

Controlled activities – Guidelines for riparian corridors on waterfront land

Controlled activities carried out in, on or under waterfront land are regulated by the *Water Management Act 2000* (WM Act). The Department of Planning and Environment administers the WM Act and is required to assess the impact of any proposed controlled activity to ensure that no more than minimal harm will be done to waterfront land as a consequence of carrying out the controlled activity.

Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 metres of the highest bank of the river, lake or estuary.

This means that a controlled activity approval must be obtained from the department before commencing the controlled activity.

What is a riparian corridor?

A riparian corridor (RC) forms a transition zone between the land, also known as the terrestrial environment, and the river or watercourse (aquatic environment). Riparian corridors perform a range of important environmental functions such as:

- providing bed and bank stability and reducing bank and channel erosion
- protecting water quality by trapping sediment, nutrients and other contaminants
- providing a diversity of habitats for terrestrial, riparian and aquatic plants (flora) and animals (fauna)
- providing connectivity between wildlife habitats
- conveying flood flows and controlling the direction of flood flows
- providing an interface or buffer between developments and waterways
- providing passive recreational uses.

The protection, restoration or rehabilitation of vegetated riparian corridors is important for maintaining or improving the shape, stability (or geomorphic form) and ecological functions of a watercourse.

Changes to controlled activities within riparian corridors

On 1 July 2012 rules commenced regarding controlled activities within riparian corridors. The rules amend the riparian corridor widths that apply to watercourses, providing more flexibility in how riparian corridors can be used and making it easier for applicants to determine the department's controlled activity approval requirements.

Key aspects of the changes include:

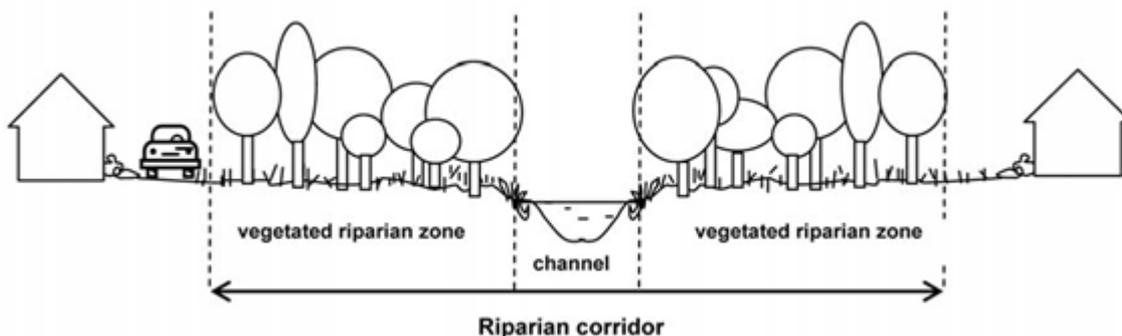
- provision of greater flexibility in the allowable uses and works permitted within riparian corridors
- the core riparian zone and vegetated buffer have been combined into a single vegetated riparian zone (VRZ)
- the width of the VRZ within the riparian corridor has been pre-determined and standardised for first, second, third and fourth order and greater watercourses
- where suitable, applicants may undertake non-riparian corridor works or development within the outer 50% of a VRZ, as long as they offset this activity by connecting an equivalent area to the RC within the development site
- a ‘riparian corridors matrix’ enables applicants to determine what activities can be considered in riparian corridors.

These changes will simplify the controlled activities application and assessment process, provide greater flexibility, help make more land available for housing, support floodplain, stormwater and bushfire management, and allow riparian corridors to be used for public amenity whilst continuing to deliver environmental outcomes required under the WM Act.

The riparian corridor (figure 1) consists of the:

- channel which comprises the bed and banks of the watercourse (to the highest bank)
- VRZ adjoining the channel.

Figure 1. The riparian corridor



Riparian corridor widths

The department recommends a VRZ width based on watercourse order as classified under the Strahler System of ordering watercourses and using current 1:25 000 topographic maps (see Figure 1 and Table 1). The width of the VRZ should be measured from the top of the highest bank on both sides of the watercourse.

