



Outline

Part 11 Environment protection

Explanatory outline

Part 11 specifies outcomes, design guidelines and other requirements relating to environment protection. There are separate sections for each of the following matters:

- 11a Tree preservation
- 11b Biodiversity conservation
- 11c Riparian land & watercourses
- 11d Groundwater protection
- 11e Drinking water catchments
- 11f Soil & water management
- 11g On-site waste water management
- 11h Waste minimisation & management
- 11i Buffer areas

11a Tree preservation

Explanatory outline

Section 11a outlines assessment criteria relating to tree pruning, tree removal or similar work. It is made in accordance with clause 5.9 of the *Upper Hunter Local Environmental Plan 2013*.

The following matters are covered:

- the circumstances in which this section applies
- exemptions from the need for a tree permit
- information required to be submitted with either a tree permit application or development application
- the assessment criteria that the Council will consider when assessing a tree permit application or development application.

11a Tree preservation

11a.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1: Type of development

Ringbark, cut down, top, lop, remove, prune, injure or wilfully destroy a tree.

Note: see definition of 'tree'.

Column 2: Applicable land

Land that is or forms part of a heritage item as listed in Schedule 5 of *Upper Hunter Local Environmental Plan 2013*, or that is within the curtilage of a heritage item

Land within a heritage conservation area as listed in Schedule 5 of *Upper Hunter Local Environmental Plan 2013*

Trees located on land referred to in Column 2 above are hereby prescribed for the purposes of clause 5.9 of the *Upper Hunter Local Environmental Plan 2013*.

11a.2 Relevant planning instruments & legislation

The *Upper Hunter Local Environmental Plan 2013* is relevant to this section, in particular:

- clause 5.9 'Preservation of trees or vegetation'
- clause 5.9AA 'Trees or vegetation not prescribed by development control plan'
- clause 5.10 'Heritage conservation'.

Note: proposals to carry out works on land identified as "Biodiversity" on the *Upper Hunter Local Environmental Plan 2013* Terrestrial Biodiversity Map should have regard to section **11b Biodiversity conservation**.

The following are also relevant to this section:

- *Native Vegetation Act 2003*
- *Rural Fires Act 1997* – particularly provisions relating to the *10/50 Vegetation Clearing Entitlement Area* as determined by the Rural Fire Service.

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above instruments will prevail over requirements or criteria contained in this section.

Note: actions required or authorised to be undertaken by or under certain other legislation (as identified in clause 5.9(8) of the *Upper Hunter Local Environmental Plan 2013*) are not affected

11a Tree preservation

by this DCP. For example, this DCP does not apply to trees that may be damaged or removed under the *Electricity Supply Act, Roads Act, Noxious Weeds Act or Forestry Act*.

11a.3 Definitions

The following terms defined in the Dictionary are relevant to this section:

- damage
- remove
- prune
- tree

11a.4 Objectives

The objective of this section is to maintain the heritage character, environmental and visual quality of the Upper Hunter local government area by requiring consent for actions likely to adversely affect the health of trees.

11a.5 Lodging an application for tree work

A tree permit application or development application must be lodged with the Council for work to trees identified in clause 11a.1 above, where none of the following exemptions apply.

The exemptions are:

- the removal of or pruning to a tree where the Council is satisfied that the tree is dying or dead, and is not required as the habitat of native fauna
- pruning of a tree by less than 10% of the foliage area in accordance with Australian Standard AS 4373-2007 not more than once annually
- the removal of or pruning of a tree where the base of the trunk of the tree at ground level is located within 3 metres of the foundation of an approved building
- trees deemed by the Council in writing and shown by recorded photographic evidence or written evidence provided by a qualified Arborist (AQF.5) as a risk to human life or that are causing or likely to cause substantial damage to property (AQF is the Australian Qualification Framework, a national framework for all educational and training purposes in Australia).

However, the above exemptions do not apply to work that is contrary to a development consent that requires trees to be retained.

Where works to trees are required as part of other works for which development consent is required, these will be assessed as part of the Development Application.

Requirements for other applications are as follows:

Table 21 Application requirements for works affecting trees

Proposal	Application requirement
Minor work to any tree that is or forms part of a heritage item, as described by clause 5.10(3) of the Upper Hunter LEP	Tree permit
Major work to any tree that is or forms part of a heritage item (that is, work that is not of a minor nature as described by clause 5.10(3) of the Upper Hunter LEP)	Development Application
Minor work to any tree in a heritage conservation area, as described by clause 5.10(3) of the Upper Hunter LEP	Tree permit
Major work to any tree in a heritage conservation area (that is, work that is not of a minor nature as described by clause 5.10(3) of the Upper Hunter LEP)	Development Application

11a Tree preservation

Development applications and tree permits that are subject to this section should be supported by the following plans and documentation.

Type of application	Specific requirements
A. Tree permit application	<ul style="list-style-type: none"> • A description of the need for the removal of the tree(s) and an accompanying site map (including the property description) showing: <ul style="list-style-type: none"> - the location, type, height, trunk diameter at breast height of the tree(s) and the indicative canopy spread. - the location of buildings, driveways etc in relation to the tree(s). - the location of any heritage items and their curtilage - a photograph of the tree(s)
B. Development application	<ul style="list-style-type: none"> • General information as referred to in section 2a Lodging a development application. • Arborist report prepared by a suitably experienced and qualified person, and which contains the following details <ul style="list-style-type: none"> - name of author, qualifications and contact details. - the purpose and scope of the report - description of the methodology employed in conducting the site inspection and the date and time of the inspection - discussion of the data collected – this may include detailed information about wounds, cavities, cracks, forking, pests and diseases. Include photographic evidence where appropriate. - discussion on the options available (pruning versus removal, structural repair versus removal or pruning, etc.) - recommendation on the preferred option and the rationale behind this position. • Site map (including the property description) showing: <ul style="list-style-type: none"> - the location of the tree(s) and the indicative canopy spread - corresponding legend or description that identifies each tree by botanical name, common name, height, canopy spread, trunk diameter at breast height and form. - location of buildings, driveways etc in relation to the tree(s) - location of any heritage items and their curtilage.

11a.6 Assessment criteria

The removal of, or work to, trees is to be consistent with the applicable provisions of *the Upper Hunter LEP*, particularly clause 5.9 (Preservation of trees or vegetation) and clause 10 (Heritage conservation).

The impact of development upon trees will be assessed having regard to arboricultural, ecological and health and safety issues to determine the significance of the trees. Accordingly, any application for removal should demonstrate that the removal of the tree is appropriate based on an assessment of the:

- significance, health and longevity of the tree; and
- risk to human life or property.

Where trees are deemed by the Council to be significant, the provisions of *Australian Standard AS 4970 Protection of Trees on Development Sites* should be applied.

11a Tree preservation



All tree pruning work should be carried out in accordance with *Australian Standard AS 4373 Pruning of Amenity Trees*.

11a.7 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section:

- *Australian Standard AS 4970 Protection of Trees on Development Sites*
- *Australian Standard AS 4373 Pruning of Amenity Trees*.

11b Biodiversity conservation

Explanatory outline

Section 11b outlines assessment criteria relating to the assessment and conservation of biodiversity. The following matters are covered:

- flora and fauna assessment reports
- biodiversity matters that will be considered during the determination of development applications
- land management for biodiversity.

11b Biodiversity conservation

11b.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1:	Type of development	Column 2:	Applicable land
	Any development that requires development consent.		Any land.

11b.2 Relevant planning instruments & legislation

The following environmental planning instruments or other legislation are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013* (clause 6.3 Terrestrial Biodiversity and accompanying map)
- *Environmental Planning and Assessment Act 1979* (section 5A)
- *Threatened Species Conservation Act 1995*
- *Fisheries Management Act 1994*
- *Native Vegetation Act 2003*
- *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
- *Noxious Weeds Act 1993*

Note: additional approvals may be required for native vegetation clearing under both the *Native Vegetation Act 2003* and *Environment Protection and Biodiversity Conservation Act 1999*.

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments will prevail over requirements or criteria contained in this section.

11b.3 Definitions

The following terms defined in the Dictionary are relevant to this section:

- biodiversity
- ecologically sustainable development
- native fauna
- native flora
- native vegetation



11b Biodiversity conservation

11b.4 Objectives

The objectives of this section are to:

- protect and preserve native vegetation and biodiversity in the Upper Hunter LGA
- ensure that biodiversity is appropriately considered in the determination of development proposals
- implement the objectives of *Upper Hunter LEP 2013*, including maintaining biodiversity by:
 - protecting native flora and fauna
 - protecting the ecological processes for their continued existence
 - encouraging the conservation and recovery of native flora and fauna and their habitats
- avoid and minimise land disturbance and clearing of native vegetation and habitat for native flora and fauna
- retain native vegetation in parcels of a size and configuration which will enable the existing plant and animal communities and populations to survive in the long term.

11b.5 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to section 2c Lodging a development application .
B. Flora & fauna assessment report	<p>Applications that relate to land with high biodiversity values, or that require significant disturbance or removal of native vegetation or potential habitat for native species, including listed threatened species or their habitats, or ecological communities or populations.</p> <p>Circumstances where a flora and fauna assessment report may be required include:</p> <ul style="list-style-type: none"> • development is within 200 m of a natural water course, wetland, reserve, National Park, State Forest or permanent water body • development involves clearing or disturbance of native vegetation within or adjacent to land identified on the Upper Hunter LEP 2013 Terrestrial Biodiversity Map. • development is adjacent to or contains a parcel of remnant native vegetation • development involves significant disturbance or removal of native remnant vegetation (as defined in section 7 of the <i>Native Vegetation Act 2003</i>). • development involves significant disturbance to existing or potential 	<p>A Flora and Fauna Assessment Report must be prepared by a suitably qualified person. It should:</p> <ul style="list-style-type: none"> • provide the results of any flora and fauna survey of the development site that may have been prepared. Appropriate flora and fauna surveys by a suitably qualified person may be required to identify biodiversity values. • identify existing biodiversity values on the site and the extent to which these will be disturbed • identify existing vegetation and vegetation to be removed • assess the significance of the flora and fauna • assess the ecological significance of the site and assess the impacts that the development may have on flora, fauna and the biophysical environment • identify associated legislation and demonstrate compliance with the requirements of the legislation • include a discussion of the findings of the survey and a recommendation. <p>Where an assessment indicates that a development may, or is likely to significantly affect species or ecological communities listed as threatened under relevant legislation, the extent of the impact and measures to avoid, minimise and mitigate that impact are to be documented.</p> <p>The contents and methods of a Flora and Fauna Survey and a Flora and Fauna Assessment Report</p>

11b Biodiversity conservation

Item	When required	Plans or information to be provided
	<p>native habitat for fauna species such as native vegetation, caves, dead trees, hollow bearing trees, bush rock or rocky outcrops, wetlands, streams, lakes, ponds or dams.</p> <ul style="list-style-type: none"> • where potential impacts are identified by the Council following a site inspection. • the land contains potential Koala habitat that may be affected by the development. 	<p>must be consistent with the <i>Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities Working Draft</i> dated November 2004 developed by the NSW Department of Environment and Conservation (DEC). It must also include relevant matters under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i>.</p> <p><i>Note: the Environmental Planning and Assessment Regulation 2000 (Schedule 1(1)(e)) requires applicants to provide an indication as to whether the development is likely to significantly affect threatened species, populations or ecological communities, or their habitats (unless the development is taken to be development that is not likely to have such an effect, because of the issue of a biobanking statement under Part 7A of the Threatened Species Conservation Act 1995, in which case it is sufficient to indicate that the statement has been issued).</i></p> <p><i>Note: consultation with Hunter Local Land Services and relevant NSW Government agencies should be undertaken in relation to any proposed clearing of native remnant vegetation or protected regrowth prior to lodging a development application</i></p>
<p>C. Species impact statement</p>	<p>Where the Council has determined that a species impact statement is required, following consideration of the Flora and Fauna Survey and Assessment Report, and having regard to the significance of the impact and the provisions of section 5A of the <i>Environmental Planning and Assessment Act 1979</i></p>	<p>Where a significant impact is determined, and a species impact statement is required, applicants must consult with the relevant NSW Government agency as provided for in the <i>Threatened Species Conservation Act 1995</i>.</p>
<p>D. Biodiversity management plan</p>	<p>Where a significant impact is anticipated, a biodiversity management plan may be prepared for the land to accompany the development application. This may also be applied as a consent requirement subsequent to an approval determination</p>	<p>Biodiversity management plans must outline how biodiversity will be managed during the construction and operational stages of the development, and will be specific to the site. These plans are likely include an offset strategy, management and monitoring measures.</p>

11b.6 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.



