2.6 Landscape

A Landscape Management Plan has been prepared for the Business Park and is included in Appendix 1. It contains a planting strategy for the site and all applications for development of the lots will have to demonstrate compliance with this plan in the design and documentation of their development applications.

The proposed planting strategy has been formulated in order to implement the following aims:

(a) Prevention of bird strike to aircraft

Because of the location of the Business Park adjacent to the airport, a decision has been made to select trees, shrubs and groundcover plants that minimize the production of flowers and fruit which can be utilized by birds and bats. This will therefore minimize the bird and bat population within the environs of the airport. Flight safety for aircraft, taking off and landing, will be increased by reducing the number of birds in the area.

(b) Height of trees

Aircraft flight patterns dictate the height of structures and trees within the environs of an airport. Generally street trees can be 15m tall except for the following zones

- End of runway; and
- That part of the street on the northern side of runway, where the street follows boundary line.

(c) Street trees

Street trees are an important landscape component to any urban precinct. Street trees associated with the Business Park will reflect the fact that the proposed development is an industrial precinct. It is proposed to plant street trees at 30m intervals and Jacarandas are the preferred street tree for the Business Park.

(d) Boundary planting with Ravensthorpe

Landscape treatment has been formulated to accommodate views to and from the property.

(e) Amenity tree and shrub planting on the individual sites

Amenity tree and shrub planting along the side and rear boundary lines to each allotment is a very important landscape element in this development. Species need to be hardy and well suited to the site environment, maintenance needs to be minimised and, because bird strike to aircraft is a potential hazard, the plants must also minimize the provision to attract birds and bats.

(f) Mass planted garden beds along the internal streets

Mass planted garden beds using shrubs, groundcover plants and grasses in order to:

- Visually soften truck and car parking areas; and
- Enhance visual presentation of the buildings.

This will be achieved by establishing mass planted strips of planting along the internal road system. A 3.5m planting strip will also be established along internal roads. This will frame views to the buildings and combine with the street trees to visually soften the built form and highlight pedestrian and vehicular access points.

