Attachment 2
Water Management – proposed Development Control Plan and Policy amendments - how they are being addressed

LGA	Control	Instruction	New control/text	Impact
Manly DCP	3.5.8 Water Sensitive Urban Design	DELETE	Incorporated into the Water Management for Development Policy	All elements of the control has been incorporated into the new policy (some elements have been updated for current practice).
Manly DCP	3.7 Stormwater Management	KEEP with amendment	See AMENDMENTS below.	This control will direct developers to the new policy.
Pittwater DCP	B4.8 Freshwater Wetland Endangered Ecological Communities	KEEP with amendment	Replace "Development shall not significantly affect the hydrology, hydraulic or water quality entering Sydney Freshwater Wetlands Endangered Ecological Community." *with* "Compliance with Council's Water Management for Development Policy is required."	B4 Controls Existing controls are very repetitive. Changes keep all stormwater - related responses under one control, making it easier for developers to find and respond to them. Reduces risk of stormwater controls being 'missed' by applicants.
Pittwater DCP	B4.11 Land adjoining bushland	KEEP with amendment	Replace "Development shall dispose of stormwater, wastewater and other drainage in a manner that will not adversely impact on the adjoining bushland." *with* "Compliance with Council's Water Management for Development Policy is required."	
Pittwater DCP	B4.13 Freshwater Wetlands (non Endangered Ecological Communities)	KEEP with amendment	Replace "Development shall dispose of stormwater, wastewater and other drainage in a manner that will not adversely impact on wetlands. Development must minimise changes to the following: local surface runoff, groundwater flows and water flow regimes to the wetland; temperature, salinity, chemical makeup and sediment loads; environmental flows; and patterns of inflow. Stormwater is to mimic natural conditions." *with*	

LGA	Control	Instruction	New control/text	Impact
			"Compliance with Council's Water Management for Development Policy is required."	
Pittwater DCP	B4.14 Development in the Vicinity of Wetlands	KEEP with amendment	Replace "Development shall dispose of stormwater, wastewater and other drainage in a manner that will not adversely impact on wetlands. Development must minimise changes to the following: local surface runoff, groundwater flows and water flow regimes to the wetland; temperature, salinity, chemical makeup and sediment loads. Stormwater is to mimic natural conditions." *with* "Compliance with Council's Water Management for Development Policy is required."	B4 Controls Existing controls are very repetitive. Changes keep all stormwater - related responses under one control, making it easier for developers to find and respond to them. Reduces risk of stormwater controls being 'missed' by applicants.
Pittwater DCP	B4.15 Saltmarsh Endangered Ecological Community	KEEP with amendment	Replace "Stormwater, wastewater and other drainage shall not be disposed of into saltmarsh." with "Compliance with Council's Water Management for Development Policy is required."	
Pittwater DCP	B4.16 Seagrass Conservation	KEEP with amendment	Replace "Nutrients release into waterway shall not be increased. Development shall not result in turbidity in the vicinity of seagrass. On-site waste water system systems shall include removal of Phosphorus and Nitrogen to below P 0.05 and N 0.05mg/L." *with* "Compliance with Council's Water Management for Development Policy is required."	
Pittwater DCP	B4.18 Heathland/Woodland Vegetation	KEEP with amendment	Replace "Water entering heathland from the development shall be free from pollutants and elevated nutrients." *with*	

LGA	Control	Instruction	New control/text	Impact
			"Compliance with Council's Water Management for Development Policy is required."	
Pittwater DCP	B4.19 Estuarine Habitat	KEEP with amendment	Replace "Development shall dispose of stormwater, wastewater and other drainage in a manner that will not adversely impact on estuarine habitat. Development must minimise changes to the following: local surface runoff, groundwater flows and water flow regimes to the estuarine habitat; temperature, salinity, chemical makeup and sediment loads. Stormwater is to mimic natural conditions." *with* "Compliance with Council's Water Management for Development Policy is required."	
Pittwater DCP	B4.20 Protection of Estuarine Water Quality	DELETE	Incorporated into the Water Management for Development Policy	Redundant control. All elements are addressed in B4.15, B4.16, B4.19 and the Water Management for Development Policy.
Pittwater DCP	B5.1 Water Management Plan	DELETE	Incorporated into the Water Management for Development Policy	All elements of each control are being incorporated into the new policy (some controls have been updated for current practice).
Pittwater DCP	B5.3 Greywater reuse	DELETE		
Pittwater DCP	B5.4 Stormwater harvesting	DELETE		
Pittwater DCP	B5.6 Rainwater Tanks – Water Supply	DELETE		
Pittwater DCP	B5.7 Stormwater Management - On-Site Stormwater Detention	DELETE		
Pittwater DCP	B5.8 Stormwater Management – Water Quality – Low Density Residential	DELETE		
Pittwater DCP	B5.9 Stormwater Management – Water Quality – Other than Low Density Residential	DELETE		
Pittwater DCP	B5.10 Stormwater Discharge into Public Drainage System	DELETE		
Pittwater DCP	B5.11 Stormwater Discharge into Waterways and Coastal Areas	DELETE		

LGA	Control	Instruction	New control/text	Impact
Pittwater DCP	B5.12 Stormwater Drainage Systems and Natural Watercourses	DELETE	Incorporated into B5.13	Watercourse related elements of B5.12 are duplicated in B5.13. Combining the controls improves comprehension and response. Combining them will also simplify updating controls relating to the riparian and waterways policy (timing TBC).
Pittwater DCP	B5.13 Development on Waterfront Land	KEEP with amendment	Incorporates relevant controls from B5.12. See AMENDMENTS below.	
Pittwater DCP	B5.14 Stormwater Drainage Easements (Public Stormwater Drainage System)	DELETE	Incorporated into the Water Management for Development Policy	This control needs to be deleted, as it requires an easement over all drainage and watercourses in Pittwater, which is a policy Council no longer recommends supporting due to maintenance costs. Easements over Council and inter-allotment drainage is covered in the Water Management for Development Policy.
Pittwater DCP	B5.15 Stormwater	NEW	See AMENDMENTS below.	One new control to replace more than 10 existing DCP controls. Less risk of controls being 'missed' by developers. This control will direct developers to the new policy.
Pittwater DCP	B8.2 Erosion and sediment controls	DELETE	Incorporated into the Water Management for Development Policy	All elements of each control are being incorporated into the new policy with updates for current practice.
Pittwater DCP	Appendix 11 Stormwater Management Technical Data	DELETE	Incorporated into the Water Management for Development Policy	
Warringah DCP 2011	C4 Stormwater	KEEP with amendment	See AMENDMENTS below.	Updates for revised principles and objectives. No change to the control itself.
Warringah DCP 2011	C5 Erosion and Sedimentation	DELETE	Incorporated into the Water Management for Development Policy	This control is being incorporated into the new policy with updates for current practice.

Policies				
Manly	Stormwater Control Policy	RESCIND POLICY	Incorporated into the Water Management for Development Policy	Improved consistency in one consolidated policy
Manly	Drainage Easements – Construction over Drainage Easements	RESCIND POLICY		
Pittwater	Integrated water cycle management	RESCIND POLICY		
Pittwater	Greywater Reuse In Sewered And Unsewered Domestic Premises	RESCIND POLICY		
Warringah	Water Management Policy	RESCIND POLICY		
Warringah	Flood Risk Management Policy	RESCIND POLICY		
Specifications				
Manly	Specification for Stormwater Drainage	INCORPORATED	Incorporated into the Water Management for Development Policy	One location for all stormwater related guidelines
Manly	Specification for On-site Stormwater Management	INCORPORATED		
Warringah	Stormwater Drainage from Low Level Properties Tech Spec	INCORPORATED		
Warringah	Onsite stormwater detention Tech Spec	INCORPORATED		
Warringah	WSUD & MUSIC Modelling Guidelines	INCORPORATED	Re-named Northern Beaches Council WSUD & MUSIC Modelling Guidelines	

The following Controls are being retained, as they are place-based or have significant other elements that have not been addressed in the Water Management for Development Policy:

Manly DCP	5.6.1	Rignold St, Seaforth	KEEP
Pittwater DCP	B5.5	Rainwater Tanks – Business, Light Industrial and Other Development	KEEP
Pittwater DCP	C6	Warriewood Valley Land Release Area	KEEP
Pittwater DCP	D1.14	Stormwater infiltration in Avalon 1&2 Dual Occupancy Map	KEEP
Warringah DCP 2011	C5.22	Environmental Sustainability	KEEP
Warringah DCP 2011	E3	Threatened species, populations, ecological communities	KEEP
Warringah DCP 2011	F3 SP1	Sports Centre, Wakehurst Parkway, Narrabeen	KEEP
Warringah DCP 2011	F3 SP1	Facilities for People with a Disability, Allambie Heights	KEEP
Warringah DCP 2011	F4 SP2	Kimbriki Recycling and Waste Disposal Centre	KEEP
Warringah DCP 2011	G3	Belrose Corridor - Watercycle Management	KEEP
Warringah DCP 2011	G4	Warringah Mall - Stormwater Management.	KEEP

AMENDMENTS
Deletions indicated in red font.
New text indicated in blue font.

MANLY DCP

Manly DCP 3.5.8 Water Sensitive Urban Design

Relevant DCP objectives to be met in relation to this part include:

Objective 1)

To ensure Water Sensitive Urban Design by:

- Potable water conservation;
- Wastewater minimisation;
- Stormwater management.

Note: Water Sensitive Urban Design is an approach that aims to manage the effects of urban development on the urban water cycle by considering the management of potable water, wastewater, groundwater and stormwater elements in an integrated manner.

3.5.8.1 Principles of Water Sensitive Urban Design

Under LEP clause 6.4 Stormwater Management, the principles of Water Sensitive Urban Design to be considered in granting development consent for any development in residential, business and industrial zones are summarised as follows:

a) protection and enhancement of natural water systems (including creeks, rivers, lakes, wetlands, estuaries, lagoons, groundwater systems) and riparian land;
b) protection and enhancement of water quality, by improving the quality of stormwater runoff from urban catchments;
c) minimisation of harmful impacts of urban development by mimicking natural water runoff regimes where possible and appropriate;
d) integration of vegetated stormwater treatment and harvesting systems into the landscape in a manner that maximise visual and recreational amenity of urban development and also provides water quality benefits;
e) reduction in potable water demand through water efficiency and rainwater and stormwater harvesting; and
f) location of water quality and stormwater treatment measures outside riparian land.

3.5.8.2 Water Sensitive Urban Design Targets

a) Stormwater Quality Management

Note: Urbanisation places pressure on waterways and stormwater systems and can increase pollutants entering receiving environments.

Objective 1) To reduce the pollutant loads reaching downstream receiving waters and environments.

i) For all development, the impervious areas that are directly connected to the stormwater system should be minimised.
ii) For development requiring a Water Sensitive Urban Design Strategy under Council's Administrative Guidelines the following reductions in post development average annual loads of pollutants are required:

- 90 percent reduction in the post development average annual load of Gross Pollutants (greater than 5mm);
- 80 percent reduction in the post development average annual load of Total Suspended Solids;
- 60 percent reduction in the post development average annual load of Total Phosphorus; and
- 45 percent reduction in the post development average annual load of Total Nitrogen.

Notes: The post development annual load should be determined by the applicant and presented to Council in a Water Sensitive Urban Design Strategy, along with a description of the measures used to achieve the reduction target.

Legislated pollution reduction targets are not currently established by the NSW Government but guidance is provided to Councils through the NSW Government Sydney Metropolitan Catchment Management Authority.