11b Biodiversity conservation

Outcomes to be achieved	Design guidelines
<p>A Biodiversity considerations</p> <ul style="list-style-type: none"> ■ Native vegetation and biodiversity are conserved, consistent with the principles of ecologically sustainable development 	<ul style="list-style-type: none"> • Development impacts on native vegetation and biodiversity are to be avoided. Where this is not possible, measures to minimise and mitigate impacts must be demonstrated. Mitigating measures may include biodiversity offsets, and property vegetation plans under the <i>Native Vegetation Act 2003</i>. • Where possible, existing native vegetation should be retained. • Subdivisions should be designed to minimise the fragmentation of native vegetation. • Developments should ensure that ecological corridors are maintained to provide landscape scale habitat connectivity. • Appropriate buffers are to be provided between development and native vegetation and significant habitats (for example, streams and water courses).
<p>B. Land management for biodiversity</p> <ul style="list-style-type: none"> ■ Adequate measures are taken to protect land of high biodiversity value in the long term, including appropriate legal mechanisms and land management measures. 	<ul style="list-style-type: none"> • A biodiversity management plan should be prepared for land with high biodiversity values to ensure it is protected, rehabilitated and maintained during construction of the development and over the long term. Flora and fauna assessment reports must assess biodiversity values. • Any landscaping or revegetation of cleared or degraded areas should incorporate locally indigenous plant species.

11b.7 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section.

Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities Working Draft dated November 2004 developed by the NSW Department of Environment and Conservation (DEC).

11c Riparian land & watercourses

Explanatory outline

Section 11c outlines assessment criteria relating to the protection of watercourses and riparian land. The following matters are covered:

- water quality and flows
- aquatic and riparian ecosystems
- watercourse bed and bank stability
- fish and aquatic organism passage
- rehabilitation of watercourses and riparian areas
- water extraction
- measures to avoid, minimise or mitigate development impacts

This section should be read in conjunction with *Upper Hunter LEP 2013* clause 6.6 Riparian land and watercourses and the accompanying Watercourse Map.

11c Riparian land & watercourses

11c.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1: Type of development	Column 2: Applicable land
Any development that requires development consent.	<ul style="list-style-type: none"> • Land within the bed of any watercourse shown on the Upper Hunter Local Environmental Plan 2013 Watercourse Map • Land within 40 metres of the top of the bank of any watercourse shown on the Upper Hunter Local Environmental Plan 2013 Watercourse Map • Land within 40 metres of the top bank of any other river, stream, creek or tributary or other natural water course.

11c.2 Relevant planning instruments & legislation

The following environmental planning instruments, NSW legislation, policies and plans are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013* (clause 6.6 Riparian Land and watercourses requires consideration of impacts from a development on identified land, and consent must not be granted except where adverse impacts are avoided, minimised or mitigated)
- *Water Management Act 2000* (Regulates water planning and licensing)
- *Protection of the Environment Operations Act 1997* (Provides a framework for regulating water pollution)

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments will prevail over requirements or criteria contained in this section.



11c Riparian land & watercourses

The *Hunter-Central Rivers Catchment Action Plan 2013-2023* also applies. (Catchment Goal 5 is to improve or maintain the ability of catchments to provide fresh water for environmental and human use)

11c.3 Definitions

The following terms defined in the Dictionary are relevant to this section:

- watercourse
- Watercourse Map

11c.4 Objectives

The objectives of this section are to:

- protect and maintain riparian areas from the impacts of development
- protect and maintain natural water courses and associated vegetation and habitats
- ensure that suitable riparian buffers are provided and maintained
- implement the *Upper Hunter Local Environmental Plan 2013* objectives relating to riparian land and watercourses.

11c.5 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to section 2c Lodging a development application .
B. Riparian land assessment	All applications	<p>A report, with accompanying plans where necessary, prepared by a suitably qualified and experienced person, that assesses the following matters:</p> <ul style="list-style-type: none"> • impacts on water quality and stream flow • impacts on aquatic and riparian species, habitats and ecosystems • impacts on stream bed and stream bank stability • impacts on the free passage of fish and other aquatic organisms • any required future rehabilitation of the watercourse and riparian areas • impacts on water extraction from the watercourse • proposed measures to avoid, minimise or mitigate the above impacts. • consultation with relevant NSW Government agencies (currently Department of Primary Industries (Fisheries) and NSW Office of Water) in relation to proposed works within riparian corridors or buffers • evidence of water licences and other entitlements where this is relevant to achieving the objectives of this part and LEP requirements, particularly in relation to subdivisions creating additional dwelling entitlements.

11c Riparian land & watercourses

11c.6 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.

Outcomes to be achieved	Design guidelines
<p>A. Water quality & flows</p> <ul style="list-style-type: none"> ■ Suitable water quality in watercourses and streams is maintained, consistent with accepted standards. ■ Development does not significantly impact on natural flow regimes 	<ul style="list-style-type: none"> • Land use and development is to contribute towards achieving the objects of the <i>Water Management Act 2000</i> including protecting and managing streams, groundwater and riparian areas to retain natural ecological functions, using water resources in an ecologically sustainable manner, and taking into account the provisions of relevant water sharing plans made under the Water Management Act 2000. • Compliance with Department of Primary Industries (DPI) or relevant NSW Office of Water approval requirements, and relevant guidelines.
<p>B. Aquatic & riparian ecosystems</p> <ul style="list-style-type: none"> ■ Aquatic and riparian ecosystems and habitats are protected and maintained 	<ul style="list-style-type: none"> • Developments should ensure that habitat connectivity is maintained within and adjacent to streams. • Development in riparian buffer areas (within 40 metres of watercourse or stream) should be avoided where other options are available. • Protect and maintain habitat for listed threatened species and endangered ecological communities.
<p>C. Watercourse bed & bank stability</p> <ul style="list-style-type: none"> ■ Stream and watercourse stability of beds and banks is protected by avoiding adverse development impacts. 	<ul style="list-style-type: none"> • Developments should not affect bed or stream stability and should comply with DPI guidelines. • Riparian vegetation and natural flood flows and floodplains are to be retained and not affected by development.
<p>D. Fish & aquatic organism passage</p> <ul style="list-style-type: none"> ■ Free passage for the movement of fish and aquatic organisms is maintained 	<ul style="list-style-type: none"> • Compliance with DPI approval requirements, and relevant guidelines or NSW Office of Water requirements.
<p>E. Rehabilitate watercourses & riparian areas</p> <ul style="list-style-type: none"> ■ Degraded or unstable watercourses, stream banks or riparian areas are protected and rehabilitated. 	<ul style="list-style-type: none"> • Where watercourses and riparian areas are degraded or unstable, measures to rehabilitate these should be considered in conjunction with a development.
<p>F. Water extraction</p> <ul style="list-style-type: none"> ■ Development impacts on water flow and availability are identified and assessed 	<ul style="list-style-type: none"> • Compliance with DPI approval requirements, and relevant guidelines.
<p>G. Measures to avoid, minimise or mitigate development impacts</p> <ul style="list-style-type: none"> ■ All development must incorporate and document measures to avoid, minimise or mitigate adverse impacts 	<ul style="list-style-type: none"> • Measures taken to avoid, minimise or mitigate development impacts are to be submitted in development application documentation.



11c Riparian land & watercourses

11c.7 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section:

- Hunter Unregulated and Alluvial Water Sharing Plan
<http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Plans-commenced/Water-source/Hunter-Unregulated-and-Alluvial/default.aspx>
- Hunter Regulated Water Sharing Plan
<http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Plans-commenced/Water-source/Hunter-Regulated-River/default.aspx>
- A range of guidelines relating to controlled activities also apply
<http://www.water.nsw.gov.au/Water-licensing/Approvals/Controlled-activities/Controlled-activities>
- NSW Department of Primary Industries, 2013, *Policy and guidelines for fish habitat conservation and management Update*
- NSW Department of Primary Industries (Office of Water), 2012, *Guidelines for riparian corridors on waterfront land.*
- NSW Department of Primary Industries (Office of Water), 2012, *Guidelines for instream works on waterfront land.*
- NSW Department of Primary Industries (Office of Water), 2012, *Guidelines for laying pipes and cables in watercourses on waterfront land.*
- NSW Department of Primary Industries (Office of Water), 2012, *Guidelines for outlet structures on waterfront land.*
- NSW Department of Primary Industries (Office of Water), 2012, *Guidelines for vegetation management plans on waterfront land.*
- NSW Department of Primary Industries (Office of Water), 2012, *Guidelines for watercourse crossings on waterfront land.*
- Department of Environment, Climate Change and Water NSW, 2010, *NSW Wetlands Policy.*

11d Groundwater protection

Explanatory outline

Section 11d outlines assessment criteria relating to the protection of groundwater. The following matters are covered:

- locations identified as having high groundwater vulnerability where development design must take this into account
- objectives and guidelines for protecting the quality and quantity of groundwater
- information requirements for affected developments

This section should be read in conjunction with *Upper Hunter LEP 2013* clause 6.4 Groundwater vulnerability and accompanying Groundwater Vulnerability Map.

11d Groundwater protection

11d.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1: Type of development	Column 2: Applicable land
Any development that requires development consent.	Land shown on the <i>Upper Hunter Local Environmental Plan 2013</i> Groundwater Vulnerability Map.

Note: The Upper Hunter LEP 2013 Groundwater Vulnerability Maps show areas of floodplain and alluvial aquifers mostly associated with, and connected to, the major streams occurring in Upper Hunter LGA.

11d.2 Relevant planning instruments & legislation

The following environmental planning instruments, NSW legislation, policies and plans are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013* (clause 6.4 Groundwater Vulnerability requires consideration of impacts from a development on land identified on the Groundwater Vulnerability Map, and consent must not be granted except where adverse impacts are avoided, minimised or mitigated)
- *Water Management Act 2000* (Regulates water planning and licensing)
- *Protection of the Environment Operations Act 1997* (Provides a framework for regulating water pollution)

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments will prevail over requirements or criteria contained in this section.

The *Hunter-Central Rivers Catchment Action Plan 2013-2023* also applies. (Catchment Goal 5 is to improve or maintain the ability of catchments to provide fresh water for environmental and human use).

11d Groundwater protection

11d.3 Definitions

The following terms defined in the Dictionary are relevant to this section:

- Groundwater Vulnerability Map

11d.4 Objectives

The objectives of this section are to:

- ensure that potential groundwater impacts and risks associated with a development are identified assessed, and incorporated in development design;
- maintain groundwater quality; and
- ensure any development using or affecting groundwater is consistent with relevant legislative groundwater extraction requirements.

11d.5 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to section 2c Lodging a development application.
B. Groundwater report	All applications	A report, with accompanying plans, prepared by a suitably qualified and experienced person, demonstrating the extent and quality of groundwater resources on and adjoining the site, extraction licence details, a risk assessment, and relevant information demonstrating the impact of the development on groundwater. Applications must provide groundwater usage approvals (licences) and demonstrate that compliance with relevant legislation can be reasonably achieved

11d.6 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.

