



# Keep Your Distance

## Set-Backs and Buffers to Waterways and Wetlands

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### Set-Backs or Buffers?

While the terms set-back and buffer are often used inter-changeably, the term 'set-back' refers specifically to the horizontal distance between a development and a wetland (including waterways), while the term 'buffer' refers to the synthesis of set-back and other impact-mitigating features such as vegetation, fencing, vertical separation, roadways and management practices.

### Why Have Set-Backs and Buffers?

The intent of buffering a wetland from development is to mitigate potential impacts to the physical integrity, community structure, biodiversity and on ecosystem functioning of wetlands.

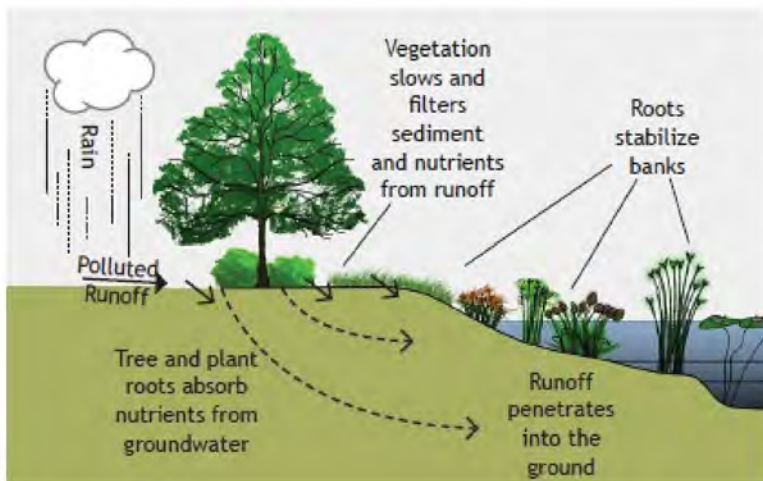
The science of determining the appropriate buffer to wetlands from development is now decades old, yet 'best-practice' remains contentious and frequently based on studies in environments that may differ significantly from those under consideration. The necessary width and characteristics of a buffer will be determined by, on the one hand, the ecological sensitivity and conservation value of the wetland to be protected and the specific characteristics of the site, and on the other, the nature of the threats posed by a particular development.

Typically, buffers to waterways and wetlands are required to

- maintain water quality
- protect bank stability
- protect riparian vegetation, and to
- minimise disturbance by humans and domestic animals.

Buffers may also serve as movement corridors for fauna.

Critically, in contemporary development design, buffers should be considered a secondary conservation measure, after controlling stressors (e.g. stormwater, litter and domestic pets) at their source.



### How Far is Enough?

In Queensland, recommended set-backs range from 10m for minor waterways to 100m for estuarine wetlands. The width of the set-back is the only criteria referenced by the vast majority of planning schemes.



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*On the Gold Coast, a relatively narrow set-back allows for vertical separation and fencing. The mangrove ecosystem here is healthy and essentially un-impacted by the adjacent residential development.*

While a set-back that is too narrow may be incapable of effectively mitigating the impacts of development, the application of an unnecessarily wide set-back unjustifiably limits the yield available to a developer. Striking the right balance is therefore critical to both the environment and developer.

Roadways and paths may also legitimately contribute to the effectiveness of a given set-back.



*While effectively protecting the Melaleuca woodland from the impacts of the adjoining development, the hard edge and road infrastructure does not provide an opportunity for shoreward retreat with sea-level rise.*

Achieving a win-win outcome is often down to understanding exactly what it is that's to be protected and then collaborating with designers and engineers committed to achieving clearly defined outcomes.

## An Informed Response

While a 10m set-back to minor waterways is most commonly adopted by local governments, such prescriptive set-back widths are generally based on conservative assumptions and provide a default position. Critically, they don't respond to site-specific conditions, the specific characteristics of a particular development nor the specific opportunities afforded to engineer effective buffering.

The buffering function afforded by a given set-back can be very substantially enhanced through design and engineering. The gradient and vegetative characteristics of the set-back influence the rate and quality of runoff, while retaining walls and fences can physically prevent the ingress of humans, domestic animals, weeds and litter.

The inclusion of stormwater treatment devices within a set-back can often enhance the set-back's buffering function.



*'Smarter' rather than wider, this set-back at Mackay combines landscaping elements to slow and trap the movement of runoff towards the waterway.*

frc environmental's team of highly experienced, specialist aquatic and riparian ecologists can help you both better understand your site's ecological constraints and also where the opportunities lie for optimising your developable footprint.