See also Landcom Water Sensitive Urban Design Book 1 "Policy" (page 9) Table 1 (Reference www.landcom.com.au/downloads/uploaded/WSUD_Book1_Policy_Draft_0409_6d9c.pdf) for NSW Government established pollution reduction targets for land development. Pollution reduction targets are also described in this Landcom document.

The above stormwater quality controls have been derived through the modelling of numerous combinations of Water Sensitive Urban Design elements and technologies and development types at various locations. They reflect a cost-effective level of stormwater treatment that is considered to be technically feasible in terms of the footprint or land take of measures likely to be required for compliance, and environmental benefits.

b) Water Conservation

Note: Urbanisation results in significant volumes of imported potable water from Warragamba Dam and large volumes of generated waste water discharged to the environment at North Head wastewater treatment plant. Significant financial, social and sustainability benefits exist through local adoption of water conservation measures.

Objective 1) To enhance potable water conservation in developments to provide enhanced sustainability benefits.

i) Buildings that are not affected by Building Sustainability Index (BASIX) that are installing any water use fittings must demonstrate compliance with the minimum standards defined by the Water Efficiency Labelling and Standards Scheme. Minimum ratings recommended under this scheme include:
3 star showerheads;
3 star urinals;
4 star dual-flush toilets; and
4 star taps (for all taps other than bath outlets and garden taps).

ii) Water efficient washing machines and dishwashers are to be specified and used wherever possible.

iii) Industrial and commercial developments must supply 80 percent of their non potable demand using non potable sources. This shall include the use of rainwater as the primary source and be supplemented by recycled water only in instances where rainwater cannot meet 80 percent of the demand. Where the 80 percent demand threshold cannot be met, the use of non potable sources shall be maximised and will be considered on a merits basis by Council.

Notes: Examples of non potable demand includes toilet and urinal flushing, washing machines, garden watering (irrigation), vehicular washing, ornamental ponds and cooling tower top up (see Blacktown Council WSUD and Integrated Water Cycle Management DCP). The percentage of proposed roof area directed to a rainwater tank must be maximised to increase the effectiveness and reliability of the reuse system. Water use within public open space (for uses such as irrigation, water features, public amenities etc.) is to be supplied from alternative sources to meet a minimum of 80 percent of the demand and treated to NSW State Government and Commonwealth Government standards (see Interim Reference Guideline for the South East Queensland Concept Design Guidelines for WSUD for Sydney).

c) Groundwater Quality Management

Note: Urbanisation not only places pressure on waterways and stormwater systems but can also impact groundwater quality and dependent ecosystems in Manly.

Objective 1) To protect groundwater resources in accordance with NSW State groundwater policy, enhance groundwater and protect any groundwater dependent ecosystems.

i) Consideration must be given to this paragraph in relation to all development to which this paragraph applies consistent with the spirit and principles of the NSW State Groundwater Policy and 'The NSW State Groundwater Policy Framework Document'.

Manly DCP 3.7 Stormwater Management

See also paragraph 5.4.3 Flood Effected Land, which identifies flood affected land which is subject to Council's Interim Policy and Administration Guidelines for Manly Lagoon.
See also paragraph 3.5.5 Landscaping (Sustainability) & paragraph 3.5.8 Water Sensitive Urban Design.
See also NSW Road and Maritime Services standard requirements for the management of stormwater in relation to development near the foreshore.
See also Council's Stormwater Control Policy Reference S190 under the Manly Policy Register.

Relevant objectives to satisfy relation to this part include the following:
Objective 1) To manage urban stormwater within its natural catchments and within the development site without degrading water quality of the catchments or cause erosion and sedimentation.
Objective 2) To manage construction sites to prevent environmental impacts from stormwater and protect downstream properties from flooding and stormwater inundation.
Objective 3) To promote ground infiltration of stormwater where there will be no negative (environmental) impacts and to encourage on-site stormwater detention, collection and recycling.
Objective 4) To make adequate arrangements for the ongoing maintenance of stormwater facilities.

Note: Development consent must not be granted on residential, business and industrial lands unless Council is satisfied that the matters identified in LEP clause 6.4(3) are satisfied.

The following consideration and requirements apply to the management of stormwater:

a) In support of the purposes of LEP clause 6.4(3), all developments must comply with Northern Beaches the Council's 'Water Management for Development Stormwater Control Policy'" (see Council Policy Reference S190). The standards to achieve the controls contained in the Stormwater Control Policy are provided in Council's "Specification for Onsite Stormwater Management 2003" and "Specification for Stormwater Drainage". Stormwater management measures are to be implemented and maintained in accordance with the Specification for Stormwater Management;
b) Stormwater disposal systems must provide for natural drainage flows to be maintained;
c) Pervious surfaces and paving will be used for driveways, pathways and courtyards where practical;
d) Notwithstanding the prevailing BASIX water conservation targets, the collection of rainwater/run-off for non-potable uses exceeding the target is encouraged; and
e) A qualified drainage/hydraulic engineer will design all stormwater controls, devices and water storage systems; and
f) In relation to development in the LEP Zone B6 Enterprise Corridor, Burnt Bridge Creek runs through this land. Land in this locality is also generally low-lying. In this regard stormwater runoff from new developments in these LEP zones must be limited to that currently existing for the site for a 1 in 5 year storm or 40 litres per second whichever is the least, unless the drainage system is demonstrated to be sufficient for unimpeded discharge for a fully developed catchment area. Developers should assess whether their land warrants additional drainage considerations because of its location.

B4.8 Freshwater Wetland Endangered Ecological Communities

Land to which this control applies
Land containing or adjoining, Sydney Coastal Estuarine Swamp Forest Complex - P21DCP-BCMDCP026

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Development ancillary to residential accommodation
Development of a sector, buffer area or development site in a Release Area, including built form and land subdivision (built form does not have to be residential)
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Subdivision of a sector, buffer area or development site in a Release Area
Water recreation structure

Outcomes
Conservation of intact Sydney Freshwater Wetlands Endangered Ecological Communities. (En)
Regeneration and/or restoration of fragmented and / or degraded Sydney Freshwater Wetlands Endangered Ecological Communities. (En)
Reinstatement of Sydney Freshwater Wetlands Endangered Ecological Communities to link remnants. (En)

Controls
Development shall not have an adverse impact on Sydney Freshwater Wetlands Endangered Ecological Community on Coastal Floodplains.

Development shall restore and/or regeneration Sydney Freshwater Wetlands Endangered Ecological Community on Coastal Floodplains and provide links between remnants.

Development shall be in accordance with any Recovery Plan or priority action statement Recovery Plan.

Development shall not significantly affect the hydrology, hydraulic or water quality entering Sydney Freshwater Wetlands Endangered Ecological Community.

Compliance with Council's Water Management for Development Policy is required.

Development shall not result in a significant onsite loss of canopy cover or a net loss in native canopy trees.

Development shall ensure that at least 80% of any new planting incorporates native vegetation (as per species found on the site or those listed in wetland endangered ecological communities)

Development shall ensure any landscaping works are outside areas of existing Sydney Freshwater Wetlands Endangered Ecological Community and do not include Environmental Weeds.

Fencing, where permitted, shall be passable by native wildlife.

Variations
Council may consider variation to this control:

- for those activities listed in adopted Plans of Management for public reserves.
- where development is proposed on parts of the site identified as not containing Sydney Freshwater Wetlands EEC providing the development does not impact on Sydney Freshwater Wetlands EEC on the site or adjoining properties.
- where a development is proposed in the area of least impact on Sydney Freshwater Wetlands EEC and where there will be no net loss of Sydney Freshwater Wetlands EEC
- where fencing is required to contain domestic animals and that fencing is located on a part of the site that does not impede native fauna from traversing the site.
- in Bushfire Asset Protection Zones - vegetation species need not be native to the site but are to be native to Pittwater.

Information to be included in the Statement of Environmental Effects
An analysis of the proposed development clearly stating the extent of the impact on the natural environment demonstrating that it has been designed to minimise any impact on the Sydney Coastal Estuarine Swamp Forest Complex.

B4.11 Land adjoining bushland

Land to which this control applies
Land adjoining bushland reserves but excluding where this land is covered in other Natural Environment Controls - P21DCP-BCMDCP067

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker’s dwelling

Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Water recreation structure

Outcomes
To protect bushland from impacts associated with development on adjoining land. (En)
Biodiversity, ecological processes and other bushland values are conserved. (En)

Controls
Development shall not adversely impact on the adjoining reserve.

Development shall ensure that at least 80% of any new planting incorporates native vegetation (as per species found on the site or listed in *Native Plants for Your Garden* available on the Pittwater Council website).

Landscaping works are to be outside areas of bushland and do not include Environmental Weeds.

Development shall dispose of stormwater, wastewater and other drainage in a manner that will not adversely impact on the adjoining bushland.

Compliance with Council's Water Management for Development Policy is required.

Domestic animals will be restricted from entering bushland.

Development shall not result in a significant loss of canopy cover or a net loss in native canopy trees.

Fencing, where permitted, shall be passable to native wildlife.

Variations
Council may consider variation to this control for:

- environmental restoration projects whose sole objective is the restoration and regeneration of bushland.
- those activities listed in adopted Plans of Management for public reserves.
- Where fencing is required to contain domestic animals and that fencing is located on a part of the site that does not impede native fauna from traversing the site.

Advisory Notes
This land may be affected by the provisions of *State Environmental Planning Policy No 19 - Bushland in Urban Areas*.

Information to be included in the Statement of Environmental Effects
An analysis of the proposed development clearly stating the extent of the impact on the natural environment demonstrating that it has been designed to minimise any impact on adjoining bushland.

Technical Reports and Supporting Information
Note A: The Information Require to Be Submitted to address this Control is similar to that required for other Controls relating to the Natural Environment (B4.1 B4.16): Where more than one of these Controls apply, the information to be submitted can be combined into a single set of Plan(s), Document(s) and Report(s) which does not provide duplicated information provided ALL information to be submitted requirements are set out in the various Controls as provided.

(a) Development that disturbs/removes less than 40m^2 of vegetation, involves no removal of native trees and is not where there is habitat for NPWS Threatened species/populations/communities.

- Nil.

or
(b) Development that may impact/remove up to five native trees, including those within 5m of excavation, fill or changes in soil level.

- A tree survey and Arborist Report indicating location, species, health and size of all trees within 5m of proposed development. Clearly indicating all trees that may be impacted on or removed.
- An 7-part test is to be provided where existing native canopy trees are proposed for removal.
- 7-part tests for any NPWS Listed species/populations/communities.

or

(c) Development that disturbs between 40m^2 and 500m^2 of vegetation and/or more than five native trees and/or installation of an on-site waste-water disposal systems.

The following are the minimum requirements, where trees are proposed for removal/modification an Arborist Report is also required.

- Ecological Site Assessment (ESA)
- Biodiversity Impact Assessment (BIA)
- Ecological Sustainability Plan (ESP)\or combined report covering all issues

Minimum requirements of ESA, BIA and ESP - Please contact Council.

or

(d) Development that disturbs more than 500m^2 of vegetation and/or the subdivision of land.

The following are the minimum requirements where trees are proposed for removal/modification an Arborist Report is also required. Information required for development types (c) and (d) is the same, however the survey intensity required for developments in category (d) is greaterminimum requirements given below.

- ESA
- BIA. Survey intensity required increases with area being disturbed.
- ESP
- or combined report covering all issues.

Minimum requirements of ESA, BIA and ESP - Please contact Council

or

(e) Other

If the development does not fall into any of the above categories (ad) this control does not apply except for conditioning,

(a) the planting two canopy trees or appropriate native vegetation and removal/ control of noxious and environmental weeds.