Outcomes to be achieved	Design guidelines
A. Maintain groundwater quality <ul style="list-style-type: none"> ■ Development is designed to prevent adverse water quality impacts. 	<ul style="list-style-type: none"> • Prevent or limit site disturbance and earthworks. • Source control of stormwater and other on-site discharges. • Regular water quality monitoring program
B. Groundwater use <ul style="list-style-type: none"> ■ Beneficial groundwater use is to comply with relevant regulatory requirements. 	



11d Groundwater protection

11d.7 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section.

- Hunter Unregulated and Alluvial Water Sharing Plan

<http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Plans-commenced/Water-source/Hunter-Unregulated-and-Alluvial/default.aspx>

- Hunter Regulated Water Sharing Plan

<http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Plans-commenced/Water-source/Hunter-Regulated-River/default.aspx>



11e Drinking water catchments

Explanatory outline

Section 11e outlines assessment criteria relating to the protection of drinking water catchments which require the development to have a neutral or beneficial effect on water quality.

This section should be read in conjunction with *Upper Hunter LEP 2013* clause 6.5 Drinking Water Catchments and accompanying Drinking Water Catchment Map

11e Drinking water catchments

11e.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1: Type of development	Column 2: Applicable land
Any development that requires development consent.	Land in the vicinity of Lake Glenbawn, as shown on the <i>Upper Hunter LEP 2013 Drinking Water Catchment Map</i> .

11e.2 Relevant planning instruments & legislation

The following environmental planning instruments, NSW legislation, policies and plans are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013* (clause 6.5 Drinking Water Catchments requires consideration of impacts from a development on a drinking water storage, and consent must not be granted except where adverse impacts are avoided, minimised or mitigated)
- *Water Management Act 2000* (Regulates water planning and licensing)
- *Protection of the Environment Operations Act 1997* (Provides a framework for regulating water pollution)

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments will prevail over requirements or criteria contained in this section.

The *Hunter-Central Rivers Catchment Action Plan 2013-2023* is also relevant. (Catchment Goal 5 is to improve or maintain the ability of catchments to provide fresh water for environmental and human use)

11e.3 Definitions

The following terms defined in the Dictionary are relevant to this section:

- Drinking Water Catchment Map

11e Drinking water catchments

11e.4 Objectives

The objective for drinking water catchments is to ensure development shall have a neutral or beneficial effect on water quality by applying the following principles:

- Assessment for a neutral or beneficial effect on water quality is required.
- It is the development proponent's responsibility to demonstrate that a development will have a neutral or beneficial effect on water quality.
- The level of assessment required matches the level of risk of the development - developments with a greater potential risk to water quality will require more thorough assessment.
- Good project design leading to source management and control, and retaining natural features of waterways, is better than structural and 'end of pipe' solutions. All measures must be taken to contain on-site any potential impacts resulting from a proposed development.

11e.5 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to section 2c Lodging a development application .
B. Neutral or beneficial effect on water quality	All applications	Supplementary information demonstrating that the development will have a neutral or beneficial effect on water quality. The following document will provide guidance on the information required: Sydney Catchment Authority (2011) <i>Neutral or Beneficial Effect on Water Quality Assessment Guideline</i> .

11e.6 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.

Outcomes to be achieved	Design guidelines
<p>A. Neutral or beneficial effect</p> <ul style="list-style-type: none"> ■ The development has a neutral or beneficial effect on water quality. This can be satisfied if the development meets any of the following: <ul style="list-style-type: none"> • has no identifiable potential impact on water quality • will contain any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site • will transfer any water quality impact outside the site where it is treated and disposed of to standards approved by the consent authority. 	<ul style="list-style-type: none"> • The level of risk to water quality is to be identified, and the assessment should take this into account. • The determination of a neutral or beneficial effect may take into account relevant guidelines for other catchments, such as those for Sydney Catchment Authority (2011) <i>Neutral or Beneficial Effect on Water Quality Assessment Guideline</i>. Note: this document was prepared for the purposes of assessing development applications considered under <i>State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011</i>.

11e Drinking water catchments



11e.7 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section.

- Sydney Catchment Authority, 2011, *Neutral or Beneficial Effect on Water Quality Assessment Guideline*. (Note: this document has been prepared for the purposes of assessing development applications considered under *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*).

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Explanatory outline

Section 11f outlines assessment criteria relating to soil and water management on development sites. the following matters are covered:

- requirements for soil and water management plans
- guidelines for earthworks and land cut and fill
- erosion and sediment control measures
- stormwater management measures
- requirements for performance bonds.

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11f.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1:	Type of development	Column 2:	Applicable land
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Development that involves the carrying out of: <ul style="list-style-type: none"> • earthworks • excavation • disturbance to soil material. Does not apply to activities that are necessary during an emergency (such as emergency flood mitigation or activities authorised under the <i>Rural Fires Act</i>).	Any land.
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Note: after an emergency situation has passed, remedial measures should be undertaken to address any erosion hazard and to rehabilitate the site in a manner consistent with this section.

11f.2 Relevant planning instruments & legislation

The following environmental planning instruments or other legislation are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013, specifically the requirements of clause 6.1 Earthworks*
- *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*
- *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004*
- *Water Management Act 2000*
- BASIX (Building Sustainability Index) applies to residential development and is implemented under the EP&A Act. www.basix.nsw.gov.au

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments will prevail over requirements or criteria contained in this section.

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11f.3 Definitions

The following terms defined in the Dictionary are relevant to this section:

- drainage
- earthworks
- environmentally sensitive area
- excavation
- fill
- landscaped area
- watercourse
- waterway
- wetland.

11f.4 Objectives

The objectives of this section are to:

- ensure soil and water issues are appropriately considered in the preparation and determination of development applications
- apply measures to minimise soil erosion, land instability and adverse impacts on water quality resulting from land development
- apply measures to manage, and at least maintain pre-development water quality and quantity
- outline requirements for performance bonds to ensure soil and water management requirements are implemented
- identify additional references and guidelines outlining acceptable soil and water management practice

11f.5 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to section 2c Lodging a development application.
B. Cut & fill details	Applications that involve cut and fill	<p>Details of the extent of the proposed cut and fill and methods of retaining and draining the cut and fill area are to be submitted with the development application, and include:</p> <ul style="list-style-type: none"> • Contour levels identified on the land by a registered surveyor or engineer and within twenty metres (20 m) of the dwelling or to the lot boundary. • Finished ground levels relative to road level at the property boundary. • The finished floor level of the dwelling above the finished ground level. <p><i>Note: this information may be submitted as part of the 'erosion and sediment control' plans below.</i></p>
C. Erosion & sediment control plan (ESCP)	<p>Applications that involve:</p> <ul style="list-style-type: none"> • an environmentally sensitive area • disturbance to an area of between 250 to 2500 m² (refer to Table 22 Requirements for types of soil and water management plans). 	<p>An erosion and sediment control plan is essential for any development likely to cause significant soil erosion and sedimentation. The plan must be undertaken by a suitably qualified person, and the detail is dependent on the potential for impacts.</p> <p>ESCPs must be submitted with all necessary supporting information and should be prepared in accordance with the broad structure below:</p>

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Site characteristics – including:

- locality plan (1:1000 scale).
- existing contour data.
- principal geographic features.
- natural water flow patterns.
- critical natural areas (for example, river, wetlands).
- location and limitations of major soil types.
- location, nature and condition of existing vegetation.
- soil subsidence.
- climatic data including rainfall and storm events.

Clearing and disturbance of site – including:

- nature and extent of vegetation to be cleared, including area and depth of clearing.
- scheduling and time of proposed disturbance.
- methods of site clearance.
- final site contours data.
- areas of cut and fill, location of stockpiles and spoil/vegetation dumping proposals.

Existing and proposed drainage patterns – including:

- catchment boundaries.
- existing watercourses or drainage patterns flowing through or adjacent to the site.
- location and extent of impervious surfaces.
- location and capacity of the proposed temporary and permanent site drainage or stormwater system.

Erosion control practices – including:

- location, design criteria and construction details of temporary control measures to be implemented.
- location, design criteria and construction details of permanent control measures to be implemented.
- scheduling details of works to be undertaken.
- monitoring and maintenance details.

Sediment control practices – including:

- location, construction details and design criteria of temporary and permanent control measures.
- scheduling details of works to be undertaken.
- monitoring and maintenance details.

Rehabilitation program – including:

- location of temporary and permanent revegetation sites.
- materials and species selection.
- application and planting methods.
- types and rates of fertilisers and other soil ameliorants.
- mulching details.
- scheduling details of planting and maintenance works.
- monitoring and maintenance details.

D. Erosion & sediment control strategy (ESCS)	For staged developments only. <i>Refer to Table 22</i> Requirements for types of soil and water management plans.	Large development proposals staged over an extended period require preparation of a strategy for staged plans and schedules of implementation works.
E. Soil & water management plan (SWMP)	Applications that involve: <ul style="list-style-type: none"> • an environmentally sensitive area • disturbance to an area 	The SWMP should illustrate how soils and water will be managed on the site. The SWMP must include: <ul style="list-style-type: none"> • site characteristics (including existing and proposed

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E. Soil & water management plan (SWMP)

Applications that involve:

- an environmentally sensitive area
- disturbance to an area exceeding 2500 m² (refer to Table 22 Requirements for types of soil and water management plans).

The SWMP should illustrate how soils and water will be managed on the site.

The SWMP must include:

- site characteristics (including existing and proposed ground levels, contours within 20 metres of the land, drainage lines, and proposed building locations and levels)
- stormwater planning proposals (including infiltration measures, water discharge points, overland flow paths, flood liable areas, location and levels of stormwater pipes and drainage pits, on site detention facilities, existing or proposed drainage easements)
- plan and calculations prepared by a qualified and practising civil engineer
- an erosion and sediment control plan.

Proposals to create drainage easements over downstream properties are to be accompanied by a letter of consent from relevant property owners.

Note: while some of these plans will be submitted at the development application stage, in practice they may also be required as a condition of development consent (for example, for staged developments).

The requirements for a plan, strategy or control measure depend on the area to be disturbed and the type of activity as set out in Table 22 Requirements for types of soil and water management plans.

Table 22 Requirements for types of soil and water management plans

Disturbance area	Activity type	Scope of works
<250 m ²	House extensions, small driveways, garages	No Erosion and Sediment Control Plan required, except for an environmentally sensitive area (such as that within 100 m of a water course) and very steep sites (gradient greater than 20o), but proponents are expected to follow the general principles of this section of the DCP
250 to 1000 m ²	Houses, small commercial development, long driveways, small subdivisions	Erosion and Sediment Control Plan and schedule of works for implementation required
1000 to 2500 m ²	Houses, medium/high density houses, small civil infrastructure / commercial / industrial development, small subdivisions, etc	Erosion and Sediment Control Plan and a Landscape Plan with their associated schedule of works for implementation required.
>2500 m ²	Extensive medium/high density houses, large civil infrastructure / commercial / industrial development, subdivisions, etc	Erosion and Sediment Control Plan and a Soil and Water Management Plan and a Landscape Plan with their associated schedule of works implementation required A staged Erosion and Sediment Control Strategy is required for developments which are proposed for extended periods (longer than 12 months) or those that will be staged over time. Most developments will require the preparation of a comprehensive water cycle strategy.

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11f.6 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.

