

## 4.5 Land Use Principles

The site is for residential subdivision.

Principles applied in the subdivision design are:

- quality design integrated with existing Gwandalan subdivision ordered design allowing varied housing designs;
- encouragement of a local community of interest;
- protection of the environment and environmental sustainability;
- creation of two public open spaces around better quality trees connected by a landscaped verge or “Green Link”;
- minimising environmental impact;
- use of WSUD principles in stormwater design;
- protection of the water quality of Lake Macquarie;
- water and energy efficiency;
- maximisation of solar lot access;
- use of rainwater tanks;
- housing choice; and
- variation in lot sizes to achieve a mix of housing designs and opportunities; and
- all roads to be dedicated to Council

### Biodiversity and Protection of Habitat

Major environmental offsets have already been negotiated with the Minister for the Environment through dedication of 310 hectares of high conservation value bushland including substantial areas of foreshore land on Crangan Bay, Lake Macquarie in the Wyong Shire.

Details of the offsets are provided in the Environmental Assessment.

### Waste Minimisation

Subdivision construction will be in accordance with the principles of waste minimisation.



Figure 4.5.1. Gwandalan Land Use Principles Plan.



## 4.6 Landscape and Open Space

### Landscape Vision

The proposed subdivision will house a residential community set amongst the tall native Scribbly Gums, Peppermint and Native Apple trees. As many trees as possible will be retained on existing lots, roadside settings, parklands and perimeter buffer zones to create a distinctive 'Gwandalan' character and integrate the development with the surrounding dry *sclerophyll* bushland.

Key landscape features of the development will include the following:

- Retention of two groups of better quality trees to form the nucleus of two open spaces, one to the North and one to the South of the site adjacent to the school grounds
- A 'Green Link' along the primary circulation route linking the two open spaces to provide a continuous canopy and habitat corridor.
- A safe and permeable public domain enhanced with a continuous framework of indigenous trees.
- Informal open space along all local streets formed by landscaped verges up to six metres wide.
- Native landscape buffers to Kanangra Drive, Gwandalan Public School and Point Wolstoncroft Sport and Recreation Centre.
- ESD and WSUD initiatives in managing run-off and water polishing (bioretention swales to perimeter road).
- A bushfire management plan incorporating 'managed' zones and retained canopy species.

### Landscape Proposal

The proposed subdivision incorporates 187 lots with two open spaces located on the higher land to the north west and south east of the site. Public and environmental amenity will be enhanced by the retention of existing trees in the open spaces as well as the creation of wide landscaped verges to facilitate passive recreation and meeting places for the community.

The landscape principles for the site will be as follows:

- Create a landscape setting that will enhance the development and integrate with the bushland setting.
- Retain as many trees as possible in the open spaces, buffer zones, streetscapes and proposed lots.
- Retain a project arborist to review and advise on the protection and safety of existing trees.
- Create a contiguous, safe and permeable public domain.
- Avoid 'formal' landscapes to maintain the relaxed 'bushland' character.



### Legend

- |                     |                          |
|---------------------|--------------------------|
| 1 Road 1 Green Link | 7 Lane 7                 |
| 2 Road 2            | 8 Kanangra Drive         |
| 3 Road 3            | 9 Open Space             |
| 4 Road 4            | 10 Planted Swale         |
| 5 Road 5            | 11 Screen Planting       |
| 6 Road 6            | 12 Children's Playground |

Figure 4.6.1. Gwandalan Landscape Masterplan.



- Use indigenous species throughout the public domain areas to link the development with the adjacent woodland and open space surrounds.
- Public and private landscape areas will meet with Wyong Council's landscapes standards and controls.

### North-West Open Space

This open space at the knoll and former quarry site will be an informal passive recreation focus for the community. The group of better quality trees at the edge of the park will be retained and reinforced with similar species. The open space will be turfed and enhanced with seating areas.