B4.13 Freshwater Wetlands (non Endangered Ecological Communities)

Land to which this control applies

Land containing areas of wetland, other than Sydney Freshwater Wetland EEC - P21DCP-BCMDCP031

Uses to which this control applies

Attached dwelling
Boarding house
Business Development
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling

Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Water recreation structure

Outcomes
Wetlands in Pittwater are conserved and enhanced. (En)
The physical, chemical and biological processes of wetlands in Pittwater are improved, maintained or restored. (En)
The social and cultural values of wetland areas are conserved and enhanced. (S)
Biodiversity, ecological processes and other wetland values are conserved. (En)

Controls
Development shall not adversely impact on wetlands.

Development shall restore or regenerate wetlands.

Development shall dispose of stormwater, wastewater and other drainage in a manner that will not adversely impact on wetlands.

Development must minimise changes to the following:

- local surface runoff, groundwater flows and water flow regimes to the wetland;
- temperature, salinity, chemical makeup and sediment loads;
- environmental flows; and
- patterns of inflow.

Stormwater is to mimic natural conditions.

Compliance with Council's Water Management for Development Policy is required.

Existing wildlife corridors are to be maintained and functional habitat links provided wherever possible.

Development shall ensure that at least 80% of any new planting incorporates native vegetation (as per species found on the site or those listed in *Native Plants for your Garden* on Pittwater Council website).

Variations
Provided the outcomes of this control are achieved, Council may consider variation to this control for:

- Environmental restoration projects whose sole objective is the restoration and regeneration of wetlands.
- Development related to education and recreation that are unlikely to affect wetland values and functions.
- Maintenance of existing structures.
- Any activities which form part of an adopted Plan of Management for the subject land.
- Where fencing is required to contain domestic animals and that fencing is located on a part of the site that does not impede native fauna from traversing the site.
- In Bushfire Asset Protection Zones- vegetation species need not be native to the site but are to be native to Pittwater.

Information to be included in the Statement of Environmental Effects
An analysis of the proposed development clearly stating the extent of the impact on the natural environment demonstrating that it has been designed to minimise any impact on wetlands.
Technical Reports and Supporting Information
Note A: The Information Require to Be Submitted to address this Control is similar to that required for other Controls relating to the Natural Environment (B4.1 B4.16): Where more than one of these Controls apply, the information to be submitted can be combined into a single set of Plan(s), Document(s) and Report(s) which does not provide duplicated information provided ALL information to be submitted requirements are set out in the various Controls as provided.

(a) Development that will not alter hydrology, that disturbs/removes less than 25m^2 of native vegetation and does

not involve removal of native trees, filling, excavation, on-site wastewater disposal or changes in storm-water input or subdivision of land.

- Species list of native plants and noxious, environmental weeds on the site.
- 7-part test for any Threatened species/populations/communities
- Plan showing wetland boundary relative to proposed development.

or

(b) Development that may impact/remove up to two native trees including those within 5m of excavation, fill or changes in soil level and remove/modify 0 - 25m^2 of native vegetation.

- A tree survey and Arborist Report indicating location, species, health and size of all trees within 5m of proposed development. Clearly indicating all trees that may be impacted on or removed.
- Species list of native plants and noxious, environmental weeds on the site.
- 7-part test for any Threatened species/populations/communities.
- Plan showing wetland boundary relative to proposed development

or

(c) Development that disturbs between 25m^2 and 500m^2 of vegetation and/or 39 native trees and/or installation of an on-site waste-water disposal systems and/or subdivision of land.

The following are the minimum requirements, where trees are proposed for removal/modification an Arborist Report is also required.

- Ecological Site Assessment for Wetlands (ESA)
- Biodiversity Impact Assessment for Wetlands (BIA)
- Ecological Sustainability Plan for Wetlands (ESP)
- or combined report covering all issues.

Minimum requirements of ESA, BIA and ESP - Please contact Council.

or

(d) Development that disturbs more than 500m^2 of vegetation and/or 10 or more native trees and/or change in soil level (filling or excavation) and/or changes in hydrology.

The following are the minimum requirements where trees are proposed for removal/modification an Arborist Report is also required.

- ESA
- BIA. Survey intensity required increases with area being disturbed.
- ESP
- or combined report covering all issues.

Minimum requirements of ESA, BIA, ESP - Please contact Council.

or

(e) Other

If the development does not fall into any of the above categories (ad) this control does not apply except for conditioning,

(a) planting/restoration of appropriate native vegetation and removal/ control of noxious and environmental weeds.

B4.14 Development in the Vicinity of Wetlands

Land to which this control applies

Land adjacent to freshwater wetlands, including Sydney Freshwater Wetland, Swamp Sclerophyll Forest, Swamp Oak Forest. - P21DCP-BCMDCP066

Uses to which this control applies

Attached dwelling
Boarding house
Business Development
Development ancillary to residential accommodation
Development of a sector, buffer area or development site in a Release Area, including built form and land subdivision (built form does not have to be residential)
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks

Exhibition home
Group home
Hospital
Hostel
Industrial Development
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Subdivision of a sector, buffer area or development site in a Release Area
Water recreation structure

Outcomes
Development in the catchment of a wetland is to result in wetland conditions being maintained or enhanced (En)
The physical, chemical and biological processes of wetland habitats in Pittwater are improved, maintained or restored. (En)
The social and cultural values of wetland areas are conserved and enhanced (S)
Biodiversity, ecological processes and other wetland values are conserved (En).

Controls
Development in a wetlands catchment shall not adversely impact on the wetlands.

Development shall dispose of stormwater, wastewater and other drainage in a manner that will not adversely impact on wetlands.

Development must minimise changes to the following:
- local surface runoff, groundwater flows and water flow regimes to the wetland;
- temperature, salinity, chemical makeup and sediment loads

Stormwater is to mimic natural conditions.

Compliance with Council's Water Management for Development Policy is required

Development shall provide adequate buffering to wetlands

Existing wildlife corridors are to be maintained and functional habitat links provided wherever possible.

Development shall ensure that at least 60% of any new planting incorporates native vegetation (as per species found on the site or those listed in *Native Plants for your Garden* on Pittwater Council website)

Variations
Provided the outcomes of this control are achieved, Council may consider variation to this control for:
- Environmental restoration projects whose sole objective is the restoration and regeneration of wetlands.
- Development that demonstrates it will not affect wetland values and functions.
- Maintenance of existing structures.

A minimum setback of 10m may be considered for development where there will be no adverse impact on the wetland and there is an adequate zone for wildlife.

Any activities which form part of an adopted Plan of Management for the subject land.

Where fencing is required to contain domestic animals and that fencing is located on a part of the site that does not impede native fauna from traversing the site.

In Bushfire Asset Protection Zones- vegetation species need not be native to the site but are to be native to Pittwater.

Information to be included in the Statement of Environmental Effects
An analysis of the proposed development clearly stating the extent of the impact on the natural environment demonstrating that it has been designed to minimise any impact on wetlands.
Technical Reports and Supporting Information

B4.15 Saltmarsh Endangered Ecological Community

Land to which this control applies
Land containing areas of saltmarsh vegetation - P21DCP-BCMDCP032

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Water recreation structure

Outcomes
To conserve and enhance saltmarsh vegetation. (En)

Controls
Development shall retain and enhance saltmarsh vegetation.

Development shall restore and/or regenerate saltmarsh vegetation.

Stormwater, wastewater and other drainage shall not be disposed of into saltmarsh.

Compliance with Council's Water Management for Development Policy is required.

Development shall have an adequate buffer to saltmarsh and foreshore vegetation.

Where mangroves have been shown as invading saltmarsh vegetation, Council may consider mangrove removal (with permission from NSW Department of Primary Industries) for the purposes of restoring or regenerating these habitats.

Any works or activities proposed within the foreshore building line must be consistent with ensuring the long term survival of saltmarsh vegetation.

Variations
Provided the outcomes of this control are achieved, Council may consider variation to this control for environmental restoration projects whose objective is the restoration and regeneration of foreshore vegetation

Advisory Notes
Adequate buffer to saltmarsh depends on the proposed development. Minimum buffers to saltmarsh are the Foreshore Building Line on the landward side, and 50m on the seaward side.

Information to be included in the Statement of Environmental Effects
An analysis of the proposed development clearly stating the extent of the impact on the natural environment demonstrating that it has been designed to minimise any impact on Saltmarsh or other Foreshore Vegetation.

B4.16 Seagrass Conservation

Land to which this control applies
All areas of the Pittwater waterway containing seagrass - P21DCP-BCMDCP033
The Waterways Locality and properties which abut the Pittwater Waterway - P21DCP-D15MDCP751

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Child care centre
Demolition
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home
Hospital
Hostel
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Waste water disposal system
Water recreation structure

Outcomes
The conservation of seagrass beds in Pittwater. (En)
The replacement of lost/damaged seagrass beds. (En)

Controls
Development shall not significantly affect seagrass beds.

Development shall replace seagrass in areas where it has been lost or damaged.

No filling, dredging or other disturbance shall be undertaken within a 50m buffer area of seagrass beds.

Development proposed adjacent to seagrass beds shall incorporate a buffer zone of at least 50 metres between the development and the seagrass beds.

Jetties, ramps, wharves, pontoons and other instream structures shall be designed and constructed in accordance with NSW Department of Primary Industries specifications to maximise light filtration to seafloor. Proponents are advised to consult with the Department of Primary Industries to discuss their existing requirements.

Nutrients release into waterway shall not be increased. Development shall not result in turbidity in the vicinity of seagrass.

On-site waste water system systems shall include removal of Phosphorus and Nitrogen to below P 0.05 and N 0.05mg/L.

Compliance with Council's Water Management for Development Policy is required.

Variations
Development shall not be permitted within a buffer area unless it can be demonstrated that the outcomes of this control can be met.

Provided the outcomes of this control are achieved, Council may consider variation to this control for:
- environmental restoration projects whose objective is the improvement of estuarine water quality; or
- activities within an approved Pittwater Council Plan of Management.

Information to be included in the Statement of Environmental Effects
An analysis of the proposed development clearly stating the extent of the impact on the natural environment demonstrating that it has been designed to minimise any impact on Seagrass.

B4.18 Heathland/Woodland Vegetation

Land to which this control applies
Land containing of heathland vegetation - P21DCP-BCMDCP035

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Development ancillary to residential accommodation
Development of a sector, buffer area or development site in a Release Area, including built form and land subdivision (built form is not limited to residential)
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home

Hospital
Hostel
Industrial Development
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Subdivision of a sector, buffer are or development site in a Release Area
Water recreation structure

Outcomes
Conservation of intact heathland. (En)
Regeneration and/or restoration of fragmented and / or degraded heathland. (En)
Reinstatement of heathland to link remnants. (En)
Long-term viability of locally native flora and fauna and their habitats in the Pittwater LGA through conservation, enhancement and/or creation of habitats and wildlife corridors. (En)
Long-term sustainability of hanging swamps and other wetlands (En).

Controls
Development shall retain and enhance habitat and wildlife corridors for threatened species, endangered populations, endangered ecological communities and other locally native species.

Development shall not reduce or degrade habitat for locally native species, threatened species, endangered populations or endangered ecological communities.

Wastewater shall receive tertiary treatment and not be discharged directly into heathland.

Water entering heathland from the development shall be free from pollutants and elevated nutrients.

Compliance with Council's Water Management for Development Policy is required.

Caretakers of domestic animals shall prevent them from entering wildlife habitat areas.

Fencing, where permitted, shall allow the safe passage of native wildlife.

Development shall not negatively impact on heathland.