Outcomes to be achieved	Design guidelines
Earthworks, land cut & fill	
<p>A. Impacts from earthworks</p> <ul style="list-style-type: none"> ■ Impacts from earthworks are assessed and considered. <p><i>Note: Upper Hunter LEP 2013 clause 6.1 Earthworks seeks to ensure that earthworks will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land</i></p>	<ul style="list-style-type: none"> • Measures to avoid, minimise and mitigate the impacts of earthworks are to be incorporated in the development and documented. • Matters outlined in clause 6.1(3) in <i>Upper Hunter LEP 2013</i> are identified and considered. • Any application for earthworks shall be accompanied by plans indicating the levels existing and proposed and indicating any necessary retaining walls or drainage works.
<p>B. Site compatibility</p> <ul style="list-style-type: none"> ■ Building & site design are sympathetic to the natural slope and characteristics of the development site. 	<ul style="list-style-type: none"> • Existing vegetation must not be cleared in areas not directly impacted by the development. • Vegetation must not be cleared prior to development approval being granted or before erosion and sediment controls are fully installed;
<p>C. Structural stability</p> <ul style="list-style-type: none"> ■ The integrity of the development and adjoining buildings and lands is protected. ■ Cut and fill does not adversely affect adjoining land. 	<ul style="list-style-type: none"> • A properly constructed retaining wall designed by a qualified structural engineer is to be provided where cut and fill is along the boundary of a property. • Retaining walls must be within the confines of the allotment and a surveyor's report may be required to clarify that retaining walls and drainage area are located within the allotment.
<p>D. Standards for cut & fill</p>	<ul style="list-style-type: none"> • Cut and fill should be consistent with Figure 16: Cut and fill requirements, as specified below. • In R1 and RU5 zones, maximum cut is 1m and maximum fill is 1m. • The cut face is a minimum of 450mm from a boundary to an adjoining lot. • Where cut or fill heights are in excess of one metre (1 m), provide drainage design, engineering, stabilisation and landscaping details to address visual and the amenity for adjoining land. • Prior to commencement of cut and fill, the position and depth of the existing sewer mains and junction location is to be identified and adequate fall determined to connect the house services at the required grade. • The location of Council's utilities, mains and services, and minimum footpath levels is to be determined prior to earthworks and positioning of access driveways.

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Outcomes to be achieved

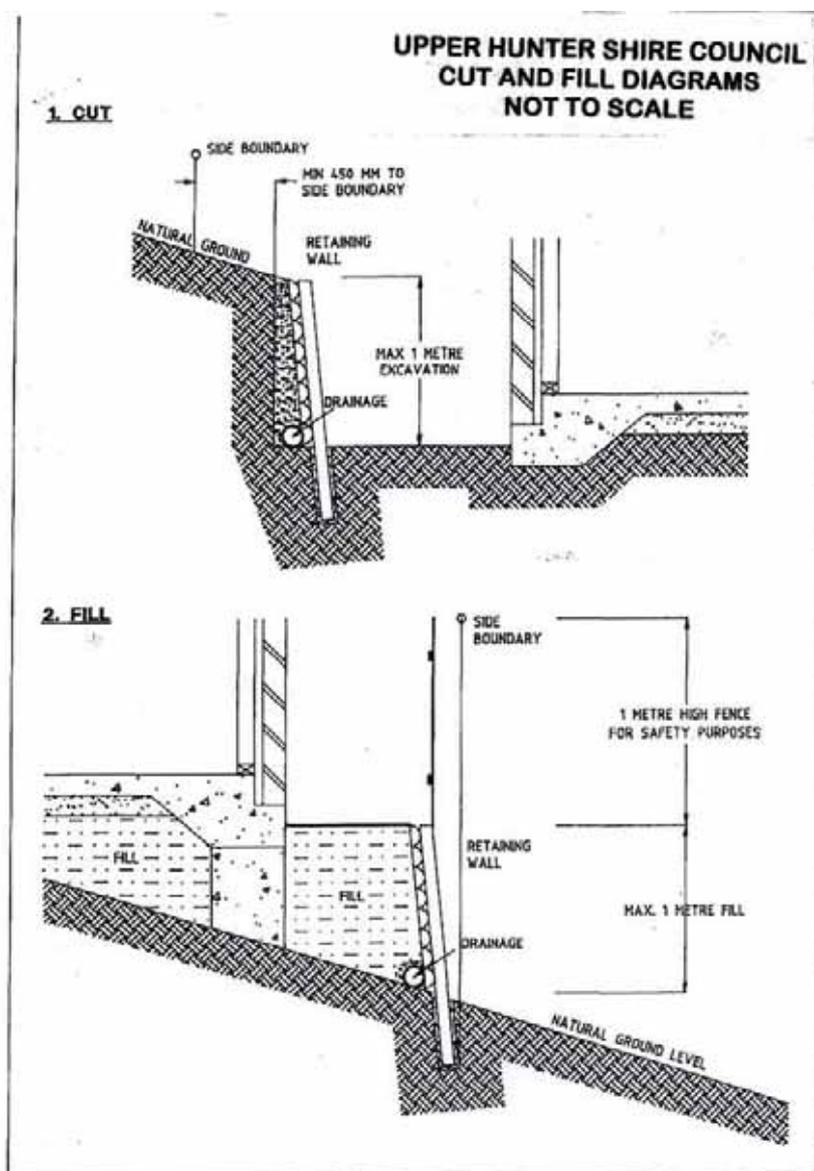
Design guidelines

E. Filling

- Filling of land will not obstruct, divert or alter or interfere with the flow of surface water across the land to be filled.
- Fill is not to cause adverse site or off-site impacts

- Fill is not to be placed in a natural watercourse without adequate piping being installed of sufficient size to carry water discharge expected in a 1 in 20 year flood event.
- Fill placed on the land must be clean soil, bricks, stone and similar material and no organic matter, rubbish, contaminated material, timber, etc is permitted.
- Fill is to be placed and compacted and battered at edges at a slope less than the angle of repose of the material used in the fill and, where the flow of surface water or, because of flooding, the battered surface is likely to be eroded, the surface to be protected to Council's satisfaction by stone flagging or similar.

Figure 16: Cut and fill requirements



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Erosion & sediment control

F. Erosion, sediment & dust control

- Principles to be applied to planning are:
 - erosion and sediment control measures are planned concurrently with engineering design
 - minimise the area of soil exposure
 - conserve the topsoil
 - control water flow from the top of the site, through the works and out the bottom of the site
 - rehabilitate disturbed lands quickly
 - maintain soil and water management measures at a level to ensure the finally developed site releases water of a quantity and quality equal to, or better than the predevelopment condition.
- Apply adequate erosion, sediment and dust controls to development sites

Apply measures and practices outlined in *Managing Urban Stormwater: Soils and Construction* that are appropriate to the site. Suitable measures would include:

- Divert clean runoff above denuded areas.
- Minimise slope gradient and length.
- Keep runoff at non-erodible velocities.
- Trap soil and water pollutants.
- Install sediment fences and traps to provide a temporary barrier or filter structure to capture sediment.
- Use of water runoff detention and sediment interception measures, where required.
- Calculations and modelling of runoff and peak flows undertaken by a suitably qualified person.
- Installation of sediment detention basins if total sediment volume calculated for the proposal catchment exceeds 150 cubic metres in the design Annual Recurrence Interval (ARI) 5 year storm event. These basins must be maintained until consent conditions are fulfilled.
- Wind erosion mitigating practices and associated sediment interception structures must be applied to the land to reduce wind erosion and dust nuisance where required.
- Appropriate water and wind erosion control measures will be in place before land is disturbed and maintained until effective land stabilisation is completed.

G. Runoff water control

- Sediment is retained on the development site.

The following principles and practices shall be applied:

- Intercept and divert all uncontaminated runoff around all areas to be disturbed. Alternatively runoff can be directed through these areas in a controlled manner.
- Control all runoff from the proposed development which is likely to cause flooding or erosion of downstream watercourses with appropriate drainage, channel or detention works. These works can be located above, within or below the approved development site provided that these measures are located on private land with the approval of the property owner.
- Ensure all drainage conduits and related structures are completed before they are commissioned.

Roof guttering and downpipes (temporary downpipes are acceptable) shall be installed and connected to Council's drainage system immediately after roof material fixing. Where roof and downpipe connections to Council's drainage system cannot be made immediately, additional onsite sediment control devices must be installed to receive and mitigate roof water.

Where no Council drainage system is provided, the roof stormwater shall be discharged away from the building site onto a stable vegetated area within the property boundary with sediment control devices installed.

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H. Groundcover

- Minimise the area of disturbance and maintain suitable groundcover to control erosion

The following principles and practices shall be applied:

- Installation and maintenance of a turf filter strip along the road nature strip/footpath area adjacent to street kerbs (or along the downslope boundary to act as a final filter for the runoff leaving the property. Exposed soil on the footpath and allotment shall be seeded or otherwise revegetated to limit runoff water and sediment. Existing groundcover may also be retained during clearing works.
- Adjacent to bushland, care is needed to prevent the spread of turf grasses or hydromulch material beyond the rehabilitated area. Use of tree mulch or sterile seed/grass stock or native seed/seedling is preferable to pasture species or couch turf in such locations.

I. Access

- Vehicular access to construction sites is controlled to prevent sediment being tracked onto adjoining lands and roads.

The following principles and practices shall be applied:

- Where possible, a single access (3 to 5 metres width per lane) is provided to the building facade.
- A layer of 30 mm to 60 mm aggregate at a depth of 200 mm must be applied to the access for stabilisation and maintained.
- Aggregate and any construction site sediment on sealed roads must be swept and removed to prevent this material entering the drainage system.

J. Topsoil & stockpile management

- Controls will be applied to prevent erosion of topsoil and stockpiles

The following principles and practices shall be applied:

- Topsoil will only be stripped from approved areas to a predetermined depth. It must be stockpiled separately from subsoil for re-use during site rehabilitation and landscaping, or removal if there is an excess. Subsoil spoil not required may be removed or placed on-site, in approved areas, shaped to appropriate land contours, topsoiled and stabilised by the proponent.
- Stockpiles of topsoil, sand, aggregate, spoil, building products or other material shall be stored within the boundary of the property at least 2 metres clear of any drainage line or easement, natural watercourse, footpath, kerb, road surface or established tree.
- Stockpiles must not be greater than 2 m in height.
- Stockpiles must have measures in place to retain such materials on the stockpile. Controls shall be installed or constructed to divert stormwater flows away from stockpile areas.
- Stockpiles must not be placed so as to encroach on erosion and sediment controls which have been installed, stabilised accesses or the nature strip.
- The land adjoining the stockpile shall be protected from degradation by the implementation of erosion and sediment control measures such as a diversion drain, sediment fence, geotextile or other approved devices.

K. Rehabilitation & landscaping

- Rehabilitation and landscaping must form part of the development proposal

The proponent will carry out progressive land surface stabilisation on all disturbed areas until the site is satisfactorily rehabilitated to ensure that soil erosion and sediment discharge is unlikely.

Appropriate landscaping must be completed in accordance with

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approved landscaping plans and with adequate rehabilitation and soil erosion control measures.

L. Erosion & sediment control maintenance

- Erosion and sediment controls are applied and maintained over the full construction period

The following principles and practices shall be applied:

- All erosion and sediment control measures must be maintained at workable capacity or condition until permanent rehabilitation measures are fully operational.
- All erosion and sediment control measures, including permanent sediment traps, shall be maintained as per the schedule of works within the approved Erosion and Sediment Control Plan or Strategy (or as required). At least 70% of their design capacity is to be operational until they are decommissioned.
- All material removed from erosion and sediment devices must be either stabilised in situ or removed to an approved disposal site.
- Decommissioning of erosion and sediment control measures must comply with the schedule of works within the approved Erosion and Sediment Control Plan, Strategy or associated develop/activity conditions of consent. Material held in sediment control measures during decommissioning shall be either stabilised in situ or removed to an approved disposal site. All structural materials used to construct temporary erosion and sediment control measures are to be dismantled and removed from site on decommissioning.
- All site debris and unused construction material must be removed from the site or protected from erosion before the site is vacated.