### South East Open Space

This open space located near the slopes of the former orchard incorporates a stand of better quality trees. The open space will be enhanced with new tree planting and seating areas.

### Green Link

The "Green Link" is the landscaped roadway that forms the primary circulation through the centre of the site. The "Green Link" will incorporate bio-retention drainage swales along its landscaped verges. Existing trees will be retained within the verges where possible and enhanced with additional indigenous trees to form a continuous canopy and wildlife corridor through the site.

### Perimeter Street

The perimeter street will be lined with informal copses of indigenous trees and incorporate a drainage bioretention swale on its outer edge. The 'inside' verges and footpath zone will be planted with low native shrubs and trees and grassed with non invasive species such as buffalo turf to create a shaded environment for pedestrians.

### Local Streets

Local streets will have a distinctive informal character created by wide landscaped verges containing existing and planted native trees. The verges will alternate from 3 to 6 metre width on each side of the street and traffic calming measures will accompany each changeover junction.

Driveways to house lots will be located to allow more street tree planting and greater landscape continuity of the 'landscape verges'. Each local street will be distinguished by a different palette of native street trees and appropriate flowering trees (refer to Planting Palette).

### Private Domain

The subdivision lots will feature landscaping that will integrate with the landscaped verges. Existing trees will be retained where possible on each lot, subject to safety and arboricultural advice.

An appropriate tree palette has been prepared for the residential allotments, incorporating native trees with small exotic and deciduous trees for solar access.

### Landscape Management Plan

A Landscape Management Plan will be prepared for the development, addressing the retention of existing trees, bushfire and ongoing maintenance of the natural and built open spaces.



