PART E: WATER

CONTENTS

SECTION 1 – SUSTAINABLE WATER AND RISK MANAGEMENT

Objectives

Inner West is characteristic of an urbanised landscape with roads, buildings and footpaths creating significant surface area which is impervious to water. In this context, Council promotes water sensitive urban design as a means of minimising the impacts on the water cycle and resultant economic, environmental and social consequences.

O1 To ensure that development is carefully designed, constructed and maintained to minimise impacts on the water cycle and counteract the impacts of urban development by utilising measures in the design and operation of development that:

a. protect and restore aquatic and riparian ecosystems and habitats;

b. maintain and restore natural water balance;

c. reduce and manage the social, environmental and economic risks and impacts associated with major flood or tidal inundation events;

d. reduce erosion of waterways, slopes and stream banks;

e. improve water quality in streams and groundwater;

f. make more efficient use of water;

g. reduce the cost of providing and maintaining water infrastructure; and

h. contribute to reduction in the heat island effect by promoting growth of trees and vegetation.

i. minimise erosion of land from stormwater, minimise impacts to surrounding properties and ensure effective drainage of stormwater both via topography, natural resources and piped systems.

O2 To ensure that water management is considered at the site analysis stage of any development with consideration given to site characteristics such as soil type, slope, groundwater conditions, rainfall, the position within the catchment and the floodplain, and the scale and density of development. Planning and design of development is to incorporate site specific water sensitive urban design responses which may include such measures as:

a. use of roof water in place of mains supply for non-potable uses, especially for toilet flushing, laundry use and irrigation;

b. reuse of surface runoff for irrigation purposes;

c. use of greywater treatment systems to supplement water supply;

d. infiltration of stormwater to underground aquifers;

e. landscaping designed for cleansing runoff and conserving water;

f. protection of native vegetation to minimise site disturbance and conserve habitat; and

g. protection of stream corridors for their environmental, recreational and cultural values.

Note: The NSW Officer of Water Aquifer Interference Policy (AIP) applies to aquifers, and all of the considerations in the AIP would need to be incorporated in any such proposal.

O3 To maximise retention and absorption of surface drainage water on site.

O4 To minimise obstruction to the surface and underground flow of water.

O5 To avoid, minimise and mitigate adverse impacts:

O6 on any existing drainage pattern, waterway or drinking water catchment;

O7 of stormwater runoff on public and private property, the stability of watercourses and river banks, native bushland and receiving waters.

O8 To implement risk management measures in relation to flooding which:

a. minimise the adverse consequences of floods on the community and environment including potential danger to personal safety and damage to property, whilst taking into account the potential effects of climate change and sea level rise;

b. implement risk management measures in relation to tidal inundation and wave impact from Parramatta River and Sydney Harbour which minimise the adverse consequences on the community and environment including potential danger to personal safety and damage to property, taking into account the potential effects of climate change and sea level rise.

E1.1 APPROVALS PROCESS AND REPORTS REQUIRED WITH DEVELOPMENT APPLICATIONS

Council may require the submission of reports to accompany a development application. Some applications may require multiple reports to be submitted. The requirements of these reports are indicated in each section below.

E1.1.1 Water Management Statement

A Water Management Statement is to be included with all development applications where building works or subdivision is proposed.

The Water Management Statement should summarise how proposed water management measures comply with the water management controls contained in this Development Control Plan and how they are to be integrated into the development, including the following:

a. water conservation measures;

b. stormwater management and treatment;

c. stormwater disposal method;

d. any additional wastewater measures, if proposed;

e. on site stormwater detention facilities design, if applicable; and

f. flood or foreshore risk management, if applicable.

In a development affected by the NSW Building Sustainably Index (BASIX), the BASIX certificate is the appropriate response for the residential component of such development.

E1.1.2 Integrated Water Cycle Plan

The Integrated Water Cycle Plan is a design, management and implementation plan for large scale developments.