Stormwater management

M. Stormwater design objectives

- Ensure stormwater is controlled in a way that minimises nuisances and damage to the adjoining properties.
- Minimise adverse impacts on the natural water cycle.
- Manage natural drainage lines and water bodies to sustainably protect the health of the receiving waterway.
- Mitigate pollutants from entering waterways.
- Ensure appropriate easements are provided over existing drainage systems on private property.
- Promote and assist the efficient use of water.

Apply the stormwater drainage approach advocated by Engineers Australia in *'Australian Rainfall and Runoff'* to design surface levels so that very large (major system) 1% AEP (100 year ARI) events can flow around buildings without relying on underground pipes and that the Major drainage system design and construction;

- retains, and where practical, restores natural water courses, native riparian vegetation, wetlands and other natural landscape features,.
- incorporates effective measures to manage and treat stormwater and maintain healthy aquatic ecosystems,.
- satisfies acceptable risk management standards for public safety and flood protection.
- within new developments local drainage shall be designed to avoid local flooding in accordance with the aims and objectives of the NSW Floodplain Development Manual. (April 2005).

Pipe (minor) systems are installed to cater for frequent surface flows up to 20% AEP (5 year ARI). This balances cost of drainage and occurrence of inundation.

Runoff from impermeable surfaces is to be managed by stormwater source controls that;

- Contain frequent, low-magnitude flows,.
- Maintain the natural balance between runoff and infiltration, so

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as to promote appropriate groundwater, soil salinity and stream flow characteristics,.

- Remove some pollutants prior to discharge to receiving waters,.
- Prevent nuisance flows from affecting adjoining properties.

Ensure that appropriate long term arrangements are in place to allow for continued use and maintenance of existing drainage systems

The ultimate discharge for collected stormwater runoff shall be to a street drainage system, to an inter-allotment drainage line, or by approval, to a public area.

The system shall be "gravity" drained. Pumping of stormwater is not permitted.

The development site shall provide an overland flow path for the major storm event (1% AEP)

N. Stormwater drainage design – residential

■ Subdivisions and residential dwellings are designed, constructed and maintained so that development is undertaken in a manner that achieves the stormwater design objectives, and:

- Takes into account site constraints and hazards.
- Reduces downstream flooding and drainage impacts.
- Controls soil erosion during and after the construction phase.

■ Stormwater drainage is consistent with relevant accepted standards, such as *Managing Urban Stormwater: Soils and Construction*.

- All public stormwater management assets are to be installed outside the riparian zone of creek lines.
- All urban lots must have connection to the Council's stormwater management system via direct access to the street gutter or interallotment drainage via a dedicated easement.
- New buildings are not to be constructed over or compromise the integrity of drainage lines or easements originating from outside the site.
- Where an existing drainage line runs under a proposed building, the drainage line and any associated easement is to be diverted around the building. Redundant easements are to be extinguished and new easements are to be created.
- Where an existing drainage system across the site is retained, access to the existing system is not to be affected by the proposed development. Also, the development is to be designed so as not to degrade the structural integrity of the system.
- Water re-use within the dwelling and for landscaping purposes is encouraged, through the installation of rainwater tanks
- Stormwater drainage complies with *AS 3500.3*.
- Pits are installed to collect water from the low points in yards.
- Down pipes and pits are to be connected to the 'discharge controls' for the site.
- The site discharge indicator for the development is no more than 0.3 determined under *Water Smart Practice Note No. 11 – Site Discharge Indicator*. Preliminary storm water design details demonstrating ability to comply with this requirement are to be submitted with the development application

O. Stormwater drainage design – non-residential

■ Commercial and Industrial buildings are to be designed, constructed and maintained so that development is undertaken in a manner that achieves the stormwater design objectives, and:

- Takes into account site constraints and hazards.

- Stormwater drainage complies with *AS 3500.3*.
- Development proposals for this type of development are to demonstrate that the total of the site's stormwater runoff after development does not exceed the calculated run-off for the site prior to the development for all storm durations for the 5year, 20year, and 100year ARI (Average Recurrence Interval) storm

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- Reduces downstream flooding and drainage impacts.
- Controls soil erosion during and after the construction phase.
- Stormwater drainage is consistent with relevant accepted standards, such as *Managing Urban Stormwater: Soils and Construction*.

event; this includes stormwater produced from the roof and other impermeable areas.

- Pits are installed to collect water from the low points in yards.
- Down pipes and pits are to be connected to the 'discharge controls' for the site.
- The site discharge indicator for the development is **no more than 0.5** determined under *Water Smart Practice Note No. 11 – Site Discharge Indicator*. Preliminary storm water design details demonstrating ability to comply with this requirement are to be submitted with the development application.
- Industrial development buildings are to be provided with an onsite stormwater retention tank in accordance with the following table: (Unless a hydraulic design prepared by a Civil engineer demonstrates otherwise

Roof area	Required tank size (litres)
Equal or less than 500 m ²	10,000
More than 500 m ²	22,500

- The stormwater retention tank is to be fitted with appropriate water purifying and hydrocarbon / pollutant separation devices to ensure that water used and entering the stormwater system is clean.
- Roofing is provided with adequate guttering and downpipes connected to the drainage systems. Downpipes should be connected to open-grated surface inlet pits and all stormwater must be disposed of in accordance with Council's adopted standards. No pump-out systems will be approved by Council.
- Council may require the upgraded/augmentation of the existing downstream drainage system. This may be in the form of actual construction work, to be carried out by the developer at the time of development or in the form of a contribution to be determined by Council at development application stage for drainage schemes adopted by Council.
- All sites will be required to provide appropriate on site stormwater detention such that post development stormwater flows from the site do not exceed pre developed levels.
- All sites will also be required to provide stormwater quality devices within the internal drainage and detention design to ensure stormwater leaving the site is not polluted. In this regard all surface inlet pits will need to be fitted with a suitable pollution control device.
- Stormwater run-off from roofs and paved areas is to be collected and gravity drained to the street drainage system, drainage easement or natural drainage course or other means as determined by Council.
- Trunk drainage systems should be designed for the 10 year ARI storm event. Overland flow paths should be provided to accommodate the 100 year ARI storm event.

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- An onsite stormwater detention system should be provided to ensure the stormwater discharge for a development site does not exceed pre-developed flow rates for the full range of storm events.

The following design guidelines for on site detention can be used where storage requirements are less than 100 m³. If computed storage volumes exceed 100 m³ then a recognised routing method should be used for calculation of storage volumes.

- The 1 in 20 year Average Recurrence Interval (ARI) storm event for the developed site shall be used for inflow to the basin (Q_{20dev}). The maximum outflow from the basin shall be the 1 in 5 year ARI storm flow from the undeveloped site i.e. impervious area 0 % (Q_{5undev}).
- Detention Volume required can then be calculated as.
- Detention Volume (m³) = (Q_{20dev} - Q_{5undev}) x tc_{20dev} x 0.06.
- Where:- Q_{20dev} (litres/sec) Q_{5undev} (litres/sec) tc_{20dev} (minutes).
- The flow from the site in a 100 year ARI storm should then be checked to ensure it does not exceed pre-developed levels. The following formula can be used.
- Q_{100dev} - Q_{20dev} + detention outflow (normally = Q_{5undev}) < Q_{100undev}.

If the above equation is not satisfied then generally the detention outflow will need to be further constricted with a corresponding increase in detained volume.

P. Flooding, runoff regimes & stormwater collection

- Post development runoff reflects pre-development conditions.
- The development does not result in environmental damage within existing drainage courses and receiving waters.
- Stormwater discharges do not cause excessive nuisance to adjoining or neighbouring lands

- Development is to be designed so that runoff from low intensity, common rainfall is equivalent to the runoff from a natural catchment. This can be achieved by intercepting and storing runoff in extended storage detention basins and discharging at greatly reduced rates.
- Alternatively, existing degraded down stream streams can be sympathetically engineered to re-establish a natural riparian eco system that can cope with the changed hydrological regime.
- Developments are to be designed in accordance with *Australian Rainfall and Run off* and the *NSW Floodplain Development Manual*.
- Development is to be designed so that overflows do not adversely affect neighbouring properties by way of intensification, concentration or inappropriate disposal across property boundaries. This can be achieved by securing appropriate easements over downstream properties or discharging overflows directly to the street system where feasible.
- Overflows from paved areas adjacent to the property boundary are to be directed by a kerb or formed gutter to drain away from neighbouring properties.
- Surface levels are to be graded such that sites are generally free draining with sufficient overflow capacity to ensure that waters do not enter buildings when underground drainage systems are beyond their capacity
- Drainage pits are to be installed so that nuisance water does not collect at low points

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- Gutters, down pipes and pits are to be connected to the stormwater management system for the site. *Australian Standard 3500.3* sets appropriate standards for stormwater collection and is to be followed when constructing new development.
- Public use areas satisfy relevant flood safety criteria as assessed with reference to the *NSW Floodplain Development Manual*

Q. Pollutant management

- Ensure that stormwater generated from development does not result in pollution of water courses or receiving waters

- Stormwater systems are to be designed to capture and remove all litter larger than 5 mm in size.
- The event mean concentration of specific pollutants is not to exceed that in the following table.

Pollutant	Maximum event mean concentration
Sediment	100 mg/L
Hydrocarbons	500 ug/L
Total Nitrogen	1000 ug/L
Ammonia	15 ug/L
Phosphorus	100 ug/L

Note: litter traps are not required for houses and multiple housing development comprising less than four dwellings (since people are less likely to litter on their own dwelling site).

Preparation of soil & water management plans

R. Plans for addressing soil & water impacts of the development are required

- Appropriate planning is undertaken to ensure erosion and sediment control is provided to the development during the construction stage.

- Soil and water management plans are required for developments disturbing more than 2500 square metres or on an environmentally sensitive area. See Table 22 Requirements for types of soil and water management plans.
- All proposed controls in a plan must be consistent with this section of the DCP and *Managing Urban Stormwater: Soils and Construction*
- A regular maintenance program for all erosion and sediment controls must be submitted with any plan

S. Content & format of plans

- Plans have adequate information for the scale and nature of the development.

The degree of detail required will depend on:

- the scale of the activity.
- the area of potential disturbance.
- the complexity of the site characteristics e.g. slope, soil type.
- the sensitivity of the adjoining environment.

Soil and water management plans shall include an erosion and sediment control plan, and may include an erosion and sediment control strategy where appropriate to the development.

T. Compliance with plans

-

The proponent is responsible for the full cost of all work required to comply with this section of the DCP, as determined by Council. Any off-site damage resulting from the activity is also the responsibility of the proponent. All erosion and sediment control measures or works and rehabilitation measures must conform to or exceed the

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specifications or standards set out in *Managing Urban Stormwater: Soils and Construction*.

U. Implementation & completion of plan

- Erosion and sediment control measures and rehabilitation works are implemented and maintained
 - Council may require the proponent to lodge a performance bond. This is to ensure effective erosion and sediment control measures and rehabilitation works are implemented and maintained. The bond can be required for any activity deemed by Council including the following situations:
 - proposals adjacent to an environmentally sensitive area.
 - proposals with a disturbed area greater than 5 hectares.
 - proposals involving exposure or disturbance of the land surface for periods greater than 6 months.
 - a 12 month maintenance period applies following the completion of work, during which the developer is responsible for repairs to works and infrastructure.

11f.7 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section.

- Landcom (2004) *Managing Urban Stormwater, 4th Edition* (Includes Appendix M – Model Code of Practice for Soil and Water Management on Urban Lands)
- <http://www.environment.nsw.gov.au/stormwater/publications.htm>
- NSW Government (2005) *NSW Floodplain Development Manual*
- *Managing Urban Stormwater: Soils and Construction* Volume 1, 4th Edn ‘The Blue Book’ (Landcom NSW, 2004)
- *Planning for Erosion and Sediment Control on Single Residential Allotments* (Landcom NSW, 2006)
- *Hip Pocket Handbook* (Landcom NSW, 2004)
- *Australian Rainfall and Runoff 1987 or its updated version (currently under preparation)*
- Water Smart Practice Note No. 11 – Site Discharge Indicator
http://www.clearwater.asn.au/user-data/resource-files/Site_Discharge_Index.pdf

11g On-site waste water management

Explanatory outline

Section 11g outlines assessment criteria relating to on-site waste water management. The following matters are covered:

- adequate land available for on-site disposal
- cumulative impacts
- types of treatment and disposal systems

All developments that have the potential to generate sewage must be connected to an approved sewerage system.