Figure 2. The Strahler system

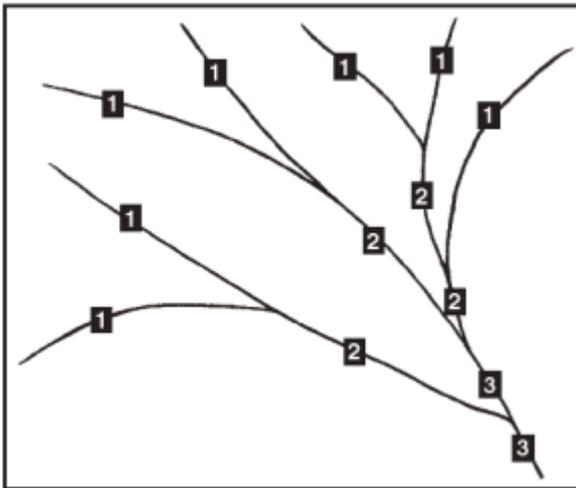


Table 1. Recommended riparian corridor widths

Watercourse type	VRZ width (each side of watercourse)	Total RC width
1 st order	10 metres	20 m + channel width
2 nd order	20 metres	40 m + channel width
3 rd order	30 metres	60 m + channel width
4 th order and greater (includes estuaries, wetlands and any parts of rivers influenced by tidal waters)	40 metres	80 m + channel width

Note: where a watercourse does not exhibit the features of a defined channel with bed and banks, the department may determine that the watercourse is not waterfront land for the purposes of the WM Act.

Objectives for riparian corridor management

The overarching objective of the controlled activities provisions of the WM Act is to establish and preserve the integrity of riparian corridors.

Ideally, the environmental functions of riparian corridors should be maintained or rehabilitated by applying the following principles:

- identify whether or not there is a watercourse present and determine its order in accordance with the Strahler System
- define the RC/VRZ on a map in accordance with Table 1 if a watercourse is present
- maintain or rehabilitate a RC/VRZ with fully structured native vegetation in accordance with Table 1

- minimise disturbance and harm to the recommended RC/VRZ
- minimise the number of creek crossings and provide perimeter road separating development from the RC/VRZ
- locate services and infrastructure outside of the RC/VRZ. Within the RC/VRZ provide multiple service easements and/or utilise road crossings where possible
- treat stormwater run-off before discharging into the RC/VRZ.

The department, however, does allow for a range of works and activities on waterfront land and in riparian corridors to better meet the needs of the community, so long as they cause minimal harm as outlined in the riparian corridor matrix below.

Riparian corridor matrix

The riparian corridor matrix enables applicants to identify certain works and activities that can occur on waterfront land and in riparian corridors. Applicants should note that the matrix relates to controlled activity approvals under the WM Act only. They are still required to comply with other relevant government legislation, such as threatened species, flood planning levels and fisheries guidelines.

Table 2: Riparian corridor matrix

Stream order	VRZ	RC offsetting for non-RC uses	Cycleways and paths	Detention Basins		Stormwater outlet structures and essential services	Stream realignment	Road crossings		
				Only within 50% outer VRZ	Online			Any	Culvert	Bridge
1 st	10m	•	•	•	•	•	•			
2 nd	20m	•	•	•	•	•		•		
3 rd	30m	•	•	•		•			•	•
4 th +	40m	•	•	•		•			•	•

Key

Stream order: the watercourse order as classified under the Strahler System based on 1:25,000, 1:50,000 or 1:100,000 topographic maps whichever is the smallest scale available. A full list is provided in Part 2, Schedule 2 of the Water Management (General) Regulation 2011.

Vegetated riparian zone (VRZ): the required width of the VRZ measured from the top of the high bank on each side of the watercourse.

Riparian corridor (RC) off-setting for non-RC uses: non-riparian uses, such as Asset Protection Zones are allowed within the outer 50% of the VRZ, so long as offsets are provided in accordance with the averaging rule as seen in Figure 3.

Cycleways and paths: cycleways or paths no wider than four metres total disturbance footprint can be built in the outer 50% of the VRZ.

Detention basins: detention basins can be built in the outer 50% of the VRZ or online where indicated. Refer to the department's [Guidelines for outlet structures](#) and [Guidelines for in-stream works](#). Online basins must:

- be dry and vegetated
- be for temporary flood detention only with no permanent water holding
- have an equivalent VRZ for the corresponding watercourse order
- not be used for water quality treatment purposes.

Stormwater outlet structures and essential services: stormwater outlets or essential services are allowed in the RC. Works for essential services on a fourth order or greater stream are to be undertaken by directional drilling or tied to existing crossings. Refer to the department's [Guidelines for outlet structures](#) and [Guidelines for in-stream works](#).