An Integrated Water Cycle Plan is required for all applications which are for:

a. 15 or more dwellings or residential lots; or

b. the provision of accommodation for 50 or more residents, occupants or employees; or

c. the creation of 2,500sqm or greater of impermeable surface; or

d. the subdivision of 2,500sqm or greater of land for commercial or industrial purposes; or

e. proposals which are expected to generate a water demand of 5,000 litres per day or more.

Where an Integrated Water Cycle Plan is required for BASIX affected development then, specifically regarding water conservation measures, the BASIX certificate is acknowledged as the appropriate response for the residential component of such development proposals and the Integrated Water Cycle Plan should respond to remaining aspects of water management, including water conservation measures for non-residential components of a proposal, if applicable.

Appendix E – Part 1: Integrated Water Cycle Plan of this Development Control Plan provides further information.

E1.1.3 Stormwater Drainage Concept Plan

A Stormwater Drainage Concept Plan is required for all applications that include alterations or additions to existing roof areas, new roof areas, or as required elsewhere in this Development Control Plan.

The purpose of a Stormwater Drainage Concept Plan is to demonstrate how stormwater will be managed on the site, how it will be collected, conveyed and disposed of from the site and any stormwater management measures that are required by this Development Control Plan. A Stormwater Drainage Concept Plan is not intended for use as a construction plan. Further details of design and specification may be required for the issue of a Construction Certificate.

E1.1.4 Flood Risk Management Report

A Flood Risk Management Report is required for applications that are identified as flood control lots on the maps in Appendix E – Part 4: Flood Control Lot Maps.

The Report must be informed by a Flood Certificate issued for the subject property, to be obtained by application to Council. The Certificate provides relevant flood information for the subject site and surrounds, including the 1% AEP Average Recurrence Interval flood level, Flood Planning Level, Probable Maximum Flood (PMF) level and the Flood Hazard Category.

The report is not required where the assessed value of the works is under $50,000 except where, in the opinion of Council, those works are likely to substantially increase the risk of flood to the subject or adjoining or nearby sites.

The Report may be limited to a short report (Flood Risk Management Statement) for single residential dwellings, alterations and additions or change of use developments where the property is confirmed by the Flood Certificate as being subject only to low hazard flooding.

Some applications for sites identified as a flood control lot will require both a Flood Risk Management Report and a Foreshore Risk Management Report (see below).

Appendix E – Part 2: Flood Risk Management Report provides further information on how to prepare a Flood Risk Management Report or Statement.

E1.1.5 Foreshore Risk Management Report

A Foreshore Risk Management Report is required for sites identified as foreshore flood control lots on the maps in Appendix E – Part 5: Foreshore Flood control lot Maps.

This report is not required where:

a. the value of works is under $50,000; or

b. there are no new works proposed below RL 3.5m Australian Height Datum (AHD); or

c. there are no existing habitable structures or buildings below RL 3.5m AHD; or

d. any proposed jetties, bridging ramps or pontoons are located on the seaward side of the foreshore edge.

Unless Council considers that the works are likely to substantially increase the risk of flooding to the subject or adjoining or nearby sites.

The Foreshore Risk Management Report must establish the Foreshore Planning Level and an on-site response and evacuation plan. Some applications for sites identified as flood control lots will require both a Flood Risk Management report and a Foreshore Risk Management Report (see above).

An application for a Flood certificate can be made to Council to obtain information on flooding of the subject site and surrounds. The information within the Flood certificate can be utilised to inform the preparation of the Flood Risk Management Report.

Appendix E – Part 3: Foreshore Risk Management Report provides further information.

E1.2 WATER MANAGEMENT

E1.2.1 Water Conservation

There is a need to use water more efficiently due to the limitations on potable water supply systems and the increasing urban population.

Objective

O1 To design development to improve water conservation and increase on-site storage of rainwater for reuse.

Controls

C1 These controls are complementary to BASIX. For all applications where BASIX is not applicable the following water efficiency design elements must be included and indicated on submitted plans:

a. new or altered showerheads are to have a flow rate of no greater than 9 litres per minute or a 3 star or better water rating;

b. new or altered toilets are to have a flow rate no greater than 4 litres per average flush or a 3 star or better water rating; and

c. new or altered taps must have a flow rate no greater than 9 litres per minute or a 3 star or better water rating.