In the case of land that cannot be connected to the reticulated sewerage system, a system of on-site waste water management is required.

11g On-site waste water management

11g.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1: Type of development	Column 2: Applicable land
Development that involves the generation of sewage or other waste water.	Land that cannot be connected to a reticulated sewerage system.

Note: all developments that will require a new on-site waste water management system to be constructed or installed or the modification of an existing system must be the subject of an application for approval under Section 68 of the Local Government Act 1993 using Council's approved form.

11g.2 Relevant planning instruments, legislation & other policies & documents

The following environmental planning instruments and other legislation (or instruments under the legislation) are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013*
- *Local Government Act 1993*
- *Local Government (General) Regulation 2005*

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments and legislation will prevail over requirements or criteria contained in this section.

This section should also be read in conjunction with:

- *Upper Hunter Shire Council Onsite Sewage Management Strategy (2015)*
- *AS/NZ 1546.1:2008 On-site domestic wastewater treatment units, Part 1 – Septic tanks*
- *AS/NZ 1546.2:2008 On-site domestic wastewater treatment units, Part 2 – Waterless composting toilets*

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- *AS/NZ 1546.3:2008 On-site domestic wastewater treatment units, Part 3, Aerated wastewater treatment systems*
- *AS/NZ 1547:2012 On-site Domestic Wastewater Management*
- *AS/NZS 3500.5:2000 National Plumbing and Drainage Domestic Installations*
- *Environment and Health Protection Guidelines for On-site Sewage Management for Single Households (1998) (EHP Guidelines).*

11g.3 Definitions

The following terms defined in the Dictionary are relevant to this section:

- disposal area
- on site waste water management system

11g.4 Objectives

The objectives of this section are to:

- ensure that development is not approved unless there is sufficient suitable land for the disposal of effluent on-site
- discourage the use of above ground irrigation of on site effluent in areas where environmental harm is likely to result
- provide clarity where existing guidelines or standards do not clearly set out requirements
- promote the sustainable use of water and waste resources.

11g.5 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

The applicant should consult with Council staff to determine any other additional information that may be required in addition to this section.

In some cases the information required to determine a Development Application may be equivalent to the information required for an application under section 68 of the *Local Government Act* to install, construct or alter a system of on-site waste water management. A wastewater application may be lodged at the same time as the development application.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to section 2c Lodging a development application.
B. On-site waste water management assessment report	Applications for subdivision of land in Zones RU1, RU4, RU5, E3 or R5 where the proposed lots are less than 4,000 m ² , or there are environmental constraints such as: <ul style="list-style-type: none"> • nearby watercourses or waterbodies (<100 m); • unfavourable topography, soils or geotechnical conditions. • high water table. • potential for flooding. 	<p>The report shall be prepared in accordance with the <i>EHP Guidelines</i> and <i>AS /NZS 1547:2012 On-Site Domestic Wastewater Management</i>. The report must be prepared by a suitably qualified and experienced person.</p> <p>A plan of the land to be subdivided must be provided clearly showing land that is suitable for effluent disposal in relation to:</p> <ul style="list-style-type: none"> • homogenous soil capability types. • EHP Guideline buffer distances from water courses, boundaries and roads. • soil permeability classes. • soil depth and depth to groundwater where it is a moderate or major limitation.

11g On-site waste water management

Item	When required	Plans or information to be provided
	<ul style="list-style-type: none"> proximity to groundwater bores or limited available land area. 	<p>Where a nominal area for an on site system is provided, an appropriately sized polygon should also be marked on the plans to indicate that sufficient area is available.</p>
<p>On-site waste water management assessment report con'td</p>	<p>Applications for single dwellings or other development catering for less than 10 persons where the allotment is less than 4,000 m², or there are environmental constraints such as:</p> <ul style="list-style-type: none"> nearby watercourses or waterbodies (<100 m); unfavourable topography, soils or geotechnical conditions high water table potential for flooding. proximity to groundwater bores or limited available land area. 	<p>Where an on site waste water management assessment report has <u>previously been prepared</u> for the land in a previous subdivision application, the same assessment may be submitted where it meets the requirements listed above in the 'subdivision' section (and updated as required). Where the site layout or the potential to generate sewage is revised or modified, updated information will also be required.</p> <p>Where a suitable on-site waste water management assessment relevant to the property has <u>not already been prepared</u>, the following minimum information must be prepared by a suitably qualified and experienced person:</p> <p>A plan to scale is to be submitted, showing the location of:</p> <ul style="list-style-type: none"> the sewage treatment facility proposed to be installed or constructed on the premises. any related effluent application areas including 50% reserve area, and. any buildings or facilities existing on, and any environmentally sensitive areas of, any land located within 100 metres of the sewage management facility or related effluent application areas, and. any related drainage lines or pipe work (whether natural or constructed) located within 100 metres of the sewage management facility or related effluent application areas. <p>Sufficient information must be included in the report to confirm the size of area required for effluent application areas including reserve area with reference to soil, climate and wastewater flow rate and effluent quality.</p> <p><i>Note: where the precise location of the effluent disposal area is not specified on the plan, a consent may be conditioned to require an approval to install as deferred commencement, or prior to the issue of a Construction Certificate.</i></p>
	<p>Commercial, tourist, agricultural and designated development</p>	<p>The following minimum information must be prepared by a suitably qualified and experienced person:</p> <ul style="list-style-type: none"> outline of the type and configuration of the proposed system, including tank capacities and specifications information and calculations showing how the system will cater for the proposed loading and effluent disposal (must reference hydraulic and soil capacities) water balance analysis expected wastewater quality potential adverse chemical or biological inputs into the system and how the treatment device will process these

11g On-site waste water management

Item	When required	Plans or information to be provided
		<p>inputs and achieve the accepted effluent quality</p> <ul style="list-style-type: none"> • demonstration that the proposed system meets the objectives and development outcomes of this and other relevant DCP sections and related legislation. • a design including sizing calculations and construction design regarding the system and effluent disposal area which also includes the details of nearest potential receptors. • detail of the mitigation measures proposed regarding protection of the system in the event of flood if the land is susceptible.

11g.6 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.

Outcomes to be achieved	Design guidelines
A. Adequate land suitable for on-site disposal	
<ul style="list-style-type: none"> ■ On-site waste water management systems are not permitted on properties which are less than 2,000 m² in area. ■ On-site waste water disposal areas are sized relative to wastewater generation rates, treatment method and soil type and shall take into account limiting factors. ■ On-site waste water management systems must comply with the minimum buffer distances specified at Table 23 Required buffer distances for onsite waste water management systems. Any variation to these buffer distances will need to be supported by a report prepared by a suitably qualified and experienced person. ■ When determining buffer distances, consideration is given to: <ul style="list-style-type: none"> - the type of land application system to be used - surface and subsurface drainage pathways - site factors – topography, soil permeability, geology, vegetation buffering - sensitive environments – national parks, rainforests, estuaries, wetlands, groundwater - extraction areas, and areas with poor tidal flushing - development density. 	

11g On-site waste water management

Outcomes to be achieved

Design guidelines

- On site effluent disposal areas for dwelling houses must account for wastewater disposal of a minimum of a 5 person equivalent population.
- Surface irrigation is not permitted on properties which are less than 4,000 m² in area.
- An area of land is available with suitable soil and site properties to allow the on-site waste water management system to receive the estimated wastewater loading and have a reserve area equivalent to 50% of the assessed capacity.
- For on-site waste water management systems proposed to cater for more than 10 persons for commercial, tourist, agricultural or designated developments, the system must produce effluent quality of at least a secondary standard however they shall be classified as medium risk systems.

B. Cumulative impact considerations

- The cumulative impact of adjoining and nearby on site waste water management systems is considered

Table 23 Required buffer distances for onsite waste water management systems

System	Required buffer distances
All land application areas	<ul style="list-style-type: none"> • 100 m to permanent surface waters (for example, river, streams, lakes etc.),. • 250 m to domestic groundwater well,. • 40 m to other waters (for example, farm dams, intermittent waterways and drainage channels).
Surface spray irrigation	<ul style="list-style-type: none"> • 6 m if area up-gradient and 3 m if area, down gradient of driveways and property boundaries,. • 15 m to dwellings,. • 3 m to paths and walkways,. • 6 m to swimming pools.
Surface drip and trickle irrigation	<ul style="list-style-type: none"> • 6 m if area up-gradient and 3 m if area down gradient of swimming pools, property boundaries, driveways and buildings.
Subsurface irrigation	<ul style="list-style-type: none"> • 6 m if area up-gradient and 3 m if area down gradient of swimming pools, property boundaries, driveways and buildings.
Absorption system	<ul style="list-style-type: none"> • 12 m if area up-gradient and 6 m if down gradient of property boundary. • 6 m if area up-gradient and 3 m if area down gradient of swimming pools, driveways and buildings

Source: Environment and Health Protection Guidelines: Onsite Sewage Management for Single Households 1998.



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11g.7 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section.

- *Upper Hunter Shire Council Onsite Sewage Management Strategy* (2015)
- *Environment and Health Protection Guidelines for On-site Sewage Management for Single Households* (1998) (EHP Guidelines).
- AS/NZ 1546.1:2008 On-site domestic wastewater treatment units, Part 1 – Septic tanks
- AS/NZ 1546.2:2008 On-site domestic wastewater treatment units, Part 2 – Waterless composting toilets
- AS/NZ 1546.3:2008 On-site domestic wastewater treatment units, Part 3, Aerated wastewater treatment systems
- AS/NZ 1547:2012 On-site Domestic Wastewater Management
- AS/NZS 3500.5:2000 National Plumbing and Drainage Domestic Installations

11h Waste minimisation & management

Explanatory outline

Section 11g outlines assessment criteria relating to waste minimisation and management. The following matters are covered:

- Demolition
- Construction
- Mixed use developments

Note: specific waste management and minimisation requirements that apply to particular development types are included in:

- section **4a Urban dwellings**
- section **5a Commercial development - general**
- section **6a Industrial development - general.**

11h Waste minimisation & management

11h.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1:	Type of development	Column 2:	Applicable land
	Development that is likely to generate a significant volume of waste, including: <ul style="list-style-type: none"> • demolition • building construction • subdivision works • food and drink premises • a change of use to commercial or industrial premises. 		Any land.

11h.2 Relevant planning instruments & legislation

The following environmental planning instruments or other legislation are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013*
- *Waste Minimisation and Management Act 1995*
- *Protection of the Environment Operation Act 1997*

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments will prevail over requirements or criteria contained in this section.

11h.3 Introduction

Waste and resource consumption is a major environmental issue and a priority for all levels of government within Australia. This is particularly the case as landfill sites become scarce and the



11h Waste minimisation & management

environmental and economic costs of waste generation and disposal rise. Government and society alike are exposed to the issue of managing the increasingly large volumes of waste generated by our society.

Sustainable resource management and waste minimisation has emerged as a priority action area and a key in the quest for Ecologically Sustainable Development (ESD). Critical actions in this regard include the following:

- avoiding unnecessary resource consumption
- recovering resources for reuse
- recovering resources for recycling or reprocessing
- disposing of residual waste (as a last resort).

