NORTHERN BEACHES
COUNCIL

ATTACHMENT BOOKLET 4

ORDINARY COUNCIL MEETING

TUESDAY 25 JULY 2017

ITEM 8.8

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Item No	Subject

#	Development Control Plan	Control	Amendments	
1	Pittwater 21 DCP 2015 (Amendment 19)	Contents Table	*Update Contents Table*	
2	Pittwater 21 DCP 2015 (Amendment 19)	Throughout	*Update Control Numbering* to ensure that it is sequential given the deletion of controls	
3	Pittwater 21 DCP 2015 (Amendment 19)	Throughout	*Amend any reference from Appendix 8 Flood Risk Management Policy for Development in Pittwater to Flood Risk Management Policy* as the policy has been superseded by an integrated Northern Beaches Council policy on flood prone land	
4	Pittwater 21 DCP 2015 (Amendment 19)	Throughout	*Amend any reference from Appendix 15 Flood Emergency Response Planning for Development in Pittwater Policy to Flood Emergency Response Planning for Development in Pittwater Policy* as the policy has been removed from the Development Control Plan to maintain consistency with the revised Flood Prone Land clause	
5	Pittwater 21 DCP 2015 (Amendment 19)	1.9 Definitions	*Insert*	***Adequate Warning Systems, Signage and Exits*** is where the following is provided: (a) an audible and visual alarm system which alerts occupants to the need to evacuate, sufficiently prior to likely inundation to allow for the safe evacuation of pedestrians and vehicles; (b) signage to identify the appropriate procedure and route to evacuate; and (c) exits which are located such that pedestrians evacuating any location during any flood do not have to travel through deeper water to reach a place of refuge above the PMF flood event, away from the enclosed car parking. ***Adverse Impacts*** (for the purposes of the Flood Prone Land clause only) means, the proposed development: • Will result in less than 0.02m increase in the 1% AEP • Will result in less than a 0.05m increase in the PMF • Will result less than a 10% increase in PMF peak velocity • Will have no loss in flood storage or flood way in the 1% AEP ***Alterations and Additions*** (for the purposes of the Flood Prone Land clause only) means: (a) In the case of residential development, a one-off addition to, or alteration of an existing

				dwelling and/or the construction of a new garage or development ancillary to residential development where the new work results in an additional ground floor area of less than 30m2 or an increase of less than 10% of the ground floor area (whichever is lesser); or (b) In the case of non-residential development, a one-off addition to, or alteration of, an existing building of not more than 100m2 or 10% of the ground floor area (whichever is the lesser). ***Annual Exceedance Probability (AEP)*** means the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. The 1% AEP or 1:100 AEP means there is a 1 in 100 probability of the corresponding flood discharge occurring in any given year. ***Australian Height Datum (AHD)*** is a common national plain of level corresponding approximately to mean sea level. ***Average Recurrence Interval (ARI)*** is an alternative to AEP for expressing the likelihood of occurrence of a flood event. It means the long-term average number of years between the occurrences of a flood as big as, or larger than, the selected event. For example, floods with a discharge as great as, or greater than, the 100 year ARI flood event have a 1 in 100 probability of occurring in any given year. ***Compensatory Works*** (for the purposes of the Flood Prone Land clause only) refers to earthworks where material is excavated (or "cut") from one location in the floodplain and placed (or "filled") at another location in the floodplain, with no net importation of fill material, such that the volume available for storage of flood waters is not altered for all floods and flood behaviour is not impacted. ***Effective warning time*** is the time available after receiving advice of an impending flood and before the floodwaters prevent appropriate flood response actions being undertaken. The effective warning time is typically used to move equipment or stock, raise furniture, evacuate people and transport their possessions. ***Enclosed car parking*** means car parking enclosed on all sides, which is potentially subject to rapid inundation, which in turn consequently increases risk to human life and property (such as basement parking, enclosed garages or bunded car parking areas).

			Flood affected properties means properties on land susceptible to overland flooding or mainstream flooding up to the Probable Maximum Flood. ***Flood awareness*** is an appreciation of the likely effects of flooding and knowledge of the relevant flood warning and evacuation procedures. ***Flood compatible buildings*** includes buildings designed to withstand flood damages such as: (a) Collapse as a result of water pressure; (b) Displacement of structures off their foundations as a result of buoyancy forces; (c) Weakening, distortion or failure as a result of saturation. Components, materials, connections and services required to achieve flood compatibility are outlined in the *Australian Building Codes Board - Construction of Buildings in Flood Hazard Areas, 2012* ***Flood Hazard*** – Flood Hazard is a term used to determine the safety of people and property and is based on a combination of flood depth (above ground level) and flood velocity for a particular sized flood. Flood Hazard is classified as either Low Hazard or High Hazard. In **High Flood Hazard** areas, there is a possible danger to personal safety, able-bodied adults would have difficulty wading and there is the potential for significant structural damage to buildings. In **Low Flood Hazard** areas, able-bodied adults would have little difficulty wading and nuisance damage to some structures would be possible. The method for determining Provisional Low and High Hazard Categories is outlined in the NSW Government's Floodplain Development Manual (2005) (the Manual). ***Flood Management Report*** means a technical report of adequate qualitative and quantitative detail addressing the management of flood risk, and other criteria (where applicable) as it affects the subject property and its surrounds within the floodplain. The report is to be prepared by a *suitably qualified professional* and in conjunction with a Structural Engineer (where necessary) to satisfy the requirements as set out by this Plan. ***Flood Planning Area (FPA)****: The Flood Planning Area* is the area below the ***Flood Planning Level*** as determined by an engineering professional in a Flood Study undertaken in accordance with the Floodplain Development Manual. ***Flood Planning Levels (FPL)*** has the same meaning as provided in the Manly LEP 2013,

				Warringah LEP 2011 and Pittwater LEP 2014. A reduced freeboard will be considered on its merits for properties impacted by peak flood depths less than 0.3m and velocity depths less than $0.3m^2/s$. The reduced freeboard must be appropriately justified in a Flood Management Report prepared by a suitably qualified professional. ***Flood prone land*** (being synonymous with ***flood liable*** and ***floodplain***) is the area of land that is subject to inundation by the *probable maximum flood* (PMF). ***Flood Proofing – Dry*** means measures that protect a building from the entry of floodwaters by sealing a building's exterior walls and other floodwater entry points. ***Flood Proofing – Wet*** means a combination of measures incorporated into the design, construction and/or alteration of buildings, structures and surrounds, to enable a building or structure to withstand forces due to floodwater ingress and passage, whilst remaining structurally sound, to mitigate flood damages. ***Flood Risk Emergency Assessment Report*** means a technical assessment of adequate qualitative and quantitative detail addressing the management of risk to life, and other criteria (where applicable) as it affects the subject property and its surrounds within the floodplain. The report is to be prepared by a *suitably qualified professional* and in conjunction with a Structural Engineer (where necessary) to satisfy the requirements as set out by the control and policy. ***Flood Risk Precinct (FRP)*** refers to the division of the floodplain on the basis of the level of expected risk to persons and property due to flooding. In this plan the floodplain is divided into the Low, Medium and High flood risk precincts. ***Low Flood Risk precinct*** means all *flood prone land* not identified within the High or Medium flood risk precincts. ***Medium Flood Risk precinct*** means all *flood prone land* that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct. ***High Flood Risk precinct*** means all *flood prone land* (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 and or H6 Life Hazard

				Classification). ***Flood Risk Precinct Maps*** means maps held by Council identifying the boundaries of the *Flood Risk Precincts* produced through a publicly available *Flood Study* or *Floodplain Risk Management Plan*. ***Flood Storage Area*** means those parts of the floodplain that are not part of the *floodway*. ***Floodplain Development Manual (FDM)*** refers to the document dated April 2005, published by the New South Wales Government and entitled "Floodplain Development Manual: the management of flood liable land". ***Floodplain Risk Management Plan (FRMP)*** means a plan prepared for one or more floodplains in accordance with the requirements of the FDM or its predecessors. **Note:** The predecessors to the FDM provided similar processes for the preparation and adoption of FRMP's and Floodplain Management Plans, which all have the status of FRMP's for the purposes of this Plan. tur ***Floodplain Risk Management Study (FRMS)*** means a study prepared for one or more floodplains in accordance with the requirements of the FDM or its predecessors. **Note:** The predecessors to the FDM provided similar processes for the preparation and adoption of FRMS's and Floodplain Management Studies, which all have the status of FRMS's for the purposes of this Plan. ***Floodway*** is the area of the floodplain where a significant discharge of water occurs during floods and is 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. ***Freeboard*** provides reasonable certainty that the risk exposure selected in deciding on a particular flood chosen as the basis for a FPL is actually provided. It is a factor of safety typically used in relation to the setting of flood levels, levee crest levels, etc. Freeboard is included in the *flood planning level* (see definition). ***Habitable floor area*** (for the purposes of the Flood Prone Land clause only) means: (a) In a ***residential*** situation: any floor containing a room or rooms used or capable of	

			being adapted for use for residential purposes, such as a bedroom, living room, study, dining room, kitchen, bathroom, laundry, toilet but excluding any floor used solely for the purposes of car parking or storage; (b) In a ***non-residential*** situation: an area used for the regular activities of the building, including but not limited to offices, work areas, staff kitchens, staff lounge room, reception area or for storage of possessions susceptible to flood damage in the event of a flood. **Note:** Separate considerations are specified for the car parking area of a development irrespective of the land use with which it is associated. ***Hazard*** is a source of potential harm or a situation with a potential to cause loss. In relation to this Plan, the hazard is flooding which has the potential to cause harm or loss to the community. ***Hydraulic Engineer*** (for the purposes of the Flood Prone Land clause only) **-** A civil or environmental engineer who is a registered professional engineer with chartered professional status (CP Eng) specialising in the field of hydrology/hydraulics, as it applies to floodplain management, and has an appropriate level of professional indemnity insurance. ***Hydraulic hazard*** is the hazard as determined by the provisional criteria outlined in the FDM in a 1% AEP flood event. ***Local overland flooding*** means inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam. ***Local Stormwater*** (for the purposes of the Flood Prone Land clause only) **-** is defined as land that has a 1% AEP peak flood depth between 0.05m and 0.15m with a velocity depth between 0.025m^2/s and 0.3m^2/s. ***Mainstream Flooding*** (for the purposes of the Flood Prone Land clause only) **-** inundation of normally dry land occurring when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam. ***Minimise Risk*** **-** It is recognised that, due to the many complex factors that can affect a site within the floodplain, the flood risk for a site and/or development cannot be completely removed. It is, however, essential that risk be minimised to at least that which could be reasonably anticipated by the community in everyday life. Further, landowners should be

				made aware of the reasonable and practical measures available to them to minimise risk as far as possible. Hence where the Policy requires that "an acceptable level of risk" be achieved or where measures are to be taken to "minimise risk" it refers to the process of risk reduction. The Policy recognises that development within a risk-managed floodplain does not lead to complete risk removal as this is not meaningfully achievable. ***Probable maximum flood (PMF)*** is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation. ***Probable maximum precipitation (PMP)*** is the greatest depth of precipitation for a given duration meteorologically possible over a given size storm area at a particular location at a particular time of the year, with no allowance made for long-term climatic trends (World Meteorological Organisation, 1986). It is the primary input to the estimation of the probable maximum flood. ***Probability*** is a statistical measure of the expected chance of an event occurring (see AEP). ***Reliable access*** during a flood means the ability for people to safely evacuate an area subject to flooding, having regard to the depth and velocity of flood waters and the suitability of the evacuation route, without a need to travel through areas where water depths increase. ***Risk*** means the chance of something happening that will have an impact. It is measured in terms of consequences and probability (likelihood). In the context of this plan, it is the likelihood of consequences arising from the interaction of floods, communities and the environment. **Structural Engineer** (for the purposes of the Flood Prone Land clause only) **-** A structural engineer who is a registered professional with structural engineering as a core competency, and has an appropriate level of professional indemnity insurance. ***Suitably Qualified Professional*** means a registered professional engineer specialising in the field of hydrology/hydraulics, as it applies to floodplain management—or otherwise qualified professional as determined at the sole discretion of Council—who is covered by an appropriate level of professional indemnity insurance.

			Survey plan is a plan prepared by a registered surveyor which shows the information required for the assessment of an application in accordance with the provisions of this Plan.	
6	Pittwater 21 DCP 2015 (Amendment 19)	B3.11 Flood Hazard - Flood Category 1 - Low Hazard - Residential Development: Dwelling House, Secondary Dwelling and Dual Occupancy	*Delete development control*	
7	Pittwater 21 DCP 2015 (Amendment 19)	B3.12 Flood Hazard - Flood Category 1 - Low Hazard - Residential Development: Multi Unit Housing Development	*Delete development control*	
8	Pittwater 21 DCP 2015 (Amendment 19)	B3.13 Flood Hazard - Flood Category 1 - Low Hazard - Shop Top Housing, Business and Light Industrial Development	*Delete development control*	
9	Pittwater 21 DCP 2015 (Amendment 19)	B3.14 Flood Hazard - Flood Category 1 - Low Hazard - Other	*Delete development control*	
10	Pittwater 21 DCP 2015 (Amendment 19)	B3.15 Flood Hazard - Flood Category 1 - Low Hazard - Land Subdivision	*Delete development control*	
11	Pittwater 21 DCP 2015	B3.16 Flood Hazard - Flood Category 1 -	*Delete development control*	

	(Amendment 19)	High Hazard - Residential Development: Dwelling House, Secondary Dwelling and Dual Occupancy	
12	Pittwater 21 DCP 2015 (Amendment 19)	B3.17 Flood Hazard - Flood Category 1 - High Hazard - Residential Development: Multi Unit Housing Development	*Delete development control*
13	Pittwater 21 DCP 2015 (Amendment 19)	B3.18 Flood Hazard - Flood Category 1 - High Hazard - Shop Top Housing, Business and Light Industrial Development	*Delete development control*
14	Pittwater 21 DCP 2015 (Amendment 19)	B3.19 Flood Hazard - Flood Category 1 - High Hazard - Other Development	*Delete development control*
15	Pittwater 21 DCP 2015 (Amendment 19)	B3.20 Flood Hazard - Flood Category 1 - High Hazard - Land Subdivision	*Delete development control*
16	Pittwater 21 DCP 2015 (Amendment 19)	B3.21 Flood Hazard - Flood Category 2 - All Development except Dwelling House, Secondary Dwelling, Dual Occupancy, and Multi-Unit Housing Development	*Delete development control*
17	Pittwater 21	B3.22 Flood Hazard -	*Delete development control*

	DCP 2015 (Amendment 19)	Flood Category 3 – Overland Flow Path - Major	*Delete development control*
18	Pittwater 21 DCP 2015 (Amendment 19)	B3.24 Flood Hazard - Flood Category 3 – Overland Flow Path – Minor	*Delete development control*
19	Pittwater 21 DCP 2015 (Amendment 19)	B3.25 Flood Hazard – Flood Emergency Response planning	*Amend the development control as follows:* Insert **Land to which this control applies** Land identified on the Flood Life Hazard Category Maps as H3-4, H5 and H6 in a Probable Maximum Flood event. Class 10 classified buildings and structures (as defined in the Building Codes of Australia) are excluded from this control. Insert **Developer Decision Tree** The decision tree shown in Figure 1 has been prepared to assist developers in determining whether or not flood risk to life development controls apply to their development and assist in the application of the development matrix shown in figure 1.

Figure 1 Developer Decision Tree

Variation to the controls

The following variations may apply to a change of use of an existing premises and alterations and additions to existing residential and commercial premises (as defined in the DCP):

A variation to the controls requiring a Flood Risk Emergency Assessment Report and/or shelter in place refuge shall only be considered if justified appropriately by a suitably qualified professional.

