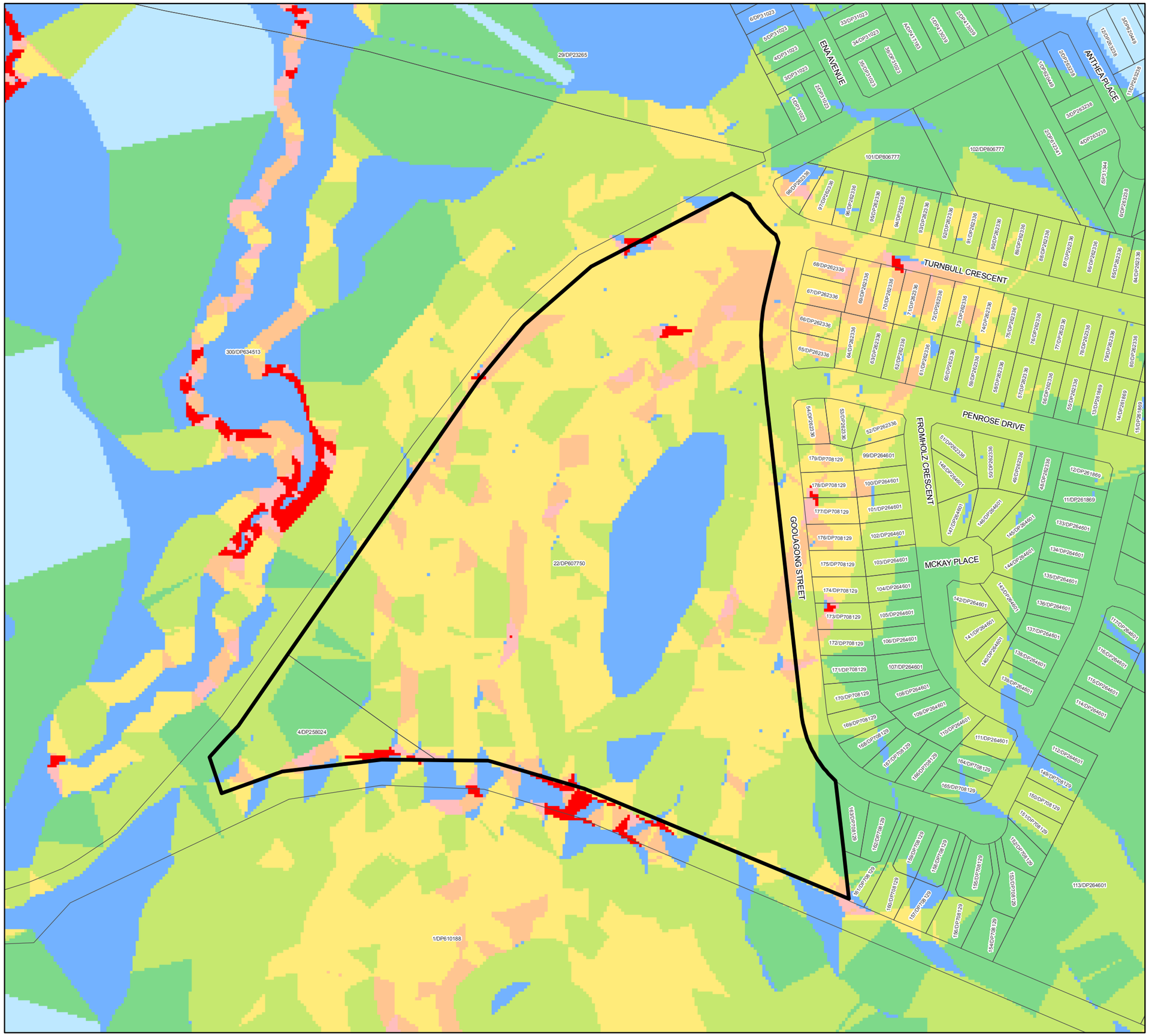


Slope Analysis

PENROSE

Legend

- Subject Area
- Cadastre (LPI)

Slope (Percent)

- 0% - 1%
- 1% - 2%
- 2% - 5%
- 5% - 10%
- 10% - 15%
- 15% - 20%
- 20% - 25%
- >25%