The building and construction industry in particular is a major contributor to waste, much of which is still deposited to landfill. The implementation of effective waste minimisation strategies has the potential to significantly reduce these volumes. Effective waste planning and management can also benefit the builder/developer. Some of the benefits of good waste planning and management include:

- reduced costs
- improved workplace safety
- enhanced public image
- compliance with legislation such as the *Protection of the Environment Operation Act 1997* that requires waste to only be transported to a place that can lawfully accept it.

This section aims to facilitate sustainable waste minimisation and management within the Upper Hunter Shire in a manner consistent with the principles of ESD.

11h.4 Definitions

There may be some terms used in this section that are defined in the Dictionary are relevant to this section.

11h.5 Objectives

The objectives of this section are to:

- minimise resource requirements and construction waste through reuse and recycling and the efficient selection and use of resources
- encourage building designs, construction and demolition techniques in general which minimise waste generation
- maximise reuse and recycling of household waste and industrial/commercial waste
- assist applicants in planning for sustainable waste management, through the preparation of a site waste minimisation and management plan
- provide guidance in regards to space, storage, amenity and management of waste management facilities
- ensure waste management systems are compatible with collection services
- minimise risks associated with waste management at all stages of development
- optimise adaptive reuse opportunities of existing building/structures
- minimise waste generation
- maximise source separation and recovery of recyclables
- ensure waste management facilities are safely and easily accessible to occupants and service providers

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- ensure appropriate resourcing of waste management systems, including servicing
- minimise risk to health and safety associated with handling and disposal of waste and recycled material and ensure optimum hygiene
- minimise the environmental impacts associated with waste management
- avoid illegal dumping.

11h.6 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to section 2a Lodging a development application
B. Site Waste Minimisation and Management Plan (SWMMP)	Applications relevant to this section	<p>Report and plan outlining measures to minimise and manage waste generated during demolition, construction and ongoing use of the site/premises.</p> <p>The SWMMP should include details regarding:</p> <ul style="list-style-type: none"> • the location of waste management facilities proposed both during construction and for ongoing operation. • volume and type of waste and recyclables to be generated • storage and treatment of waste and recyclables on site • disposal of residual waste and recyclables • operational procedures for ongoing waste management once the development is complete. <p>Schedule 5 provides a template for the compilation of a SWMMP.</p> <p>More details will be required for larger and more complex developments.</p> <p>In the absence of project specific calculations, the rates specified in Schedule 6 Waste/Recycling Generation Rates and Council's current rate of provision of services to residential properties can be used to inform the compilation of a SWMMP.</p>

11h.7 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.

11h Waste minimisation & management

Outcomes to be achieved

Design guidelines

A. Demolition

This section applies to all developments involving demolition works.

- A completed Site Waste Minimisation and Management Plan (SWMMP) shall accompany the demolition application.
- All waste likely to result from the demolition is identified, and opportunities for reuse of materials are explored.
- Reuse/recycling is facilitated by using the process of 'deconstruction', where various materials are carefully dismantled and sorted.
- Salvaged materials onsite are reused or recycled where possible.
- An area for the storage of materials is allocated for use, recycling and disposal (giving consideration to slope, drainage, location of waterways, stormwater outlets, vegetation, and access and handling requirements).
- Separate collection bins or areas for the storage of residual waste are provided and the purpose and content of the bins and storage areas are clearly 'signposted' .
- Measures are implemented to prevent damage by the elements, odour and health risks, and windborne litter.

B. Construction

This section applies to all developments involving construction works.

- A completed Site Waste Minimisation and Management Plan (SWMMP) shall accompany the development application.
- All waste likely to result from the construction process is identified, and the opportunities for the reuse and recycling of these materials is explored.
- The use of prefabricated components and recycled materials is incorporated into the construction.
- An area for the storage of materials is allocated for use, recycling and disposal (giving consideration to slope, drainage, location of waterways, stormwater outlets, vegetation, and access and handling requirements).
- Separate collection bins or areas for the storage of residual waste are provided and the purpose and content of the bins and storage areas are clearly 'signposted' .
- Measures are implemented to prevent damage by the elements, odour and health risks, and windborne litter.
- Ensure that all waste is transported to a place that can lawfully be used as a waste facility. Retain all records demonstrating lawful disposal of waste and keep them readily accessible for inspection by regulatory authorities such as council, Environment Protection Authority or WorkCover NSW.

11h Waste minimisation & management

Outcomes to be achieved

Design guidelines

C. Dwellings

- The waste minimisation & management requirements of **Section 4a Urban Dwellings** must be considered.

D. Commercial developments and change of use

- The waste minimisation & management requirements of **Section 5a Commercial development – general** must be considered.

E. Industrial developments

- The waste minimisation & management requirements of **Section 6a Industrial development - general** must be considered.

F. Mixed use developments

This section applies to 'mixed use developments' that contain both residential and non-residential uses.

This section aims to ensure new developments and changes to existing development are designed to maximise resource recovery (through waste avoidance, source separation and recycling) and to ensure appropriate, well-designed storage and collection facilities are accessible to occupants and service providers.

- A completed Site Waste Minimisation and Management Plan (SWMMP) shall accompany the application.
- The waste minimisation & management requirements of **Section 4a Urban dwellings** apply to the residential component of mixed-use development.
- The waste minimisation & management requirements of **Section 5a Commercial development - general** apply to the non-residential component of mixed-use development.
- Separate and self-contained waste management systems for the residential component and the non-residential components of the development are provided, including:
 - Separate waste/recycling storage rooms/areas for the residential and non-residential components
 - Commercial tenants must be prevented (via signage and other means), from using the residential waste/recycling bins and vice versa.
- The residential waste management system and the non-residential waste management system must be designed so that they can efficiently operate without conflict.

Conflict may potentially occur between residential and non-residential storage, collection and removal systems, and between these systems and the surrounding land uses. For example, collection vehicles disrupting peak residential and commercial traffic flows or causing noise issues when residents are sleeping.

11h.8 Further information

When implementing a SWMMP, the applicant must ensure:

- Footpaths, public reserves, street gutters are not used as places to store demolition waste or materials of any kind without Council approval.
- Any material moved offsite is transported in accordance with the requirements of the Protection of the Environment Operations Act 1997.



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- Waste is only transported to a place that can lawfully be used as a waste facility.
- Generation, storage, treatment and disposal of hazardous waste and special waste (including asbestos) is conducted in accordance with relevant waste legislation administered by the EPA and relevant Occupational Health and Safety legislation administered by WorkCover NSW.
- Evidence such as weighbridge dockets and invoices for waste disposal or recycling services are retained.
- Evidence of compliance with any specific industrial waste laws and protocols, such as the Protection of the Environment Operations Act 1997.
- Materials which are to be disposed of and those which are to be reused/ recycled are to be separated through the demolition and construction process.
- Materials that have existing reuse or recycling markets should not be disposed of in landfill when possible.

11h.9 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section.

- Better Practice Guide for Waste Management in Multi-Unit Dwellings, Department of Environment and Climate Change (2008).

11i Buffer areas

Explanatory outline

Section 11i outlines assessment criteria relating to the provision of buffer areas to mitigate adverse impacts of development on adjoining land and to avoid conflict between different land uses. The following matters are covered:

- types of land uses where minimum separation distances (buffer areas) apply
- buffer distance and area guidelines for specific locations
- criteria for considering variations to buffer guidelines.

11i Buffer areas

11i.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1:	Type of development	Column 2:	Applicable land
	Development that potentially may cause nuisance to adjacent or nearby land by reason of noise, vibration, dust, smoke, fumes, odour, light or other emissions.		Any land.

11i.2 Relevant planning instruments & legislation

The following environmental planning instruments or other legislation are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013*
- *Protection of the Environment Operations Act 199•*

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments will prevail over requirements or criteria contained in this section.

11i.3 Definitions

There may be some terms used in this section that are defined in the Dictionary.

11i.4 Objectives

The objectives of this section are to ensure that development proposals and land uses avoid and minimise the potential for current and future conflict by:

- identifying and assessing likely impacts from development proposals and the potential for land use conflict (including noise and odour)
- avoiding inappropriate development, or increasing the scale or intensity of development close to existing uses that may have impacts (such as intensive agricultural industries, sewerage treatment plants or similar activities)
- providing buffers separating land uses to minimise potential adverse effects.



11i Buffer areas

11i.5 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to section 2c Lodging a development application . Note: the Statement of Environmental Effects must describe potential impacts from or to adjoining land
B. Acoustic report	Applications involving the potential for noise impacts on adjoining development, including: <ul style="list-style-type: none"> residential development that adjoins or is adjacent to a main road (for example, the New England Highway) or a railway line some types of commercial, industrial or tourist and visitor accommodation activities applications to extend trading hours 	In accordance with relevant environmental protection guidelines. Generally should include sections: <ul style="list-style-type: none"> Background Site Description Noise Criteria Noise Assessment Recommendations Conclusion
C. Buffer plans & report	All applications	A plan showing: <ul style="list-style-type: none"> location of proposed development location of adjoining or nearby development minimum buffer distances specified in this section An accompanying report describing the application of the minimum buffer distances to the development, and any issues arising. If it is not possible or appropriate to achieve the specified minimum buffer distances, describe (with accompanying plans where relevant) the proposed measures to mitigate the effects of the proximity of the development

11i.6 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.

11i Buffer areas

Outcomes to be achieved

Design guidelines

A. Separation distances to primary industries

- Minimum separation distances are to apply to maintain a suitable buffer between primary industries and other land uses.
 - Separation distances may be determined on a site specific basis where criteria outlined in clause 11i.7 Variations of assessment criteria are met
- A minimum buffer of 500 metres is required between residential/urban development and intensive agriculture, rural industries and livestock operations (for example, piggeries, poultry sheds, and dairies).
 - A minimum buffer of 500 metres is required between rural dwellings and rural tourist accommodation and intensive agriculture, rural industries and livestock operations (for example, piggeries, poultry sheds, and dairies).
 - A minimum buffer of 100 metres is required between watercourses and intensive agriculture, rural industries and livestock operations (for example, piggeries, poultry sheds, and dairies).
 - Larger minimum buffers may be required for potentially hazardous or offensive industries (including mines and quarries).
 - Property management practices to apply alternative or specialised management actions in locations where conflict potential is to apply may be required instead of, or in addition to, minimum separation distances (for example, crop spraying practice near residences).
 - In determining appropriate separation distances, Council will have regard to any relevant references and standards, including *Department of Primary Industries (2007)*.