A completed Form 1 (Attachment A of the Flood Emergency Response Planning for

			Development in Pittwater Policy), must also be submitted with the development application. A section 88b instrument (or similar) will be required to be placed on the lot that outlines that the property has no 'shelter-in-place refuge' and that there is a risk of persons being inundated by floodwaters with no place to seek refuge on the lot. **Advisory Notes** For additional information, applicants are referred to Flood Emergency Response Planning for Development in Pittwater Policy of this DCP. Obtaining Flood Life Hazard Categories To apply this control the Flood Life Hazard Categories on the parcel of land/lot must first be established by: Obtaining the Flood Life Hazard Category Map from Council through the Flood Information Request service;
20	Pittwater 21 DCP 2015 (Amendment 19)	Appendix 8 Flood Risk Management Policy for Development in Pittwater	*Delete development control*
21	Pittwater 21 DCP 2015 (Amendment 19)	Appendix 15 Flood Emergency Response Planning for Development in Pittwater Policy	*Delete development control*
22	Pittwater 21 DCP 2015 (Amendment 19)	New Control	Insert Attachment 3 as a new control *B3.11 Flood Prone Land*
23	Warringah DCP 2011	A8 – Interpretation	*Delete the following definitions:*

Delete	**Concessional Development** Alterations and additions to residential, industrial and commercial buildings. **Essential services and infrastructure** for the purposes of flood management include all services and infrastructure that aid emergency response and recovery functions during and after a flood event, such as evacuation centres and routes, hospitals and major utility facilities. **Flood** Relatively high stream flow 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 major drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves overtopping coastline defences excluding tsunamis. **Flood Evacuation Plan** A plan referring to the arrangements for dealing with the impact of flooding on a particular business or household. **Flood Planning Levels (FPL)** are the combinations of flood levels derived from significant historical flood events or floods of specifc AEP's and freeboards selected for floodplain risk management purposes, as determined in management studies and incorporated in management plans. **Flood Prone Land** is land that is susceptible to flooding by the PMF event. **Floodplain** Area of land which is subject to inundation by floods up to the probable maximum flood event, i.e. flood prone 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. **Flood prone land** Land susceptible to flooding by the PMF event. **High hazard** Flood conditions that pose a possible danger to personal safety; evacuation by trucks difficult; able-bodied adults would have difficulty wading to safety; potential for significant structural damage to	

			buildings. **Low hazard** Flood conditions such that should it be necessary, people and their possessions could be evacuated by trucks; able-bodied adults would have little difficulty wading to safety. **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 provided 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. **Shelter in place** for the purposes of flood management this is a process for taking immediate shelter in a location readily accessible to the affected individual. Sheltering in place is generally only used for a short period of time (several hours). **Vulnerable Development** relates to the number of people needing simultaneous evacuation or who are limited either in movement or their ability to evacuate. Vulnerable development includes Recreational facilities (major) and (indoor), aged care facilities, independent living units for older people, childcare centres and schools, community centres and buildings
			Insert	***Adequate Warning Systems, Signage and Exits*** is where the following is provided: (a) an audible and visual alarm system which alerts occupants to the need to evacuate, sufficiently prior to likely inundation to allow for the safe evacuation of pedestrians and vehicles; (b) signage to identify the appropriate procedure and route to evacuate; and (c) exits which are located such that pedestrians evacuating any location during any flood do not have to travel through deeper water to reach a place of refuge above the PMF flood event, away from the enclosed car parking. ***Adverse Impacts*** (for the purposes of the Flood Prone Land clause only) means, the proposed development: • Will result in less than 0.02m increase in the 1% AEP • Will result in less than a 0.05m increase in the PMF
		24	Warringah DCP 2011	A8 – Interpretation

				• Will result less than a 10% increase in PMF peak velocity • Will have no loss in flood storage or flood way in the 1% AEP ***Alterations and Additions*** (for the purposes of the Flood Prone Land clause only) means: (a) In the case of residential development, a one-off addition to, or alteration of an existing dwelling and/or the construction of a new garage or development ancillary to residential development where the new work results in an additional ground floor area of less than 30m2 or an increase of less than 10% of the ground floor area (whichever is lesser); or (b) In the case of non-residential development, a one-off addition to, or alteration of, an existing building of not more than 100m2 or 10% of the ground floor area (whichever is the lesser). ***Annual Exceedance Probability (AEP)*** means the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. The 1% AEP or 1:100 AEP means there is a 1 in 100 probability of the corresponding flood discharge occurring in any given year. ***Australian Height Datum (AHD)*** is a common national plain of level corresponding approximately to mean sea level. ***Average Recurrence Interval (ARI)*** is an alternative to AEP for expressing the likelihood of occurrence of a flood event. It means the long-term average number of years between the occurrences of a flood as big as, or larger than, the selected event. For example, floods with a discharge as great as, or greater than, the 100 year ARI flood event have a 1 in 100 probability of occurring in any given year. ***Compensatory Works*** (for the purposes of the Flood Prone Land clause only) refers to earthworks where material is excavated (or "cut") from one location in the floodplain and placed (or "filled") at another location in the floodplain, with no net importation of fill material, such that the volume available for storage of flood waters is not altered for all floods and flood behaviour is not impacted. ***Effective warning time*** is the time available after receiving advice of an impending flood and before the floodwaters prevent appropriate flood response actions being undertaken. The effective warning time is typically used to move equipment or stock, raise furniture,

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				or Medium flood risk precincts. ***Medium Flood Risk precinct*** means all *flood prone land* that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct. ***High Flood Risk precinct*** means all *flood prone land* (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 and or H6 Life Hazard Classification). ***Flood Risk Precinct Maps*** means maps held by Council identifying the boundaries of the *Flood Risk Precincts* produced through a publicly available *Flood Study* or *Floodplain Risk Management Plan*. ***Flood Storage Area*** means those parts of the floodplain that are not part of the *floodway*. ***Floodplain Development Manual (FDM)*** refers to the document dated April 2005, published by the New South Wales Government and entitled "Floodplain Development Manual: the management of flood liable land". ***Floodplain Risk Management Plan (FRMP)*** means a plan prepared for one or more floodplains in accordance with the requirements of the FDM or its predecessors. **Note:** The predecessors to the FDM provided similar processes for the preparation and adoption of FRMP's and Floodplain Management Plans, which all have the status of FRMP's for the purposes of this Plan. tur ***Floodplain Risk Management Study (FRMS)*** means a study prepared for one or more floodplains in accordance with the requirements of the FDM or its predecessors. **Note:** The predecessors to the FDM provided similar processes for the preparation and adoption of FRMS's and Floodplain Management Studies, which all have the status of FRMS's for the purposes of this Plan. ***Floodway*** is the area of the floodplain where a significant discharge of water occurs during floods and is 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.

Freeboard provides reasonable certainty that the risk exposure selected in deciding on a particular flood chosen as the basis for a FPL is actually provided. It is a factor of safety typically used in relation to the setting of flood levels, levee crest levels, etc. Freeboard is included in the *flood planning level* (see definition).

Habitable floor area (for the purposes of the Flood Prone Land clause only) means:

(a) In a ***residential*** situation: any floor containing a room or rooms used or capable of being adapted for use for residential purposes, such as a bedroom, living room, study, dining room, kitchen, bathroom, laundry, toilet but excluding any floor used solely for the purposes of car parking or storage;

(b) In a ***non-residential*** situation: an area used for the regular activities of the building, including but not limited to offices, work areas, staff kitchens, staff lounge room, reception area or for storage of possessions susceptible to flood damage in the event of a flood.

Note: Separate considerations are specified for the car parking area of a development irrespective of the land use with which it is associated.

Hazard is a source of potential harm or a situation with a potential to cause loss. In relation to this Plan, the hazard is flooding which has the potential to cause harm or loss to the community.

Hydraulic Engineer (for the purposes of the Flood Prone Land clause only) **-** A civil or environmental engineer who is a registered professional engineer with chartered professional status (CP Eng) specialising in the field of hydrology/hydraulics, as it applies to floodplain management, and has an appropriate level of professional indemnity insurance.

Hydraulic hazard is the hazard as determined by the provisional criteria outlined in the FDM in a 1% AEP flood event.

Local overland flooding means inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam.

Local Stormwater (for the purposes of the Flood Prone Land clause only) **-** is defined as land that has a 1% AEP peak flood depth between 0.05m and 0.15m with a velocity depth

	between 0.025m^2/s and 0.3m^2/s. ***Mainstream Flooding*** (for the purposes of the Flood Prone Land clause only) **-** inundation of normally dry land occurring when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam. ***Minimise Risk*** **-** It is recognised that, due to the many complex factors that can affect a site within the floodplain, the flood risk for a site and/or development cannot be completely removed. It is, however, essential that risk be minimised to at least that which could be reasonably anticipated by the community in everyday life. Further, landowners should be made aware of the reasonable and practical measures available to them to minimise risk as far as possible. Hence where the Policy requires that "an acceptable level of risk" be achieved or where measures are to be taken to "minimise risk" it refers to the process of risk reduction. The Policy recognises that development within a risk-managed floodplain does not lead to complete risk removal as this is not meaningfully achievable. ***Probable maximum flood (PMF)*** is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation. ***Probable maximum precipitation (PMP)*** is the greatest depth of precipitation for a given duration meteorologically possible over a given size storm area at a particular location at a particular time of the year, with no allowance made for long-term climatic trends (World Meteorological Organisation, 1986). It is the primary input to the estimation of the probable maximum flood. ***Probability*** is a statistical measure of the expected chance of an event occurring (see AEP). ***Reliable access*** during a flood means the ability for people to safely evacuate an area subject to flooding, having regard to the depth and velocity of flood waters and the suitability of the evacuation route, without a need to travel through areas where water depths increase. ***Risk*** means the chance of something happening that will have an impact. It is measured in terms of consequences and probability (likelihood). In the context of this plan, it is the likelihood of consequences arising from the interaction of floods, communities and the environment.			

				Structural Engineer (for the purposes of the Flood Prone Land clause only) **-** A structural engineer who is a registered professional with structural engineering as a core competency, and has an appropriate level of professional indemnity insurance. ***Suitably Qualified Professional*** means a registered professional engineer specialising in the field of hydrology/hydraulics, as it applies to floodplain management—or otherwise qualified professional as determined at the sole discretion of Council—who is covered by an appropriate level of professional indemnity insurance. ***Survey plan*** is a plan prepared by a registered surveyor which shows the information required for the assessment of an application in accordance with the provisions of this Plan.
25	Warringah DCP 2011	Throughout	*Update Control Numbering* to ensure that it is sequential given the deletion of controls	
26	Warringah DCP 2011	E11 – Flood Prone Land	*Delete development control*	
27	Warringah DCP 2011	Maps	*Delete the following maps:* • *High Flood Risk Planning Precinct* • *Medium Flood Risk Planning Precinct* • *Low Flood Risk Planning Precinct*	
28	Warringah DCP 2011	New Control	Insert Attachment 3 as a new control *E11 Flood Prone Land*	
29	Manly DCP 2013 (Amendment 8)	Contents Table	*Update Contents Table*	
30	Manly DCP 2013 (Amendment 8)	Throughout	*Update Control Numbering* to ensure that it is sequential given the deletion of controls	
31	Manly DCP 2013 (Amendment 8)	1.3 – Relationship to other Plans and Policies	*Amend Control as follows:* Delete • Manly Lagoon Flood Study 2013 and Interim Policy – Flood Prone Lands 2013: Administrative Guidelines for Development and Use of Land within the Flood Planning Level Area;	

32	Manly DCP 2013 (Amendment 8)	5.4.3 – Flood Control Lots	*Delete Development Control*	
33	Manly DCP 2013 (Amendment 8)	New Control	Insert Attachment 3 as a new control *5.4.3 Flood Prone Land*	
34	Manly DCP 2013 (Amendment 8)	Dictionary	*Insert*	***Adequate Warning Systems, Signage and Exits*** is where the following is provided: (a) an audible and visual alarm system which alerts occupants to the need to evacuate, sufficiently prior to likely inundation to allow for the safe evacuation of pedestrians and vehicles; (b) signage to identify the appropriate procedure and route to evacuate; and (c) exits which are located such that pedestrians evacuating any location during any flood do not have to travel through deeper water to reach a place of refuge above the PMF flood event, away from the enclosed car parking. ***Adverse Impacts*** (for the purposes of the Flood Prone Land clause only) means, the proposed development: • Will result in less than 0.02m increase in the 1% AEP • Will result in less than a 0.05m increase in the PMF • Will result less than a 10% increase in PMF peak velocity • Will have no loss in flood storage or flood way in the 1% AEP ***Alterations and Additions*** (for the purposes of the Flood Prone Land clause only) means: (a) In the case of residential development, a one-off addition to, or alteration of an existing dwelling and/or the construction of a new garage or development ancillary to residential development where the new work results in an additional ground floor area of less than 30m2 or an increase of less than 10% of the ground floor area (whichever is lesser); or (b) In the case of non-residential development, a one-off addition to, or alteration of, an existing building of not more than 100m2 or 10% of the ground floor area (whichever is the lesser). ***Annual Exceedance Probability (AEP)*** means the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. The 1% AEP or 1:100 AEP means there is a 1 in 100 probability of the corresponding flood discharge occurring in

	any given year. ***Australian Height Datum (AHD)*** is a common national plain of level corresponding approximately to mean sea level. ***Average Recurrence Interval (ARI)*** is an alternative to AEP for expressing the likelihood of occurrence of a flood event. It means the long-term average number of years between the occurrences of a flood as big as, or larger than, the selected event. For example, floods with a discharge as great as, or greater than, the 100 year ARI flood event have a 1 in 100 probability of occurring in any given year. ***Compensatory Works*** (for the purposes of the Flood Prone Land clause only) refers to earthworks where material is excavated (or "cut") from one location in the floodplain and placed (or "filled") at another location in the floodplain, with no net importation of fill material, such that the volume available for storage of flood waters is not altered for all floods and flood behaviour is not impacted. ***Effective warning time*** is the time available after receiving advice of an impending flood and before the floodwaters prevent appropriate flood response actions being undertaken. The effective warning time is typically used to move equipment or stock, raise furniture, evacuate people and transport their possessions. ***Enclosed car parking*** means car parking enclosed on all sides, which is potentially subject to rapid inundation, which in turn consequently increases risk to human life and property (such as basement parking, enclosed garages or bunded car parking areas). ***Flood affected properties*** means properties on land susceptible to overland flooding or mainstream flooding up to the Probable Maximum Flood. ***Flood awareness*** is an appreciation of the likely effects of flooding and knowledge of the relevant flood warning and evacuation procedures. ***Flood compatible buildings*** includes buildings designed to withstand flood damages such as: (d) Collapse as a result of water pressure; (e) Displacement of structures off their foundations as a result of buoyancy forces; (f) Weakening, distortion or failure as a result of saturation.			

				Components, materials, connections and services required to achieve flood compatibility are outlined in the *Australian Building Codes Board - Construction of Buildings in Flood Hazard Areas, 2012* ***Flood Hazard*** – Flood Hazard is a term used to determine the safety of people and property and is based on a combination of flood depth (above ground level) and flood velocity for a particular sized flood. Flood Hazard is classified as either Low Hazard or High Hazard. In **High Flood Hazard** areas, there is a possible danger to personal safety, able-bodied adults would have difficulty wading and there is the potential for significant structural damage to buildings. In **Low Flood Hazard** areas, able-bodied adults would have little difficulty wading and nuisance damage to some structures would be possible. The method for determining Provisional Low and High Hazard Categories is outlined in the NSW Government's Floodplain Development Manual (2005) (the Manual). ***Flood Management Report*** means a technical report of adequate qualitative and quantitative detail addressing the management of flood risk, and other criteria (where applicable) as it affects the subject property and its surrounds within the floodplain. The report is to be prepared by a *suitably qualified professional* and in conjunction with a Structural Engineer (where necessary) to satisfy the requirements as set out by this Plan. ***Flood Planning Area (FPA)****: The Flood Planning Area* is the area below the ***Flood Planning Level*** as determined by an engineering professional in a Flood Study undertaken in accordance with the Floodplain Development Manual. ***Flood Planning Levels (FPL)*** has the same meaning as provided in the Manly LEP 2013, Warringah LEP 2011 and Pittwater LEP 2014. A reduced freeboard will be considered on its merits for properties impacted by peak flood depths less than 0.3m and velocity depths less than 0.3m^2/s. The reduced freeboard must be appropriately justified in a Flood Management Report prepared by a suitably qualified professional. ***Flood prone land*** (being synonymous with ***flood liable*** and ***floodplain***) is the area of land that is subject to inundation by the *probable maximum flood* (PMF). ***Flood Proofing – Dry*** means measures that protect a building from the entry of

				floodwaters by sealing a building's exterior walls and other floodwater entry points. ***Flood Proofing – Wet*** means a combination of measures incorporated into the design, construction and/or alteration of buildings, structures and surrounds, to enable a building or structure to withstand forces due to floodwater ingress and passage, whilst remaining structurally sound, to mitigate flood damages. ***Flood Risk Emergency Assessment Report*** means a technical assessment of adequate qualitative and quantitative detail addressing the management of risk to life, and other criteria (where applicable) as it affects the subject property and its surrounds within the floodplain. The report is to be prepared by a *suitably qualified professional* and in conjunction with a Structural Engineer (where necessary) to satisfy the requirements as set out by the control and policy. ***Flood Risk Precinct (FRP)*** refers to the division of the floodplain on the basis of the level of expected risk to persons and property due to flooding. In this plan the floodplain is divided into the Low, Medium and High flood risk precincts. ***Low Flood Risk precinct*** means all *flood prone land* not identified within the High or Medium flood risk precincts. ***Medium Flood Risk precinct*** means all *flood prone land* that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct. ***High Flood Risk precinct*** means all *flood prone land* (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 and or H6 Life Hazard Classification). ***Flood Risk Precinct Maps*** means maps held by Council identifying the boundaries of the *Flood Risk Precincts* produced through a publicly available *Flood Study* or *Floodplain Risk Management Plan*. ***Flood Storage Area*** means those parts of the floodplain that are not part of the *floodway*. ***Floodplain Development Manual (FDM)*** refers to the document dated April 2005, published by the New South Wales Government and entitled "Floodplain Development

Manual: the management of flood liable land". ***Floodplain Risk Management Plan (FRMP)*** means a plan prepared for one or more floodplains in accordance with the requirements of the FDM or its predecessors. **Note**: The predecessors to the FDM provided similar processes for the preparation and adoption of FRMP's and Floodplain Management Plans, which all have the status of FRMP's for the purposes of this Plan. tur ***Floodplain Risk Management Study (FRMS)*** means a study prepared for one or more floodplains in accordance with the requirements of the FDM or its predecessors. **Note**: The predecessors to the FDM provided similar processes for the preparation and adoption of FRMS's and Floodplain Management Studies, which all have the status of FRMS's for the purposes of this Plan. ***Floodway*** is the area of the floodplain where a significant discharge of water occurs during floods and is 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. ***Freeboard*** provides reasonable certainty that the risk exposure selected in deciding on a particular flood chosen as the basis for a FPL is actually provided. It is a factor of safety typically used in relation to the setting of flood levels, levee crest levels, etc. Freeboard is included in the *flood planning level* (see definition). ***Habitable floor area*** (for the purposes of the Flood Prone Land clause only) means: (a) In a ***residential*** situation: any floor containing a room or rooms used or capable of being adapted for use for residential purposes, such as a bedroom, living room, study, dining room, kitchen, bathroom, laundry, toilet but excluding any floor used solely for the purposes of car parking or storage; (b) In a ***non-residential*** situation: an area used for the regular activities of the building, including but not limited to offices, work areas, staff kitchens, staff lounge room, reception area or for storage of possessions susceptible to flood damage in the event of a flood. **Note:** Separate considerations are specified for the car parking area of a development irrespective of the land use with which it is associated.				

