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Proposed Stormwater Plan for Redevelopment of Bonville Caravan Park.

Introduction

The proposed redevelopment of Bonville Caravan Park involves increasing the land holding from approx 2 ha to 4.86ha with a corresponding increase of permanent sites from 60 to 92. A stormwater management plan is required that will comply with local council regulations and provide an environmentally friendly and sustainable solution on site.

Existing System

Current stormwater drainage on site is via an informal overland flow system that discharges into the drainage course located on the existing southern boundary of the property. The existing system is not identified on the topographic maps as a water course and initial research indicates that flow only occurs following storm events. This system drains to the east to eventually feed into Bonville creek, approximately 1000m away.

There are two dams located on the site, both in line with the existing drainage system. The proposed development will consolidate lots either side of the current drainage system, with the new lot being relatively undeveloped with grassed paddocks drainage to the drainage course

Proposed Development

The development proposed on site will incorporate sealed access roads with grassed permanent and camping sites either side of the roadway. There is an onsite effluent disposal system, communal facilities as well as extensive areas of landscape gardens linking all areas of the site to the dams and water course. 43 permanent sites proposed for the redevelopment and each of these sites, when developed, will have a rain water tank attached to the dwelling with a minimum volume of 5000lt. Further rainwater harvesting is proposed at the communal areas for onsite usage.

Stormwater Model

The proposed stormwater management system will provide primary and secondary treatment to the runoff water and based on the results of the stormwater model, further water treatment may be provided prior to entry to the drainage system.

As the site slopes gently towards the drainage system on either side of the property (5 in 100 grade) a gravity flow system will be incorporated on site. Primary treatment will be provided to runoff from the access road, which will utilize grassed swales along the side of the roads directing flow to grated inlet pits. Secondary treatment will be provided by overland flow over grassed areas directing the water to vegetated and landscaped areas.

Surface water flows will be directed away from the effluent disposal field to ensure the system operates within its design parameters.

Water modeling will be undertaken to ensure water quality discharged from the site will comply with current environmental requirements and in line with Water Sensitive Urban Design guidelines. The final design will take into account suspended solids, Total Phosphorous and Total Nitrogen. Gross pollutants are not expected to be a major issue on site, but will be addressed with primary treatment in the system.

Summary

Proposed Design Components

- Swales along edges of roads instead of kerb & gutter
- 43 Permanent sites to have 5000lt rain water tanks
- Further rain water harvesting on site for grey water use
- Stormwater flow into water course to be controlled and protected against pollutants entering based on results of Water Modelling
- Utilising existing dams on site for storage capacity during design storm events

All design work will be undertaken in accordance with Coffs Harbour City Council guidelines and current urban stormwater handling practices.

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