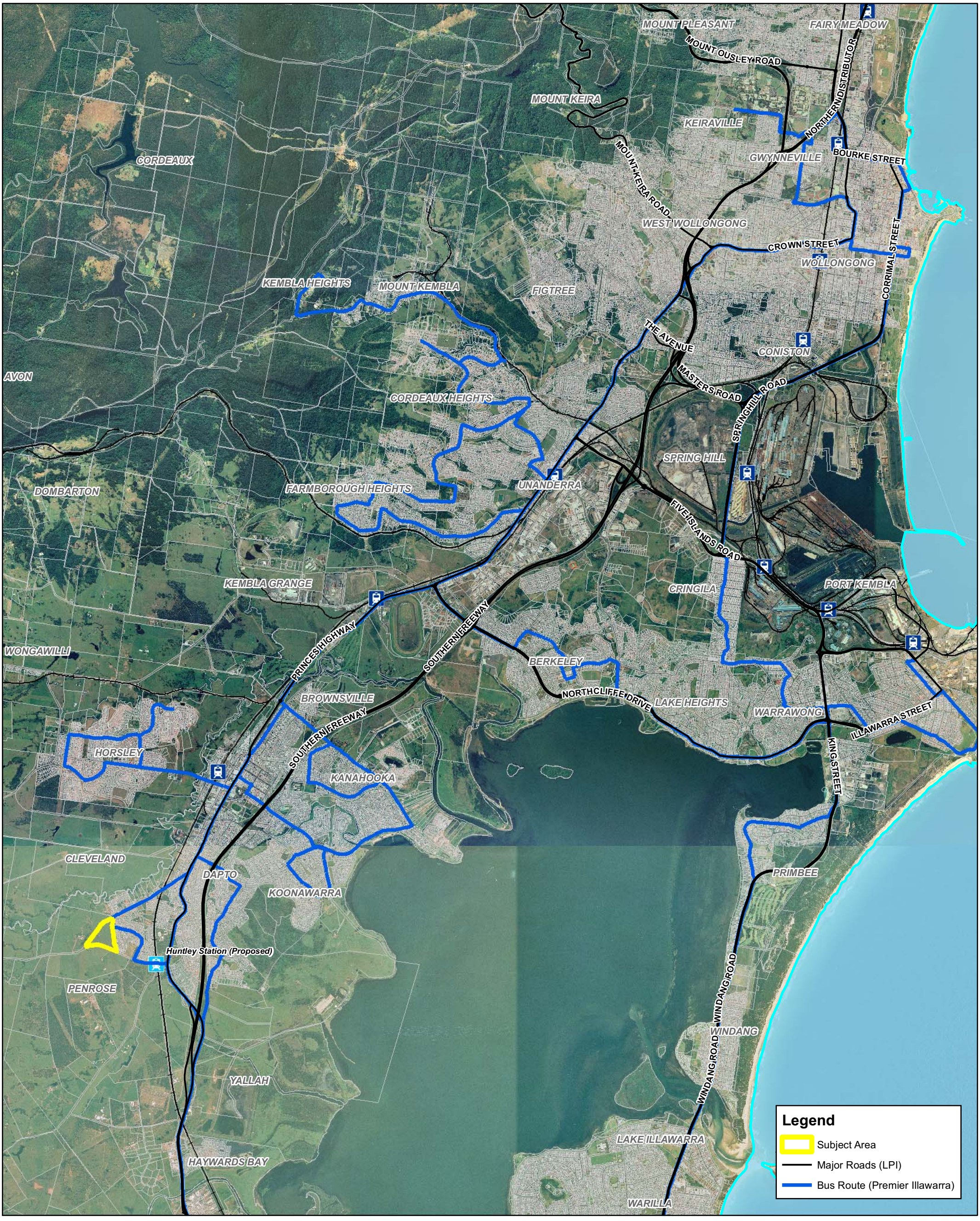
N
W E
S

FIGURE 6

Scale 1:2,500 (at A3)

Metres
0 12.5 25 50 75 100 125

Map Produced by Cardno Forbes Rigby
Date: 13 May 2009
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108121-01_2816_Slope_Analysis.mxd 01



Illawarra International Health Precinct
Dedicated to Your Health

1:50,000 (at A3)

Metres
0 500 1,000 2,000

Public Transport Plan

PENROSE

FIGURE 7

N W E S

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 13 May 2009
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108121-02_2812_TransportationPlan.mxd

Premier Illawarra provides a regular bus service along Avondale Road and Goolagong Street linking the site with Wollongong and Dapto CBDs and railway stations. There are numerous bus stops at regular intervals along Avondale Road and Goolagong Street, which is currently serviced by bus routes 32, 33 and 43 (see **Figure 7**).