				Hazard is a source of potential harm or a situation with a potential to cause loss. In relation to this Plan, the hazard is flooding which has the potential to cause harm or loss to the community. ***Hydraulic Engineer*** (for the purposes of the Flood Prone Land clause only) **-** A civil or environmental engineer who is a registered professional engineer with chartered professional status (CP Eng) specialising in the field of hydrology/hydraulics, as it applies to floodplain management, and has an appropriate level of professional indemnity insurance. ***Hydraulic hazard*** is the hazard as determined by the provisional criteria outlined in the FDM in a 1% AEP flood event. ***Local overland flooding*** means inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam. ***Local Stormwater*** (for the purposes of the Flood Prone Land clause only) **-** is defined as land that has a 1% AEP peak flood depth between 0.05m and 0.15m with a velocity depth between 0.025m^2/s and 0.3m^2/s. ***Mainstream Flooding*** (for the purposes of the Flood Prone Land clause only) **-** inundation of normally dry land occurring when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam. ***Minimise Risk*** **-** It is recognised that, due to the many complex factors that can affect a site within the floodplain, the flood risk for a site and/or development cannot be completely removed. It is, however, essential that risk be minimised to at least that which could be reasonably anticipated by the community in everyday life. Further, landowners should be made aware of the reasonable and practical measures available to them to minimise risk as far as possible. Hence where the Policy requires that "an acceptable level of risk" be achieved or where measures are to be taken to "minimise risk" it refers to the process of risk reduction. The Policy recognises that development within a risk-managed floodplain does not lead to complete risk removal as this is not meaningfully achievable. ***Probable maximum flood (PMF)*** is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation. ***Probable maximum precipitation (PMP)*** is the greatest depth of precipitation for a given

				duration meteorologically possible over a given size storm area at a particular location at a particular time of the year, with no allowance made for long-term climatic trends (World Meteorological Organisation, 1986). It is the primary input to the estimation of the probable maximum flood. ***Probability*** is a statistical measure of the expected chance of an event occurring (see AEP). ***Reliable access*** during a flood means the ability for people to safely evacuate an area subject to flooding, having regard to the depth and velocity of flood waters and the suitability of the evacuation route, without a need to travel through areas where water depths increase. ***Risk*** means the chance of something happening that will have an impact. It is measured in terms of consequences and probability (likelihood). In the context of this plan, it is the likelihood of consequences arising from the interaction of floods, communities and the environment. **Structural Engineer** (for the purposes of the Flood Prone Land clause only) **-** A structural engineer who is a registered professional with structural engineering as a core competency, and has an appropriate level of professional indemnity insurance. ***Suitably Qualified Professional*** means a registered professional engineer specialising in the field of hydrology/hydraulics, as it applies to floodplain management—or otherwise qualified professional as determined at the sole discretion of Council—who is covered by an appropriate level of professional indemnity insurance. ***Survey plan*** is a plan prepared by a registered surveyor which shows the information required for the assessment of an application in accordance with the provisions of this Plan.

#	Policy	Amendments
	Appendix 8 Flood Risk Management Policy for Development in Pittwater	*Delete policy*
1	Appendix 15 Flood Emergency Response Planning for Development in Pittwater Policy	*Update Table of Contents*
2	Appendix 15 Flood Emergency Response Planning for Development in Pittwater Policy	*Insert* **1.1 Purpose** Flood Life Hazard Category: Life hazard accounts for the potential hazard relating to the flood behaviour throughout the Local Government Area (LGA). If the floodplain were occupied at the time of flooding then the flood life hazard categories indicate the hazard occupants would be exposed to. Flood life hazard categories have been mapped for the entire former Pittwater LGA (and available through Council Flood Information Request service);

Insert	**1.3 Complying Development Certification (CDC)** For developments within the former Pittwater LGA, "high risk areas" are defined as areas of flood life hazard category H3-H4 or greater. Therefore areas of flood life hazard category H1-H2 are considered "low risk areas" and Complying Development Certification may still be possible in these areas.
Insert	**Concessional** / **No controls** occupation/change of use of an existing premises signage intensive livestock agriculture intensive plant agriculture open cut mining jetty mooring mooring pen

recreation area
tree and/or bushland removal
earthworks
road
boat launching ramp
demolition
development/subdivision of a sector, buffer area or development site in a Release Area
Class 10 buildings or Structures as defined by the Building Code of Australia

The flood risk to life is considered significant for all developments under Land use categories "Critical and Vulnerable Uses", therefore it is preferred that these development types not be located within the PMF flood extent. Note that any alterations or additions to existing dwellings must consider this flood policy.

Class 10 buildings are non-habitable buildings or structures. Class 10 includes three sub classifications: Class 10a buildings are non-habitable buildings including sheds, carports, and private garages.
Class 10b is a structure being a fence, mast, antenna, retaining wall, swimming pool, or the like.
Class 10c building is a private bushfire shelter. A private bushfire shelter is a structure associated with, but not attached to, a Class 1a building

Insert	**1.7 Variation to the controls** The following variations may apply to a change of use of an existing premises and minor alterations and additions to existing residential and commercial premises (as defined in the DCP): A variation to the controls requiring a Flood Risk Emergency Assessment Report and/or shelter in place refuge shall only be considered if justified appropriately by a suitably qualified professional. A completed Form 1 (Attachment A of the Flood Emergency Response Planning for Development in Pittwater Policy), must also be submitted with the development application. A section 88b instrument (or similar) will be required to be placed on the lot that outlines that the property has no 'shelter-in-place refuge' and that there is a risk of persons being inundated by floodwaters with no place to seek refuge on the lot.
Amend	I am aware that the Flood Risk Emergency Assessment referenced on Form 1, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by ~~Pittwater~~ Northern Beaches Council as the basis for ensuring that the Flood Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable or Tolerable Risk" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

3	Manly Interim Policy – Flood Prone Land 2013	*Delete policy*

4	Water Management Policy	*Amend*	*8.1.3 Demonstrating Compliance* (a) To demonstrate compliance with the relevant stormwater performance requirements, a model preferably through the Model for Urban Stormwater Improvement Conceptualisation (MUSIC), or an equivalent, widely accepted model or methodology must be provided. Should MUSIC be used, modelling shall be undertaken in accordance with ~~draft NSW Water Sensitive Urban Design Guidelines~~ Northern Beaches Council WSUD Technical Guide unless alternative modelling parameters are justified on the basis of local studies. Details of the modelling of those elements, parameters and assumptions used, and all data files must be provided to the Certifying Authority as required by the conditions of consent for the development application
		Delete	*9.2.4 Development on Flood Prone Land* a) All development on land identified as being flood prone or subject to overland flows must comply with the requirements of: • Section 6.3 - Flood Planning of the Warringah Local Environmental Plan 2011, and • Section E11 – Flood Prone Land of the Development Control Plan 2011 • Clause 47 of the Warringah Local Environmental Plan 2000. ~~b) A Flood Risk Assessment Report prepared in accordance with Council's Guidelines for Preparing a Flood Risk Assessment Report is required for any development within land identified as 'flood affected land' meaning land below the Flood Planning Level or the Probably Maximum Flood level if vulnerable development is proposed.~~

	Amend	**17 Definitions** ~~**Floodplain** has the same meaning as defined in the Warringah Development Control Plan 2011.~~ **Flood Planning Level (FPL)** has the same meaning as defined in the Warringah ~~Development Control~~ Local Environmental Plan 2011. **Flood Prone Land** has the same meaning as defined in the Warringah Development Control Plan 2011. **Flood Risk** has the same meaning as defined in the Floodplain Development Manual. **Flood Storage** has the same meaning as defined in the Floodplain Development Manual. **Habitable Room** has the same meaning as defined in the Floodplain Development Manual. **High Hazard** has the same meaning as defined in the Floodplain Development Manual. **Impervious area** refers to land covered by impervious surfaces such as buildings, paving, asphalt, tiles, and the like, which limits or prevents infiltration of water. **Infrastructure Development** means any development undertaken under the State Environmental Planning Policy (Infrastructure) 2007. **Integrated Development** has the same meaning as defined in the *Environmental Planning and Assessment Act 1979*. **Inter-allotment drainage easement** has the same meaning as an Easement to drain water as referred to in the *Conveyancing Act 1919*. An easement usually

			identified on the Certificate of Title issued by the NSW Land and Property Information. **Inundation** is the experience of getting wet by any source of water including but not limited to fluvial, tidal, oceanic, overland flows, stormwater. **Low Level Properties** means a property that has the ground level which is lower than the roadway fronting the property. **New development** means any development being designed or constructed after the authorisation of this Policy. **Onsite stormwater detention system** means is a stormwater drainage device to control the amount of stormwater discharge to a specified rate. The device is to be constructed on the subject property. Refer to Council's Onsite Stormwater Detention Technical Specification and Onsite Stormwater Detention (OSD) checklist for more information. **Onsite Wastewater Management System** has the same meaning as Sewage Management Facility as defined in the *Local Government (General) Regulation 2005*. **Overland Flow** means inundation by excess rainfall runoff, flowing across land before it enters a principal watercourse. Includes sloping areas where overland flows develop along alternative paths once system capacity is exceeded. ~~Land is considered to be flood affected if flow depth is greater than 0.3m, or in the case of high hazard, if flow depth is greater than 0.15m.~~
5	Northern Beaches Flood Risk Management Policy	*Creation of new policy*	

Flood Prone Land

Applies to Land:

Identified on the Flood Risk Precinct Maps as being affected by flooding

Objectives

- Protection of people.
- Protection of the natural environment.
- Protection of private and public infrastructure and assets.

Requirements

The purpose of this Part is to guide development in accordance with the objectives and processes set out in the NSW Government's Flood Prone Land Policy as outlined in the NSW Government, Floodplain Development Manual, 2005.

Development to which this Part applies must comply with the performance criteria set out in clause 1.1.

Form A and A1 (Attachment A of Northern Beaches Council's Guidelines for preparing a Flood Management Report) is to be completed and submitted to Council

Development that satisfies the prescriptive controls in clause 1.2 is deemed to have satisfied clause 1.1.

1.1 Performance Criteria

(a) **SITE LAYOUT AND BUILT FORM:** The site layout and ultimate built form of the proposed development should be compatible with the flood risk. Site analysis and layout should incorporate flood risk as a critical element in site planning.

(b) **PUBLIC INTEREST:** The proposed development should not result in increased risk—to human life or damage to property or infrastructure—beyond acceptable limits.

(c) **PRIVATE AND PUBLIC COSTS:** The economic and social costs, which may arise from damage to property from flooding, should not be exacerbated by proposed development.

(d) **FLOOD EFFECTS CAUSED BY DEVELOPMENT ACTIVITY:** Development should not detrimentally increase the potential flood effects on other development or properties either individually or in combination with the cumulative impact of development that is likely to occur in the same floodplain.

(e) **DRAINAGE INFRASTRUCTURE AND CREEK WORKS:** Any proposed works on drainage infrastructure or natural creeks, whether or not carried out as flood modification measures, shall:
   a. Not cause adverse flooding impacts;
   b. Not result in a loss of flood storage;
   c. Increase protection of existing and proposed development; and

d. Not have a detrimental impact on the environment.

(f) **BUILDING COMPONENTS:** Building components and materials likely to be affected by flood waters should be designed, built and installed so as not to be damaged by those floodwaters.

(g) **STRUCTURAL SOUNDNESS:** The proposed development shall be designed and constructed so that it remains structurally sound for its intended life taking into account all the likely flood events during that lifetime.

(h) **STORAGE OF GOODS:** Goods that are likely to amplify the damages arising from flood events—including but not limited to pollutants and toxic chemicals—shall be stored so as not to find their way into floodwaters.

(i) **FLOOD EMERGENCY RESPONSE:** Proposed developments should only be permitted where effective warning time and reliable access is available for evacuation from an area potentially affected by floods to an area free of risk from flooding. Such an area may be within the same building where a shelter-in-place option is appropriate and achievable. The emergency response should be consistent with the *Flood Emergency Response Planning for Development in Pittwater Policy* where it applies to the land. The proposed development should have procedures in place (such as warning systems, signage or evacuation drills) so that people are aware of the need to evacuate and relocate goods and motor vehicles during a flood and are capable of identifying an appropriate evacuation route.

(j) **FLOOR LEVELS:** All floor levels within a proposed development shall be set at the required prescriptive level with additional consideration for the following:
   a. The passage of flood waters;
   b. The purpose for which that floor area is to used;
   c. The relationship with the surrounding roadways;
   d. The relationship with the existing building if the proposal is an extension; and
   e. Surrounding built form and streetscape.

(k) **FENCING:** Fencing shall be designed and constructed so that it does not impede and/or direct the flow of floodwaters, add debris to floodwaters or increase flood affectation on surrounding land.

1.2 Prescriptive Controls

The prescriptive controls that may be applied to development on flood prone land are listed below. A matrix has been prepared showing which of the controls apply to the various development types and flood risk precincts.

Development Matrix

The following is a summary of the major steps to be followed in applying this part of the DCP:

(a) Determine the Flood Risk Precinct i.e. High Flood Risk Precinct, Medium Flood Risk Precinct and Low Flood Risk Precinct within which the site is situated;

Note: Where a property is located in more than one Precinct, the assessment must consider the controls relevant to each Precinct.

(b) The various land use or development types have been grouped into seven (7) *Land Use Categories* (refer table 1). Determine the *Land Use Category* relevant to the proposal.

(c) Check if the proposal will satisfy the prescriptive controls for the relevant land use category in the applicable Flood Risk Precinct (FRP).