Stream realignment: indicates that a watercourse may be realigned. Refer to the department's [Guidelines for in-stream works](#).

Road crossings: indicates permitted road crossing methods. Refer to the department's [Guidelines for watercourse crossings](#) and NSW Department of Primary Industries [Policy and Guidelines for Fish Friendly Waterway Crossings](#).

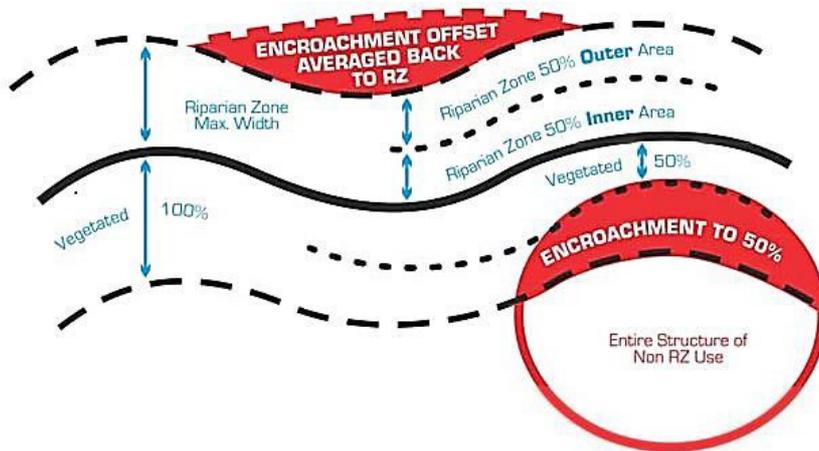
The averaging rule

Non-riparian corridor works and activities can be authorised within the outer riparian corridor, so long as the average width of the vegetated riparian zone can be achieved over the length of the watercourse within the development site. That is, where appropriate 50% of the outer vegetated riparian zone width may be used for non-riparian uses including asset protection zones, recreational areas, roads, development lots and infrastructure. However, an equivalent area connected to the riparian corridor must be offset on the site (see Figure 3) and the inner 50% of the vegetated riparian zone must be fully protected and vegetated with native endemic riparian plant species.

Bridges, cycleways, paths, stormwater outlets and other essential services do not need to be offset but must comply with the requirements set out in the riparian corridor matrix (Table 2) and other relevant departmental controlled activities guidelines. Offline detention basins do not need to be offset so long as there is an equivalent VRZ for the corresponding watercourse and they are built in compliance with the department's [Guidelines for watercourse crossings](#) and [Guidelines for in-stream works](#). If a proposed basin will not have an equivalent VRZ for the corresponding watercourse, it may still be built in the outer 50% of the VRZ but must be offset.

The averaging rule should generally be applied to cleared waterfront land. Development proposals involving waterfront lands that contain existing native vegetation should seek to preserve that riparian vegetation according to the minimum riparian corridor requirements outlined in Table 1.

Figure 3: Averaging rule



Applications for controlled activity approvals

Applications for controlled activities approvals should be informed by the riparian corridor matrix shown in Table 2 and prepared by visiting the [NSW Planning Portal](#). For assistance, refer to the [departments website](#). Other controlled activity guidelines are available on the [department's website](#) and outline relevant considerations for applicants when proposing activities and works on waterfront lands.

Streamlined assessment

Where applications are presented in accordance with the riparian corridor matrix (Table 2) and other departmental controlled activity guidelines, they will be assessed under a streamlined process. This may decrease the amount of time it takes the department to make a determination, saving applicants time and money.

Applications that do not conform to the matrix and/or relevant departmental controlled activity guidelines will continue to be subject to merit assessment to ensure that the proposals meet the requirements of the WM Act. All applications will still need to demonstrate that minimal harm will occur to waterfront land before a controlled activity approval will be issued.

More information

- For more information about controlled activities on waterfront land, visit the department's website at water.dpie.nsw.gov.au/licensing-and-trade/approvals.
- Copies of the Acts and associated regulations are available on the NSW Government legislation site at www.legislation.nsw.gov.au.

If you think you need to make a controlled activity application, our easy-to-use online support tool Water Assist can help you. Visit www.dpie.nsw.gov.au/water/water-assist.