B. Separation distances to environmental assets

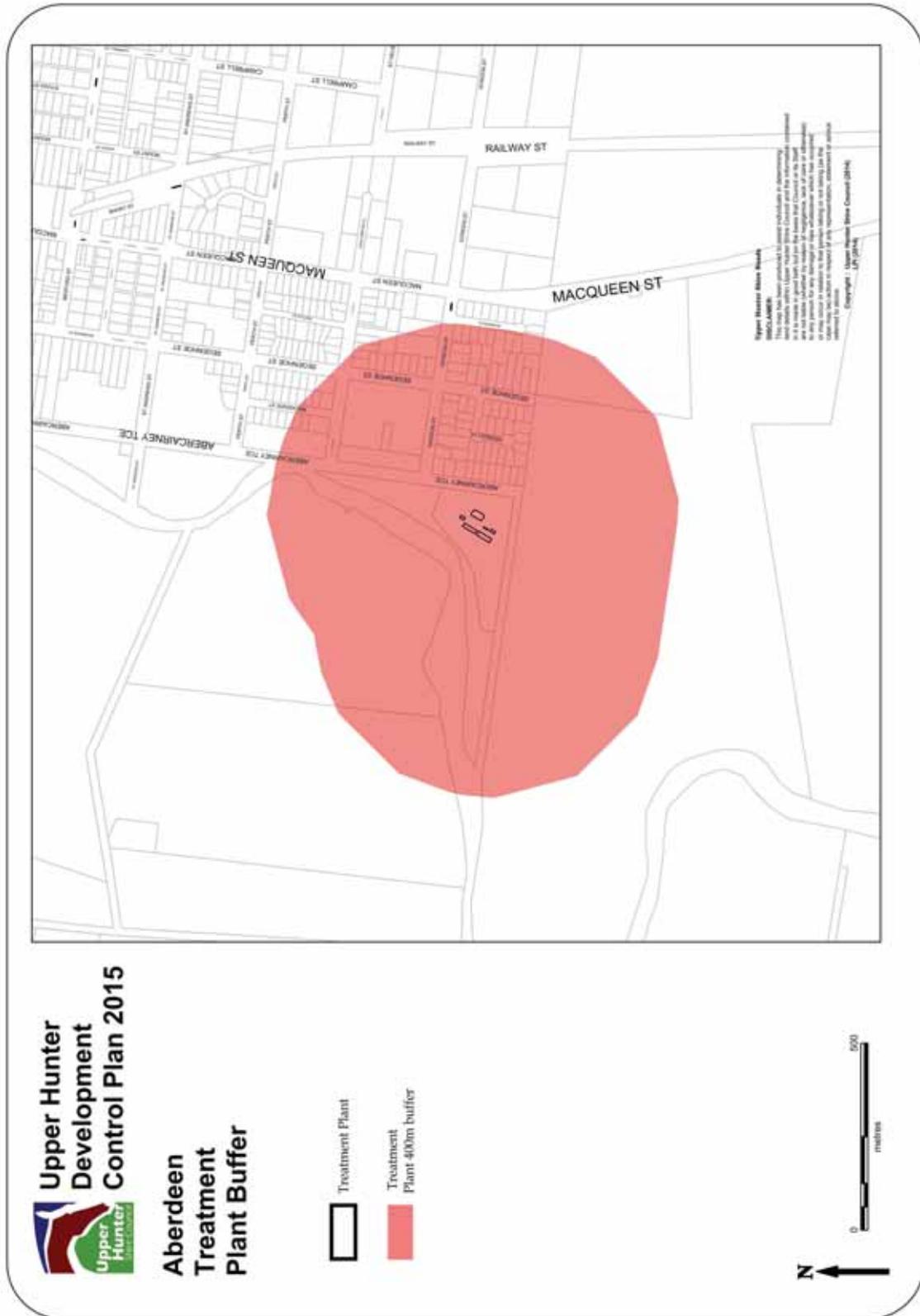
- Minimum separation distances are to apply to maintain a buffer between development and environmental assets (including native vegetation/habitat, waterways, wetlands and significant agricultural land).
 - Separation distances may be determined on a site specific basis where criteria outlined in section 11i.7 Variations of assessment criteria are met
- A minimum buffer of 50 metres is required between native vegetation and:
 - residential or urban development
 - development with the potential to cause adverse impacts including rural tourist accommodation, intensive agriculture, rural industries and livestock operations.
 - A minimum buffer of 50 metres is required between streams and waterways and:
 - residential or urban development
 - development with the potential to cause adverse impacts including rural tourist accommodation, intensive agriculture, rural industries and livestock operations.
 - A minimum buffer of 100 metres is required between wetlands and:
 - residential or urban development
 - development with the potential to cause adverse impacts including rural tourist accommodation, intensive agriculture, rural industries and livestock operations.
 - A minimum buffer of 300 metres is required between significant agricultural land and:
 - residential or urban development
 - development with the potential to cause adverse impacts.
- In determining appropriate separation distances, the Council will have regard to any relevant references and standards, including *Department of Primary Industries (2007)*.

11i Buffer areas

Outcomes to be achieved	Design guidelines
<p>C. Separation distances for specific land uses</p> <ul style="list-style-type: none"> ■ Minimum separation distances are to apply to maintain a buffer between development and specific land uses (waste facilities, animal boarding or training establishments, and effluent re-use areas). ■ Separation distances may be determined on a site specific basis where criteria outlined in section 11i.7 Variations of assessment criteria are met 	<ul style="list-style-type: none"> • A minimum buffer of 300 metres is required between waste facilities and residential areas/urban development, rural dwellings, rural tourist accommodation, or similar land uses. • A minimum buffer of 500 metres is required between animal boarding or training establishments and residential areas/urban development, rural dwellings, rural tourist accommodation, or similar land uses. • A minimum buffer is required between effluent re-use areas and other land uses, with the separation distance based on a site specific determination.
<p>D. Separation distances to sewerage treatment plants</p> <ul style="list-style-type: none"> ■ This applies to land in the vicinity of the Scone, Aberdeen, Merriwa or Murrurundi Sewerage Treatment Plants as shown on Maps 14 to 17 below. 	<ul style="list-style-type: none"> • In considering any development application for residential development in the area identified on Maps 14 to 17, Council shall not approve any increase in residential density on land over that which exists at present unless it is satisfied that: <ul style="list-style-type: none"> - the likely adverse impacts of the proposed development will not impact the existing and continued operations of the Sewerage Treatment Works Buffer Area - the likely adverse impact of the development on the existing and continued operations of the Sewerage Treatment Works Buffer Area is minimal - the development is sited to maximise the distance between the development and the Sewerage Treatment Works Buffer Area to minimise potential land use conflict - the development is suitably located to minimise any views of the Sewerage Treatment Works Buffer Area to avoid any likely adverse visual impact - the development has employed measures that will mitigate the effects from the Sewerage Treatment Works Buffer Area - the intensity of development is such that it would reasonably be anticipated for the subject site.
<p>E. Bushfire asset protection</p> <p><i>Land use buffers may be required in conjunction with bush fire asset protection.</i></p> <ul style="list-style-type: none"> ■ Buffers comply with the requirements set out in section 10b Bushfire risk. 	
<p>F. Heritage buffers</p> <ul style="list-style-type: none"> ■ Protection of heritage items may require limitation of development within the curtilage of the item. ■ The development consider the requirements in section 9a Heritage conservation. 	<ul style="list-style-type: none"> • Separation distances for heritage items are determined on a site specific basis taking into account relevant matters, including the heritage significance of the item. • A site specific heritage study and associated report is likely to be required. Refer to section 9a Heritage conservation.
<p>G. Buffer to rail & busy roads</p> <ul style="list-style-type: none"> ■ The development addresses the provisions of the <i>Department of Planning's publication 'Development Near Rail Corridors and Busy Roads – Interim Guideline' 2008</i> (or its updated version) and any other relevant guidelines. 	

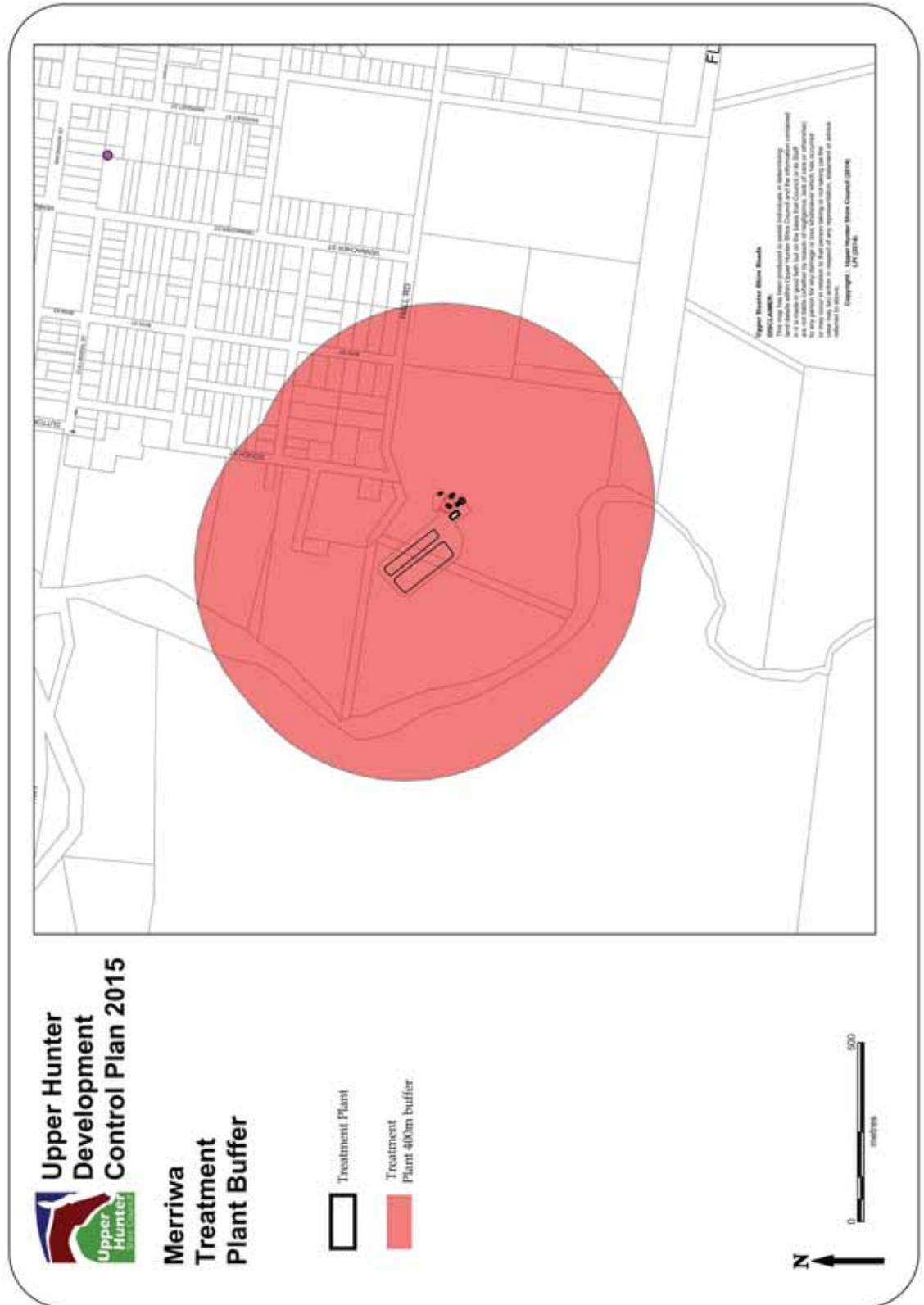
11i Buffer areas

Map 15 Aberdeen treatment plant buffer



11i Buffer areas

Map 16 Merriwa treatment plant buffer



11i Buffer areas

Map 17 Murrurundi treatment plant buffer



11i Buffer areas

11i.7 Variations of assessment criteria

The minimum buffer requirements outlined in clause 11j8 **Assessment criteria** will only be varied where it has been demonstrated that they are not appropriate for the site, and the following criteria are met:

- documentary evidence is provided that the minimum standards are unnecessary or inappropriate in the particular circumstances of the case
- relevant State or national guidelines or standards are complied with.

11i.8 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section.

- Department of Planning, 2008, Development Near Rail Corridors and Busy Roads – Interim Guideline
- Department of Environment, Conservation and Climate Change, 2009, Interim Construction Noise Guideline <http://www.epa.nsw.gov.au/noise/constructnoise.htm>
- NSW Department of Primary Industries, 2007, Living and Working in Rural Areas – A handbook for managing land use conflict issues on the NSW North Coast <http://www.dpi.nsw.gov.au/pubs/north-coast-land-use>
- NSW Department of Environment and Conservation, 2004, Use of Effluent by Irrigation www.environment.nsw.gov.au/resources/water/effguide.pdf
- NSW Department of Environment and Conservation, 2004, Environmental Management on the Urban Fringe – Horse Properties on the Rural Urban Fringe, Best Practice Environmental Guide for Horses, www.environment.nsw.gov.au/resources/stormwater/usp/horse0489.pdf
- NSW Department of Primary Industries also has guidelines, manuals and standards for a range of agricultural activities and practices which should be referred to.