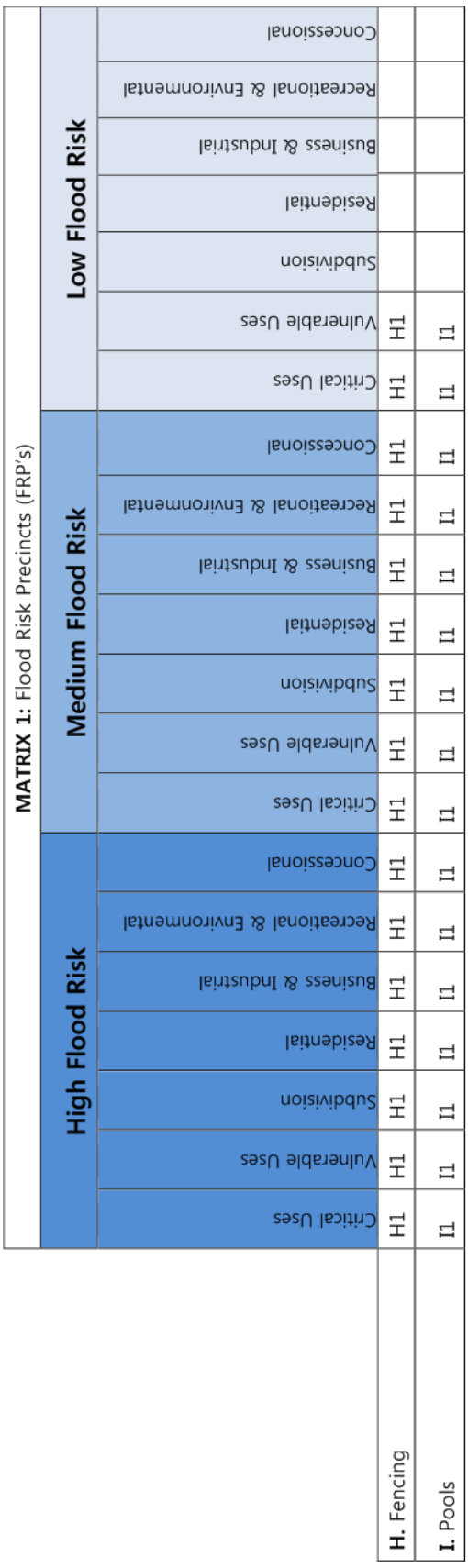
(d) If the proposal does not satisfy any one of the applicable prescriptive controls, or where those controls require the preparation of a *Flood Management Report*, then such a report shall be prepared. The *Flood Management Report* shall be prepared by a *suitably qualified professional* and shall outline the identified flood risks relevant to the proposal, indicate the extent of compliance with prescriptive controls and provide a thorough assessment of the appropriateness of the development by reference to each of the performance criteria.

MATRIX 1: Flood Risk Precincts (FRP's)

	High Flood Risk								Medium Flood Risk								Low Flood Risk							
	Critical Uses	Vulnerable Uses	Subdivision	Residential	Business & Industrial	Recreational & Environmental	Concessional		Critical Uses	Vulnerable Uses	Subdivision	Residential	Business & Industrial	Recreational & Environmental	Concessional		Critical Uses	Vulnerable Uses	Subdivision	Residential	Business & Industrial	Recreational & Environmental	Concessional	
A. Flood effects caused by Development	A1	A1	A1	A1	A1	A2	A2		A1	A1	A1	A1	A1	A2	A2		A2	A2	A2					
	A3	A3	A3	A3	A3	A3	A3		A3	A3	A3	A3	A3	A3	A3		A3	A3	A3					
	A4	A4							A4	A4							A4	A4						
B. Drainage Infrastructure & Creek Works	B1	B1	B1	B1	B1	B1			B1	B1	B1	B1	B1	B1			B1	B1	B1					
	B2	B2	B2	B2	B2	B2			B2	B2	B2	B2	B2	B2			B2	B2	B2					
C. Building Components & Structural	C1	C1		C1	C1	C1	C1		C1	C1		C1	C1	C1	C1		C1	C1						
	C2	C2		C2	C2	C2	C2		C2	C2		C2	C2	C2	C2		C2	C2						
	C3	C3		C3	C3	C3	C3		C3	C3		C3	C3	C3	C3		C3	C3						
D. Storage of Goods	D1	D1		D1	D1	D1	D1		D1	D1		D1	D1	D1	D1		D1	D1						
	D2	D2		D2	D2	D2	D2		D2	D2		D2	D2	D2	D2		D2	D2						
E. Flood Emergency Response	E1	E1	E1	E1	E1	E1	E1		E1	E1	E1	E1	E1	E1	E1		E1	E1	E4					
	E2	E2	E4	E2	E2				E2	E2	E4	E2	E2				E2	E2						
	E3	E3			E3				E3	E3			E3				E3	E3						
F. Floor Levels	F2	F2	F5	F1	F1	F2	F2		F2	F2	F5	F1	F1	F2	F1		F2	F2	F5		F1			

MATRIX 1: Flood Risk Precincts (FRP's)

	High Flood Risk								Medium Flood Risk								Low Flood Risk							
	Critical Uses	Vulnerable Uses	Subdivision	Residential	Business & Industrial	Recreational & Environmental	Concessional		Critical Uses	Vulnerable Uses	Subdivision	Residential	Business & Industrial	Recreational & Environmental	Concessional		Critical Uses	Vulnerable Uses	Subdivision	Residential	Business & Industrial	Recreational & Environmental	Concessional	
	F3	F3	G1	F2	F2		F3		F3	F3		F2	F2		F2		F3	F3			F2			
	F7	F7		F3	F3		F6		F7	F7		F3	F3		F3		F7	F7			F3			
				F6	F6							F4	F4		F4									
				F8	F8							F6	F6		F6									
					F10							F8	F8		F11									
												F9	F9											
													F10											
													F11											
G. Car Parking	G1	G1	G1	G1	G1	G1	G1		G1	G1	G1	G1	G1	G1	G1		G2	G2						
	G4	G4		G2G	G2G	G2G	G2		G4	G4		G2	G2	G2	G2		G6	G6						
	G6	G6G		3	3G4	3	G3		G6	G6		G3	G3	G3	G3		G7	G7						
	G7	7		G4	G5	G4	G4G		G7	G7		G5	G4	G4	G4		G9	G9						
	G9	G9		G5	G6	G5	5		G9	G9		G6	G5	G5	G5		G10	G10						
	G10	G10		G6	G7	G6	G6		G10	G10		G7	G6	G6	G6									
				G7		G7	G7					G8	G7	G7	G7									



MATRIX 1: Flood Risk Precincts (FRP's)				
High Flood Risk	Critical Uses	H1	I1	
	Vulnerable Uses	H1	I1	
	Subdivision	H1	I1	
	Residential	H1	I1	
	Business & Industrial	H1	I1	
	Recreational & Environmental	H1	I1	
	Concessional	H1	I1	
Medium Flood Risk	Critical Uses	H1	I1	
	Vulnerable Uses	H1	I1	
	Subdivision	H1	I1	
	Residential	H1	I1	
	Business & Industrial	H1	I1	
	Recreational & Environmental	H1	I1	
	Concessional	H1	I1	
Low Flood Risk	Critical Uses	H1	I1	
	Vulnerable Uses	H1	I1	
	Subdivision			
	Residential			
	Business & Industrial			
	Recreational & Environmental			
	Concessional			
H. Fencing				
I. Pools				

Table 1 Land Use Groups

Critical	Vulnerable Uses	Residential
Emergency services facility	Child care centre	Boarding house
Hospital	Educational establishment	Dual occupancy
Sewerage system	Home-based child care	Dwelling house
Telecommunications facility (SP2)	Community health service facility	Exhibition home
Public Utility Undertaking (SP2)	Information and education facility	Exhibition village
Electricity generating works	Respite day care centre	Hostel
	Seniors housing	Residential flat building
	Caravan park	Rural worker's dwelling
	Group home	Secondary dwelling
	Residential care facilities	Semi-detached dwelling
	Correctional centre	Multi dwelling housing
	Tourist and visitor accommodation	Shop top housing
		Attached dwelling

Business & industrial		
Animal boarding or training establishment	Boat building and repair facility	Business premises
Camping ground	Car park	Charter and tourism boating facility
Community facility	Crematorium	Depot
Eco-tourist facilities	Entertainment facility	Freight transport facility
Function centre	General industry	Health consulting rooms
Heavy industrial storage establishments	Highway service centre	Home business
Home occupation	Home occupation (sex services)	Industrial retail outlet
Industrial training facility	Industries	Management facility
Marina	Medical centre	Mortuary
Neighbourhood shop	Office premises	Patient transport facilities
Place of public worship	Port facility	Public administration building
Recreation facility (indoor)	Registered club	Research station

Business & industrial		
Restricted premises	Retail premises	Rural industry
Service station	Sex services premises	Storage premises
Transport depot	Truck depot	Turf farming
Vehicle body repair workshop	Vehicle repair station	Veterinary hospital
Warehouse or distribution centre	Waste disposal facility	Waste water disposal system
Water recreation structure	Water supply system	Wharf or boating facilities
Wholesale supplies		

Recreational and Environmental	**Subdivision**	**Concessional**
Aquaculture	Subdivision	Development ancillary to residential development
Boat launching ramp		
Boat shed		Occupation/change of use of an existing premises
Earthworks		
Environmental facility		Demolition
Environmental protection works		Additions/alterations to residential dwelling
Extensive agriculture		Additions/alterations to business/industrial buildings
Extractive industry		Advertising structure
Farm building		Signage
Flood mitigation works		
Forestry		
Horticulture		
Recreation area		
Recreation facility (major)		
Recreation facility (outdoor)		
Road		
Viticulture		

z

No controls
Intensive livestock agriculture
Intensive plant agriculture
Open cut mining
Jetty
Mooring
Mooring pen
Tree and/or bushland removal
Development / subdivision of a sector, buffer area or development site in a release area

A. FLOOD EFFECTS CAUSED BY DEVELOPMENT

A1	Development (including earthworks and subdivision) shall not be approved unless it can be demonstrated in a *Flood Management Report* that it complies with the Flood Prone Land Design Standard found on Council's webpage.
A2	Certification shall be provided in accordance with Northern Beaches Council's Standard Hydraulic Certification Form (Forms A and A1 of Northern Beaches Council's Guidelines for preparing a Flood Management Report) to the effect that the works have been designed and can be constructed to adequately address flood risk management issues.
A3	The applicant shall include in their submission, calculations to illustrate that any fill or other structures that reduce the total flood storage are replaced by *Compensatory Works.*
A4	Development (including earthworks and subdivision) shall not be approved unless it can be demonstrated in a *Flood Management Report* that it been designed and can be constructed so that in a *Probable Maximum Flood* event: (a) There are no adverse impacts on flood levels and velocities caused by alterations to the flood conveyance; (b) There are no adverse impacts on surrounding properties; and (c) It is sited to minimise exposure to flood hazard. Where relevant certification shall also be provided in Northern Beaches Council's Standard Certification Form (Forms A and A1 of Northern Beaches Council's Guidelines for preparing a Flood Management Report) to this effect.

B. DRAINAGE INFRASTRUCTURE AND CREEK WORKS

B1	Flood mitigation works or stormwater devices that modify a major drainage system, stormwater system, natural water course, floodway or flood behaviour within or outside the development site may be permitted subject to demonstration through a *Flood Management Report* that they comply with the Flood Prone Land Design Standard found on Council's webpage.
B2	A Section 88B notation under the Conveyancing Act 1919 may be required to be placed on the title describing the location and type of flood mitigation works with a requirement for their retention and maintenance.

C. BUILDING COMPONENTS AND STRUCTURAL SOUNDNESS

C1	All buildings shall be designed and constructed as *flood compatible buildings* in accordance with *Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).*
C2	All structures must be designed and constructed to ensure structural integrity up to the Flood Planning Level, taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion. Structural certification shall be provided confirming the above. Where shelter-in-place refuge is to be provided the structural integrity is to be to the Probable Maximum Flood level.
C3	All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the *Flood Planning Level.* All existing electrical equipment and power points located below the *Flood Planning Level* must have residual current devices installed that turn off all electricity supply to the property when flood waters are detected.

D. STORAGE OF GOODS

D1	Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.
D2	Goods, materials or other products which may be highly susceptible to water damage are to be located/stored above the Flood Planning Level.

E. FLOOD EMERGENCY RESPONSE

E1	Development shall comply with Council's *Flood Emergency Response Planning for Development in Pittwater Policy* and the outcomes of any *Flood Risk Emergency Assessment Report* where it applies to the land.
E2	New development must provide an appropriately sized area to safely shelter in place above the Probable Maximum Flood level and appropriate access to this area should be available from all areas within the development.
E3	*Adequate Warning Systems, Signage and Exits* shall be installed to allow safe and orderly evacuation without reliance upon the SES or other authorised emergency services personnel.
E4	The application shall demonstrate that evacuation/shelter in place in accordance with the requirements of this DCP will be available for any potential development arising from a torrens title subdivision.

F. FLOOR LEVELS

F1	New floor levels within the development shall be at or above, the *Flood Planning Level.* A reduced Flood Planning Level may be considered only where it is permitted in this Development Control Plan. The structure must be flood proofed (wet or dry) to the *Flood Planning Level.* This control cannot be applied to critical or vulnerable uses.
F2	All development structures must be designed and constructed so as not to impede the floodway or flood conveyance on the site, as well as ensuring no loss of flood storage in a 1% AEP Event. Where the dwelling is located over a flow path it must be elevated on suspended pier/pile footings such that the level of the underside of all floors including balconies and decks within the flood affected area are at or above, or raised to the Flood Planning Level to allow clear passage of the floodwaters under the building. The development must comply with the Flood Prone Land Design Standard.
F3	Where the lowest floor has been elevated to allow the passage of flood waters, a restriction shall be imposed on the title of the land, pursuant to S88B of the Conveyancing Act confirming that the undercroft area is not to be enclosed.
F4	A one- off addition or alteration below the *Flood Planning Level* of less than 30 square metres or an increase of less than 10% of the ground floor area (whichever is the lesser) for residential development may be considered only where: (a) it is an extension to an existing room (b) the Flood Planning Level is incompatible with the floor levels of the existing room This control will not be permitted if this provision has previously been utilised since the making of this Plan. The structure must be flood proofed to the *Flood Planning Level.*
F5	The applicant must demonstrate that future development following a subdivision proposal can be undertaken in accordance with this Control.
F6	Any existing floor level may be retained below the *Flood Planning Level* when undertaking a first floor addition provided that: (a) it is not located within a floodway;

	(b) there is no increase to the building footprint below the *Flood Planning Level*; (c) it is *flood proofed* to the *Flood Planning Level*;
F7.	All floor levels within the development shall be at or above the *Probable Maximum Flood* level or *Flood Planning Level* whichever is higher.
F8.	The minimum floor level of any first floor additions shall be at or above the Probable Maximum Flood Level.
F9.	Foyers – consideration may be given to a minimum floor level of a foyer being set at the 5% AEP flood level, provided it can be demonstrated that it complies with the Flood Prone Land Design Standard.
F10	Consideration may be given to a minimum floor level for the first 5 metres from the street front of new development in business zonings below the *Flood Planning Level* provided it can be demonstrated that it complies with the Flood Prone Land Design Standard.
F11	A one-off addition or alteration below the *Flood Planning Level* of less than 100 square metres or an increase of less than 10% of the ground floor area (whichever is the lesser) for non-residential development may be considered only where the required floor level cannot be achieved for the following reason: (a) it would be incompatible with floor levels of the existing building This control will not be considered if the existing floor level of the additions/alterations are located within a high hydraulic hazard area. This control will not be permitted if this provision has previously been utilised since the making of this Plan. Any features of the additions or alterations on the floor level must be flood proofed to the *Flood Planning Level*

G. CAR PARKING

G1	Open carpark areas and carports shall not be located within a floodway.
G2	The lowest floor level of open carparks and carports (unroofed or with open sides) shall be constructed no lower than the natural ground levels.
G3	All *enclosed car parks* must be protected from inundation up to the relevant *flood planning level*. For example, basement carparks must be provided with a crest at the entrance, the crest of which is at the relevant *Flood Planning Level*. All access, ventilation and any other potential water entry points to any *enclosed car parking* shall be above the relevant *Flood Planning Level*. Council will not accept any options that rely on electrical, mechanical or manual exclusion of the floodwaters from entering the *enclosed carpark*
G4	Vehicle barriers or restraints are to be provided to prevent floating vehicles leaving the site where there is more than 300mm depth of flooding in a 1% AEP flood event. The minimum height of the vehicle barriers or restraints must be at or above the *Flood planning Level*. Vehicle barriers or restraints must comply with the Flood Prone Land Design Standard.
G5	Enclosed Garages must be located at or above the *1% AEP level*
G6	Carports must comply with the Flood Prone Land Design Standard ÷

G7	Where a driveway is required to be raised it must be demonstrated that there is no loss to flood stage in the 1% AEP flood event and no impact on flood conveyance through the site
G8	Multi Dwelling Housing and Shop Top Housing residential carparking – consideration may be given to a minimum floor level for open or covered carparking being set at the 5% AEP flood level, provided it can be demonstrated that it complies with the Flood Prone Land Design Standard.
G9	All *enclosed car parks* must be protected from inundation up to the *Probable Maximum Flood* level or *Flood Planning Level* whichever is higher. For example, basement carparks must be provided with a crest at the entrance, the crest of which is at the relevant *Probable Maximum Flood* level or *Flood Planning Level* whichever is higher. All access, ventilation and any other potential water entry points to any *enclosed car parking* shall be above the relevant *Probable Maximum Flood* level or *Flood Planning Level* whichever is higher.
G10	Enclosed Garages must be located at or above the *Probable Maximum Flood Level* or *Flood Planning Level* whichever is higher.

