



## Stormwater management on small sites

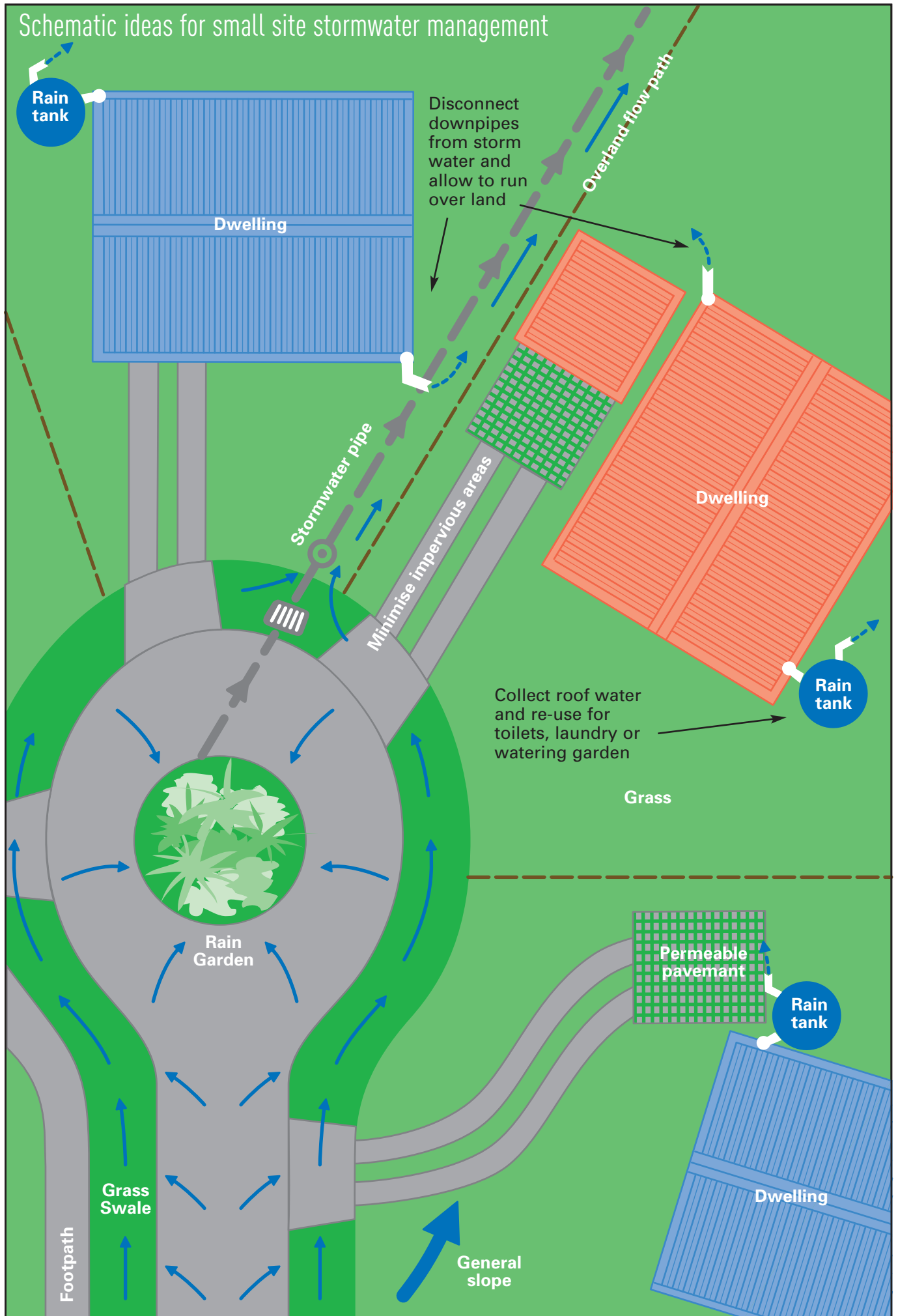
**On small sites managing stormwater effects on water quality and quantity should be focused on source control rather than more expensive, constructed stormwater management devices.**