*Angophora costata*



*Banksia integrifolia*



*Cupaniopsis anacardioides*



*Eucalyptus capitellata*



*Eucalyptus gummiifera*



*Eucalyptus piperita*



*Eucalyptus punctata*



*Eucalyptus racemosa*



*Eucalyptus umbra*



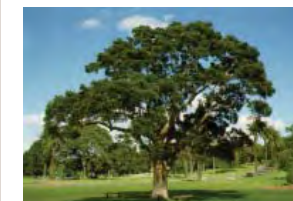
*Plumeria*



*Hibiscus syriacus*



*Lagerstroemia indica*

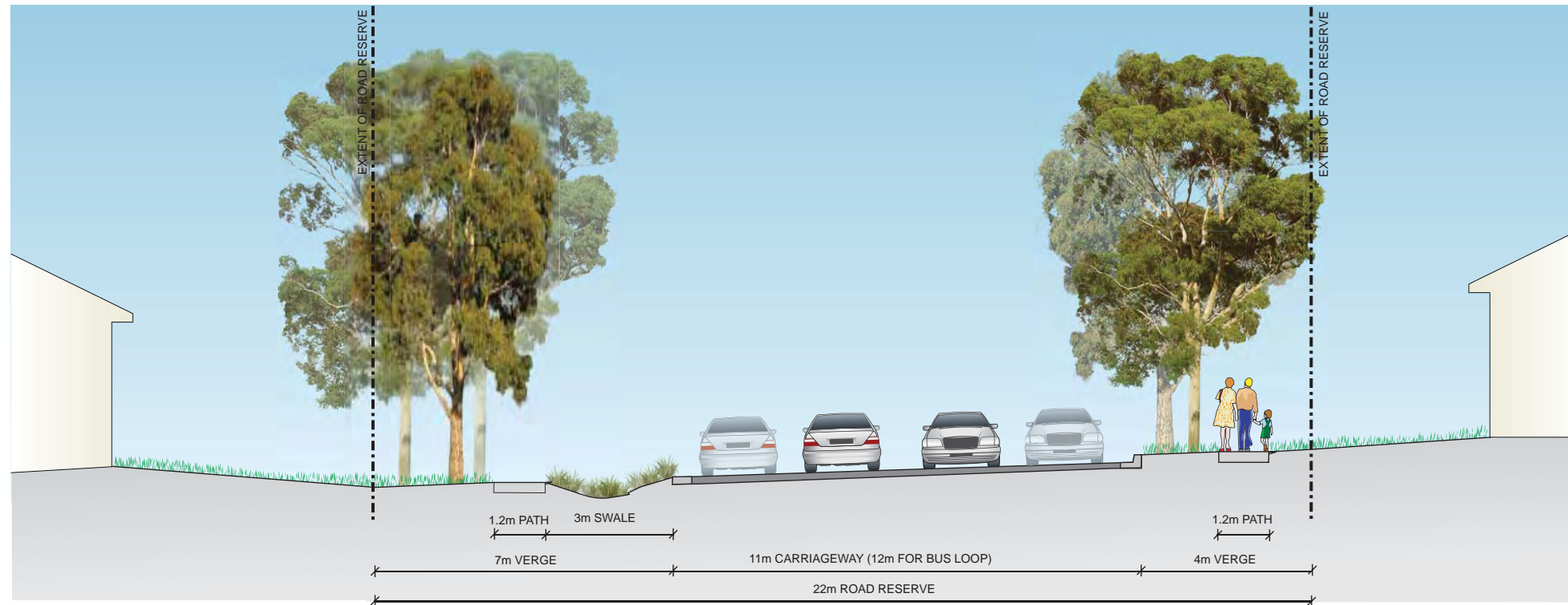


*Melaleuca quinquenervia*

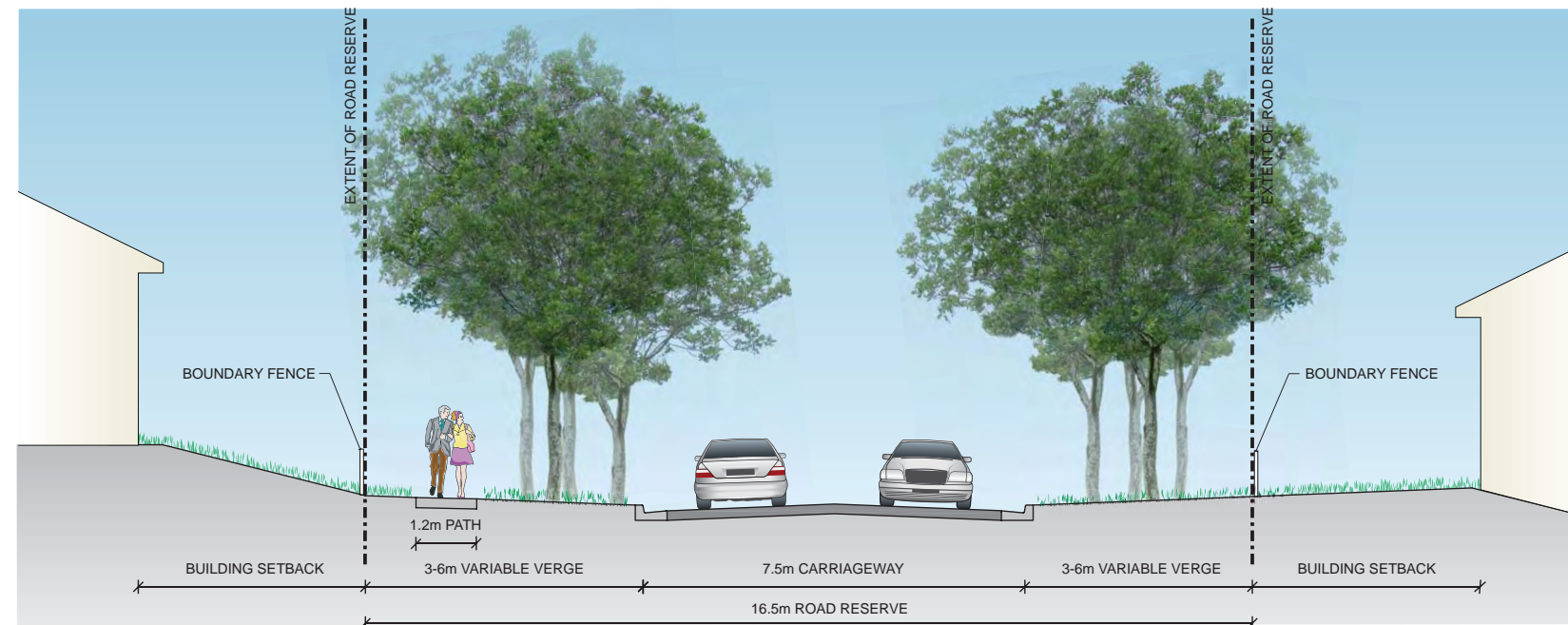


*Tibouchina granulosa*

Figure 4.6.2. Gwandalan Planting Palette.



Typical Section A-A - 22m Road



Typical Section B-B - 16m Road



Figure 4.6.3. Gwandalan Indicative Street Sections.



#### 4.7 Ownership and Subdivision

The subdivision will consist of Torrens Title lots only. The subdivision design is consistent with the existing Gwandalan subdivision pattern (refer to Figure 4.7.1.)

The main drainage control structure will be located on downstream private land. The land owners will manage and maintain that part of the stormwater drainage system on their land.

The subdivision will meet the standards set out in Wyong DCP Chapters 66 and 67 to the extent that they are consistent with achieving the density objective set out in the MoU for the site.

Building controls (not part of this concept) will be to Wyong DCP Chapter 100 Quality Housing.



Figure 4.7.1. Gwandalan Subdivision Context Plan.



Figure 4.7.2. Gwandalan Subdivision Plan.

## 4.8 Service Infrastructure

A 150mm water main runs the full length of Kanangra Drive. Upgrading of the main will be required.

The existing houses on the site are connected to sewer and the line from the Recreation Camp crosses the lower part of the site near the main house.

A sewer pump station is located off Garema Street adjoining the site. Progressive upgrading of the pump station and sewer mains will be required to service the proposed development. Wyong Council has advised that upgrading works in accordance with staged works as identified in DSP 11 will be required.

The aim of the stormwater management is to protect Lake Macquarie and provide opportunities for reuse of water.

Stormwater will be managed with a combination of household water tanks, swales, pollutant traps and detention basins in accordance with WSUD Principles. Water tanks will be located on individual lots, the swale will be located in the road reserve and detention will be provided using dams and ponds on the existing flow path below the development area.

Electricity network infrastructure for the subdivision will need to be established on the site.

Communications infrastructure will also need to be installed.

## 4.9 ESD Principles

ESD principles have been applied to the site as follows:

- Provision has been made for public transport via provision of a bus route.
- The subdivision will be linked to the existing pedestrian and cycle network.
- WWSUD principles applied to the stormwater.
- The lot layout has been designed to maximise solar efficiency.