C2 Site landscaping should be designed with water efficient gardens. Planting schedules indicating suitable indigenous and low water use species from the relevant local native vegetation community should be provided. These should be chosen from the following list: https://www.basix.nsw.gov.au/basixcms/basix-help-notes/water/landscape-2/plantspecies.html

C3 Where on site retention facilities for rainwater reuse and/ or stormwater reuse are proposed to service all toilets, laundries and outdoor usage, on site detention storage volume (where required) may be reduced. Calculations to justify this reduction must be provided to Council and demonstrate that the equivalent reduction in post development flows are achieved.

E1.2.2 Managing Stormwater within the Site

Council seeks to minimise the effect of new buildings and structures and alterations to the existing topography on the natural flow of stormwater runoff by integrating the general site layout with the design of the stormwater drainage system.

Typical considerations should include:

a. minimising disturbance to the natural surface landform;

b. allowing a gap between buildings or structures and the boundary to allow excess surface flows to pass through the site, consistent with the topography of the land (i.e. downhill);

c. using lightweight or paling fences to allow excess surface flows to pass through; and

d. providing a step up to the building entrances from external finished ground levels.

Objective

O1 To integrate site layout and the drainage system to avoid nuisance flows and flooding within the development and onto neighbouring properties.

Controls

C1 Site layout must be designed to minimise disruption or disturbance of land surfaces or natural drainage patterns. Where natural surface flows from uphill lands, have the potential to flow through the property, notwithstanding the presence of fences, walls and minor structures, they must not be blocked or redirected as a consequence of the proposal.

C2 Buildings are to be setback where overland flow paths are needed in that location due to site constraints to convey flows across the surface.

C3 Solid or masonry boundary fences should not be erected where they will divert stormwater runoff to another property. Boundary fences should be of lightweight or partially open construction in these circumstances.

C4 The site drainage system must be designed to collect and convey flows by gravity and include a pipe system for frequent rainfall events combined with an overland flow path to convey larger flows that are generated during storms.

C5 Where an overland flow path cannot be provided due to the position of existing buildings and structures that are to be retained, the capacity of the pipe system must be designed to capture and convey the 100 year Average Recurrence Interval storm event flow from the contributing catchment assuming 80% blockage of the inlet and 50% blockage of the pipe.

C6 Where the development would cause the existing and/ or natural drainage patterns in the vicinity of the site to be blocked or diverted or otherwise concentrate flows onto another property, an inter allotment drainage system must be constructed to collect and convey those flows, and an associated drainage easement created.

C7 Adequate provision must be provided to minimise the potential for surface waters entering buildings which may cause damage to property. This should include a minimum of 150mm step between the external finished surface level and the finished floor level. A larger step may be required where the surface waters from multiple uphill properties have the potential to enter the site.

E1.2.3 On-Site Detention of Stormwater

Urban development increases the area of impermeable surfaces and causes significant alterations to the hydrological cycle. As older buildings are redeveloped, and drainage systems are replaced, they have the potential to increase the rate of discharge from those sites. These effects can cause the peak flow rates to be increased along the downstream drainage systems and place additional burden on the aging stormwater infrastructure, which has often been installed many years ago to a standard applicable at the time.

This increases the likelihood of flooding to downhill properties, and needs to be mitigated by providing detention storage on the development site which temporarily stores stormwater before slowly releasing it into the public drainage system.

Objective

O1 To reduce the peak stormwater flows into the public drainage system and reduce the probability of downstream flooding.

Controls

C1 On-site detention facilities are required except where:

a. the site drains directly into Parramatta River or Sydney Harbour; or

b. the proposal is for minor works to a single dwelling, commercial or industrial building and where the impervious area is not increased by more than 40 square metres; or

c. subdivision of existing or currently approved dwellings.