Development shall ensure long-term sustainability of wetlands and must include an appropriate buffer - minimum of 10 metres from wetland edge.

Development shall ensure that at least 80% of any new planting incorporates native vegetation (as per species found on the site or listed in *Native Plants for Your Garden* available on the Pittwater Council website).

Landscaping works are to be outside areas of bushland and do not include environmental weeds.

Variations
Council may consider variation to this control:

- For those activities listed in adopted Plans of Management.
- Where development is proposed on parts of the site identified as not containing a heathland/woodland providing the development does not impact on heathland/woodland on the site or adjoining properties.

- Where a development is proposed in the area of least impact on heathland/woodland/wetlands and loss of native vegetation is minimal.
- Where fencing is required to contain domestic animals and that fencing is located on up to 20% of the site, and does not impede native fauna from traversing the site.

Information to be included in the Statement of Environmental Effects

An analysis of the proposed development clearly stating the extent of the impact on the natural environment demonstrating that it has been designed to minimise any impact on Heathland Vegetation.

Technical Reports and Supporting Information

Note A: The Information Require to Be Submitted to address this Control is similar to that required for other Controls relating to the Natural Environment (B4.1 to B4.22): Where more than one of these Controls apply, the information to be submitted can be combined into a single set of Plan(s), Document(s) and Report(s) which does not provide duplicated information provided ALL information to be submitted requirements are set out in the various Controls as provided.

(a) Development that disturbs/removes less than 40m2 of vegetation, does not including tree removal/modification and is where habitat for NPWS Threatened species/populations/communities does not occur on the site.

- Nil

or

(b) Development that may impact/remove up to five native trees, including those within 5m of excavation, fill or changes in soil level.

- A tree survey and Arborist Report indicating location, species, health and size of all trees within 5m of proposed development. Clearly indicating all trees that may be impacted on or removed.
- An 7-part test is to be provided where existing native canopy trees are proposed for removal.
- 7-part tests for any NPWS Listed species/populations/communities.

or

(c) Development that disturbs between 40m2 and 500m2 of vegetation and/or more than five native trees and/or installation of an on-site waste-water disposal systems.

The following are the minimum requirements, where trees are proposed for removal/modification an Arborist Report is also required.

- Ecological Site Assessment (ESA)
- Biodiversity Impact Assessment (BIA)
- Ecological Sustainability Plan (ESP)
- or combined report covering all issues.

Minimum requirements of ESA, BIA and ESP - Please contact Council.

or

(d) Development that disturbs more than 500m2 of vegetation and/or the subdivision of land.

The following are the minimum requirements where trees are proposed for removal/modification an Arborist Report is also required. Information required for development types (c) and (d) is the same, however the survey intensity required for developments in category (d) is greater minimum requirements given below.

- ESA
- BIA. Survey intensity required increases with area being disturbed.
- ESP
- or combined report covering all issues.

Minimum requirements of ESA, BIA and ESP - Please contact Council.

or

(e) Other

If the development does not fall into any of the above categories (ad) this control does not apply except for conditioning,

(a) the planting two canopy trees or appropriate native vegetation and removal/ control of noxious and environmental weeds.

B4.19 Estuarine Habitat

Land to which this control applies

The Waterways Locality and properties which abut the Pittwater Waterway - P21DCP-D15MDCP751
Land adjacent to estuarine wetlands, including Saltmarsh, Seagrass Beds, Mangroves, Estuarine Habitat - P21DCP-BCMDCP036

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Water recreation structure

Outcomes
To protect and enhance the mangroves, saltmarsh, seagrasses, intertidal sand/mud flats and other foreshore habitats that comprise the estuarine habitat of Pittwater. (En)
Development in the catchment of estuarine habitat is to result in estuarine habitat being retained or enhanced with respect to that development. (En)
The physical, chemical and biological processes of estuarine habitats in Pittwater are improved, maintained or restored. (En)
The social and cultural values of estuarine habitats are conserved and enhanced. (S)
Biodiversity, ecological processes and other estuarine habitat values are conserved. (En)

Controls
Development shall not be permitted which could result in the destruction of mangroves or seagrass beds, saltmarsh and other estuarine habitats.

Development in an estuarine habitat catchment shall not adversely impact on the wetlands.

Development shall dispose of stormwater, wastewater and other drainage in a manner that will not adversely impact on estuarine habitat.

Development must minimise changes to the following:

- local surface runoff, groundwater flows and water flow regimes to the estuarine habitat;
- temperature, salinity, chemical makeup and sediment loads

Stormwater is to mimic natural conditions.

Compliance with Council's Water Management for Development Policy is required.

Development shall provide adequate buffering to estuarine habitat.

Existing wildlife corridors are to be maintained and functional habitat links provided wherever possible.

Development shall ensure 80% of the area that is not covered by approved buildings or associated structures, is native vegetation either through retention of existing bushland or planting with locally native plant species (as per species found on the site or those listed in 'Native Plants for your Garden' on Pittwater webpage).

Development within the Pittwater Waterway shall have regard to any adjoining important estuarine habitats at all time, particularly during the construction phase. Any impact upon estuarine habitats within the Pittwater Waterway, particularly mangroves, saltmarsh and seagrass beds, must be minimised.

Adequate compensatory works shall be undertaken where damage to estuarine habitats occurs.

Habitat for locally and migratory birds shall not be reduced or degraded. Development that will result in increased disturbance to migratory wading bird habitat shall not be permitted.

Variations
Development shall not be permitted within a buffer area unless it can be demonstrated that the outcomes of this control can be met.

Provided the outcomes of this control are achieved, Council may consider variation to this control for:

- environmental restoration projects whose objective is the improvement of estuarine water quality and/or estuarine habitats: or
- activities within an approved Pittwater Council Plan of Management.

Information to be included in the Statement of Environmental Effects
An analysis of the proposed development demonstrating that it has been designed to minimise any impact on Estuarine Habitat.

Technical Reports and Supporting Information
A Marine Habitat Survey/Aquatic Ecology report is required for all works below the Mean High Water mark.

B4.20 Protection of Estuarine Water Quality

Land to which this control applies
Land adjacent to estuarine wetlands, including Saltmarsh, Seagrass Beds, Mangroves, Estuarine Habitat - P21DCP-BCMDCP036

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Jetty

Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Water recreation structure

Outcomes
To ensure that water quality is not adversely affected by pollutants including increased nutrient levels, pathogens, and siltation. (En)
To protect the mangroves, seagrasses, intertidal sand/mud flats and other habitats that comprise the estuarine habitat of Pittwater. (En)
Development in the catchment of estuarine habitat is to result in estuarine habitat being retained or enhanced with respect to that development. (En)
The physical, chemical and biological processes of estuarine habitats in Pittwater are improved, maintained or restored. (En)
The social and cultural values of estuarine habitats are conserved and enhanced. (S)
Biodiversity, ecological processes and other estuarine habitat values are conserved. (En)

Controls
Development shall not have an adverse impact on water quality through pollution including turbidity, siltation or increased nutrients.

Development shall not impact on the existing water circulation within the Pittwater Waterway, its individual embayments or tidal tributaries in a manner that is likely to adversely affect water quality or the physical well being of natural estuarine habitats.

Environmental safeguards (silt curtains, booms etc) are to be used during construction of the proposed works to ensure there is no escape of turbid plumes into the aquatic environment. Turbid plumes caused by runoff, driving of piles, etc. have the potential to smother aquatic vegetation and have a deleterious effect on benthic organisms.

Variations
Council may consider variation to this control for:
- environmental restoration projects whose objective is the improvement of estuarine water quality and/or estuarine habitats; or
- activities within an approved Pittwater Council Plan of Management.

Information to be included in the Statement of Environmental Effects
An analysis of the proposed development demonstrating that it has been designed to minimise any impact on Estuarine Water Quality.

Technical Reports and Supporting Information
A Marine Habitat Survey/Aquatic Ecology report is required for all works below the Mean High Water mark.

B5.1 Water Management Plan

Land to which this control applies
All Land NOT including the Warriewood Valley Locality.

Uses to which this control applies

Attached dwelling
Boarding house
Business Development
Group home
Hospital
Hostel
Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision

Outcomes
Effective management of all water and wastewater resources. (En, S)
Protection of receiving environments downstream of all water management systems. (En, S)

Controls
An Integrated Water Management approach must be undertaken on all land subject to development for the effective water management of all water on the site including:

- rainwater
- stormwater
- greywater, and
- wastewater

in accordance with:

- *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004*
- The Pittwater 21 Development Control Plan (this DCP)
- All relevant legislation

A Water Management Plan is required to be submitted setting out the proposed Integrated Water Management System which may comprise of the following components including (but not limited to):

- Wastewater treatment system
- Greywater Treatment system
- Land Application System (Wastewater and Greywater systems)
- Water Harvesting and Reuse System
- Rainwater Tank (collection from roof area)
- Rainwater Tank "top up" from the Sydney Water potable water supply
- Stormwater tank (collection from ground area)
- Run-off area to each collection system
- On-Site Detention System (OSD) - type, size, location, discharge orifice plate size
- Water Quality Filtration System
- Water Quality System
- Infiltration / Dispersal System
- Site Discharge system to the public drainage system waterways and/or coastal area
- Natural and artificially modified water courses on the land
- Piped Drainage System on the land
- Overland/surface flow paths
- Easements (existing and proposed)
- Site constraints (e.g.: location of services, heritage orders, trees)

The Water Management Plan is to be clearly drafted, of a minimum 1:200 scale, showing the development, surface contours to AHD, all components of the Integrated Water Management System, and the proposed development. The Water Management Plan is to be professionally drafted and capable of being electronically scanned.

The Water Management Plan must clearly nominate the location, the direction of water flow between system elements, and integration of all components in the Water Management System.

The Water Management Plan is also to be accompanied by supporting Assessment Reports and documentation by an appropriately qualified and accredited Professional Engineer, where required, relevant to the proposed Water Management System.

All Water Management System components must be located on private lands except for the discharge line to the public stormwater system.

Variations
Nil

Advisory Notes
The minimum requirements for *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004* takes precedence over the requirements of this control.

- locations of the system
- schematic direction of water flow into, within, and out of the Integrated Water Management System
- system connectivity between elements of the Integrated Water Management system
- sizes and design/system capacities
- relevant technical descriptions
- proprietary product names (where applicable).
- The connection point(s) of the stormwater management elements to a public drainage system and/or waterways and coastal areas.
- The sewerage connection point, sewer main (and service lines for existing development).
- All existing and proposed easements.
- All site constraints having impact on the Integrated Water Management system

Technical Reports and Supporting Information
Depending on the individual property the Development Application may also need to be accompanied by Consultant Reports eg:

- On-Site Wastewater Management Study (B5.2)
- Environmental and Health Risk Management Plan (for Stormwater Harvesting & Reuse)
- Operation and Maintenance Plan (for Stormwater Harvesting & Reuse)

Please also check to ascertain if any of the following reports are required for your proposal:

1. Geotechnical Enginering Report (for properties as classified within Councils Interim Geotechnical Risk Management Policy),
2. Flood Study,
3. Hazard Report (Bluff/Coastal Erosion, Wave/Tidal Action),
4. Bush Fire Report,
5. Contaminated Land Study,
6. Species/Fauna Impact Study,

B5.3 Greywater reuse

Land to which this control applies
All Land NOT including the Warriewood Valley Locality.

Uses to which this control applies
All Uses

Outcomes
Effective management of grey water treatment systems which maintain disposal to Sydney Water central reticulation system (for disposal in cases of emergency breakdown/malfunction). (En, S)

Effective management of on-site sewage and effluent systems to ensure environmental and public health protection. (En, S)
Water Conservation (En)

Controls
Blackwater reuse and on-site disposal is not permitted on sewered lands.