2 THE CONCEPT PLAN

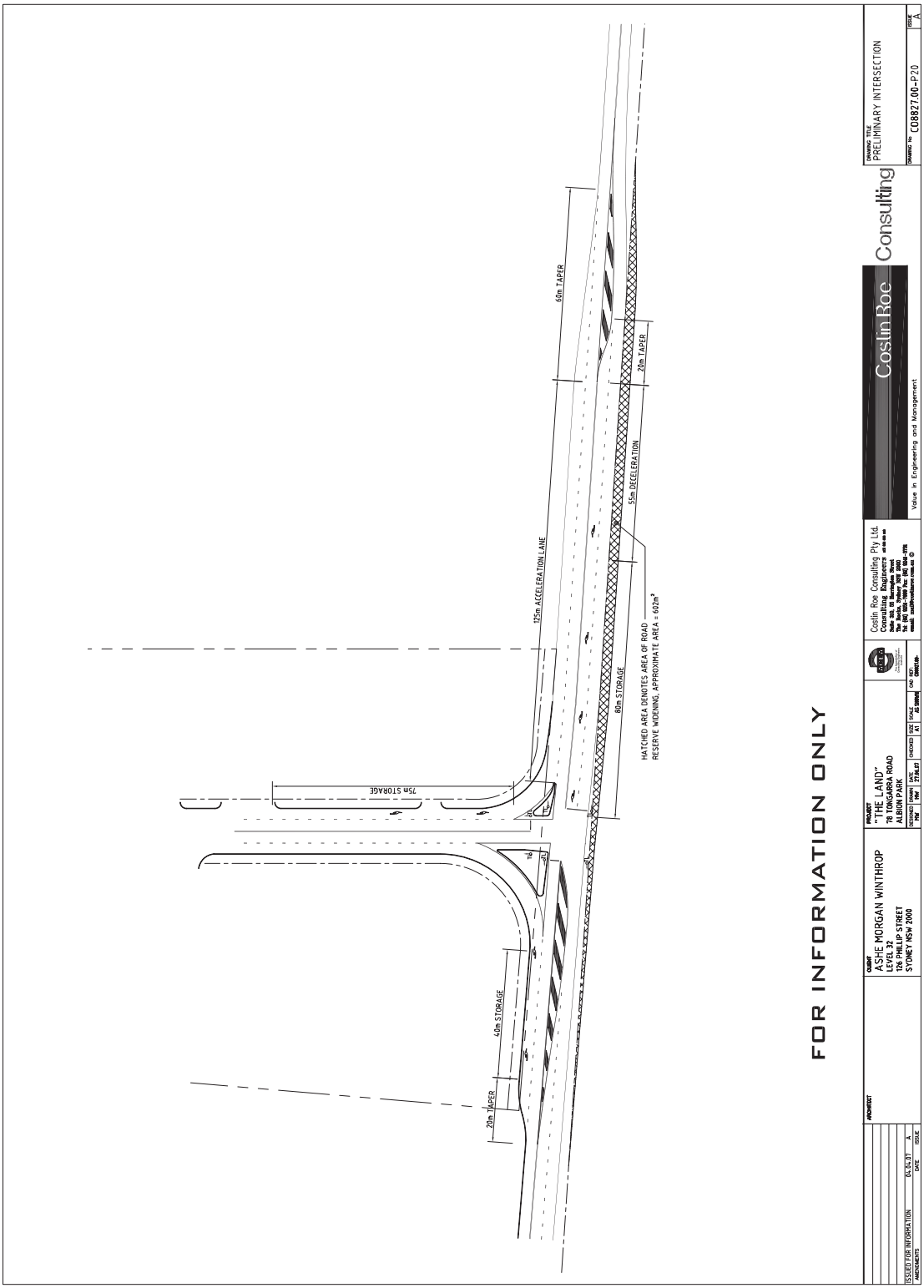

Figure 2.8 Intersection Design Plan

2.7 Access, Parking and Transport

Access

Vehicle access between the site and the surrounding road network is restricted to Tongarra Road. It is proposed that the site access intersection would be signalised and include the following design elements:

- left turn and right turn bays along Tongarra Road approaches; and
- pedestrian crossing facilities on all approaches.

The design of the intersection has been based on the assumption that there will be up to 1,650 full time employees on the site when it is fully developed.

Car Parking

Car parking will be provided through rates similar to those in the Shellharbour Parking Policy Development Control Plan.