C2 The on-site detention facilities design should be designed by an appropriately qualified civil engineer and be supported by calculations demonstrating that the post development flows for the 100 year Average Recurrence Interval (ARI) storm event are restricted to the pre development flows for the 5 year ARI storm event. Additional on-site detention storage may be required where the site does not drain naturally to any street frontage in accordance with controls in Section E1.2.5 C3.

C3 On-site-Retention (OSR) may be used in lieu of OSD in accordance with the following criteria:

a. For attached dwellings, dwelling houses, secondary dwellings and semi-detached dwellings, the OSR storage shall be sized as follows:-

LOT SIZE - sqm	Minimum OSR TANK SIZE per PROPOSED LOT (Strata or Torrens) - Litres
Greater 200	5,000
Less 200, greater 100	4,000
Less 100	3,000

b. For other developments excluded by the above, OSR may be used to offset the calculated OSD storage volume at a rate of 1m3, for every 2.5m3 of OSR storage provided (up to a maximum OSD offset of 10m3).

c. The OSR must supply water to all new and/or upgraded toilet cisterns, laundry washing machine connections, external taps, and irrigation systems. The standard labelling shall be displayed at such outlets.

E1.2.4 Stormwater Treatment

Increased runoff during rainfall events flushes pollutants such as litter, sediment, suspended solids, nutrients, oil, grease and toxicants into the stormwater system which may reach other waterways.

Objective

O1 To minimise the transport of pollutants into the harbour and other waterways.

Controls

C1 For all development applications for building works, other than single dwellings, a water quality filtration basket or similar primary treatment device must be installed on the site stormwater drainage system.

C2 For major or significant development, water quality treatment techniques such as gross pollutant traps, sediment traps, filter strips, grass swales, porous pavers, infiltration trenches, rain garden and sand filters should be provided where appropriate.

C3 For applications for open car parks with 9 or more spaces (including loading bays), an additional device to remove oil and grease from the driveway and stormwater runoff must be installed.

C4 Car wash bays must be provided for applications for multi unit residential development. For developments with more than 3 but less than 16 dwellings, the car wash bay may be provided separately or in one of the visitor car spaces. For developments with 16 or more dwellings, a dedicated car wash bay must be provided at a rate of 1 bay per 60 dwellings or part thereof.

C5 For applications that require an Integrated Water Cycle Plan, water quality treatment measures must be installed that meet the following environmental targets for stormwater runoff leaving the site:

Pollutant	Baseline Annual Pollution Load (kg/ha/yr)	Retention Criteria
Gross pollutants, including trash, litter and vegetation matter greater than 5mm	500	90% reduction of average annual load
Total suspended solids, including sediment and other fine material less than 5mm	900	85% retention of average annual load
Total Phosphorous	2	65% retention of average annual load
Total Nitrogen	15	45% retention of average annual load
Hydrocarbons (Oils and Greases)		90% reduction of annual load – no visible discharge
Toxicants		100% containment of toxicants

(Source: Catchment Management Authority Sydney Metropolitan: Draft Managing Urban Stormwater: Environmental Targets October 2007)

The design of the stormwater treatment system must be incorporated into the Integrated Water Cycle Plan.

E1.2.5 Water Disposal

The public stormwater drainage system is made up of minor and major drainage infrastructure. This infrastructure is both piped and un-piped with different components owned and managed by either Council or Sydney Water.

Stormwater infrastructure

- Council minor drainage systems include kerb and gutter, dish gutters, surface drains and small pipes to take water through road intersections.
- Council and Sydney Water trunk drainage systems include pits, pipelines, culverts, open channels and associated overland flow paths located within public land or passing through private property.
- Sydney Water major drainage systems include Whites Creek, Johnstons Creek and Hawthorne Canal.

All properties should be connected to the public drainage system, unless stormwater can be discharged directly to Parramatta River or Sydney Harbour. The scale and nature of the development will determine whether the site discharge should be connected to the minor or piped/trunk drainage system.

The discharge should always be in the same direction and within the same catchment as the site naturally drains. The discharge of subsurface waters from basement structures to the public drainage system should be avoided as it can cause nuisance or public health risks. Where possible subsurface water should be retained on site or otherwise be connected to the piped trunk drainage system.