Council will only consider approval of on-site treatment, disposal and/or reuse of greywater subject to demonstration of scheme feasibility and compliance with all relevant State and Federal regulatory requirements and the referenced guidelines.

The greywater treatment and reuse system shall have a current NSW Health Accreditation (where accreditation is necessary).

All premises must maintain a connection to the Sydney Water centralised sewerage waste disposal system.

Variations
Nil

Advisory Notes
References

Environment and Health Protection Guidelines - Onsite Sewage Management for Single Households (Department of Local Government et al. January 1998)

NSW Guidelines for Greywater reuse in Sewered, Single Household Residential Premises (Department of Water and Energy, May 2008)

Interim NSW Guidelines for Management of Private Recycled Water Schemes (Department of Water and Energy, May 2008). This includes the approval to install and approval to operate a private recycled water scheme requirements.

Use of Effluent by Irrigation (Department of Environment and Conservation, October 2004)

National Guidelines for Water Recycling: Managing Health and Environmental Risks (Natural Resource Management Ministerial Council et al. November 2006)

Note: This control does not relate to Greywater Diversion Devices or manual bucketing of greywater.

Information to be shown on the site plan:

- the sewage connection point, sewer main (and service lines for the existing development)
- the proposed location of greywater storage and treatment tanks, greywater irrigation areas and any internal uses with the building/s.

Technical Reports and Supporting Information
1. Single Residential Premises

All applications must be accompanied by a Greywater Management Study prepared by an appropriately qualified wastewater consultant meeting the requirements of the *NSW Guidelines for Greywater Reuse in Sewered, Single Household Residential Premises*, published by the Department of Water & Energy, May 2008.

2. Premises other than Single Residential Premises

All applications must be accompanied by a Greywater Management Study prepared by an appropriately qualified wastewater consultant meeting the requirements of the *Interim Guidelines for the Management of Private Recycled Water Schemes*, published by the Department of Water & Energy, May 2008.

B5.4 Stormwater harvesting

Land to which this control applies
All Land NOT including the Warriewood Valley Locality.

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Child care centre
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Semi-detached dwelling
Seniors housing
Shop top housing

Outcomes
Minimise quantity of stormwater runoff.
Minimise surcharge from the existing drainage systems.
Reduce water consumption and waste in new development.
Implement the principles of Water Sensitive Urban Design (En)

Controls
Where development is proposing a stormwater harvesting scheme, it shall be designed to comply with all relevant State and Federal regulatory requirements.

A stormwater management plan describing the design for stormwater harvesting and reuse is required to be submitted setting out effective water management of all water on-site.

The stormwater management plan is required to demonstrate:

- A reduction of water consumption and waste through the provision of re-use devices, conservation practices and recycling runoff.
- Water Sensitive Urban Design principles have been incorporated into the design of drainage, on-site detention, landscaping and orientation of development.
- A reduction of stormwater draining from the development site and facilitating water re-use through the use of rainwater tanks, on-site detention and re-use of greywater .

The design for the stormwater harvesting and reuse scheme is to be certified by a suitably qualified and experienced Professional Engineer and is to be submitted with the Water Management Plan and any accompanying assessment reports and documentation.

The Water Management Plan and accompanying assessment reports and documentation shall demonstrate the feasibility of the scheme.

Variations

Nil

Advisory Notes
Reference

Managing Urban Stormwater: Harvesting and Reuse (Department of Environment and Conservation, 2006)

National Water Quality Strategy - Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) (Natural Resource Management Ministerial Council *et al*., November 2006)

(Draft) National Water Quality Strategy - Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 2) - Stormwater Harvesting and Reuse (Natural Resource Management Ministerial Council *et al)*

Interim NSW Guidelines for Management of Private Recycled Water Schemes (Department of Water and Energy, May 2008)

- A scale plan showing scheme arrangement including locations and description of system components (eg. water treatment capacity, methods, pipe sizes)
- locations of the system components (eg. stormwater extraction and reuse locations, system bypasses)
- schematic direction of water flow into, within, and out of the Integrated Water Management System
- system connectivity between elements of the Integrated Water Management system
- sizes and design/system capacities
- relevant technical descriptions
- proprietary product names (where applicable)
- The connection point(s) of the stormwater management elements to a public drainage system and/or waterways and coastal areas.
- The sewerage connection point, sewer main (and service lines for existing development).
- All existing and proposed easements.
- All site constraints having impact on the Integrated Water Management system

Technical Reports and Supporting Information
The Water Management Plan and accompanying assessment reports and documentation shall demonstrate the feasibility of the scheme, and shall include, but not be limited only to:

- Description of proposed stormwater uses
- Results of water balance modelling, including estimates of stormwater quantities to be extracted and reused
- A demonstration of compatibility of the proposed scheme with local and regional water management plans or stormwater strategies
- An Environmental and Health Risk Management Plan with clear identification of public health and safety risks and environmental risk (eg. the impacts of extraction on environmental flows), and how each risk is to be addressed
- The environmental and health risks and/or financial obligations that would be transferred to others (eg. if the proponent intends to transfer part or all of the scheme to another stakeholder after construction), and legal agreements to formalise arrangements for risk apportionment and recourse in these circumstances of transfer of responsibility
- An Operation and Maintenance plan, including a description of the ongoing management arrangements for the scheme and demonstration of adequate on-going funding for operation and maintenance.

B5.5 Rainwater Tanks - Business, Light Industrial and Other Development
Retain – no change.

B5.6 Rainwater Tanks – Water Supply

Land to which this control applies
Land zoned E3 Environmental Management, RU2 Rural Landscape or R5 Large Lot Residential.

Uses to which this control applies

Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Other Development
Rural industry
Rural worker's dwelling
Secondary dwelling

Outcomes
An alternative safe water supply is provided for properties not connected to a Sydney Water main. (S)

Controls
Where connection to a Sydney Water main is not able to be provided, rainwater tanks must be provided for potable (i.e. drinking, bathing, cooking, washing etc) and non-potable (i.e. toilet flushing, watering garden, irrigation, fire fighting etc) uses.

The minimum capacity tank requirements for new dwellings and major additions to existing dwellings, where there is no connection to mains water, must be 45,000 litres of which up to 10,000 litres may be used for non-potable uses and stored in a separate system.

The minimum capacity tank requirements for development (other than new dwellings and major additions to existing dwellings) where there is no connection to mains water must be in accordance with relevant Australian Standards.

Variations
Council may consider a variation where a rainwater tank of this size already exists or a tank of this size is not appropriate and it can be demonstrated that the outcomes of this control are achieved.

Advisory Notes
In Bushfire Prone Lands, a minimum of 10,000 litres is to be set aside for fire fighting purposes.

References

Guidance on Use of Rainwater Tanks (Enhealth, 2004)

Rainwater Tanks Where a Public Water Supply is Available - Use of. NSW Health Guidelines GL2007_009 (June 2007)

The Plumbing Code of Australia

Destruction, Removal or Reuse of Septic Tanks, Collection Wells, Aerated Wastewater Treatment Systems and Other Sewage Management Facility Vessels. (NSW Department of Health - Advisory No 3, May 2006)

Information to be shown on the Development Drawings
Shall show the location and state the size of proposed water storage tanks together with overflow provision.

B5.7 Stormwater Management - On-Site Stormwater Detention

Land to which this control applies
Land identified as requiring On-site detention NOT including the Warriewood Valley Locality - P21DCP-BCMDCP043
Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Child care centre
Development ancillary to residential accommodation

Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing

Outcomes

Rates of stormwater discharged into receiving environment maintained or reduced. (Ec, S)

Controls

An On-Site Detention (OSD) facility is to be installed where the development results in additional hard (impervious) surface area of greater than 50m^2 (on a cumulative basis since February 1996) and on land designated through mapping as requiring OSD facility.

OSD facilities are to be designed and installed to temporarily detain stormwater on a site to limit the discharge leaving the property to ensure that the development does not increase stormwater discharge downstream of the land over and above that of the existing stormwater discharge conditions up to the 1% AEP storm event.

All additional roof surface area of the development is to be drained initially to the rainwater tank which is to be fitted with an overflow pipework system connected to the OSD facility.

All additional ground surface hard stand (impervious) areas are to be drained via a stormwater tank/pit to the OSD facility.

Surface stormwater runoff from properties upstream of the land is to be independently managed to that of the additional ground surface stormwater collection and OSD system and is required to bypass the OSD system.

Rainwater tanks and OSD facilities may also be combined in an integrated system and may be either above or below ground. Should an oversized rainwater tank be used, then 25% of the excess storage volume can be credited towards the OSD tank capacity.

The OSD system may be in the form of an underground tank and/or an above ground tank or open area and is to be designed to the storage and discharge requirements detailed in the following table.

REQUIREMENTS FOR SIZE AND ALLOWABLE DISCHARGE FROM ON-SITE DETENTION SYSTEMS

Additional Hard (Impervious) Surface Area (square metres)	**Minimum Capacity of On-Site Detention Tank (Litres)**	**Discharge Rate Litres/Sec**
0 -50	Nil	Nil
>50 - 75	4,500	2
>75 - 100	6,000	3
>100 - 150	9,000	4
>150 - 200	12,000	6
>200 - 250	15,000	7
>250 - 300	18,000	9
>300 - 400	24,000	12

>400 - 500	30,000	15
>500 - 600	36,000	18
>600 - 700	42,000	21
>700 - 800	48,000	24
>800 - 900	54,000	27
>900 - 1,000	60,000	30
>1,000*	A minimum storage capacity of 60 litres per m^2 of additional hard/impervious surface area, and a discharge rate which replicates the discharge from the site were it to be undeveloped.	

*Developments exceeding 1,000 square metres of additional hard (impervious) surface area must also provide with the Water Management Plan, an Integrated Water Management Strategy prepared by a suitably qualified and experienced Water Engineer, demonstrating that stormwater flows discharged from the site is to be no greater than what would have occurred predevelopment, and that Water Sensitive Urban Design principles have been practically maximised within the proposed development.

The discharge from the outlet of the OSD facility shall be controlled by an orifice plate set into the discharge line to control the rate of flow from the system. The required size of orifice plate is set out in Appendix 11 - Stormwater Management Technical Data - Table 1.

The orifice plate is to be located at the invert of all storage facilities to avoid stagnant water (silt traps will not be permitted).

A high-level outlet to the OSD facility is to be provided to cater for surcharge/overflow during major storm events and/or blockages.

Surface flow paths, including the provision of an emergency overflow to cater for blockage of the system must be provided between the OSD facility and the point of stormwater discharge from the land.

All habitable floor levels are to be a minimum of 300mm above and garage floor levels are to be a minimum of 150mm above the maximum design storage water surface level and flow path levels.

The OSD facility may be an underground storage facility as follows:

1. Underground Storage facility:
    - Storage tank located underground provided with a maintenance access hatch
    - A stainless or galvanised mesh screen is to be installed a minimum of 300mm from the outlet to prevent blockage of the orifice by debris
    - Discharge orifice plate installed
    - High level outlet for discharge during a major storm event
    - Venting of the storage tank to prevent the build up of gases
2. Landscaped OSD storage facility:
    - Storage volumes in landscaping areas shall include an allowance for 10 percent additional storage for vegetation growth and construction inaccuracies
    - Discharge orifice plate installed
    - A stainless or galvanised mesh screen is to be installed a minimum of 300mm from the outlet to prevent blockage of the orifice by debris
    - High level outlet for discharge during a major storm event
    - The desirable minimum surface slope to the discharge outlet is 1.5 percent, with the absolute minimum being 1.0 percent
    - Subsoil drainage should be provided in landscaped areas to prevent the ground becoming saturated during prolonged wet weather
3. Driveway and car park OSD storage facility:
    - To avoid damage to vehicles, depths of ponding on driveways and car parks is not to exceed 200mm under design conditions
    - Discharge orifice plate installed

- A stainless or galvanised mesh screen is to be installed a minimum of 300mm from the outlet to prevent blockage of the orifice by debris
- High level outlet for discharge during a major storm event
- The minimum transverse paving slopes within storage areas to the discharge outlet is 0.7 percent

OSD systems are structures intended to control site discharges over the entire life of the development.

