

February 2025

NSW plantation owner/manager's guide

Buffers zones for the protection of soil, water and place, objects or items of heritage significance

*This document provides information on the buffer zone requirements of the
Plantations and Reafforestation (Code) Regulation 2001*

Buffer zones for the protection of soil and water

Buffer zone means a protective margin of vegetation that surrounds or is adjacent to specified drainage features or places, objects or items of heritage significance and which protects them from potentially detrimental disturbances. The *Plantations and Reafforestation Regulation 2001* (the Code) sets out standards requiring buffer zones for drainage features including wetlands, rivers, drainage lines and drainage depressions on soil classed R4 for authorised plantations. The Code requires a buffer zone for a specified distance between certain drainage features and any area on which plantation operations are carried out. The buffer zone requirements for plantation operations are listed in Table 1.

Wetland means any area that is —

- (a) covered by a shallow body of water (being a body of water that is not the result of unusual flooding, high rainfall, temporary water diversion, or a marked permeability break in the soil profile leading to the development of a perched water table), and
- (b) inundated cyclically, intermittently or permanently with water, and
- (c) under normal circumstances, predominantly vegetated with plant communities adapted for life in saturated soil conditions, and
- (d) characterised by soils that exhibit reducing conditions.

Wetlands generally include marshes, billabongs, swamps and sedge lands.

River means a third order or higher order stream (as determined according to the Strahler System using a 1:25,000 or 1:50,000 topographic map published by the Government, whichever is the smallest scale so published) with a permanent flow.

Drainage line means a channel down which surface water naturally concentrates and flows, conveying water only during, or immediately after (that is, only hours or days after) periods of heavy rainfall. Drainage lines exhibit one or more of the following features which distinguish them from drainage depressions —

- (a) evidence of active erosion or deposition (for example, gravel, pebble, rock, or sand bed deposited by water),
- (b) an incised channel more than 300 millimetres deep with clearly defined bed and banks,
- (c) first or second order streams with permanent flow,
- (d) third or higher order streams without permanent flow.

For the purposes of this definition, stream orders are as determined according to the Strahler System using a 1:25,000 or 1:50,000 topographic map published by the Government (whichever is the smallest scale so published).

Drainage depression means a level to gently inclined shallow, open depression, generally with a smoothly concave cross-section, rising to moderately inclined hill slopes, that conveys runoff water only during or immediately after (that is, only hours or days after) periods of heavy rainfall.

R4 soil class is low coherence soils (when wet) with high potential to deliver fine sediment.

The Strahler System is a stream ordering system that classifies the hierarchy of streams in the landscape.

First-order stream: A first order stream starts at the top of a catchment and has no other streams flowing into it. First-order streams are the smallest in a river system.

Second-order stream: Second-order streams form when 2 first-order streams join. They are bigger in size due to the water from both first-order streams combining.

Third-order stream: Third-order streams form when 2 or more second-order streams join. And so on.

More information about the Strahler System can be found on the [Water NSW website](#).