Objective

O1 To maintain existing natural drainage patterns and avoid nuisance and flooding to the drainage system and downstream properties.

Controls

C1 Where the site drains naturally towards any street frontage, stormwater runoff from all roof and impermeable areas must be drained by gravity to the public drainage system of that street frontage.

C2 Where the site naturally drains away from all street frontages and cannot discharge stormwater directly to Parramatta River or Sydney Harbour, stormwater runoff should be drained to a piped trunk drainage system, if it passes through the site, or an existing registered drainage easement benefiting the site.

Where neither of these options is available but the roof areas of the development may be drained to the street:

a. for minor developments that result in additional roof area of less than 20sqm of roof area (including a garage or carport), the existing site drainage system may be utilised;

b. for minor developments that result in the addition or alteration of more than 20sqm but less than 40sqm of roof area, as much roof and surface areas as practicable should be drained by gravity to the street frontage above;

c. for development to a single dwelling that results in the addition or alteration of more than 40sqm of roof areas, the entire roof areas of the existing dwelling should be drained by gravity to the street frontage above; and

d. for new single dwellings, at least 80% of all paved/impermeable surfaces should be drained by gravity to the street frontage above.

The drainage of any roof and surface areas that cannot drain to the street must be designed to cause no concentration of flows or nuisance to downstream properties.

C3 Where the controls in E1.2.5 C2 cannot be met, a drainage easement over a downstream property to the street below should be sought. Council will not consider alternative solutions unless detailed evidence of the efforts to obtain an easement is provided and the development is for a single dwelling or minor works to a residential, commercial or industrial building.

C4 Connection to the public stormwater drainage system should be undertaken as follows:

a. Where the development is for up to two dwellings or minor works to residential, commercial or industrial buildings, new connections should be made to the kerb and gutter of the street frontage.

The peak discharge to the kerb and gutter is 15 Litres/second for the 100 year Average Recurrence Interval storm event. Where the site discharge exceeds 15 Litres/ second, the outlet pipeline must be connected directly to the public piped drainage system. Alternatively, for developments that require on site detention facilities, the storage volume may be increased such that the peak discharge is limited to 15 Litres/ second;

b. For all other developments, the site must be drained to the downhill extent of the site, generally in the direction that the site naturally drains. The outlet pipeline must be connected directly to the public piped drainage system. Where the piped drainage system is not available at the street frontage, the existing public system must be extended to the frontage of the site as specified by Council.

Council will only consider permitting the site to be drained contrary to the direction that the site naturally drains where it is demonstrated that there is no adverse impacts on the receiving drainage system. At a minimum, additional on-site detention and on site retention storage must be provided to ensure that peak flow rates and flow volumes are not increased in the receiving drainage system.

C5 Basements must be of fully tanked construction such that pump-out systems are not required to drain the subsurface drainage system. Consideration will only be given to the provision of a pump-out system where it can be demonstrated by detailed geotechnical investigation that groundwater flows are minimal or intermittent.

C6 For basements other than for car parking purposes this will only be considered where it is demonstrated that they will not be subject to the ingress and surface stormwater, and where the sump and pump facilities can be housed and accessed for maintenance from an area external to the building above. Floor areas partly below the natural ground surface level will only be considered where it is demonstrated that they will not be subject to the ingress of surface stormwater, and where an overland flowpath can be provided from all adjacent external finished surfaces.

C7 For basements associated with car parking facilities, a pump out system is permitted for minor surface areas that drain to the basement. All other forms of access to the basement must be protected from the weather so that the entry of stormwater runoff to the basement is minimised.

E1.2.6 Building in the Vicinity of a Public Drainage System

The public stormwater drainage system often passes through private property. This system will be owned by Council or Sydney Water and will generally be carrying out dual functions. Water from more common rainfall events is carried by the pipelines below the ground, while the water generated during larger storm events is carried across the surface.

New development in close proximity to these drainage systems must not compromise the functionality of or limit the capacity of the responsible authority to manage the system.

