



# **Ardill Payne & Partners**

Civil & Structural Engineers, Project Managers  
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## **Project Application Stage 1**

# **ENGINEERING REPORT PACIFIC PINES SUBDIVISION**

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## APPENDICES

### Stormwater Flow Model Calculations

## **1. INFRASTRUCTURE PROVISION**

Water and sewage treatment infrastructure is supplied to the site by Ballina Shire Council. Servicing provisions are covered by Council's Development Servicing Plan (DSP) which requires developer contributions to cover headworks costs for Sewage Treatment Plants (STP), pump stations, rising mains, water reservoirs and mains water supply. These contribution plans are to be used in the development in lieu of any planning agreements. Power and phone services are provided by Country Energy and Telstra through extension of existing services. See attached Figure 1 for infrastructure planning.

### **1.1 Water Supply**

Water is supplied to the site by Ballina Shire Council. Servicing provisions are covered by Council's Development Servicing Plan (DSP) which requires developer contributions to cover headworks costs for reservoirs and mains water supply. Reticulation of water throughout the site is completed at the developers expense from Council's water mains.

Council's DSP currently requires the construction of an additional water reservoir and water mains to serve Pacific Pines. Council has advised it does not intend to construct these services until development takes place at the site and that sufficient demand exists for the extra infrastructure. Council is currently remodelling its water supply service to determine when an additional reservoir is required. Existing supply services are to be used until then.

Staging of the supply of water infrastructure involves construction of a reticule from the end of existing mains in Montwood and Hutley Drives to supply the early stages of the proposed development. This pipe would be eventually connected to Council's future high pressure watermain and reservoir in accordance with Council's DSP and provision of these services

### **1.2 Sewer**

Sewer is collected via gravity mains to Council's sewerage pumping station at the bottom of the site. Sewage is pumped to Council's Sewage Treatment Plant at Lennox Head via a rising main. Augmentation of the pump station, rising main and STP to handle increased sewage load from Lennox Head is covered by Council's DSP. Gravity services to the pump station are constructed by the developer.

Augmentation was staged as follows:

- New gravity main 2008
- New pumps by 2013
- Hutley Drive Gravity Main by 2013

These upgrades are not all associated with increases in flows from Pacific Pines.

### **1.3 Power**

Power supply is provided by Country Energy via installation of transformers and underground power reticulation installed at the developer's expense. Existing overhead power will have to be resited underground in future stages.

### **1.4 Telephone**

Phone services are installed free of charge by Telstra unless higher order services are required. Extensions are provided in developer constructed trenches and connect to existing adjacent development.