H. FENCING

H1	Fencing, including pool fencing, shall be designed so as not to impede the flow of flood waters and not to increase flood affectation on surrounding land. Appropriate fencing must comply with the Flood Prone Land Design Standard in addition to other regulatory requirements of pool fencing.

I. POOLS

I1	Pools located within the 1% AEP flood extent are to be in-ground, with coping flush with natural ground level. Where it is not possible to have pool coping flush with natural ground level, it must be demonstrated that the development will result in no net loss of flood storage and no impact on flood conveyance on or from the site. All electrical equipment associated with the pool (including pool pumps) is to be waterproofed and/or located at or above the *Flood Planning Level*. All chemicals associated with the pool are to be stored at or above the *flood planning level*.

Notes:

Applications must demonstrate compliance with the following references:

- *Flood Prone Land Design Standard*
- *Flood Risk Management Policy*

Flood Prone Land Design Standard

This design standard provides detailed specifications for development on flood prone land in support of the Flood Prone Land clause in the:

- Manly Development Control Plan (2013)
- Warringah Development Control Plan (2011)
- Pittwater 21 Development Control Plan (2015)

A1	The development has been designed and can be constructed so that in a 1%AEP flood event: (a) There is no net loss of flood storage/ floodway; (b) There are no adverse changes in flood levels and velocities caused by alterations to the flood conveyance; (c) There are no adverse effects on surrounding properties; and (d) It is sited to minimise exposure to flood hazard. Where relevant certification shall also be provided in Northern Beaches Council's Standard Certification Form (Form A in Flood Risk Management Policy for Development) to this effect.
B1	The development has been designed and can be constructed so that in a 1% AEP flood event: (a) There is no loss of flood storage/floodway; (b) There are no adverse effects on surrounding properties; (c) The works do not have an adverse impact on the environment. (This includes but is not limited to the altering of natural flow regimes, the clearing of riparian vegetation, artificial modification of the natural stream, such as by relocation, piping etc, in accordance with Council's Protection of Waterways and Riparian Land Policy). Certification shall also be provided in Northern Beaches Council's Standard Certification Form (Form A in Flood Risk Management Policy for Development) to this effect.
F2	For suspended pier/pile footings, there must also be sufficient openings in perimeter walls located below the Flood Planning Level to allow for the flood waters to flow through unimpeded: a) The underfloor area of the dwelling below the *Flood Planning Level* is to be designed and constructed to allow clear passage of floodwaters, and (b) 50-75% of the perimeter of the underfloor area is of an open design between the natural ground level and the *Flood Planning Level*. Only 25-50% of the perimeter would be permitted to be solid, and (c) No solid areas of the perimeter of the underfloor area would be permitted in a floodway.
F9	It must be demonstrated that: (a) The Flood Planning Level is more than 1 metre above the typical existing ground level, and (b) The maximum footprint of the foyer is limited to 15 square metres, and (c) The foyer is not used for habitable purposes, and (d) All structural elements, external finishes and internal finishes are constructed from flood compatible materials, and (e) All electrical services, power points, fittings and equipment are located above the Flood Planning Level.
F10	It must be demonstrated that: (a) The development is located within an existing Business Zone and; (b) The minimum floor level of the first internal 5 metres from one street front only, is no lower than the adjacent footpath level, and

	(c) The maximum internal distance from the front of the building is 5 metres, and (d) The maximum area for each individual premises below the *Flood Planning Level* is 30 square metres, and (e) There is direct internal access between areas above and below the *Flood Planning Level* for each individual premises, and (f) All new and existing structural elements, external finishes and internal finishes below the *Flood Planning Level* are constructed from flood compatible materials, and (g) All electrical services, power points, fittings and equipment are located above the *Flood Planning Level*, and (h) All internal areas below the *Flood Planning Level* are assumed to be enclosed and so will not be available to form an offset for floodplain storage volume.
G4	Vehicle barriers or restraints (such as mounding, bunding, louvers or similar) that redirect and/or exclude floodwaters will not be permitted. Perimeter walls/louvers installed as vehicle barriers or restraints are to be of an open design, where 50-75% of the perimeter walls/louvers are 'open' between natural ground level and the *Flood Planning Level*. Only 25-50% of the perimeter walls/louvers would be permitted to be 'solid', openings should permit a 75 mm sphere to pass through, and should not impede the flow of water
G5	Car ports must: (a) Be of an open design, where 50-75% of the perimeter walls are 'open' between natural ground level and the *Flood Planning Level*. Only 25-50% of the perimeter wall would be permitted to be 'solid', openings should permit a 75 mm sphere to pass through, and should not impede the flow of water; and (b) Constructed of flood compatible material.
G8	It must be demonstrated that: (a) The *Flood Planning Level* is more than 1.5m above the typical existing ground level, and (b) All structural elements, external finishes and internal finishes below the *Flood Planning Level* are constructed from flood compatible materials, and (c) All electrical services, power points, fittings and equipment are located above the *Flood Planning Level*, and (d) 50-75% of the perimeter walls are 'open' between natural ground level and the *Flood Planning Level*. Only 25-50% of the perimeter would be permitted to be 'solid', Openings should permit a 75 mm sphere to pass through, and should not impede the flow of water, and (e) Internally there are no solid dividing walls within the carparking area, and (f) No 'storage cages' are permitted within the carparking area below the *Flood Planning Level*, and (g) Prominent signage is displayed that warns of the possibility of flooding and that personal goods other than vehicles must not be stored in the carparking area, and (h) Vehicle barriers or restraints will be provided to prevent floating vehicles leaving the carparking area.
H1	Fencing (including pool fencing, boundary fencing, balcony balustrades and accessway balustrades) shall be open for passage of flood waters - All new fencing on the property must be flood compatible with 50-75% of the fence being of an open design between the natural ground level and the Flood Planning Level. Only 25-50% of the perimeter fence would be permitted to be solid. Openings should permit a 75 mm sphere to pass through, and should not impede the flow of water.

NORTHERN BEACHES COUNCIL

Flood Risk Management Policy

Policy Statement

The Flood Risk Management Policy (the Policy) establishes the flood risk management approach within the Northern Beaches Council Local Government Area (LGA).

Through strategic and operational outcomes, Council aims to reduce the impact of flooding and reduce private and public losses resulting from floods.

Principles

The objectives of this Policy are:

(a) To ensure a sustainable and holistic catchment wide approach is taken to development, of both private land uses and public facilities, on flood prone land;

(b) To increase public awareness of the hazard and extent of land affected by all potential floods, including floods greater than the 1% AEP flood;

(c) To ensure the flood risk associated with development is minimised;

(d) To manage the risk to life, damage to property and impacts on the natural environment caused by flooding and inundation by controlling development on flood prone land;

(e) To ensure the development is compatible with the flood risk through the application of risk-based controls that take into account social, economic, ecological and design considerations;

(f) To ensure that proposed development does not expose existing development to increased risks associated with flooding;

(g) To ensure that effective development controls apply so that development is carried out in accordance with these objectives and the requirements of this policy;

(h) To ensure that the preparation of flood related information required to be lodged under this Plan are carried out by *suitably qualified professionals* with appropriate expertise in the applicable areas of engineering.

Scope & Application

Council manages flood prone land in accordance with the Flood Risk Management Process as outlined in the NSW Government Floodplain Development Manual, 2005 with the aim of producing Floodplain Risk Management Plans for the LGA.

Council undertakes both strategic and operational actions in the management of the floodplain.

At the **strategic** level Council undertakes the following actions:

Risk Assessment and Management

Council will identify, map and manage flood prone land in accordance with the Flood Risk Management Process. This involves undertaking Flood Studies, Floodplain Risk Management Studies and Floodplain Risk Management Plans with the aim of adopting and implementing plans for the entire LGA. Recommended floodplain management options will be investigated in detail and implemented in a priority order in accordance with available resources.

Land Use Planning

Council will maintain a framework of Local Environmental Plans and Development Control Plans to provide appropriate flood risk protection measures. The flood related development controls will

NORTHERN BEACHES COUNCIL

contain provisions to manage the flood risk to both life and property. Planning proposals seeking to rezone land will be assessed in accordance with Section 117 Direction 4.3 Flood Prone Land and must demonstrate that the flood risk to future occupants and structures can be appropriately managed through the available legislative framework.

Combat Agencies

Communication and relationships with relevant combat agencies will be fostered and strengthened through the sharing of flood intelligence, establishment of partnership projects and informing the development of Local Flood Plans and other emergency incident management plans. Strategies for improvement in incident response and shared incident response methodologies will be implemented where relevant.

Climate Change

The Northern Beaches is expected to be particularly affected by the impacts of climate change. Council recognises the importance of climate change adaptation and will investigate the impacts of climate change in flood risk projects in accordance with the best available data, science and policy. Changes to climate change policy or practice will be implemented on an iterative basis to reflect the current best advice/information.

Community Engagement

Council recognises the importance of community engagement in achieving good governance and well understood and accepted outcomes. Engagement on flood risk projects will be undertaken in accordance with the Northern Beaches Council Community Engagement Policy and Matrix. Public exhibitions of Flood Studies will be accompanied by opportunities to meet with staff on a personal level to discuss issues. Flood risk awareness through engagement is recognised as a strategic priority.

Flood Monitoring Program

Effective flood warning and response can reduce the impacts of flooding. Council operates a series of flood monitoring stations and a publicly accessible flood warning webpage known as the Northern Beaches Flood Information Network. Council proactively monitors weather and potential flooding conditions. Council will continue to investigate and implement improvements to the flood warning system to better prepare for and respond to flood events.

At the **operational** level Council undertakes the following actions:

Risk Response

Council undertakes a number of risk response measures to reduce the impacts of flooding. This includes mechanically opening the entrances of Manly, Curl Curl, Dee Why and Narrabeen Lagoons at defined trigger levels. Council also maintains the water level of Manly Dam at 34.1m AHD to provide flood storage during severe storms.

Education

Council in conjunction with the NSW SES will prepare and implement education strategies. to build community resilience to flood and coastal storms. Such strategies will improve the capacity of the Northern Beaches community to prepare, respond and recover from major flood and storm events and learn from their experiences to improve future preparedness.

Mitigation Works

Floodplain Risk Management Plans will investigate a range of floodplain management options to reduce the impacts of flooding in individual catchments. This may include property modification options such as development controls, voluntary purchase or voluntary house raising however often a Plan may recommend the delivery of flood mitigation works. Council will investigate and

NORTHERN BEACHES COUNCIL

implement mitigation works in accordance with the Floodplain Risk Management Process and priority rankings. Council undertakes the Narrabeen Lagoon Entrance Clearance Works on a 3-5 year schedule to promote an increase in the duration in which Narrabeen Lagoon is open and to reduce the severity of flooding impacts.

Development Applications

Applications for development on flood prone land will be assessed according to the legislative framework of Local Environment Plans, Development Control Plans and any supporting documentation including policies. Appropriate controls will be applied to ensure that future occupants of the floodplain are not subject to an unacceptable level of flood risk.

Section 149 certificates

Question 7A of a Section 149(2) certificate identifies whether flood related development controls apply to individual properties. Following the release of publicly available flood information, the answer to Question 7A will be amended to reflect whether flood related development controls now apply to subject properties. Section 149 (5) certificates will be amended to reflect when flood studies are in progress but not yet adopted by Council.

References and related documents

- Manly Local Environmental Plan (2013)
- Warringah Local Environmental Plan (2011)
- Warringah Local Environmental Plan (2000)
- Pittwater Local Environmental Plan (2014)
- Manly Development Control Plan (2013)
- Warringah Development Control Plan (2011)
- Warringah Development Control Plan (2000)
- Pittwater 21 Development Control Plan (2015)
- Floodplain Development Manual: the management of flood liable land, 2005, NSW Government

Responsible Officer

Executive Manager – Natural Environment & Climate Change

Review Date

At least every four years or as required.

Revision History

Revision	Date	Change	HPE CM Ref
1	26/07/2017	Policy established	2017/095452
2			

Flood Emergency Response Planning for Development in Pittwater Policy

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1 Flood Emergency Response Planning for Development in Pittwater Policy

1.1 Purpose

In accordance with the Floodplain Development Manual (FDM) (NSW Government, 2005), in flood prone land the responsibility lies with Council to ensure new developments minimise flood risk through the implementation of effective flood emergency response measures.

To help minimise the flood risk to occupants, it is important that developments have provisions to facilitate flood emergency response. There are two main forms of flood emergency response that may be adopted by people within the floodplain:

- Evacuation: The movement of occupants out of the floodplain before the property becomes flood affected; and,
- Shelter-in-place: The movement of occupants to a building that provides vertical refuge on the site or near the site before their property becomes flood affected.

By establishing minimum requirements for evacuation and shelter-in-place strategies for new developments, including additions and alterations to existing developments, Council ensures that:

- Flood risk associated with development is clearly identified; and,
- Flood risk to life for development is appropriately managed.

In assigning what is an acceptable emergency response measure for a development, Council has taken into consideration:

- Flood Life Hazard Category: Life hazard accounts for the potential hazard relating to the flood behaviour throughout the Local Government Area (LGA). If the floodplain were occupied at the time of flooding then the flood life hazard categories indicate the hazard occupants would be exposed to. Flood life hazard categories have been mapped for the entire former Pittwater LGA (and available through Council Flood Information Request service);
- Land-use: The land-uses within the floodplain provide an indication of the occupation of the floodplain which will influence the number and demographic of people exposed to flood risk. Therefore emergency response requirements should be tailored to each land-use; and,
- Proposed emergency response: Consideration of emergency response measures relates to the likelihood of occupants within the floodplain being directly exposed to flood hazard. The emergency response requirements are dependent on if evacuation or shelter-in-place is the adopted emergency response.

By adjusting emergency response requirements for each development based on these considerations, the flood risk to life may be addressed in a targeted way while not being needlessly onerous on the developer / land owner.

1.2 Risk Assessment Categories

There are three subjective risk assessment categories:

- Acceptable risk: Flood risk to life is considered negligible and the flood emergency response planning policy does not apply;
- Tolerable risk: Flood risk to life is significant and the flood emergency response planning policy applies for all developments;
- Unacceptable risk: Flood risk to life is severe, developments should not be permitted on a flood risk to life basis.

A graphical representation of the risk categories as they relate to flood life hazard categories are shown in Table 1-1. As seen in Table 1-1 this flood emergency response planning policy applies to all land assigned a flood life hazard category of H3-H4 or greater.

Table 1-1 Flood Risk Assessment Outcomes Summary

Adopted Emergency Response	Flood Life Hazard Category			
	H1 - H2	H3 – H4	H5	H6
Evacuation				
Shelter-in-Place				

Where, Green = Acceptable risk, flood emergency response planning policy does not apply;

Yellow = Tolerable risk, flood emergency response planning policy applies for all development; and,

Orange = Unacceptable risk, no development should be permitted in these areas due to severe flood risk.

1.3 Complying Development Certification (CDC)

In accordance with Clause 3.36C of the Exempt and Complying Development Codes SEPP (NSW Government, 2008), flood affected properties may be eligible for a complying development certificate if the development does not lie within a "high risk area".

For developments within the former Pittwater LGA, "high risk areas" are defined as areas of flood life hazard category H3-H4 or greater. Therefore areas of flood life hazard category H1-H2 are considered "low risk areas" and Complying Development Certification may still be possible in these areas.

1.4 Developments to Which This Policy Applies

A summary of the land-use groups is included in Table 1-2.

Table 1-2 Land Use Groups

Critical	Vulnerable Uses	Residential
emergency services facility	child care centre	boarding house
hospital	educational establishment	dual occupancy
public administration building	home-based child care	dwelling house
sewerage system	Community health service facility	exhibition home
Telecommunications facility (SP2)	information and education facility	exhibition village
Public Utility Undertaking (SP2)	respite day care centre	hostel
electricity generating works	seniors housing	residential flat building
	caravan park	rural worker's dwelling
	group home	secondary dwelling
	residential care facilities	semi-detached dwelling
	correctional centre	multi dwelling housing
	tourist and visitor accommodation	shop top housing
		attached dwelling

Business & industrial		
boat building and repair facility	medical centre	waste or resource management facility
business premises	mortuary	management facility
car park	neighbourhood shop	waste water disposal system
crematorium	office premises	water recreation structure
depot	Patient Transport facilities	water supply system
entertainment facility	passenger transport facility	wharf or boating facilities
freight transport facility	place of public worship	wholesale supplies
function centre	port facility	animal boarding or training establishment
general industry	recreation facility (indoor)	charter and tourism boating facility
health consulting rooms	registered club	home business
heavy industrial storage establishment	restricted premises	home occupation
highway service centre	retail premises	home occupation (sex services)
industrial retail outlet	rural industry	community facility
industrial training facility	service station	research station
industries	sex services premises	camping ground
	storage premises	eco-tourist facilities
	transport depot	marina
	truck depot	cemetery
	turf farming	
	vehicle body repair workshop	
	vehicle repair station	
	veterinary hospital	
	warehouse or distribution centre	
	waste disposal facility	

Recreational and Environmental	Subdivision	Concessional	No controls
aquaculture	subdivision	occupation/change of use of an existing premises	signage
boat shed			intensive livestock agriculture
environmental facility			intensive plant agriculture
environmental protection works			open cut mining
extensive agriculture			jetty
extractive industry			mooring
farm building			mooring pen
flood mitigation works			recreation area
forestry			tree and/or bushland removal
horticulture			earthworks
recreation facility (major)			road
recreation facility (outdoor)			boat launching ramp
viticulture			demolition
			development/subdivision of a sector, buffer area or development site in a Release Area
			Class 10 buildings or Structures as defined by the Building Code of Australia

The flood risk to life is considered significant for all developments under Land use categories "Critical and Vulnerable Uses", therefore it is preferred that these development types not be located within the PMF flood extent. Note that any alterations or additions to existing dwellings must consider this flood policy.