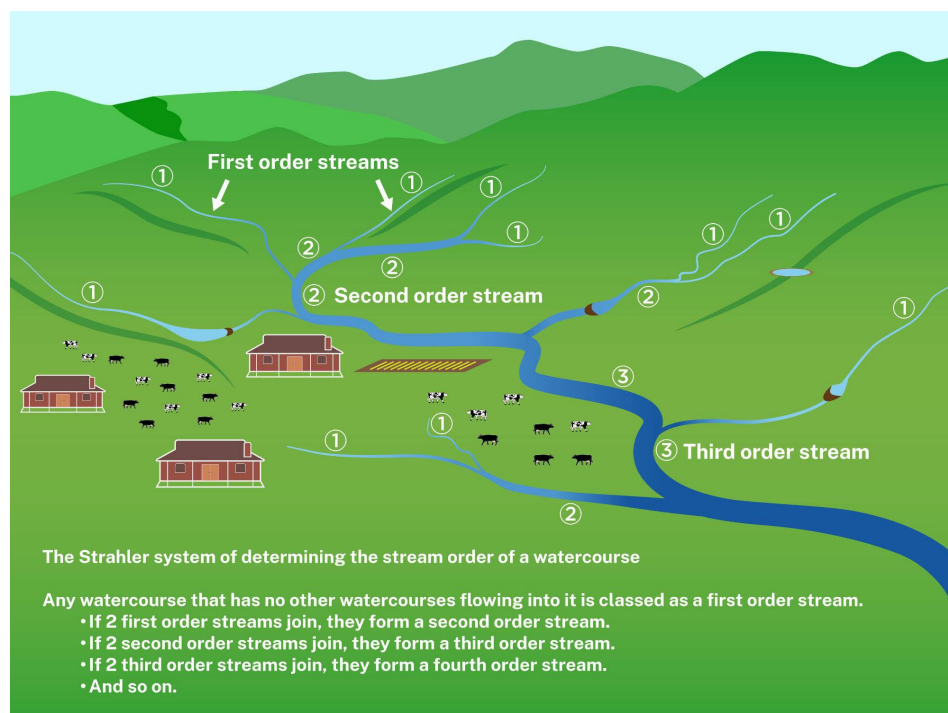


Figure 1 Water NSW Strahler Stream Order Diagram

Drainage feature buffer zone distances

The plantation owner and manager must ensure plantation operations are not undertaken within the distances as specified in Table 1 except as provided for by the Code.

Table 1 Buffer zones for drainage features

Drainage feature	Buffer zone distance	Method of measuring
Wetland (more than 0.1 hectares in size)	20 metres	Width of buffer zone is to be measured along the ground and from the edge of the wetland
River	20 metres either side	Width of buffer zone is to be measured along the ground and from the top edge of its banks
Drainage line	10 metres either side	Width of buffer zone is to be measured along the ground and from the top edge of its banks
Drainage depression occurring on class R4 soil	10 metres either side	Measured from the centre of the drainage depression

Note: Although similar buffer zones are recommended for drainage depressions on class R1-R2 soils, they are not specifically required by the Code for those drainage depressions.

The buffer distance from rivers and drainage lines is measured from the top edge of its banks.



Figure 2 Measuring distance from a river or drainage line

Buffer zones for the protection of Aboriginal places and objects and environmental heritage

Any Aboriginal place or Aboriginal object or item of environmental heritage that is identified in a plantation must be surrounded by a buffer as listed in Table 2. Clearing is not allowed in relation to the buffer zones of places, objects, or items of heritage significance. The only exception is if consent is obtained to disturb the place or object under the relevant legislation.

A plantation owner or manager who is carrying out any plantation operations involving soil disturbance must undertake a search of the Aboriginal Heritage Information System (AHIMS) database unless a search has been carried out for the relevant area within the preceding 12 months. This requirement applies to all plantation operations throughout the life of the plantation. AHIMS can be accessed via the [Environment and Heritage website](#).

Table 2 Buffer zone requirements for Aboriginal places, Aboriginal objects and items of environmental heritage

Aboriginal place or object or item of environmental heritage	Buffer zone distance	Method of measuring
Burial site	50 metres wide	The width of the buffer zone of Aboriginal places or items of the environmental heritage that are a place or a precinct is to be measured from the edge of its boundaries. The width of the buffer zone of Aboriginal objects or items of the environmental heritage that are not a place or precinct are to be measured along the ground and from the outermost edges of the object or item or, in the case of a scatter of objects or items, from the outermost edges of the objects or items lying farthest from the centre of the scatter.
Scarred or carved tree or any stone arrangement	20 metres wide	
Artefact scatter or any Aboriginal place or Aboriginal object	10 metres wide	
Environmental heritage identified	10 metres wide	

Aboriginal object means any deposit, object, or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction and includes Aboriginal remains.

Aboriginal place means any place declared to be an Aboriginal place under section 84 of the *National Parks and Wildlife Act 1974*.

Environmental heritage means those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance within the meaning of the *Heritage Act 1977*.

Establishment operations in buffer zones on timber plantations

Table 3 Timber plantations -Establishment operations in buffer zones

Drainage feature	Buffer zone distance	Timber plantation establishment operations
Wetland (more than 0.1 hectares in size)	20 metres	No planting for the purpose of harvesting

Drainage feature	Buffer zone distance	Timber plantation establishment operations
		Planting may be carried out may be carried out for the purpose of protecting the environment but only if — (i) the planting is of local native species by manual cultivation, and (ii) any woody native vegetation that comprises local native species and any native grassland of high conservation value in the buffer zone is retained.
River	20 metres either side	No planting for the purpose of harvesting Planting may be carried out may be carried out for the purpose of protecting the environment but only if — (i) the planting is of local native species by manual cultivation, and (ii) any woody native vegetation that comprises local native species and any native grassland of high conservation value in the buffer zone is retained.
Drainage line	10 metres either side	Clause 17(2) of the Code Planting may be carried out for the purpose of harvesting or protecting the environment but only if - any planting within 5 metres of the edge of the drainage line is by manual cultivation, or spot cultivation by machinery so long as any tyres or tracks on the machinery do not enter the 5-metre area, and Note — For example, cultivation may be carried out within the 5-metre area by means of a cultivator head attached to an excavator, provided the excavator does not enter the 5-metre area. - any planting between 5 and 10 metres of the edge of the drainage line is by — (i) manual cultivation, or (ii) spot cultivation, or (iii) line ripping so long as soil conditions are such that only minimal soil disturbance is likely to be caused, or