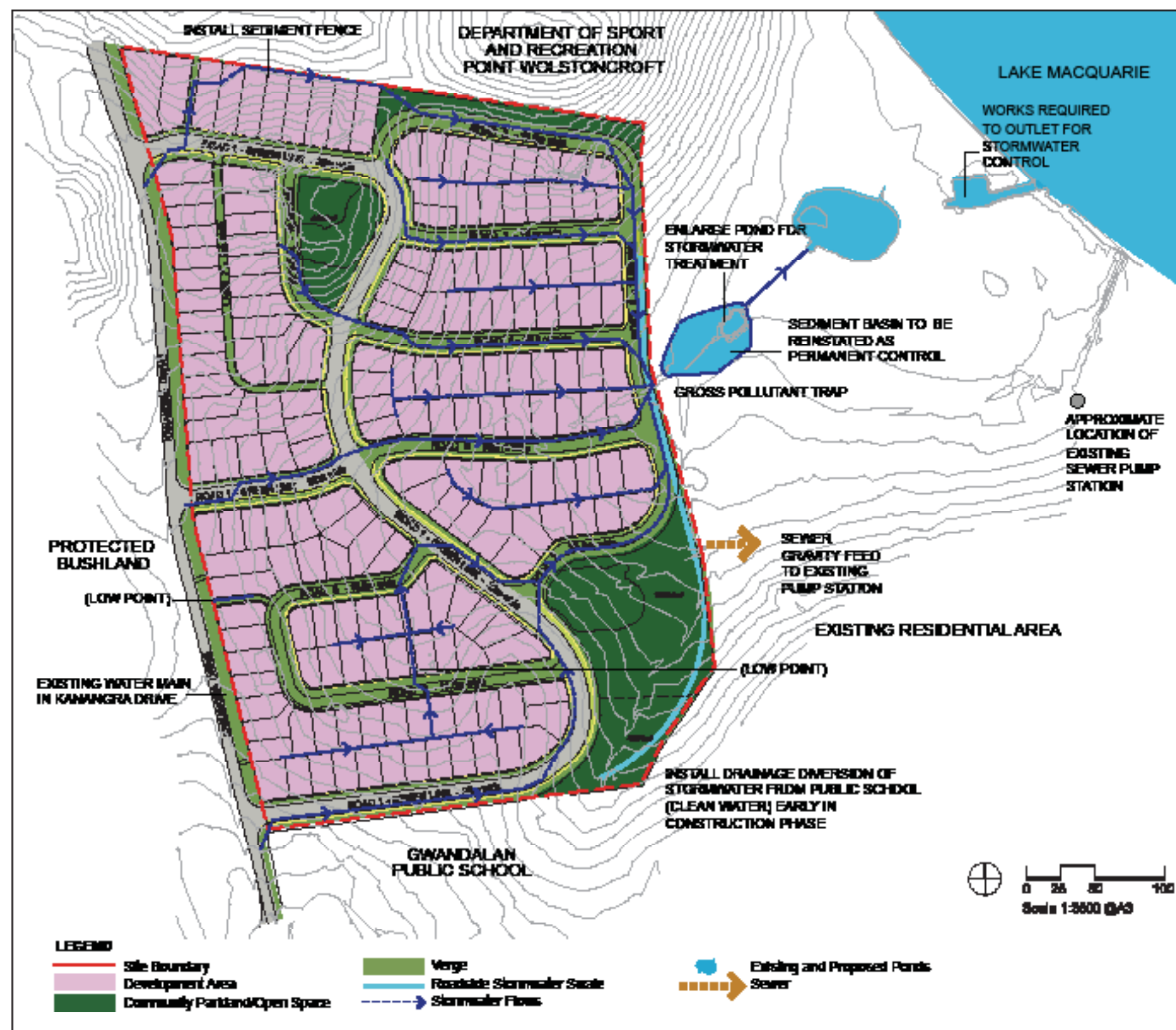


Figure 4.8.1. Gwandalan Stormwater, Sewer and Water Concept Plan.



#### 4.10 Development Staging

The subdivision will be approved via a major project application for a single stage project.

The project is intended to proceed in three stages as outlined below:

##### Stage 1

Major civil works including road construction drainage and services.

##### Stages 2 - 3

Land release in the sequence shown in the diagram.

##### Wyong Residential Development Strategy

In December 2002 the Wyong Residential Strategy identified the land for 'medium term release'. Under this strategy development of the site was anticipated as 270 dwellings at 12 dwellings per hectare.

##### Draft Wyong Conservation Strategy

The draft Wyong Conservation Strategy August 2003 did not identify the land as for conservation purposes as it was given social and economic priority.

RELEASE	NO OF LOTS
1	64
2	42
3	81
<b>TOTAL</b>	<b>187</b>



Figure 4.10.1. Plan of Gwandalan Releases.