Class 10 buildings are non-habitable buildings or structures. Class 10 includes three sub classifications:
Class 10a buildings are non-habitable buildings including sheds, carports, and private garages.
Class 10b is a structure being a fence, mast, antenna, retaining wall, swimming pool, or the like.
Class 10c building is a private bushfire shelter. A private bushfire shelter is a structure associated with, but not attached to, a Class 1a building

1.4.1 Land Release Developments

This Flood Emergency Response Planning for Development in Pittwater policy and the associated development controls does not apply to Development/subdivision of a sector, buffer area or development site in a Release Area. Flood affected land release developments such as those identified in the Warriewood Urban Land Release are expected to have a more significant impact on flood risk to life.

The development controls specified in this policy address flood risk to life accounting for moderate intensification of development within the floodplain. Development/subdivision of a sector, buffer area or development site in a Release Area are more likely to result in previously low density or unoccupied flood affected land having a major increase in occupation and therefore flood risk to life. The controls specified in this policy therefore do not address flood risk to life adequately to account for land release developments.

Development/subdivision of a sector, buffer area or development site in a Release Area should adopt the same emergency response principles within this policy however to a greater extent incorporating a more complex assessment to ensure future flood risk is not increased as a result of Development/subdivision of a sector, buffer area or development site in a Release Area.

1.5 Evacuation Requirements

1.5.1 Evacuation Feasibility

The assessment of evacuation feasibility for a development needs to also account for the Flood Life Hazard Category of the site, to determine if evacuation is feasible refer to the Developer Decision Tree in Attachment A.

1.5.2 Flood Risk Emergency Assessment

For evacuation to be considered an acceptable emergency response development and alterations and additions to existing development should demonstrate all occupants may evacuate safely through a Flood Risk Emergency Assessment that considers:

- Council's guideline document for preparing Flood Risk Emergency Assessments,
- Proposed evacuation route and mode of transport, and the flood hazard along the route in the PMF. Note that:
  - Evacuation routes must not be through private property that is not a part of the subject site;
  - Evacuation route must be flood free in the Probable Maximum Flood event
  - Preferable evacuation routes are rising road access
  - Evacuation must be to a public area with shelter located above the Probable Maximum Flood Level
- Evacuation timeline including time required vs time available based on principles established in the NSW SES Evacuation Timeline Model and adapted for local evacuation ;
- Intended evacuation destination, the flood hazard at the destination, the level of service provided by evacuation destination (medical, food, water, communication lines), and duration of isolation of the destination in the PMF event from any of these services;
- Consideration of vulnerability of likely occupants, and their ability to evacuate;
- Consideration of the number of occupants, ensuring sufficient capacity of evacuation route, and evacuation destination to facilitate all occupants;
- Intended flood warning mechanism, potentially outlining concept design of warning systems taking into account flooding at all times of the day;
- Identification of the depth of floodwater along the evacuation route in the 1% AEP and PMF events;
- Intended flood evacuation awareness, if no obvious evacuation route is available then signage should assist occupants, particularly for business and commercial land uses; and

> Identification of any buildings on site that are appropriate for shelter-in-place as an alternative emergency response (see **Section 1.6** for further details).

The combination of all these factors contribute to the acceptability of evacuation as an emergency response. Council's assessment of evacuation strategies will involve a merits based assessment based on the factors listed above.

1.6 Shelter-in-Place Requirements

The following sections outline the shelter-in-place requirements and to which development types the controls are relevant.

1.6.1 Flood Risk Emergency Assessment

For shelter-in-place to be considered an acceptable emergency response, a development should demonstrate that the development controls summarised in the following sections have been addressed through a Flood Risk Emergency Assessment report.

1.6.2 Minimum Floor Level for Shelter in Place

The adopted requirements for shelter in place minimum floor levels are equal to the PMF flood event. These requirements apply to all tolerable life hazard categories, H3-H4 and H5 categories.

1.6.3 Floor Space

The adopted requirements for shelter in place minimum floor space are:

- A floor space of the shelter-in-place area 2 m^2 per person is required for all long duration flooding unless it can be shown the development lies within this region but is only inundated for a "short duration" (less than 6 hours in the PMF); or,
- A floor space of the shelter-in-place area 1 m^2 per person is required for development located in short duration flooding (less than 6 hours in the PMF).

These requirements apply to all tolerable flood life hazard categories, H3-H4 and H5 categories, and all development types.

The definition of sufficient capacity is defined as floor space of 1 m^2 per person for short duration (less than 6 hours), and 2 m^2 per person for long duration (greater than 6 hours).

1.6.4 Accessibility

The adopted requirements for shelter in place for all developments are:

> Shelter-in-place refuge must be accessible to all people on the site, plainly evident, and self-directing, with sufficient capacity of access routes for all occupants.

> There must be sufficient time for all occupants to access shelter-in-place refuges, with fail safe access provided with no reliance on elevators. Flood warning systems should be considered where the number of occupants is significant.

1.6.5 Building Stability

For all shelter-in-place refuge buildings proposed within flood risk to life category H3-H4:

> Structural stability of the refuge building is to be verified by a suitably qualified structural engineer considering lateral flood flow, buoyancy, suction effects, and debris load impact of 1% AEP design flood depths and velocities; and

> Refuge must comply with Building Code of Australia requirements, with external components rated appropriately for storm, wind, and moisture.

This requirement is relevant for all land-use types.

For all shelter-in-place refuge buildings proposed within flood risk to life category H5:

- Structural stability of the refuge building is to be verified by a suitably qualified structural engineer considering lateral flood flow, buoyancy, suction effects, and debris load impact of PMF design flood depths and velocities; and
- Refuge must comply with Building Code of Australia requirements, with external components rated appropriately for storm, wind, and moisture.

This requirement is relevant for all land-use types.

1.6.6 Serviceability

The following serviceability requirements only apply to long duration flooding unless it can be shown the development lies within this region but is only inundated for a "short duration" (less than 6 hours in the PMF). The serviceability requirements apply for all land-uses with the exception of subdivision:

- Sufficient clean water; and
- First Aid Kit; and
- Portable radio with spare batteries; and
- Torch with spare batteries.

In addition, land-use groups listed under Critical and Vulnerable Uses must also provide:

- a practical means of medical evacuation; and
- Emergency power.

1.7 Variation to the controls

The following variations may apply to a change of use of an existing premises and minor alterations and additions to existing residential and commercial premises (as defined in the DCP):

A variation to the controls requiring a Flood Risk Emergency Assessment Report and/or shelter in place refuge shall only be considered if justified appropriately by a suitably qualified professional.

A completed Form 1 (Attachment A of the Flood Emergency Response Planning for Development in Pittwater Policy), must also be submitted with the development application.

A section 88b instrument (or similar) will be required to be placed on the lot that outlines that the property has no 'shelter-in-place refuge' and that there is a risk of persons being inundated by floodwaters with no place to seek refuge on the lot.

2 Attachment A – Evacuation Feasibility

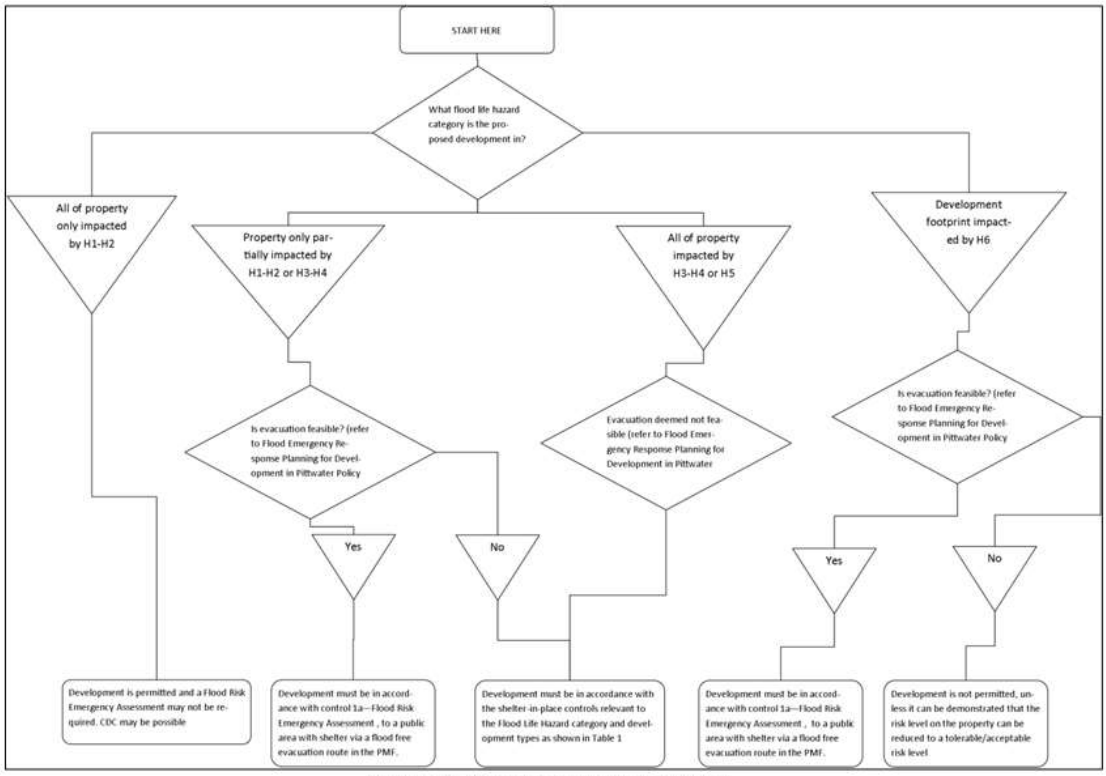

Figure 1 Developer Decision Tree

3 Attachment C – Form 1

FLOOD EMERGENCY RESPONSE PLANNING FOR DEVELOPMENT IN PITTWATER POLICY
FORM NO. 1 – To be submitted with Development Application

Development Application for

_____
(Name of Applicant)

Address of site: _____

Declaration made by hydraulic engineer or engineer specialising in flooding/flood emergency response as part of a Flood Risk Emergency Assessment:

I, _____ on behalf of _____
(Insert Name) (Trading or Business/ Company Name)

on this the _____ certify that I am a engineer or
(Date)
consultant specialising in flood emergency response and I am authorised by the above organisation/ company to issue this document and to certify that the organisation/ company has a current professional indemnity policy of at least $2million.

Flood Risk Emergency Assessment Details:

Report Title:

……..

Report Date: ……..

Author: ……..

Author's Company/Organisation: ……..

I: _____
(Insert Name)
Please tick appropriate box (more than one box can be marked)

☐ have followed Councils guidelines for 'Flood Risk Emergency Assessment Report (FREA)'

☐ have prepared the Flood Risk Emergency Assessment referenced on Form 1 in accordance with Council's guidelines and the Flood Emergency Response Planning for Development in Pittwater Policy.

☐ am willing to technically verify that the detailed Flood Risk Emergency Assessment referenced on Form 1 has been prepared in accordance with Council's guidelines and the Flood Emergency Response Planning for Development in Pittwater Policy.

☐ have examined the site and the proposed development in detail and have carried out a risk assessment (which has been attached to this form), and can confirm that:

- ☐ The addition/dwelling/building is located outside of the extents for Flood Life Hazard Categories H3-H4, H5 and H6 and a Flood Risk Emergency Assessment in not required.

☐ confirm that the results of the risk assessment for the proposed development are in compliance with the Flood Risk Management Policy for Development in Pittwater and a detailed risk assessment is not required for the subject site.

☐ have examined the site and the proposed development/alteration/addition in detail and I am of the opinion (after carrying out a risk assessment) that the Development Application does not require a Flood Risk Emergency Assessment and I have attached the risk assessment to this form.

☐ have reviewed (provide details of Report) the Flood Risk Emergency Assessment previously prepared for this property and can confirm it is up to date and is still current.

Declaration by engineer/consultant:

I am aware that the Flood Risk Emergency Assessment referenced on Form 1, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Northern Beaches Council as the basis for ensuring that the Flood Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable or Tolerable Risk" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature ……..

Name ……..

Chartered Professional Status……

Membership No. ……

Company……

Number of years specialising in flood emergency response……

PL 850 Water
Water Management Policy

Table of Contents

1 Purpose of the Policy

This Policy provides the requirements for the effective management of stormwater, rainwater, groundwater and wastewater within the Warringah local government area.

2 Principles

The Water Management Policy aims to:

- Minimise the risk to public health and safety
- Reduce the risk to life and property from flooding
- Manage and minimise stormwater overland flow, nuisance flooding and groundwater related damage to properties
- Protect and improve the ecological condition or our beaches, lagoons, waterways, wetlands and surrounding bushland
- Encourage the reuse of water and alternative water sources
- Integrate water sensitive urban design measures into the built form to maximise amenity
- Protect Council stormwater drainage assets during development works and to ensure Council's drainage rights are not compromised
- Align development controls with the objectives of the Water Sensitive Warringah Strategic Plan and Environmental Sustainability Strategy.

3 Development to Which this Policy Applies

This Policy applies to All development in the Warringah Local Government Area subject to Part 4 of the *Environmental Planning & Assessment Act 1979* including Development Applications, Exempt and Complying Development.

This Policy shall be read in conjunction with the Warringah Local Environmental Plan, Warringah Development Control Plan 2011 and other documentation as referred to within this policy.

3.1 Identifying Planning Controls Which Apply

To identify which planning controls apply to the development, applicants **must** refer to both Table 1 and Table 2.

Table 1 identifies sections that apply to particular development type, and Table 2 identifies sections which apply based on the site and development characteristics (one or more may apply).

Table 1 – Development Types

Development Types		Sections which Apply					
		Section 4.0 – Standard of Design, Construction & Installation	Section 5 – Disposal of Stormwater	Section 7.1 – Water Conservation & Reuse	Section 8.1 – Stormwater Quality	Section 8.3 – Erosion, Sediment and Pollution Controls	Section 9.1 – Onsite Stormwater Detention
Single Lot Residential Development		✓	✓	✓		✓	✓
Residential Flat Buildings or Multi-residential dwelling houses	Development with a site area less than 1000m^2	✓	✓	✓		✓	✓
	Development with a site area greater than 1000m^2	✓	✓	✓	✓	✓	✓
Commercial or Mixed Use or Industrial	Development with a site area less than 1000m^2	✓	✓	✓		✓	✓
	Development with a site area greater than 1000m^2	✓	✓	✓	✓	✓	✓
Subdivision	Subdivision resulting in the creation of: two (2) lots where the total post development impervious area of the new lots exceeds 40%.	✓	✓	✓	✓	✓	✓
	Subdivision resulting in the creation of: • three (3) lots or more.	✓	✓	✓	✓	✓	✓

Table 2 – Site/Development Characteristics (more than one requirement may apply)

Site/Development Characteristics		Sections which Apply							
		Section 6 – Building Over or Adjacent to Council Drainage Systems and Easements	Section 7.2 – Onsite Sewage Management	Section 8.1 – Stormwater Quality	Section 8.2 – Groundwater Management	Section 9 – Flood Risk Management	Section 9.1 – Onsite Stormwater Detention	Section 9.3 – Overland Flow	Section 10.3 – Removal of Private Trees Threatening Council Stormwater Pipes
Increased hard surfaces	Development where the total existing and proposed impervious areas exceeds 40% of the site area						✓		
	Development proposing an increase in impervious area of more than $50m^2$			✓					
Near a Council stormwater system	All development containing or adjacent to Council stormwater infrastructure Refer to Council's Stormwater Planning Maps	✓							✓
Groundwater	All development intercepting groundwater				✓				
No Sewer	Any property not connected to the Sydney Water sewerage network or which utilises an onsite wastewater management system		✓						
Flooding or Overland flow	All development located on Flood Prone Land Refer to Section 149 Planning Certificate or Council's Flood Maps:- • High Flood Risk Planning Precinct • Medium Flood Risk Planning Precinct • Low Flood Risk Planning Precinct					✓			
	All development on land affected by overland flows. Refer to Council's Stormwater Planning Maps							✓	

4 General Requirements

4.0 Standard of Design, Construction & Installation

All works are to be designed, constructed and installed in accordance with the following:

- Auspec1 Design Manual
- Minor works specification
- *Local Government Act 1993*
- *Roads Act 1993*
- Plumbing Code of Australia
- Water by Design Technical Guidelines
- Relevant Australian Standards
- Warringah Local Environmental Plan 2000
- Environment & Health Protection Guidelines for Onsite Sewage Management for Single Households
- Interim NSW Guidelines for Management of Private Recycled Water Schemes
- Warringah Local Environmental Plan 2011
- Warringah Development Control Plan 2011
- Technical Specifications where specified
- Water Sensitive Warringah Strategic Plan
- Water Sensitive Warringah Technical Paper

5 Disposal of Stormwater

5.1 General

(a) Stormwater drainage for all properties must be by gravity means. Mechanical methods of stormwater disposal (e.g. pump-out systems) will only be permitted for draining sub-surface flows from underground areas and basement carparks in commercial or residential flat buildings.