Variations

Independently Derived OSD Assessment

Applicants may provide an independent assessment of the water management and On-Site Detention requirements through an On-Site Detention Assessment Report to be submitted with the Water Management Plan prepared by a suitably qualified and experienced Water Engineer.

Data for Stormwater Assessment

To assist in the assessment of stormwater design, the following rainfall data is provided:

i. Design rainfall Intensity-Frequency-Duration (IFD) relationships for various locations within Pittwater Local Government Area (PLGA) are given in Appendix 11 - Stormwater Management Technical Data - Tables 2, 3, 4, 5 and 6.
ii. Design rainfall temporal patterns from Australian Rainfall and Runoff - A Guide to Flood Estimation are provided for average recurrence intervals (ARI's) less than 30 years and greater than 30 years for the Pittwater Local Government Area in Appendix 11 - Stormwater Management Technical Data - Table 7.

Information to be shown on the Development Drawings

The Integrated Water Management Plan is to show the location, design details, dimensions and discharge details for the on site detention system.

B5.8 Stormwater Management – Water Quality – Low Density Residential

Land to which this control applies

All land in the Pittwater LGA not including the Pittwater waterway or Warriewood Valley land release area - P21DCP-BCMDCP037

Uses to which this control applies

Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Rural worker's dwelling
Secondary dwelling

Outcomes

No increase in pollutants discharged with stormwater into the environment. (En)
Development is compatible with Water Sensitive Urban Design principles. (En)

Controls

The control is applicable when the development results in an additional hard (impervious) area of more than 50 square metres.
Development shall incorporate the installation of the following stormwater quality improvement measures:

- Pre-screening of organic matter (eg leaf litter) prior to the collection of rainwater in the rainwater tank
- A water quality filtration basket or equivalent primary treatment Stormwater Quality Improvement Device (SQID) to collect leaf litter and course sediments is to be installed prior to the discharge of stormwater from the land.

All Stormwater Quality Improvement Devices (SQIDs) must make provision for convenient and safe regular inspection, periodic cleaning, and maintenance.
Applicants are also encouraged to apply advanced water quality techniques through primary and secondary treatment techniques to reach and/or exceed the following objectives:

- Primary treatment (eg. physical screening, rapid sedimentation techniques) of stormwater to collect and retain gross pollutants (i.e. litter and organic matter) and coarse sediments (with associated entrained pollutants) prior to the discharge of stormwater from the land.
- Secondary treatment (eg. fine particle sedimentation and filtration techniques) of stormwater to collect and retain medium to fine sediments (with associated entrained pollutants) prior to the discharge of stormwater from the land.

Variations
Nil

Advisory Notes
Examples of SQIDs that provide primary treatment include litter collection baskets, litter racks, gross pollutant traps, and sediment traps. Examples of SQIDs that provide secondary treatment include filter strips, grass swales, extended detention basins, porous pavers, infiltration trenches, infiltration basins and sand filters.

References

Urban Stormwater - Best Practice Environmental Management Guidelines (CSIRO, 1999)

Australian Runoff Quality - A Guide to Water Sensitive Urban Design (Engineers Australia, 2006)

Information to be shown on the Development Drawings
Stormwater plan is to show type(s) of stormwater quality improvement measures, their location and footprint (where applicable), the sequence of stormwater treatment (treatment train) and the directions of stormwater bypass flows.

B5.9 Stormwater Management – Water Quality – Other than Low Density Residential

Land to which this control applies
All land in the Pittwater LGA not including the Pittwater waterway or Warriewood Valley land release area - P21DCP-BCMDCP037

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Child care centre
Development ancillary to residential accommodation
Group home
Hospital
Hostel
Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Semi-detached dwelling
Seniors housing
Shop top housing

Outcomes
No increase in pollutants discharged with stormwater into the environment. (En)
Development is compatible with Water Sensitive Urban Design principles. (En)

Controls

The control is applicable when the development results in an additional hard (impervious) area of more than 50 square metres.

Land Size up to 1500 sqm

Development shall incorporate stormwater quality improvement measures:

- Pre-screening of organic matter (eg. leaf litter) prior to the collection of rainwater in the rainwater tank.
- A water quality filtration basket or equivalent primary treatment Stormwater Quality Improvement Devise (SQID)device to collect leaf litter and coarse sediments is to be installed within the integrated water management system prior to the discharge of stormwater from the land.

All Stormwater Quality Improvement Devices (SQIDs) must make provision for convenient and safe regular inspection, periodic cleaning, and maintenance.

Applicants are also encouraged to apply advanced water quality techniques through primary and secondary treatment techniques to reach and/or exceed the following objectives:

- Further Primary treatment (eg. physical screening, rapid sedimentation techniques) of stormwater to collect and retain gross pollutants (i.e. litter and organic matter) and coarse sediments (with associated entrained pollutants) prior to the discharge of stormwater from the land.

and

- Secondary treatment (eg. fine particle sedimentation and filtration techniques) of stormwater to collect and retain medium to fine sediments (with associated entrained pollutants) prior to the discharge of stormwater from the land.

Land Size greater than 1500 sqm

Development shall incorporate stormwater quality improvement measures (as indicated on Table 1) to undertake (where specified) the following:

- Pre-screening of organic matter (eg. leaf litter) prior to collection of rainwater.
- Primary treatment (eg. physical screening, rapid sedimentation techniques) of stormwater to collect and retain gross pollutants (i.e. litter and organic matter), coarse sediments (with associated entrained pollutants), and oil and grease prior to the discharge of stormwater from the land
- Secondary treatment (eg. fine particle sedimentation and filtration techniques) of stormwater to collect and retain medium to fine sediments (with associated entrained pollutants) prior to the discharge of stormwater from the land
- Tertiary treatment (eg. enhanced sedimentation and filtration, biological uptake, absorption onto sediments) to remove dissolved pollutants (including nutrients and heavy metals) prior to the discharge of stormwater from the land.

Table1: Stormwater Treatment Requirements

LEVEL OF TREATMENT	Pre	Primary	Secondary	Tertiary
DEVELOPMENT TYPE				
Shop top housing	X	X		
Business development	X	X		
Industrial development	X	X		
Subdivision		X	X	X
Tennis court		X		
Multi dwelling housing	X	X	X	
Residential flat building	X	X		
Seniors housing	X	X	X	
Child care centre	X	X	X	
Hospital	X	X	X	
Rural industry	X	X	X	X

Other development	**X**	**X**	**X**	

Note: **X** Indicates the minimum level of stormwater pollution treatment required for the development.

All stormwater quality improvement devices (SQIDs) must be compatible with site constraints and the integrated water management system.

All stormwater quality improvement devices must make provision for convenient and safe regular inspection, periodic cleaning, and maintenance.

Certification is to be provided by a suitably qualified and experienced Water Engineer with the Water Management Plan demonstrating that the proposed stormwater quality improvement devices proposed at the site will achieve the Control requirements and all applicable legislation.

Variations
Nil

Advisory Notes
Examples of SQIDs that provide primary treatment include litter collection baskets, litter racks, gross pollutant traps, and sediment traps. Examples of SQIDs that provide secondary treatment include filter strips, grass swales, extended detention basins, porous pavers, infiltration trenches, infiltration basins and sand filters.

Examples of SQIDs that provide tertiary treatment include constructed ponds, constructed wetlands, and chemical treatments.

References:

Urban Stormwater - Best Practice Environmental Management Guidelines (CSIRO 1999)

Australian Runoff Quality - A Guide to Water Sensitive Urban Design (Engineers Australia 2006)
Information to be shown on the Development Drawings
Stormwater plan is to show type(s) of stormwater quality improvement measures, their location and footprint (where applicable), the sequence of stormwater treatment (treatment train) and the directions of any stormwater bypass flows.

Secondary and Tertiary treatment measures shall include design details and dimensions for the treatment system.

B5.10 Stormwater Discharge into Public Drainage System

Land to which this control applies
All land in the Pittwater LGA not including the Pittwater waterway or Warriewood Valley land release area - P21DCP-BCMDCP037

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Child care centre
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Group home
Hospital
Hostel

Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision

Outcomes
All new development is to have no adverse environmental impact at the discharge location. (En, S)

Controls
This control applies where stormwater can discharge into the public drainage system.

Direct Connection to the Public Drainage System

Stormwater drainage is to be connected to a public drainage system by gravity means to which it would naturally flow.

Where the development has legal access to a piped drainage system within the development land or adjacent land, a channel or a natural watercourse within the development land or adjacent land, a constructed public road within a road reserve adjacent to the development land (with or without kerbing and guttering), all concentrated stormwater must be discharged directly to that system.

Where stormwater discharge is to be connected to the kerb and gutter of a public roadway, it is not to exceed a discharge rate of 30 litres per second (L/s) in a 1% AEP storm event per property. The number of outlets to the kerb and gutter should be limited to the minimum practically possible (typically one per property). Where discharge exceeds the above values, Council will require that the site discharge be piped to the nearest Council piped drain, channel or natural watercourse, with a minimum 375mm diameter pipe, to Council's standards.

Where an outlet pipe size exceeds 100mm diameter (or insufficient cover exists over the pipe) and flow is to be discharged to the kerb and gutter of a Council roadway, the following is required:

- A minimum 600 mm x 600 mm grated converter pit is to be constructed inside the front boundary of the property. (Note: in the case of the main Commercial Centres where downpipes are located on the property boundary, the connection is required to be by direct connection at the base of the downpipe with an overflow system at the head of the downpipe.)
- Flows between the converter pit and the kerb and gutter are to be discharged using galvanised steel box-section pipes as follows:
    - 100 diameter outlet pipe - use 1 x 100 mm x 100 mm x 6 mm thick (w x h x t)
    - 150 diameter outlet pipe - use 1 x 200 mm x 100 mm x 6 mm thick
    - 225 diameter outlet pipe - use 2 x 200 mm x 100 mm x 6 mm thick

Where a stormwater system discharges into a public road reserve that does not contain an existing kerb and guttering or into a channel or natural water course, an outlet structure is required to be installed and designed to defuse the concentrated stormwater discharge to reduce flow velocities to prevent scour, be safe and be easily maintained.

Connection to Public Drainage System via Inter-allotment Drainage and Easement

Where direct access to a public drainage system (i.e. street kerb and gutter, piped system or open channels and watercourses) is not possible, the installation of inter-allotment drainage system and the acquisition of drainage easements over intervening properties (at the developer's cost) will be required.

Written consent for the piping and acquisition of an easement is to be obtained from adjoining owners and provided to Council at the time of lodging the Development Application. Creation of easement(s) will be required to be completed prior to the issue of the Subdivision Certificate. For other uses other than subdivision, where the easement has not been created prior to the issue of consent, then a deferred commencement condition will be applied.

Connection to Public Drainage System via Public Reserve

Conveyance of stormwater that is required to traverse a public reserve (other than a public road reserve) in order to gain access to a piped drainage system, natural watercourse, estuary and lagoon may be permitted, but will require the prior approval in writing from the Council or the relevant statutory authority and in some instances the creation of a drainage easement.