Approval is required from Sydney Water for construction in the vicinity of their piped drainage system and Council must consider the wider implications such as the flood risk.

Objective

O1 To ensure that development in close proximity to the public drainage system does not compromise the functionality of the system and provides adequate access for its future management.

Controls

C1 The construction of permanent structures or placing of fill over Council's piped drainage system is not permitted. Permanent structures include buildings, eaves, balconies, garages, impervious fences, swimming pools and retaining walls.

C2 Where the drainage system is within a drainage easement, these above restrictions extend over the width of the easement. Where the drainage system is not within an easement, the above restrictions are extended by 1500mm to both sides of the centreline of the drainage structure. These restrictions may be extended further due to considerations associated with flood risk management.

C3 Council may permit open structures where it can be demonstrated that they will not increase the risk of flooding to the subject or adjoining properties or Council property. These structures must not prevent or hamper future access to the drainage system for works and maintenance. Examples of open structures include carports or open parking spaces.

C4 The construction of structures over or adjacent to the Sydney water piped stormwater drainage system must be approved by Sydney Water. This Development Control Plan may impose additional conditions to those imposed by Sydney Water.

E1.2.7 Wastewater Management

In addition to the installation of water saving devices and rainwater tanks, water may be conserved by treating wastewater on the site and, where appropriate, reusing it.

Objective

O1 To encourage recycling of the water resources in a safe and sustainable manner.

Controls

C1 All developments must be connected to the centralised sewerage waste disposal system operated by Sydney Water.

C2 On site wastewater treatment must be designed and installed to meet all relevant statutory requirements and any relevant Australian Standards.

E1.3 HAZARD MANAGEMENT

E1.3.1 Flood Risk Management

Much of the Council and Sydney Water owned stormwater drainage systems were designed at a time which preceded the current level of development and have not been upgraded or updated to a corresponding level.

The piped component of the system is designed to carry the runoff from frequent rainfall events. During larger storm events stormwater will flow across the surface following the natural valleys and depressions.

With the increased stormwater runoff that follows development and the greater number and concentration of buildings and dwellings along the creeks and natural depressions, there has been a gradual rise in flooding risk in the area. Careful design is required to ensure that property's current and future landowners, occupiers and the community are not exposed to flooding due to the redirection or removal of flow paths.

Objective

O1 To manage development of flood control lots and flood prone land to reduce the risks and costs associated with flooding**.**

Controls

C1 Applications submitted for a flood control lot must be accompanied by a Flood Risk Management Report supported by a flood study prepared by a relevantly qualified civil engineer. The report must establish the Hazard Category of the site.

Single Dwelling Residential or Dual Occupancy Development

C2 All floor levels including any existing components to be retained, are to be at or above or raised to the Flood Planning Level with the following exceptions:

for alterations and additions to a residential dwelling, some or all of the existing floor levels may be retained below the Flood Planning Level provided that each of the following is complied with:

a. the floor levels of the additions and any altered floor areas must be at or above or raised to the Flood Planning Level;

b. where the alterations and additions affect less than 60% of the total existing habitable ground floor areas, those existing areas that are not to be significantly altered may be retained below the Flood Planning Level;

c. where the alterations and additions affect greater than 60% of the total existing habitable ground floor areas, but raising some or all of the existing floor levels is impracticable due to Heritage or Conservation Area constraints, only those areas so constrained may be retained below the Flood Planning Level;

d. the additions must be designed and constructed such that they do not preclude the raising of the existing floor areas to the Flood Planning Level at a future date;

e. for any addition above ground floor, the floor level of the addition must be at a height that allows for the ground floor below to be raised in the future (if not required to be raised under the above controls) to the Flood Planning Level, whilst maintaining minimum floor to ceiling height requirements;

f. parts (d) and (e) are subject to compliance with other relevant requirements in the Development Control Plan residential controls; and

g. any floor areas of the existing dwelling that are to be retained at the existing level, or below the Flood Planning Level, must be satisfactorily flood proofed (either wet or dry) to the Flood Planning Level.

h. Council will consider a reduction in the freeboard from 500mm to 300mm the property is only affected by areas of minor overland flow(a depth of 300mm or less, or overland flow of 2 cum/sec or less) subject to an adequate alternate flow path being available.