(b) Diverting flows from one catchment (or sub-catchment) to another catchment (or sub-catchment) will not be permitted. Properties must drain in the direction of their natural catchment.

(c) Drainage easements obtained through downstream properties for piping flows to a drainage system, at the applicant's expense, are strongly encouraged. Refer to section 5.4 further requirements for drainage easements.

(d) All drainage structures are to be designed to be visually unobtrusive and sympathetic with the proposed development and the surrounding environment i.e. water sensitive urban design.

(e) Disposal of stormwater must not unreasonably impact on the downstream environment.

(f) Piping the property drainage system across a public road is not permitted. Consideration will be given to extending Council's system across the public road to facilitate disposal of stormwater from the property at the applicant's expense.

(g) Stormwater drainage works must be approved by Council under the provisions of the *Roads Act 1993* and *Local Government Act 1993*.

(h) Inability to comply with the requirements of this policy may result in Development Consent not being granted.

5.2 Street & Trunk Drainage

(a) Street and trunk drainage is to be designed and constructed so as to:

i. provide convenience and safety for pedestrians and traffic during storm events,

ii. minimise damage to private and public buildings, and

iii. minimise risks to life and property by overland flow during major storm events.

(b) Street and trunk drainage must comply with the following specifications:

i. Auspec1 Design Manual

ii. Minor works specification

5.3 Discharge to Roads & Maritime Services Drainage System

Where stormwater is to be discharged to the street gutter or underground drainage system of a road that is under the control of the Roads & Maritime Services (RMS), Council will refer the Development Application to the RMS for review.

5.4 Properties Unable to Connect to a Council Stormwater Drainage System or Easement

(a) Any property that is unable to connect to a Council stormwater drainage system, such as land falling naturally away from a Council stormwater drainage system, is required to comply with Council's Stormwater Drainage from Low Level Properties Technical Specification.

(b) Developments proposing to discharge stormwater to a watercourse or open channel must comply with the requirements of section 8.4 - Stormwater Discharge to Watercourse or Open Channel.

(c) Where an inter-allotment drainage easement is to be created, a letter of agreement to the creation of the easement from all the affected property owners shall accompany the development application. This is to demonstrate to Council that a suitable easement/s can be obtained. The letter/s shall be accompanied with a plan of the location of the proposed easement/s also signed by all the affected property owners. The letter/s is/are not to contain any conditions that may preclude the creation of the easement.

5.5 Stormwater Entering Properties from Upstream Lots

(a) Runoff currently entering the site from upstream properties should not be obstructed from flowing onto the site nor redirected so as to increase the quantity or concentration of surface runoff entering adjoining properties.

(b) When a retaining wall is to be constructed across an overland flow path any intercepted flow must be contained within the property where the retaining wall is required and this flow connected to the site drainage system.

(c) Where the overland flow rates are significant, the requirements of section 9.3 – Overland Flow will need to be satisfied.

6 Building Over or Adjacent to Council Drainage Systems and Easements

Council drainage systems may be located within private property. To determine if the property is burdened or is adjacent to a public drainage system, refer to Council's Stormwater Planning Map.

(a) All development on land containing or adjacent to or proposing to reconstruct/relocate a public drainage system, must comply with Council's Building Over or Adjacent to Constructed Council Drainage Systems and Easements technical specifications.

Note:
This does not apply to land with natural (unconstructed) drainage systems and watercourses. In these instances, section 8.4 - Stormwater Discharge to Watercourse or Open Channel and 5.4 - *Properties Unable to Connect to a Council Stormwater Drainage System* and Council's Protection of Waterways and Riparian Land Policy.

7 Sustainable Water Management and Onsite Sewage Management Systems

7.1 Water Conservation & Reuse

7.1.1 Water Efficiency

(a) Buildings that are not affected by BASIX that are installing any water use fittings must demonstrate compliance with the minimum standards defined by the Water Efficiency Labelling and Standards (WELS) Scheme. Minimum WELS rated fittings include:

i. 4 star dual-flush toilets
ii. 3 star showerheads
iii. 4 star taps (for all taps other than bath outlets and garden taps)
iv. 3 star urinals
v. 3.5 star washing machines
vi. 4 star dishwashers.

(b) Cooling towers must:

i. Connect a conductivity meter to ensure optimum circulation before discharge.
ii. Include a water meter connected to a building energy and water metering system to monitor water usage
iii. Employ alternative water sources for cooling towers where practical.

7.1.2 Rainwater Tanks

Rainwater tanks which are connected for internal use (toilet flushing & washing machine) and external reuse (garden irrigation) are encouraged for all developments.

(a) Rainwater tanks shall comply with the following:

i. Be fitted with a first-flush device that causes initial rainwater run-off to bypass the tank and must drain to a landscaped area. The first flush device will not be permitted to connect to the stormwater system

ii. Have a sign affixed to the tank stating the contents is rainwater

iii. Be constructed or installed in a manner that prevents mosquitoes breeding, such as the use of mesh to protect inlets and overflows

iv. Have its overflow connected to an existing stormwater drainage system that does not discharge to an adjoining property, or cause a nuisance to adjoining owners

v. Pumping equipment must be housed in a soundproof enclosure

vi. Where the rainwater tank is interconnected to a reticulated water supply, it must be installed in accordance with Plumbing Code of Australia, particularly backflow/cross connection prevention requirements.

(b) If OSD is required for residential development, Council may permit the volume of rainwater reuse to be credited against the calculated OSD storage volume as determined by Council's Onsite Stormwater Detention Technical Specification, provided the rainwater tank is connected for internal reuse.

7.2 Onsite Sewage Management

Warringah Council is the regulatory authority for onsite sewage management systems under the *Local Government Act 1993*.

All systems must be installed and operated in order to:

(a) Prevent the spread of disease by micro-organisms

(b) Prevent the spread of foul odours

(c) Prevent contamination of water

(d) Prevent degradation of soil and vegetation

(e) Discourage insects and vermin

(f) Encourage the re-use of resources (including nutrients, organic matter and water)

(g) Minimise any adverse impacts on the amenity of the land on which it is installed or constructed and other land in the vicinity of that land

The owners of the property are responsible for the correct operation and functioning of the onsite wastewater management system. Penalty Infringement Notice and Orders can be issued for systems that do not comply with the approval to operate or cause water pollution.

7.2.1 New Systems

(a) An 'Approval to Install an Onsite Sewage Management System' must be obtained prior to the installation or modification of any system as required by the *Local Government Act 1993*. The applicant must submit all information as detailed in the application form.

(b) All systems must be designed, installed and operated in accordance with:

i. *Local Government Act 1993*
ii. Environment & Health Protection Guidelines for Onsite Sewage Management for Single Households
iii. Interim NSW Guidelines for Management of Private Recycled Water Schemes
iv. AS1547
v. Plumbing Code of Australia
vi. The manufacturer's specifications, and
vii. Any conditions of approval from Council.

(c) Water use fittings must demonstrate compliance with the minimum standards defined by the Water Efficiency Labelling and Standards (WELS) Scheme. Minimum WELS rated fittings include:

i. 4 star dual-flush toilets

ii. 3 star showerheads

iii. 4 star taps (for all taps other than bath outlets and garden taps)

iv. 3 star urinals

v. 3.5 star washing machines

vi. 4 star dishwashers.

(d) A certificate from a licenced plumber may be required by the Principal Certifying Authority prior to the release of the Occupation Certificate.

(e) Should 'Approval to Install' be granted, the applicant must then obtain an 'Approval to Operate an Onsite Sewage Management System', prior to commissioning of the system. At this time, a risk category will be assigned to the approval which will determine the period of approval.

(f) The use of pump-out style systems is not the preferred outcome for sewage management and should be proposed only after other onsite disposal systems have been determined as unsatisfactory.

7.2.2 Existing Systems

(a) All onsite systems must hold a current 'Approval to Operate an Onsite Sewage Management System', as required by the *Local Government Act 1993.*

(b) An Approval to Operate will be assigned a risk category which will determine the period of approval.

(c) All Aerated Wastewater Treatment Systems (AWTS) must be inspected by an appropriately qualified servicing agent every three months or as specified by the systems NSW Health conditions of accreditation. All costs are at the householders expense. A report must be prepared for each inspection with a copy forwarded to Council. Any faults identified at this inspection must be repaired promptly.

(d) For modifications of an existing system an 'Approval to Install an Onsite Sewage Management System' must be obtained in addition to the satisfying the requirements outlined in 7.2.1.

(e) All systems will be subject to inspection by Council on a frequency determined by risk. The inspection will identify any Environmental or Public Health issues and where necessary take action to have these matters rectified.

(f) The destruction, removal or reuse of an onsite sewage management system shall be undertaken in accordance with the NSW Health Advisory Note 3 dated May 2006 "Destruction, Removal or Reuse Of Septic Tanks, Collection Wells, Aerated Wastewater Treatment Systems and other Sewage Management Facility Vessels".

8 Protecting Our Environment

This policy aims to protect and improve the health of Warringah's waterways through the appropriate planning, design and operation of stormwater treatments measures for urban development. The outcomes Council seeks include:

i. The integration of water sensitive urban design measures in new developments to address stormwater and floodplain management issues

ii. Improve the quality of stormwater from urban development

iii. Mimic natural stormwater flows by minimising impervious areas, reusing rainwater and stormwater and providing treatment measures that replicate the natural water cycle

iv. Preserve, restore and enhance riparian corridors as natural systems

8.1 Stormwater Quality

Stormwater treatment measures are required to ensure the development does not impact on the receiving waters. The stormwater quality requirements are generally aligned with the catchment classifications as detailed in the Warringah Creek Management Study.

8.1.1 Stormwater Quality Requirements

To determine which stormwater requirements apply to the site use the table below to identify the land type.

Land Type	Table Which Applies
Undeveloped land[i] within a Group A & B Catchment[ii]	Table 3 – Stormwater Quality Objectives
Land within the riparian buffer of a Coastal Upland Swamp in the Sydney Basin Bioregion Endangered Ecological Community[iii]	
All other land not identified above	Table 4 – General Stormwater Quality Requirements

Notes:

i. Refer to the Definition section at the end of this Policy for definitions for "Undeveloped Land".

ii. Catchment Boundaries & Groupings are identified in the Warringah Creek Management Study

iii. To determine if the development is within the riparian buffer of the above noted Endangered Ecological Community, refer to the following: Section 149 Planning Certificate, Protection of Waterways and Riparian Land Policy, Waterways and Riparian Map and Threatened and High Conservation Habitat Map.

Table 3 – Stormwater Quality Objectives

Criteria	Objectives
Stormwater Quality	Stormwater quality discharging from the development shall not impact the receiving waters. Reference shall be made to local data if available, including the Warringah Creek Management Study and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC), or other widely accepted guidelines.
Sediment	Disturbance to stream and wetland sediments is to be minimised by regulated discharge of stormwater and dissipation of flows at discharge locations. Runoff from the development must be retained at natural discharge rates and sediments controlled at the source.
Hydrology	Stormwater flow is to mimic natural conditions and ensure a dispersed pattern of flow, avoiding centralised or concentrated discharge points into the wetland or waterway. Natural flow regimes must be retained. The reduction or increase in flows, alteration in seasonality of flows, changes to the frequency, duration, magnitude, timing, predictability and variability of flow events, altering surface and subsurface water levels and changing the rate of rise or fall of water levels must be avoided.

Table 4 – General Stormwater Quality Requirements

Pollutant	Performance Requirements
Total Phosphorous	65% reduction in the post development mean annual load[1]
Total Nitrogen	45% reduction in the post development mean annual load[1]
Total Suspended Solids	85% reduction in the post development mean annual load[1]
Gross Pollutants	90% reduction in the post development mean annual load[1] (for pollutants greater than 5mm in diameter)
pH	6.5 - 8.5
Hydrology	The post-development peak discharge must not exceed the pre-development peak discharge for flows up to the 2 year ARI

Note:

[1]The percentage reduction in the post development mean annual loads are relative to the loads from the proposed development without treatment applied.

8.1.2 *Standards of Design*

(a) All stormwater treatment measures must be designed in accordance with the requirements of this Policy and the Water by Design Technical Guidelines, and modified for local conditions as appropriate.

(b) Stormwater treatment measures must be sited on private land. Council will not accept the ownership or maintenance responsibilities of any stormwater treatment devices.

(c) For alterations and additions and the like, the stormwater quality requirements only apply to the new works.

(d) Stormwater treatment measures must not be sited within riparian zones or within remnant vegetation.

(e) Stormwater treatment measures must be kept offline and adequate erosion and sediment controls shall be implemented on site until the site has been fully stabilised. Refer to section 8.3 Erosion, Sediment and Pollution Controls for further details for erosion and sediment controls.

(f) All stormwater treatment measures must be sited in an area which is easily and safely accessible (e.g. road side) and have wet weather access.

(g) Stormwater treatment measures with a permanent water body must be completely fenced to the standard as required by the *Swimming Pools Act 1992* and associated Australian Standards.

(h) A positive covenant and Restriction As to User must be registered on the title for the stormwater treatment measures to ensure regular maintenance and reliable operation.

8.1.3 *Demonstrating Compliance*

(a) To demonstrate compliance with the relevant stormwater performance requirements, a model preferably through the Model for Urban Stormwater Improvement Conceptualisation (MUSIC), or an equivalent, widely accepted model or methodology must be provided.

Should MUSIC be used, modelling shall be undertaken in accordance with Northern Beaches Council WSUD Technical Guide unless alternative modelling parameters are justified on the basis of local studies. Details of the modelling of those elements, parameters and assumptions used, and all data files must be provided to the Certifying Authority as required by the conditions of consent for the development application.

(b) The applicant is to engage the services of a qualified Civil Engineer, who has membership to the Institution of Engineers Australia, National Professional Engineers Register (NPER-3) to ensure the development complies with the relevant stormwater quality requirements outlined above.

8.1.4 *Operation and Maintenance Plan*

An Operation and Maintenance Plan is to be prepared to ensure proposed stormwater quality measures remain effective. For Community Title developments, the Plan is to be included in the Community Management Statement.

The Plan must contain the following:

a) Maintenance schedule of all stormwater quality treatment devices
b) Maintenance requirements for establishment period
c) Routine maintenance requirements
d) Funding arrangements for the maintenance of all stormwater quality treatment devices
e) Identification of maintenance and management responsibilities
f) Vegetation species list associated with each type of vegetated stormwater treatment device
g) Inspection and maintenance record and reporting
h) Waste management and disposal
i) Traffic control (if required)
j) Maintenance and emergency contact information
k) Renewal, decommissioning and replacement timelines and activities of all stormwater quality treatment devices
l) Work Health and Safety requirements
m) Record keeping

8.2 Groundwater Management

(a) The groundwater regime is to be maintained as close as possible to pre-development conditions and shall not adversely impact on receiving waters and groundwater dependant ecosystems.

(b) Developments intercepting the water table are classified as Integrated Development and will require concurrence from the NSW Office of Water under the *Water Management Act 2000.*

(c) Groundwater discharged to the stormwater system shall comply with the discharge requirements detailed in section 8.3 – Erosion, Sediment and Pollution Controls and any relevant legislation.

(d) Records of all water discharges and monitoring results are to be documented and kept on site. Copies of all records shall be provided to the appropriate regulatory authority upon request.

(e) Groundwater must be discharged to the nearest stormwater pit in accordance with Council's Auspec1 Design Manual. Discharge to the kerb and gutter will not be accepted.

(f) Construction techniques, where possible, shall eliminate the need for dewatering i.e. a tanked construction.