General

All drainage structures and measures are to be designed to be visually unobtrusive and sympathetic with the environment.

All outlet connections into watercourses, estuary or lagoons shall be designed according to the design principles in *Controlled Activities on Waterfront Land: Guideline for outlet structures on waterfront land* (NSW Office of Water, July 2012).

A Water Management Plan to a minimum scale of 1:200 including survey contours to AHD must demonstrate the feasibility of the proposed drainage system within the site and connection to a public drainage system.

Adequate overflow paths to the public drainage system must be provided to cater for major storm events (up to the 1% AEP storm event) or blockages within the drainage system serving the development.

Variations
Where the development does not have legal access to the public drainage system and is unable to gain adjoining owner's consent on alternative access through drainage easements as required, Council will consider the following on merit:

- An on-site infiltration/dispersion system on suitable land. Land affected by landslip may not be suitable for installation of an on-site infiltration/dispersion system, however, may be acceptable if supported by Geotechnical Risk Assessment stating that on-site disposal achieves the 'Acceptable Level' of risk as defined in the Geotechnical Risk Management Policy for Pittwater.
- Redirection of stormwater flow
- A split system
- An alternative discharge approach

If such a variation is sought it must be accompanied by a supporting report by an appropriately qualified Water Engineer and Geotechnical Engineer (where applicable), outlining the collection, use, reuse and disposal method and demonstrating that it will provide an acceptable standard of safety, will not have any adverse impact on adjoining properties, bushland or public places, and will not adversely impact on the downstream drainage system, downstream bushland or any downstream public places.
Information to be included in the Statement of Environmental Effects
A description of the proposed stormwater discharge method.

B5.11 Stormwater Discharge into Waterways and Coastal Areas

Land to which this control applies
All land adjacent to a river system, foreshore or coastline NOT including the Warriewood Valley Locality - P21DCP-BCMDCP038

Uses to which this control applies

Attached dwelling
Boarding house
Business Development
Child care centre
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision

Outcomes
All new development to have no adverse environmental impact at the discharge location. (En, S)

Controls
This control applies where stormwater can legally discharge into a natural waterway, estuary, lagoon or coastal area.

Direct Connection to Waterways and Coastal Areas

The discharge of stormwater into the waterways (including Pittwater, Narrabeen Lagoon and creek systems) or any of its tributary watercourses and coastal areas will only be permitted from land directly adjoining a waterway or coastal area provided that it can demonstrated through the Water Management Plan, that:

- discharge to the public drainage system is not available
- discharge over any bluff or cliff area will not cause slope instability
- the discharge system does not result in cliff/bluff/dune or shoreline erosion, sedimentation or water quality impacts
- the discharge system will minimise the visual/environmental impact of any drainage discharge structure along the foreshore.

Connection to Public Drainage System via Public Reserve

Conveyance of stormwater that is required to traverse a public reserve (other than a public road reserve) in order to gain access to a natural watercourse, estuary and lagoon or coastal area may be permitted, but will require the prior approval in writing by the Council or the relevant statutory authority and in some instances the creation of an easement.

General

Where a stormwater system discharges into a natural watercourse, estuary, lagoon or coastal area, an outlet structure is required to be installed and designed to defuse the concentrated stormwater discharge to reduce flow velocities to prevent scour, be safe and be easily maintained. The outlet structure shall be designed according to the design principles in *Controlled Activities on Waterfront Land: Guideline for outlet structures on waterfront land* (NSW Office of Water, July 2012).

Adequate overflow flowpaths to a natural watercourse, estuary, lagoon or coastal area must be provided to cater for major storm events (up to the 1% AEP storm event) or blockage within the drainage system serving the development.

A Water Management Plan to a minimum scale of 1:200 including survey contours to AHD must demonstrate the feasibility of the proposed drainage system within the site and connection to a natural watercourse, estuary, lagoon or coastal area.

Variations
Nil

Advisory Notes
Reference:

Controlled Activities on Waterfront Land: Guideline for outlet structures on waterfront land (NSW Office of Water, July 2012).

B5.12 Stormwater Drainage Systems and Natural Watercourses

Land to which this control applies
All land in the Pittwater LGA not including the Pittwater waterway or Warriewood Valley land release area - P21DCP-BCMDCP037

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Child care centre
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision

Outcomes
The integrity of stormwater drainage systems, easements and natural watercourses are maintained. (En)
Stormwater flows including overland flow have continuity and are not impeded. (En)

Controls
Structures Over and Adjacent to Easements, Piped Drainage System or Natural Watercourses

No encroachments or low lying overhangs of the development are permitted over and/or within easements for

stormwater drainage or over piped drainage systems or over natural water courses.

On a merit basis, Council may allow light, open sided, easily removable structures to be built over drainage easements, piped drainage systems or floodways if it can be demonstrated through a water level and flow assessment that it does not affect the flow of water in overland flow paths.

Structural support elements are not permitted within an easement or within the cross sectional area of an open or natural watercourse.

Structural support elements adjacent to an easement, piped drainage or natural water course located on the development site or on adjacent lands must be founded on a stable foundation a minimum of 300mm below the invert level of the pipe (or as directed by the Structural Engineer) to provide stability to both structure and drainage system particularly during maintenance operations.

Stormwater Drainage Systems

Council approach to the management of the stormwater drainage system is through the Major/Minor concept (as described in *Australian Rainfall and Runoff A Guide to Flood Estimation* (Institution of Engineers Australia, 1998)(AR&R)) for its piped urban drainage design.

The Minor Stormwater Drainage System refers to the underground piped system, which shall be designed to cater for a 5% Annual Exceedance Probability (20 year Annual Recurrence Interval) flood event.

The Major Stormwater Drainage System refers to overland flow paths designed to convey major storm flows when the capacity of the minor system is exceeded.

Major Stormwater Drainage Systems shall be designed to cater for the 1% Annual Exceedance Probability (100 year Annual Recurrence Interval) storm event.

The Minor Stormwater Drainage System may in some instances be required to accommodate higher flow rates if the Major Stormwater Drainage System cannot safely or adequately carry the required flow rate.

Piped stormwater drainage systems can usually be categorised as:

- public stormwater drainage system - this system accepts stormwater discharges from both public and private lands;
- private stormwater drainage system - this system accepts stormwater discharges from private land only. This is commonly referred to as an interallotment drainage system.

Any public stormwater drainage system piped through private land must remain on the land and cannot be diverted into adjoining land without the adjoining owner's permission.

Where the Applicant proposes to pipe the public stormwater drainage system, the minimum sized pipe is to be 375mm diameter. The piped drainage system shall be constructed using the appropriate class of rubber ring joint reinforced concrete pipes

Where overland flows from upstream catchments impact the site, this control should also be read in conjunction with the Flood Category 3 Controls of this DCP.

The design of stormwater systems for the property is to demonstrate through a water level and flow assessment that:

- The proposed development does not have an adverse impact on adjoining properties through diversion, concentration or damming of such flows;
- The proposed development accommodates the passage of overland flow through the site and where applicable illustrates that the proposed development is designed to withstand damage due to scour, debris or buoyancy forces so that the risk of incidental damage is minimised;
- The proposed development is not sited where flows will create a hazardous situation for future occupants in terms of depth and velocity of flows through the property;

- Floor levels within the development are set to comply with the freeboard requirements as set out in Flood Risk Management Policy;
- The proposed development is compatible with any future mitigation strategies to be implemented by Council in terms of such overland flows.

Where determined necessary, Council will impose conditions on a proposed development, to protect overland flow paths. This could include the construction of flowpaths with openings through fencing to protect overland flow paths. An 'interallotment drainage system' shall be designed to cater for a 5% Annual Exceedance Probability (20 year Annual Recurrence Interval) storm event for subdivisions creating separate lots. It shall be assumed that an appropriate percentage of the lot area is impervious to determine the design flow rate.

For developments not specified in this control, an 'inter-allotment drainage system' shall be designed to carry the 5% Annual Exceedance Probability (20 year Annual Recurrence Interval) flow rate for the total site area.

For an 'inter-allotment drainage system', the minimum sized pipeline is to be 150mm diameter. The piped drainage is to be constructed from an appropriate class of pipe with watertight and flexible joints.

Natural Watercourses

Any natural watercourses on the property shall be retained in their natural state wherever possible to carry stormwater flows through the property. Natural water courses cannot be diverted onto adjoining lands.

Any natural watercourses on the land where in a degraded state, must be restored and rehabilitated in accordance with the guidelines for controlled activities under the *Water Management Act 2000*.

Council encourages the replacement of a piped stormwater system with a restored creek system with appropriate flow carrying capacity.

A Water Management Plan is to be submitted demonstrating the feasibility of the proposed natural watercourse works within the site.

Variations

Diversion of Stormwater Systems

Easements and piped drainage system may be diverted around proposed development where it can be demonstrated, through a Water Management Plan, that:

- the diversion is wholly contained within the land,
- that the flows are not diverted to an adjoining/alternative watercourses and
- flow capacities are maintained.

The diversion of natural watercourses is only permissible with a controlled activity approval for the work from the NSW Office of Water.

Any alteration to an easement, piped drainage system or natural watercourse including all legal and consultant costs shall be at the full cost to the applicant.

Overhang of Easement

An overhang, over and/or within an easement will be considered on merit. A minimum vertical clearance to allow appropriate machinery to allow easy access and ample clearances to undertake maintenance replacement operations is required. Alternative construction techniques to allow removal of sections of the building structure by the property owner will also be considered.

Alternative Pipe Materials

Council will consider the use of pipelines made of different materials for a public stormwater drainage system should site conditions not suit concrete pipes (eg. Steeply sloping sites).

Advisory Notes

i. Waterway design is to be in accordance with guidelines such as:

- *Controlled Activities on Waterfront Land: Guideline for outlet structures on waterfront land* (NSW Office of Water, July 2012).
- *Controlled Activities on Waterfront Land: Guideline for riparian corridors on waterfront land* (NSW Office of Water, July 2012).
- *Controlled Activities on Waterfront Land: Guideline for laying pipes and cables in watercourses on waterfront land* (NSW Office of Water, July 2012).
- *Controlled Activities on Waterfront Land: Guideline for instream works on waterfront land* (NSW Office of Water, July 2012).
- *Controlled Activities on Waterfront Land: Guideline for watercourse crossings on waterfront land* (NSW Office of Water, July 2012).
- *A Rehabilitation Manual for Australian Streams* (CRC for Catchment Hydrology, 1999).
- *Guidelines for Stabilising Waterways* (Standing Committee on Rivers & Catchments Victoria, 1991).
- *Hydraulic Geometry of Brisbane Streams - Guidelines for Natural Channel Design* (I.D. & A. Pty Ltd. 1996)

These guidelines refer to techniques such as the use of 'regime theory' with approaches published by various researchers in the field of fluvial hydraulics (eg. Simons and Alverston, 1963).

ii. Data for Stormwater Assessment

To assist in the assessment of stormwater design, the following rainfall data is provided:

- Design rainfall Intensity-Frequency-Duration (IFD) relationships for various locations within Pittwater Local Government Area (PLGA) are given in Appendix 11 - Stormwater Management Technical Data - Tables 2, 3, 4, 5 and 6.
- Design rainfall temporal patterns from Australian Rainfall and Runoff - A Guide to Flood Estimation are provided for average recurrence intervals (ARI's) less than 30 years and greater than 30 years for the Pittwater Local Government Area in Appendix 11 - Stormwater Management Technical Data - Table 7.

iii. Flood Controls

Reference is also made to Flood Controls of this DCP and Flood Risk Management Policy.