Drainage feature	Buffer zone distance	Timber plantation establishment operations
		(iv) line cultivation so long as soil conditions are such that only minimal soil disturbance is likely to be caused, the soil regolith is R1 or R3 and the rainfall erosivity rating is less than 2000. any woody native vegetation that comprises local native species and any native grassland of high conservation value in the buffer zone is retained.
Drainage depression occurring on class R4 soil	10 metres either side	Clause 17(2) of the Code Planting may be carried out for the purpose of harvesting or protecting the environment but only if - there is no planting within 5 metres of the centre of the depression, and - any planting between 5 and 10 metres of the centre of the drainage depression is by – (i) manual cultivation, or (ii) spot cultivation, or (iii) line ripping so long as soil conditions are such that only minimal soil disturbance is likely to be caused, or (iv) line cultivation so long as soil conditions are such that only minimal soil disturbance is likely to be caused, the soil regolith is R1 or R3 and the rainfall erosivity rating is less than 2000. - any woody native vegetation that comprises local native species and any native grassland of high conservation value in the buffer zone is retained.

The Code requires that plantation operations be not carried out in retained areas including buffer zones except where specifically provided for by the Code.

Timber plantation harvesting in buffer zones

There are some circumstances under the Code which allow the harvesting of buffer zones of a drainage features on a limited basis. However, the Code prevents the harvesting of buffer zones of rivers and wetlands.

The Code requires that plantation operations be not carried out in retained areas including buffer zones except as otherwise allowed by the Code and requires any retained area to be managed to conserve its biodiversity and ecological integrity. Part 6 Division 3 of the Code, Protection of Buffer Zones sets out circumstances for harvest of planted trees. Conditions may apply to a specific authorisation to allow harvesting in buffers zones for plantations established prior to commencement of the *Plantations and Reafforestation Act 1999*.

Harvesting is not allowed in the buffer zones of:

- Any wetland,
- Any river, or
- Any place, object, or item of heritage significance

except where the Secretary (previously Director General) allows a one-off harvesting of a timber plantation accredited under the *Timber Plantations (Harvest Guarantee) Act 1995* (TPHG) that met the requirements of that Act.

Harvesting is not allowed in buffer zones of any drainage features except:

- trees planted in buffer zones of drainage depressions on R4 soils and buffer zones of drainage lines on all soils in accordance with 17(2) of the Code for the purposes of harvesting,
- where approval has been obtained from the Secretary for TPHG accredited areas,
- as allowed by the authorisation conditions for non-complying or already established plantations (it is not common that these conditions have been applied).

Trees planted in buffer zones of a drainage feature other than rivers and wetlands for the purposes of timber harvest in accordance with clause 17(2) of the Code (planting in buffer zones of drainage lines on all soils or drainage depressions on R4 soils) may only be harvested in accordance with the requirements of clause 63 of the Code.

Clause 63 Requirements for harvesting in the buffer zones of drainage features:

- Trees planted in the buffer zone of a drainage feature for the purpose of harvesting (in accordance with clause 17(2)) may only be harvested in accordance with the following requirements —
 - the person carrying out the harvesting operation must be satisfied that the top 200 millimetres of soil in the area to be harvested is dry enough to allow the operations to be carried out without risk of soil erosion to the edge of the drainage feature,
 - harvesting and extraction machinery may only enter an area within 5 metres —
 - (i) of the edge of a drainage line (measured from the top edge of its banks or, if there are no banks, from the edge of its apparent water flow area), or

- (ii) of the centre of a drainage depression occurring on soil classed R4,
if this is done in accordance with clause 37 or if entering the 5-metre area will result in less environmental damage than the use of any practicable alternative route that would avoid the 5-metre area,
 - directional felling must be used to prevent as much as practicable the felling of trees into the defined channel of a wetland, river, or drainage line,
 - if directional felling cannot practicably be carried out, or if trees are accidentally felled into the defined channel of a wetland, river or drainage line, the relevant trees must be removed from the channel, unless the removal is likely to cause more than minimal disturbance to the bed and banks of the channel,
 - if logs are removed from within a buffer area, the following must be undertaken (so long as weather conditions permit) —
 - (i) any disturbed area must be restored to 70% groundcover within 7 days of the removal of the logs,
 - (ii) any furrow created by the removal of the logs must be filled or drained to prevent concentrated flow direct to the drainage feature.
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Getting help

For further information regarding the Code requirements please contact your local DPIRD Plantation Officer.