(g) Where below-ground structures are in close proximity to each other (typically less than 3 metres) there shall be no allowance provided for natural flow of groundwater through these narrow corridors, unless adequate justification from a suitably qualified engineer is provided.

(h) Provision must be made for groundwater flows in the design of perimeter or through drainage system.

8.3 Erosion, Sediment and Pollution Controls

(a) Erosion and sediment controls are to be designed, constructed and installed in a accordance with Landcom's Managing Urban Stormwater: Soil and Construction Manual (2004) and maintained until the site is fully stabilised to prevent pollution of the receiving environment.

(b) Council will require the submission of the following plans with the development application:

- An **Erosion and Sediment Control Plan** (ESCP) for all development which involves the disturbance of up to 2500m^2 of land.
- A **Soil and Water Management Plan** (SWMP) for all development which involves the disturbance of more than 2500m^2 of land. A SWMP must be prepared by a suitably qualified Civil Engineer, who has membership to the Institution of Engineers Australia, National Professional Engineers Register (NPER-3).

(c) The design storm event for the stability of erosion, sediment and pollution control structures is to be taken as the 10-year ARI time of concentration storm event, unless as specified by Council.

(d) Water to be discharged must be tested and, if required, treated to ensure it meets the water quality criteria and that pollution of the receiving waters does not occur.

Before water can be discharged to the receiving environment, the following criteria must be met, unless subject to an Environmental Protection Licence or site specific criteria.

Parameter	Criterion	Method	Time Prior to Discharge
Oil and grease	No visible	Visual inspection	<1 hour
pH	6.5- 8.5	Probe/meter	<1 hour
Total Suspended Solids	<50mg/L	Meter/grab sample	<1 hour

(e) Records of all water discharges and monitoring results are to be documented and kept on site. Copies of all records shall be provided to the appropriate regulatory authority upon request.

(f) All chemicals and hazardous substances must be stored and handled in accordance with relevant State and Federal requirements. This includes providing mandatory spillage containment areas (i.e. bunding) to prevent chemicals entering the stormwater system and storage above the Flood Planning Level if located on flood prone land.

8.4 Stormwater Discharge to Watercourse or Open Channel

(a) Direct discharge to a watercourse is to be avoided. Other alternatives should be considered as detailed in Council's Stormwater Drainage from Low Level Properties Technical Specification.

(b) The creation of a discharge point within a watercourse is a Controlled Activity under the *Water Management Act 2000* and will require approval from the NSW Office of Water unless exemptions apply (refer to Schedule 5 of the Regulations).

(c) Only a single discharge point to the watercourse or open channel from the development will be permitted.

(a) The outlet structure must comply with Guidelines for Outlet Structures prepared by the NSW Office of Water and Council's Protection of Waterways and Riparian Land Policy for additional requirements.

9 Flood Risk Management

Council is responsible for managing flood risk in the Warringah Local Government Area (LGA). This policy is intended to complement the roles of other Government agencies that provide technical and financial assistance in the development and implementation of flood risk and management plans as well as emergency response.

The following principles will guide Warringah Council in the management of flood risk in accordance with the process outlined in the NSW Government Floodplain Development Manual (2005).

9.1 Onsite Stormwater Detention

Onsite Stormwater Detention (OSD) collects stormwater and stores it temporarily before releasing it slowly into the drainage system in order to minimise the impacts from flooding.

(a) OSD is required for the following developments:

i. single residential dwellings where the total existing and proposed impervious areas exceed 40% of the total site area (OSD will not be required for alterations and additions or where the total site area is 450m^2 or less)

ii. new residential flat buildings/multi-residential unit dwellings

iii. commercial developments

iv. industrial developments

v. subdivisions resulting in the creation of three (3) lots or more

vi. subdivisions resulting in the creation of two (2) lots or more, OSD will be required where the post developed impervious area of the new lots exceed 40% of the site area of the new lots. This requirement also applies to newly created lots with existing dwellings to be retained

vii. Alterations and additions to existing residential flat buildings/multi-residential unit dwellings, commercial developments and industrial developments, OSD is applicable to the extent of the new works only.

(b) Development requiring OSD must comply with Council's Onsite Stormwater Detention Technical Specification.

(c) A positive covenant and Restriction As to User must be registered on the title for the OSD system to ensure regular maintenance and operation.

(d) Council will not permit the use of "Drainage Cell" type products for onsite detention storage as access for maintenance or removal of silt/debris is limited.

(e) Council will allow the volume of rainwater reuse in single residential dwellings to be credited against the calculated OSD storage volume as determined by Council's Onsite Stormwater Detention Technical Specification.

9.2 Identifying Flood Risk

Council will develop and implement a flood program to identify and manage flood risk in the Warringah LGA. Prioritisation of activities within the flood program is based on the potential exposure of an area to flood risk, tying in with strategic priorities, as well as availability and quality of existing studies. Council will identify the extent of inundation and the flood behaviour of lagoons, creeks, estuaries and overland flow paths in Flood Studies.

Flood studies and associated plans will be undertaken in accordance with the NSW Government Floodplain Development Manual 2005 and will be updated as required depending on their current and ongoing suitability for use.

All Flood investigations and management plans undertaken by Council will incorporate appropriate community consultation in accordance with Council's Community Engagement Policy and Framework.

9.2.1 Climate Change

The impact of climate change on flood behaviour will be investigated in all Council flood investigations. Council will consider sea level rise projections and changes in rainfall and storm surge intensity and frequency, in accordance with latest guidelines and best available information for climate change.

9.2.2 Planning Certificates

Council issues Planning Certificates under section 149 of the *Environmental Planning and Assessment Act 1979* which specify such prescribed matters relating to the land as outlined in Schedule 4 of the Regulations, including "Flood related development controls information".

Council has a statutory responsibility to update Planning Certificates as any new or updated flood data becomes available subsequent to the approval from the Council.

The recommendation to Council to update Planning Certificates should be made in the same report as the recommendation to adopt the draft Final Flood Study.

9.2.3 Provision of Data to the Public

a) A Flood Information Report is available from Council (refer Council's fees and charges).

b) Council will provide the 1% AEP, FPL and PMF levels for a specific property where available.

c) Flood level information may be subject to change in the future

d) For large-scale developments, or developments in key flood areas, applicants may be requested to use Council's hydraulic model to assess the impacts. This would be applicable only for a development which is likely to cause a change in the flood regime or requires confirmation that it will create no impact on flooding for neighbouring properties. Hydraulic models are available from Council (refer Council's fees and charges) and recipients will be required to complete the appropriate Data Use Agreement.

9.2.4 Development on Flood Prone Land

All development on land identified as being flood prone or subject to overland flows must comply with the requirements of:

- Section 6.3 - Flood Planning of the Warringah Local Environmental Plan 2011, and
- Section E11 – Flood Prone Land of the Development Control Plan 2011

- Clause 47 of the Warringah Local Environmental Plan 2000.

9.3 Overland Flow

Overland flow differs from mainstream flooding from creeks or lagoons as they are usually generated from surface run off and overflows from kerbs and smaller pipes, to more serious overland flows involving exceedance in the capacity of major trunk drainage systems.

9.3.1 Identifying Overland Flows

To determine if the subject property is affected by overland flow, a Civil Engineer who is currently registered on the National Professional Engineers Register (NPER), should be engaged to investigate and verify whether the subject property is affected by overland flows during a 1 in 100 ARI even. Council's Stormwater Planning Maps may assist identifying Council drainage in the vicinity of the property.

9.3.2 Development on Land Subject to Overland Flows

a) For development on properties subject to overland flow that has not been identified as being flood affected must comply with flood related development controls, in particular the Warringah Local Environment Plan 2011, Warringah Development Control Plan 2011 or Warringah Local Environmental Plan 2000, as appropriate.

b) Overland flow paths designed to contain a 1 in 100 year ARI storm flow are to be provided over all pipelines that are not designed to cater for this flow. The design of the overland flow path must consider the velocity-depth hazard.

c) Overland flow paths are to be kept free of obstruction and must not be landscaped with loose material that could be removed during a storm event, such as wood chip or pine bark.

9.3.3 Subdivisions on Lots Affected by Overland Flow

Proposed land subdivisions of lots affected by overland flow will not be approved unless the applicant can demonstrate that future development can comply with the requirements of the Warringah Local Environment Plan 2011, Development Control Plan 2011 or Warringah Local Environmental Plan 2000, as appropriate.

9.3.4 Piping Overland Flows

Developments proposing the collection and piping of overland flow through the subject property will generally not be permitted. Where an existing Council pipeline is to be diverted and/or upgraded, the design is to be in accordance with section 6 -
Building Over or Adjacent to Council Drainage Systems and Easements.

10 Compliance

Council will apply the Compliance and Enforcement Policy PL 120 for the investigation of alleged unlawful activity, and any enforcement action required in relation to unlawful activity, within the Warringah local government area for which Council is the appropriate regulatory authority.

10.1 Audit of Water Management Requirements

Council may undertake audits of developments to ensure the requirements of this Policy and the development consent are met at all times. For any non-compliances identified, Council will apply the provisions of the Compliance and Enforcement Policy PL 120.

10.2 Complaints Relating to Private Property

Complaints relating to stormwater from private property are only investigated by Council:

a) after the parties has exhausted reasonable attempts to resolve the matter with each other

b) when there is sufficient evidence that the water has caused, or is likely to cause significant soil erosion or physical damage to a building or land.

Council will not take action, when:

a) water flow problems are caused by natural ground seepage

b) water flows naturally onto the property from a higher property (or properties)

c) water flows from a defective or blocked private inter-allotment drainage easement of which the complainant is a part. Private inter-allotment easements are the responsibility of all property owners who are burdened by and/or benefited by the easement

d) water overflows from a swimming pool due to rainfall.

10.3 Removal of Private Trees Threatening Council Stormwater Pipes

a) To protect Council's stormwater pipes from blockage or structural damage by trees on private land, landowners may be required by Council to remove any tree adjacent to the pipes when it is apparent that the tree's root system has, or is likely to, penetrate the pipeline joints. If the owner refuses to do this after reasonable notification from Council, the owner is to bear the cost of any future maintenance work on the pipeline due to tree root damage.

b) Removal of private trees threatening Council stormwater pipes are to be conducted according to the following principles:

- Identification of tree roots within the pipe system, by means of CCTV or visual inspection
- Removal of root obstruction will be conducted only by the following means:
  i. unobtrusive removal of tree root mass with no physical interference to the pipe
  ii. excavation of the tree root mass at pipe location with minimal site disturbance
  iii. full excavation and replacement of pipe section in accordance with Auspec1 Design Manual.

c) Tree removal will be at owner's expense.

11 Amendments

Nil

12 Authorisation

This Policy was adopted by Council on 15 December 2015.

It is effective from 15 December 2015.

It is due for review on 15 December 2019.

13 Who is Responsible for Implementing this Policy?

Group Manager Natural Environment

14 Document Owner

Deputy General Manager Environment

15 Related Policies

a) Compliance & Enforcement Policy PL 120
b) Risk Assessment Framework PL 700
c) Protection of Waterways and Riparian Land Policy PL 740

16 Legislation and References

a) *Conveyancing Act 1919*
b) *Environmental Planning and Assessment Act 1979*
c) *Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004*
d) *Environment Protection and Biodiversity Conservation Act 1999*
e) *Fisheries Management Act 1994*
f) Guidelines for Outlet Structures prepared by the NSW Office of Water.
g) *Local Government Act 1993*
h) *MWH, 2004, Warringah Creek Management Study*
i) *Protection of the Environment Operations Act 1997*
j) *State Environmental Planning Policy 25 Building and Sustainability Index: BASIX 2004*
k) *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*
l) *State Environmental Planning Policy No. 71 - Coastal Protection*
m) *Threatened Species Conservation Act 1995*
n) *Water Management Act 2000*

o) Water by Design Technical Guidelines

p) Warringah Local Environment Plan 2000

q) Warringah Local Environment Plan 2011

r) Warringah Development Control Plan 2011

s) Warringah Council, Waterways and Riparian Map

t) Warringah Council, Protection of *Waterways and Riparian Land Policy*

u) Warringah Council, Building Over or Adjacent to Constructed Council Drainage Systems and Easements Technical Specifications

v) Warringah Council, Stormwater Drainage from Low Level Properties Technical Specification

w) Warringah Council, Onsite Stormwater Detention Technical Specification

x) Warringah Council Compliance and Enforcement Policy PL 120

y) Warringah Council, Water Sensitive Warringah Strategic Plan

z) Warringah Council, Water Sensitive Warringah Technical Paper

17 Definitions

Average Exceedance Probability (AEP) has the same meaning as defined in the Floodplain Development Manual.

Average Recurrence Interval (ARI) means the average or expected value of the period between exceedences of a given rainfall event or discharge.

Catchment means an area of land, bound by hills, mountains and the like from which all runoff water flows to the same low point. A catchment may possess more than one sub-catchment. Catchment Boundaries & Categories are identified in the Warringah Creek Management Study and on Council's Stormwater Planning Maps.

Downstream catchment means the direct sub-catchment a low level property would drain to via gravity.

Development has the same meaning as defined in the *Environmental Planning and Assessment Act 1979.*

Development application has the same meaning as defined in the *Environmental Planning and Assessment Act 1979.*

Drainage has the same meaning as defined in the Plumbing Code of Australia which means any sanitary drainage, liquid trade waste drainage or stormwater drainage system.

Endangered Ecological Communities has the same meaning as defined in the *Threatened Species Conservation Act 1995.*

Exempt and Complying Development means any development undertaken under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Existing development means any development prior to authorisation of this policy.

Flood has the same meaning as defined in the Floodplain Development Manual.

Flood Planning Level (FPL) has the same meaning as defined in the Warringah Local Environmental Plan.

Flood Risk has the same meaning as defined in the Floodplain Development Manual.

Flood Storage has the same meaning as defined in the Floodplain Development Manual.

Habitable Room has the same meaning as defined in the Floodplain Development Manual.

High Hazard has the same meaning as defined in the Floodplain Development Manual.

Impervious area refers to land covered by impervious surfaces such as buildings, paving, asphalt, tiles, and the like, which limits or prevents infiltration of water.

Infrastructure Development means any development undertaken under the State Environmental Planning Policy (Infrastructure) 2007.

Integrated Development has the same meaning as defined in the *Environmental Planning and Assessment Act 1979.*

Inter-allotment drainage easement has the same meaning as an Easement to drain water as referred to in the *Conveyancing Act 1919*. An easement usually identified on the Certificate of Title issued by the NSW Land and Property Information.

Inundation is the experience of getting wet by any source of water including but not limited to fluvial, tidal, oceanic, overland flows, stormwater.

Low Level Properties means a property that has the ground level which is lower than the roadway fronting the property.

New development means any development being designed or constructed after the authorisation of this Policy.

Onsite stormwater detention system means is a stormwater drainage device to control the amount of stormwater discharge to a specified rate. The device is to be constructed on the subject property. Refer to Council's Onsite Stormwater Detention Technical Specification and Onsite Stormwater Detention (OSD) checklist for more information.

Onsite Wastewater Management System has the same meaning as Sewage Management Facility as defined in the *Local Government (General) Regulation 2005.*

Overland Flow means inundation by excess rainfall runoff, flowing across land before it enters a principal watercourse. Includes sloping areas where overland flows develop along alternative paths once system capacity is exceeded.

Pollution has the same meaning as defined in the *Protection of the Environment Operations Act 1997.*

Probable Maximum Flood (PMF) has the same meaning as defined in the Floodplain Development Manual.

Receiving waters means a waterway/s into which water discharges from a development.

Remnant vegetation has the same meaning as defined in the Warringah Development Control Plan 2011.

Residential flat development has the same meaning as defined in the *State Environmental Planning Policy No 65 - Design Quality of Residential Flat Development*.

Riparian land has the same meaning as defined in Council's Protection of the Waterways and Riparian Land Policy.

Riparian zone has the same meaning as defined in Council's Protection of the Waterways and Riparian Land Policy.

Sewage has the same meaning as defined in the *Local Government (General) Regulation 2005.*

Single Lot Residential Development has the same meaning as "dwelling house" as defined in the Warringah Local Environmental Plan 2011.

Site Area has the same meaning as the Warringah Local Environmental Plan 2011

Stormwater is rain water that flows over the surface of the land as run-off, rather than seeping into the soil.

Undeveloped land means land:-

a) that has not been subject to prior development, or
b) is in a state of nature, or
c) with an impervious area of less than 10%.

Vulnerable Development has the same meaning as defined in the Warringah Development Control Plan 2011.

Watercourse has the same meaning as defined in Council's Protection of the Waterways and Riparian Land Policy.

Waterway has the same meaning as defined in Council's Protection of the Waterways and Riparian Land Policy.

Wastewater has the same meaning as Sewage as defined in the *Local Government Act 1993.*