Multi Unit Residential Development for 3 or more Dwellings

C3 All floor levels are to be at or above the Flood Planning Level.

Commercial, Industrial and Mixed Use Development

C4 All floor levels, including any existing components to be retained, are to be at or above the Flood Planning Level or raised to the Flood Planning Level.

Where constructing the floor level or raising the floor level of existing development to the Flood Planning Level may be impracticable, due to site and access constraints, consideration may be given to some or all of the non-residential floor levels having a freeboard of less than 500mm above the 100 year ARI flood level provided that satisfactory flood proofing (either wet or dry) is achievable to the Flood Planning Level. All entrances and evacuation routes servicing any residential components must be above the Flood Planning Level.

Subdivision

C5 Permitted only where it can be demonstrated that as a result of the development or future anticipated development on the proposed lots, that there are adequate building platforms or developable areas such as car parking facilities that can be provided above the Flood Planning Level.

For the subdivision of an existing building or one with a current development consent, the flood risk management options must be implemented where practicable. This is to include, at a minimum, suitable evacuation and emergency response measures.

Special uses (emergency services, accommodation or treatment of children, the aged, disabled or vulnerable)

C6 All floor levels are to be at or above the Probable Maximum Flood Level or Flood Planning Level, whichever is the highest.

Other Developments

C7 The above controls for Commercial, Industrial and Mixed Use Development apply to all other development.

Land with a High Hazard Category

C8 If a development is identified in the Flood Risk Management Report as being in a High Hazard Category, the development must demonstrate that:

a. there is no net loss in flood storage and floodway area as a result of the development;

b. the development will not increase velocity, volume or direction of flood waters;

c. for subdivisions, that there are adequate building platforms or developable areas including car park facilities and access which are not affected by the High Hazard Category;

d. the underside of all new floors are above the Probable Maximum Flood Level or Flood Planning Level, whichever is the highest, and all structures designed to withstand the High Hazard condition;

e. the principle entries to all dwellings and common areas are located above the Probable Maximum Flood Level or Flood Planning Level, whichever is the highest, and an evacuation route is provided clear of the floodway;

f. Basement (below natural ground level) car parking is only permitted where all access and potential water entry points are above the Probable Maximum Flood Level or Flood Planning Level, whichever is the higher, and a clearly signposted flood free pedestrian evacuation route is provided from the basement area separate to the vehicular access ramps; and

g. parts (d) and (e) are subject to compliance with other relevant requirements in the Development Control Plan residential controls.

Car parking Facilities and Basements

C9 The floor level of new enclosed garages must be at or above the 1% AEP flood level plus 200mm. In extenuating circumstances, consideration may be given to a floor level at a lower level, being the highest practical level but no lower than 180mm below the 1% AEP flood level, where it can be demonstrated that providing the floor level at the Flood Planning Level is not practical within the constraints of compliance with Australian Standard AS/NZS 2890.1 Parking facilities as amended.

The floor levels of open car park areas and carports must meet the same criteria as above for garages. In extreme circumstances, for single dwelling residential development, a floor level below the 1% AEP minus 180mm may be accepted for a single car space, subject to bollards being provided along the 'free' perimeter (excluding the vehicle entry on one side only) at 1.2m intervals and the floor level being raised as high as practical within the constraints of compliance with Australian Standard AS/NZS 2890.1 Parking facilities as amended.

On properties with a low flood hazard classification, basement (below natural ground level) car parking must have all access and potential water entry points above the Flood Planning Level and provide a clearly signposted flood free pedestrian evacuation route from the basement area separate to the vehicular access ramps. Refer to C8(f) for basement car parking in properties affected by High Hazard flooding.