**A small site is defined as a residential subdivision creating a combined impervious area of less than 5000m<sup>2</sup>.**



*Rain gardens along the centre of the road reduce imperviousness and provide water quality treatment*

# Schematic ideas for small site stormwater management



## Ideas for managing stormwater run-off from individual house lots include:

- Install rain tanks to capture roof water run-off and re-use for non-potable uses such as toilets, laundry and watering of gardens.
- Paint exposed metal roofs or use alternative materials (such as pre-painted steel or concrete tiles) in order to prevent contaminant generation from roof materials.
- Allow down-piping from roofs to discharge into flower beds and gardens rather than connecting directly to the stormwater system. A concrete “splash-pad” should be constructed below the down-pipe spout in order to prevent erosion at the discharge point. A field drain in the garden could be added to drain water away if necessary.
- Create a grass strip along the middle of the driveway in order to minimise impervious surfaces and help treat runoff from the driveway areas.
- Construct driveway and parking areas using permeable paving to allow drainage of runoff through the paving blocks.

## **In a small residential development access roads have the highest potential for generating contaminants. This can be reduced by using low impact design methods for access roads including:**

- Use of the Territorial Authority’s minimum standard width road for access road and turnaround construction.
- Consideration of a T-shape turnaround design rather than circular in order to minimise impervious areas.
- Use of swales or rain gardens in the centre and side of the road or in cul-de-sac turning circles to treat and attenuate stormwater run-off.
- Use permeable paving for any dedicated parking areas.
- Construction of single pedestrian footpaths to allow for infiltration.
- Allow stormwater to sheet flow off the road onto the stormwater treatment devices or grassed areas, rather than using curb and channel on the road edges to concentrate flow.



*Rain tanks can collect roof water and re-use for toilets, laundry or watering the garden*



*Swales along the centre of the road also reduce imperviousness and provide water quality treatment*

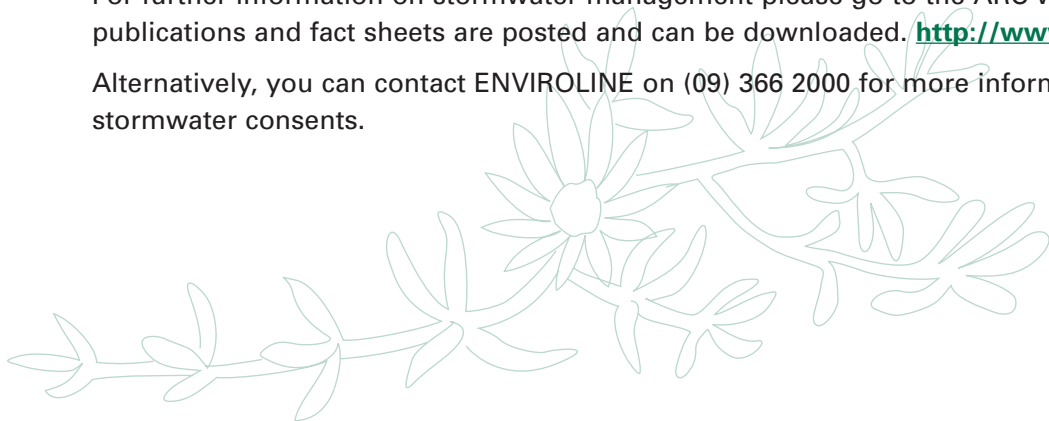
## Principles for small site stormwater management

- Minimise impervious areas
- Mimic natural hydrology
- Allow runoff from impervious areas to sheet flow over grass/ vegetation to minimise contaminants
- Provide overland flow paths
- Treat road runoff (swale, raingarden, wetland)

## Further Information

For further information on stormwater management please go to the ARC website where relevant publications and fact sheets are posted and can be downloaded. <http://www.arc.govt.nz>

Alternatively, you can contact ENVIROLINE on (09) 366 2000 for more information regarding stormwater consents.



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