings	<ul style="list-style-type: none"> • 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 • Plastic sheeting or wall with waterproof adhesive
Wall Structure	<ul style="list-style-type: none"> • Solid brickwork, blockwork, reinforced, concrete or mass concrete
Windows	<ul style="list-style-type: none"> • Aluminium frame with stainless steel or brass rollers

ANNEXURE 4

FLOOD RELATED DEVELOPMENT APPLICATION REQUIREMENTS

Step 1

Check with Council staff to see whether or not the proposal:

- Is located on Flood Prone Land
- Is permissible in the Flood Risk Precinct and determine the FPL for the particular category of land use.
- Note: a site survey is to accompany development proposals to confirm the flood affectation of the allotment and its location within the flood risk precinct system.

Step 2

Plans – A Development Application should include the following plans:

- A locality plan identifying the location of the property.
- Plan of the existing site layout including the site dimensions (in metric), site area, contours (0.20 m intervals), existing trees, other natural features, existing structures, north point, location of building on adjoining properties (if development involves a building), floor plans located on a site plan, roof plan, elevations and sections of the proposed building, finished levels of floors, paving and landscaped areas, vehicular access and parking.
- Plans should indicate:
 - a) At least three (3) existing ground levels to the Australian height datum around the perimeter of the proposed building; and
- Minor additions to an existing dwelling must be accompanied by documentation from a registered surveyor confirming existing floor levels.
- In the case of subdivision, three (3) copies of the proposed site layout showing the number of lots to be created (numbered as proposed lot 1, 2, 3 etc), the proposed new dimensions of each lot, the proposed areas of each lot in square metres, a north point, nearest roads and the like.

**Council require plans presented on A3 sheets as a minimum
A scale of 1:200 is recommended for site plans**

Extent of Cut and Fill – All areas subject to cut and fill require the depths of both to be shown as well as the measures proposed to retain both. Applications shall be accompanied by a survey plan (with existing and finished contours at 0.20 m intervals) showing relative levels to Australian height datum.

Vegetation Clearing – Landscaping details including a description of trees to be removed existing and proposed planting, retaining walls, detention basins, fences and paving.

Stormwater Drainage – Any existing and all proposed stormwater drainage to be indicated on the site plan.