Section 6.6 of this report provides further details on the existing public transport system and the potential impacts on and recommended upgrade to these services.

2.9 Existing Services

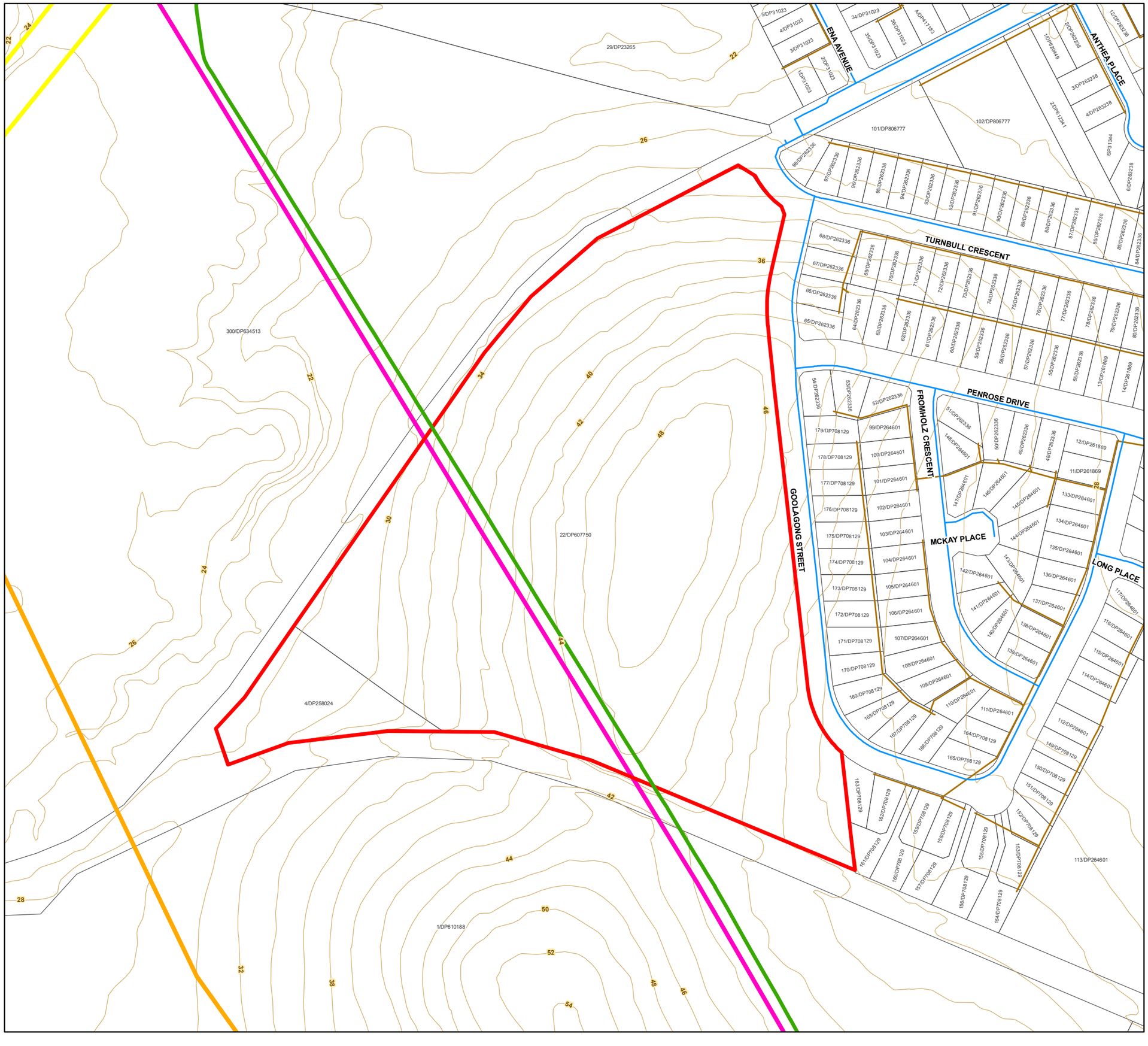
The site adjoins the existing urban area at Penrose, which is currently serviced by electricity, water, sewer, gas and telecommunication (**Figure 8**). The existing services are summarised as follows:

- A **400mm sewer main** currently services the residential developments in Penrose. The sewer main is located north of Avondale Road, off Eva Ave. Based on our knowledge of the local area, we expect that this sewer system has the capacity to service 100 – 200 additional residential dwellings on the subject site.
- A **200mm water main** currently services the residential area in Penrose. This water main is located in the corner of Avondale and Goolagong Roads. Based on our knowledge, we expect that this water main has the capacity to service further development on the site.
- A **132KV overhead power line** crosses the property in a NW to SE direction (approx 300m) with a 30.48m wide easement. The possibility of relocating this facility underground was investigated with Transelect. Their verbal response was that Integral was not prepared to place these facilities underground unless the length of the facility to be placed underground is more than 1km. Alternatively, the single steel tower could be replaced with new concrete poles, though there is a requirement to replace three towers (i.e. one tower north and south of the site within private land) to allow adequate transitions of lines).
- The main **Eastern Gas Pipeline** runs directly parallel to the 132KV approximately 15m to the east of the powerline. This underground steel welded 457mm diameter natural gas pipeline with a fusion bonded epoxy (FBE) coating operates at a maximum pressure of 14,890kPa.
- An **optic fibre cable** currently runs on the northern side of Avondale Road. Minimal works are expected to service the site.

The capacity of these existing services is determined by the timing and intensity of the future development in the area. Detail of the proposed services strategy is provided in **Section 3.3.4.**

2.9.1 Restrictions on Electricity Easement

Further investigation was undertaken with Integral Energy regarding the restrictions to the easement area. Their advice is provided in **Appendix B**. In general, buildings, sheds or structures are not permitted within the easement area. Roads, car and truck parking areas and subdivision are permitted subject to Integral Energy's approval, and provided that access to the structures is maintained and the layout is such that sufficient building area is left clear of the easement.



Utility Services Infrastructure

PENROSE

Legend

- Subject Area
- Eastern Gas Pipeline (Alinta)
- 330kV Overhead Powerlines (LPI)
- 132kV Overhead Powerlines (LPI)
- 33kV Overhead Powerlines (LPI)
- Water Mains (SWC)
- Sewer Mains (SWC)
- 2m Contours (LPI)
- Cadastre (LPI)

N
W E
S

FIGURE 8

Scale 1:2,500 (at A3)

Metres
0 25 50 100 150

Map Produced by Cardno Forbes Rigby
Date: 13 May 2009
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108121_02_2818_Utility_Services.mxd 01

2.9.2 Proposed Services under WDRA

The West Dapto urban release program has committed $200 million for the provision of water and sewer infrastructure in the WDRA. This includes:

Water

- Amplification of Water Pumping Station ($1.5 million)
- Amplification of trunk mains ($1.6 million)
- New outlet mains from Wongawilli Reservoir ($5.7 million)
- New reservoir at Avondale ($3.3 million)
- Upgrade and construction of pump stations

Sewer

- Amplification of SPS 1007 ($1.5 million)
- Construction of 6 sewage pump stations ($2.4 million)
- New delivery main to Wollongong Sewage Treatment Plant ($18 million)
- Amplification of Wollongong Sewage Treatment Plants capacity ($20 million)

Electricity, Gas, and Telecommunications

The relevant utility service providers will provide electricity, gas and telecommunications infrastructure in the WDRA. Integral Energy will construct three (3) new electricity substations servicing the WDRA.

Telstra will design and install optic fibre and copper cables, and upgrade and construct new exchanges in the WDRA. The only costs borne by the developer in the provision of gas and telecommunications infrastructure is the cost of trenching. (WCC 2006)

2.10 Flooding

The site drains to two unnamed tributaries of Mullet Creek, which drains to Lake Illawarra. The site is not subject to flooding.

2.11 Scenic Quality

A small portion of the site has been classified as 'High Scenic Quality' under the LES component study *West Dapto Release Area – Visual and Landscape Study* (O'Hanlon Design Pty Ltd 2006) **Figure 9** shows the extent of this area. This does not directly constrain the type or density of urban development within the site and has not influenced the zoning of the site under the West Dapto LEP.

A visual impact assessment, taking into account the findings of O'Hanlon Design study, is provided in **Section 6.8** of this report.