Information to be shown on the Development Drawings

The Integrated Water Management Plan is to show the location, description, design details (including cross sections and long sections of drainage lines and watercourses), dimensions and discharge details for all proposed stormwater system work elements. The location and dimensions of all existing and proposed drainage easements, and easements to be extinguished is also to be shown.

B5.13 Development on Waterfront Land

Land to which this control applies

All land in the Pittwater LGA not including the Pittwater waterway or Warriewood Valley land release area - P21DCP-BCMDCP037

Uses to which this control applies

Attached dwelling
Boarding house
Business Development
Child care centre
Development ancillary to residential accommodation
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision

Outcomes

Protection of waterways and improved riparian health (En)
Stormwater and creek flows are safely managed. (S)
Appropriate setback between waterways and development (En)

Controls

Any waterfront land (as defined in the Water Management Act 2000) on a the property shall be retained in their natural state to: carry stormwater/flood flows, maintain aquifers, retain stability, and provide habitat functions.

Natural or artificially modified water courses cannot be diverted onto adjoining lands, filled, channelised and/or dammed.

Waterfront land in a degraded state, should be restored and rehabilitated.

Development within waterfront land shall incorporate appropriately sized riparian corridor zones into the design based on Controlled Activities on Waterfront Land: Guideline for outlet structures on waterfront land (NSW Office of Water, July 2012).

Development adjoining waterfront land is to be landscaped with local native plants.

Council encourages the replacement of a piped stormwater system where appropriate with a restored waterway watercourse with appropriate flow carrying capacity, wherever feasible.

The piping or artificial channelling of natural watercourses and drainage channels is not permitted.

A Water Management Plan with supporting documentation is to be submitted demonstrating the feasibility of the proposed watercourse works within the site.

Structures Over and Adjacent to Easements, Piped Drainage System or Natural Watercourses
No encroachments or low lying overhangs of the development are permitted over natural water courses. Structural support elements are not permitted within the cross sectional area of a natural watercourse. Structural support elements adjacent to a natural water course located on the development site or on adjacent lands must be founded on a stable foundation to the depth directed by a geotechnical engineer.

Variations
Variations may be considered when an activity or work is permissible with a controlled activity approval from the NSW Office of Water.

Variations will be considered where the activity or work is required to mitigate risk including: landslip; geotechnical risk; flooding; erosion; risk to utilities; and bushfire hazard.

Advisory Notes
Waterway design is to be in accordance with guidelines such as:

Controlled Activities on Waterfront Land: Guideline for instream works on waterfront land (NSW Office of Water, July 2012).
Controlled Activities on Waterfront Land: Guideline for riparian corridors on waterfront land (Natural Resources Access Regulator May 2018NSW Office of Water, July 2012).
Controlled Activities on Waterfront Land: Guideline for vegetation management plans on waterfront land (NSW Office of Water, July 2012).
Natural Channel Design (Brisbane City Council, 2003)
Constructed Waterways in Urban Developments Guidelines (Melbourne Water Corporation, 2009).
A Rehabilitation Manual for Australian Streams (CRC for Catchment Hydrology, 1999).
Guidelines for Stabilising Waterways (Standing Committee on Rivers & Catchments Victoria (1991).
Hydraulic Geometry of Brisbane Streams - Guidelines for Natural Channel Design (I.D. & A. Pty Ltd. 1996)

Estuarine Hazard Controls

Reference is made to Estuarine Hazard Controls in this DCP and Appendix 7 Estuarine Risk Management Policy for Development in Pittwater

Landslip Controls

Reference is made to Landslip Controls in this DCP and Appendix 5 Geotechnical Risk Management Policy for Pittwater

Flood Controls

Reference is also made to Flood Controls of this DCP and Flood Risk Management Policy.

Information to be shown on the Development Drawings
The Integrated Water Management Plan is to show the location, description, design details (including cross sections and longsections of drainage lines and watercourses), dimensions and discharge details for all proposed stormwater system work elements. The location and dimensions of all existing and proposed drainage easements, and easements to be extinguished is also to be shown.

B5.14 Stormwater Drainage Easements (Public Stormwater Drainage System)

Land to which this control applies
All land in the Pittwater LGA not including the Pittwater waterway or Warriewood Valley land release area - P21DCP-BCMDCP037

Uses to which this control applies

Attached dwelling
Boarding house
Business Development
Child care centre
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Exhibition home
Group home
Hospital
Hostel
Industrial Development
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision

Outcomes
The integrity of stormwater drainage systems and natural watercourses are maintained. (En)
Stormwater flows including overland flow have continuity and are not impeded. (En)

Controls
Easements

Where there is no current easement over the Public Stormwater Drainage System or Natural Watercourse, a suitable easement to benefit the Council will be required to be placed on the title of the land as part of the development process.

For a natural watercourse or open stormwater system the width of an easement shall be defined by the flow rate required to convey the 1% AEP flow plus 1.0m, or the minimum as set out in the Table below.

For a piped drainage system and overland flow path the minimum width of an easement is to be as indicated in the table below.

Easement Widths

Pipe Diameter (D) (mm)	Minimum Width of Easement to Drain Water (m)
D less than or equal to 675	2.5
675 < D less than or equal to 900	3.0
900 < D less than or equal to 1200	3.5
1200 < D less than or equal to 1500	4.0
1500 < D less than or equal to 1800	4.5
D > 1800 and box culverts	As required by Council
Open Stormwater System, Natural Watercourse	Total Width of (1% AEP design flows + 0.3m free board) + 1m (may increase where downstream structures are present) but not less than 2.5m.

Where multiple pipes, deep pipes, pits or associated structures are proposed, a wider easement will be required and is to be determined in consultation with Council.

Where pits/headwalls are required, easements shall be 600mm wider than the structure but not less than the minimum width denoted above.

Variations
The requirement for an easement does not apply on lands owned by the Council or Crown Land where Council has full access rights for maintenance purposes.

B5.15 Stormwater
NEW CONTROL

All land in the Pittwater LGA not including Warriewood Valley land release area

Objectives
- Improve the quality of water discharged to our natural areas to protect and improve the ecological and recreational condition of our beaches, waterways, riparian areas and bushland;
- Minimise the risk to public health and safety;
- Reduce the risk to life and property from any flooding and groundwater damage;
- Integrate Water Sensitive Urban Design measures in new developments to address stormwater and floodplain management issues, maximise liveability and reduce the impacts of climate change.
- Mimic natural stormwater flows by minimising impervious areas, reusing rainwater and stormwater and providing treatment measures that replicate the natural water cycle
- Reduce the consumption of potable water by encouraging water efficiency, the reuse of water and use of alternative water sources
- Protect Council's stormwater drainage assets during development works and to ensure Council's drainage rights are not compromised by development activities.

Requirements
Stormwater runoff must not cause downstream flooding and must have minimal environmental impact on any receiving stormwater infrastructure, watercourse, stream, lagoon, lake and waterway or the like.
The stormwater drainage systems for all developments are to be designed, installed and maintained in accordance with Council's Water Management for Development Policy.

Exceptions
Refer to Council's Water Management for Development Policy for exceptions.

B8.2 Erosion and sediment controls

Land to which this control applies
All Land.

Uses to which this control applies
Attached dwelling
Boarding house
Business Development
Child care centre
Demolition
Development ancillary to residential accommodation
Development of a sector, buffer area or development site in a Release Area, including built form and land subdivision (Built form is not limited to residential)
Dual occupancy (attached)
Dual occupancy (detached)
Dwelling house
Earthworks
Exhibition home
Group home

Hospital
Hostel
Industrial Development
Jetty
Multi dwelling housing
Other Development
Residential flat building
Rural industry
Rural worker's dwelling
Secondary dwelling
Semi-detached dwelling
Seniors housing
Shop top housing
Subdivision
Subdivision of a sector, buffer area or development site in a Release Area
Telecommunications facility
Waste water disposal system
Water recreation structure

Outcomes
Waterways, coastal areas, watercourses, drainage systems and the public domain are protected from the transportation of sedimentation from development sites. (En)
Reduction of waste throughout all phases of development. (En)
Public safety is ensured. (S)
Protection of the public domain. (S, En)

Controls
Erosion and Sediment Management

Erosion and sedimentation prevention measures must be installed on all sites to prevent the migration of sediment off the site into any waterway, drainage systems, public reserves, road reserve or adjoining private lands.

Erosion and sedimentation prevention measures must be installed in accordance with Managing Urban Stormwater: Soils and Construction (Landcom 2004) on the downstream side of any works undertaken on the boundary of the site or on public lands adjoining the site to prevent the migration of sediment off the site into any waterway, drainage systems, public reserves, road reserve or adjoining private lands.

Appropriate devices are to be in place at all times to prevent the migration of sediment off the site.

Variations
Nil

Advisory Notes
For further information refer to Managing Urban Stormwater: Soils and Construction (Landcom 2004).

Appendix 11 Stormwater Management Technical Data
Omit this whole control.
Incorporated into the Water Management for Development Policy

C4 Stormwater
Applies to Land
This control applies to land to which Warringah Local Environmental Plan 2011 applies.

Objectives
Improve the quality of water discharged to our natural areas toTo protect and improve the ecological and recreational condition of Warringah's our beaches, lagoons, waterways, wetlands, riparian areas and surrounding bushland;
To minimise the risk to public health and safety;
To reduce the risk to life and property from any flooding and groundwater damage;
Integrate Water Sensitive Urban Design measures in new developments to address stormwater and floodplain management issues, maximise liveability and reduce the impacts of climate change.into the landscape and built form to maximise amenity.
To manage and minimise stormwater overland flow, nuisance flooding and groundwater related damage to properties.
Mimic natural stormwater flows by minimising impervious areas, reusing rainwater and stormwater and providing treatment measures that replicate the natural water cycle
Reduce the consumption of potable water by encouraging water efficiency, the reuse of water and use of alternative water sources
To protect Council's stormwater drainage assets during development works and to ensure Council's drainage rights are not compromised by development activities.To minimise the quantity of stormwater runoff from new development on Council's drainage system.

Requirements
Stormwater runoff must not cause downstream flooding and must have minimal environmental impact on any receiving stormwater infrastructure, watercourse, stream, lagoon, lake and waterway or the like.
The stormwater drainage systems for all developments are to be designed, installed and maintained in accordance with Council's Water Management for Development Policy.

Exceptions
Refer to Council's Water Management for Development Policy for exceptions.

Note
Reference should be made to part G for additional, site specific requirements

C5 Erosion and Sedimentation

Applies to Land
This control applies to land to which Warringah Local Environmental Plan 2011 applies.

Objectives
- To reduce the potential for soil erosion and adverse sedimentation impacts upon the environment.
- To prevent the migration of sediment off the site onto any waterway, drainage systems, public reserves, road reserve, bushland or adjoining private lands.
- To prevent any reduction in water quality downstream of the development site.

Requirements
1. All developments which involve the disturbance of land must install and maintain erosion and sediment controls until the site is fully stabilised.
2. Any erosion and sedimentation is to be managed at the source.
3. Erosion, sediment and pollution controls including water discharge from the site must comply with Council's Water Management Policy.

4. An Erosion and Sediment Control Plan must be prepared in accordance with Landcom's Managing Urban Stormwater: Soil and Construction Manual (2004) for all development which involves the disturbance of up to 2500m2 of land.
5. Soil and Water Management Plan must be prepared in accordance with Landcom's Managing Urban Stormwater: Soil and Construction Manual (2004) for all development which involves the disturbance of more than 2500m2 of land.

Exceptions

Reference should be made to Part G for additional, site specific requirements.