Flood Mitigation and Modification Works

C10 Those works that modify the stormwater drainage system or flood behaviour within the development site are permitted subject to the following:

a. they do not have an adverse impact on any surrounding property;

b. a Section 88B notation is to be placed on the title of the land that informs future landowners that flood protection measures, and the associated locations, have been undertaken on the property and/or the dwelling and of the need to retain and maintain these structures and works for future flood mitigation; and

c. where it is demonstrated that flood mitigation works result in the safe diversion of the floodwater away from the proposed development, the floor level may be located below the Flood Planning Level.

E1.3.2 Foreshore Risk Management

Properties along the foreshore land bordering Parramatta River and Sydney Harbour can be affected by inundation and wave impact during storm events. Future global sea level rises will see an increase in this effect.

Floor levels of development along the foreshore need to be constructed high enough to minimise the potential for inundation in the long term and designed to withstand the impact of waves during storm events.

Objective

O1 To manage development along the Parramatta River and Sydney Harbour foreshores to reduce the long term risks associated with tidal inundation and wave impact.

Controls

C1 Applications for a flood control lot on the foreshore must be accompanied by a Foreshore Risk Management Report supported by a flood study prepared by an appropriately qualified civil engineer.

New residential development and alterations and additions to residential development

C2 All floor levels including any existing components of the development (excluding open balconies) must be at or above or raised to the Foreshore Planning Level. However, existing floor levels may be retained below the Foreshore Planning Level for alterations and additions to existing residential dwellings, provided that each of the following controls are complied with:

a. the floor levels of the additions and any altered floor areas must be at or above or raised to the Foreshore Planning Level;

b. where alterations and additions affect less than 60% of the total existing floor areas, those existing areas that are not to be significantly altered may be retained below the Foreshore Planning Level;

c. where the alterations and additions affect greater than 60% of the total existing ground floor areas and raising some or all of the existing floor levels is impracticable due to Heritage or Conservation Area constraints, only those areas so constrained may be retained at the existing level;

d. the additions must be designed and constructed such that they do not preclude the raising of the existing floor areas to the Foreshore Planning Level at a future date or when further additions are proposed;

e. for any addition above ground floor, the floor level of the addition must be at a height that allows for the ground floor below to be raised in the future (if not required to be raised under the above control) to the Foreshore Planning Level, whilst maintaining minimum floor to ceiling height requirements;

f. parts (d) and (e) are subject to compliance with other relevant requirements in the Development Control Plan residential controls; and

g. any floor areas of the existing dwelling to be retained at the existing level, below the Foreshore Planning Level, must be satisfactorily flood proofed (either wet or dry) to the Foreshore Planning Level.

All other development types

C3 Where constructing the floor level, or raising the floor level of existing development to the Foreshore Planning Level is difficult to achieve due to site and access constraints, consideration may be given to some or all of the floor levels being up to 300mm lower than the Foreshore Planning Level provided that satisfactory flood proofing (either wet or dry) is achievable to the Foreshore Planning Level.

Subdivision

C4 Subdivision of foreshore land will only be supported where it can be demonstrated that adequate building platforms or developable areas, including car parking facilities and access, can be provided above the Foreshore Planning Level.

Car parking Facilities / Basements

C5 The floor level of new enclosed garages must be at or above the Foreshore Planning Level. The floor levels of open car park areas and carports are permissible as low as 300mm below the Foreshore Planning Level, subject to them having been raised as high as practical within the constraints of compliance with Australian Standard AS/NZS 2890.1 Parking Facilities as amended.

Basements (below natural ground level) for car parking or other purposes, must have all access and potential water entry points above the Foreshore Planning Level and a clearly signposted pedestrian evacuation route from the basement area separate to any vehicular access ramps.

General Requirements

C6 Mitigation works that modify the wave action or tidal inundation behaviour within the development site, including the filling of land, the construction of retaining structures and the construction of wave protection walls, may be permitted on a merit basis subject to demonstrating that there is not adverse impact on the subject property or surrounding land.

A Section 88B notation under the *Conveyancing Act 1919* may be required to be placed on the title of the land describing the location and type of mitigation works with a requirement for their retention and maintenance.