2 THE CONCEPT PLAN

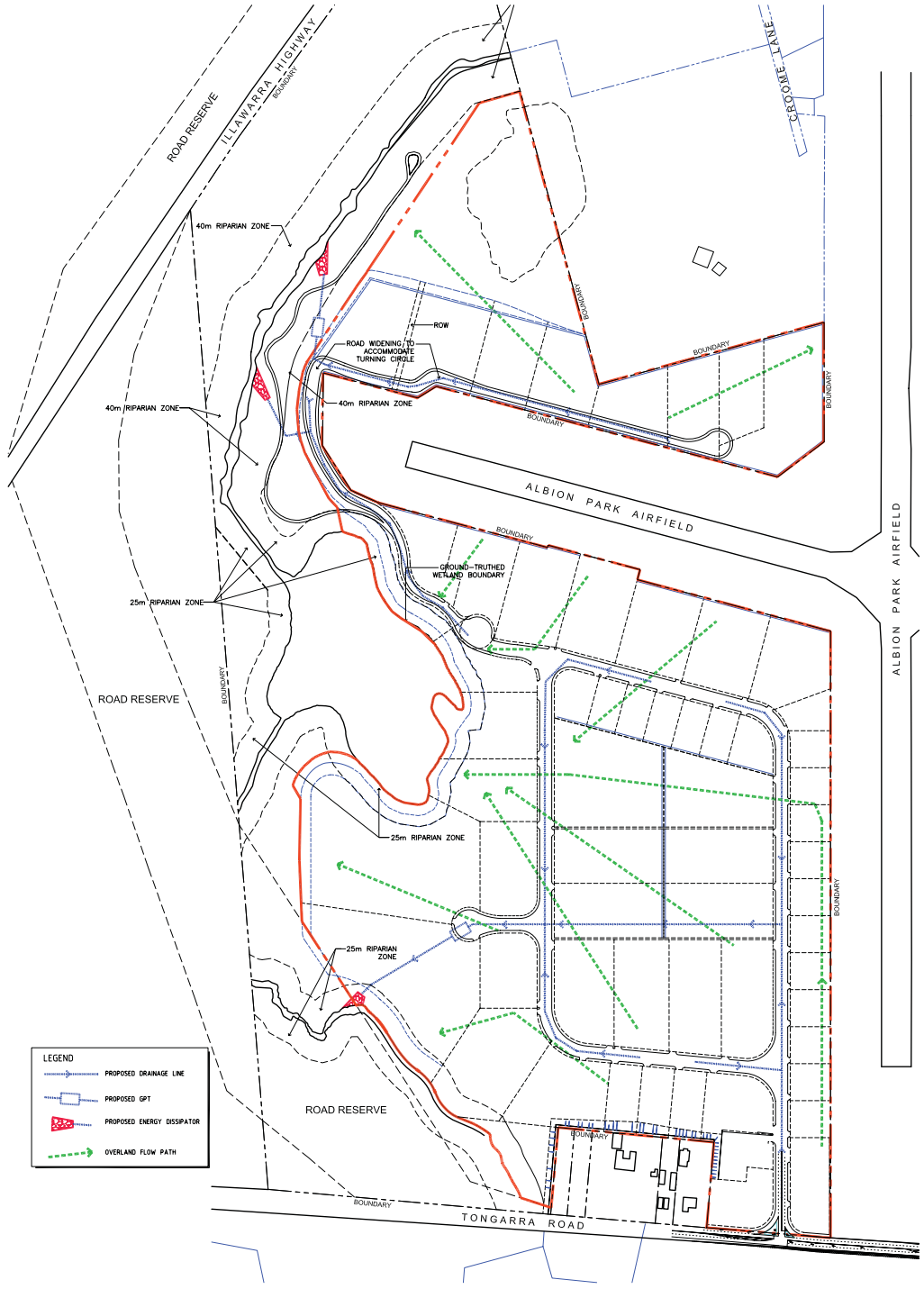

Figure 2.9 Stormwater Design Plan

2.8 Water Cycle Management

A water cycle management system for the site has been developed which involves a highly equitable sharing of the responsibility to treat and manage stormwater between the lot owners and Shellharbour Council. The system is fully described in the Water Cycle Management Plan in Appendix 2. Each development will have to illustrate compliance with this plan in the design and documentation accompanying applications for the development of the lots in the Business Park.

The objective of the treatment and management strategy is to shift the responsibility for water quality and use to the lot owners. This will be shared with the community by having Council responsible for the management of road run off only. The strategy is to provide a highly effective water and re-use management practice that builds on the opportunity to improve the water quality in the existing degraded waterways.

The system will be modelled using an estate trunk drainage line that is to service the roads and individual lots. The system will convey water from the road and lot areas to four outlet points located along the banks of Frazer Creek.

Lot Treatment

To meet the principles of Water Saving Urban Design (WSUD), on site detention (OSD) and on site retention (OSR) will be required on individual lots. The OSD will limit the discharge from the site to that which is equal to or less than the flow before the development. The OSR will provide a source of non-potable water that can be used on site for toilet flushing and irrigation, limiting the demand for town water. Each lot will provide its own water quality treatment which will consist of oil and grease separation and gross pollutant and nutrient retention. Stormwater treatment on individual lots will include the following:

- Grated inlet pits
- A gross pollutant trap
- A combined OSD and OSR tank

Road Treatment

The treatment of stormwater run off is to be included at source treatment through the use of a vegetated swale located centrally in the road and through the use of in line filtration consisting of gross pollutant traps located in specific locations along the drainage network.

Outlet Treatment

Outlet treatment is to include the use of energy dissipaters located at the end of pipe outlets and the use of rock armouring of the creek banks. This will significantly reduce the flow velocities leaving the pipe ensuring erosion of the creek banks does not occur.

Maintenance

Maintenance routines include cleaning every 6 to 12 months depending on initial monitoring results of captured pollutants. Each lot owner will also have to implement specific measures (related to the use of each allotment) to collect and treat any contamination or other possible discharges. In addition a detailed mechanism will need to be in place to deal with accidental spills of contaminants or pollutants.

2 THE CONCEPT PLAN

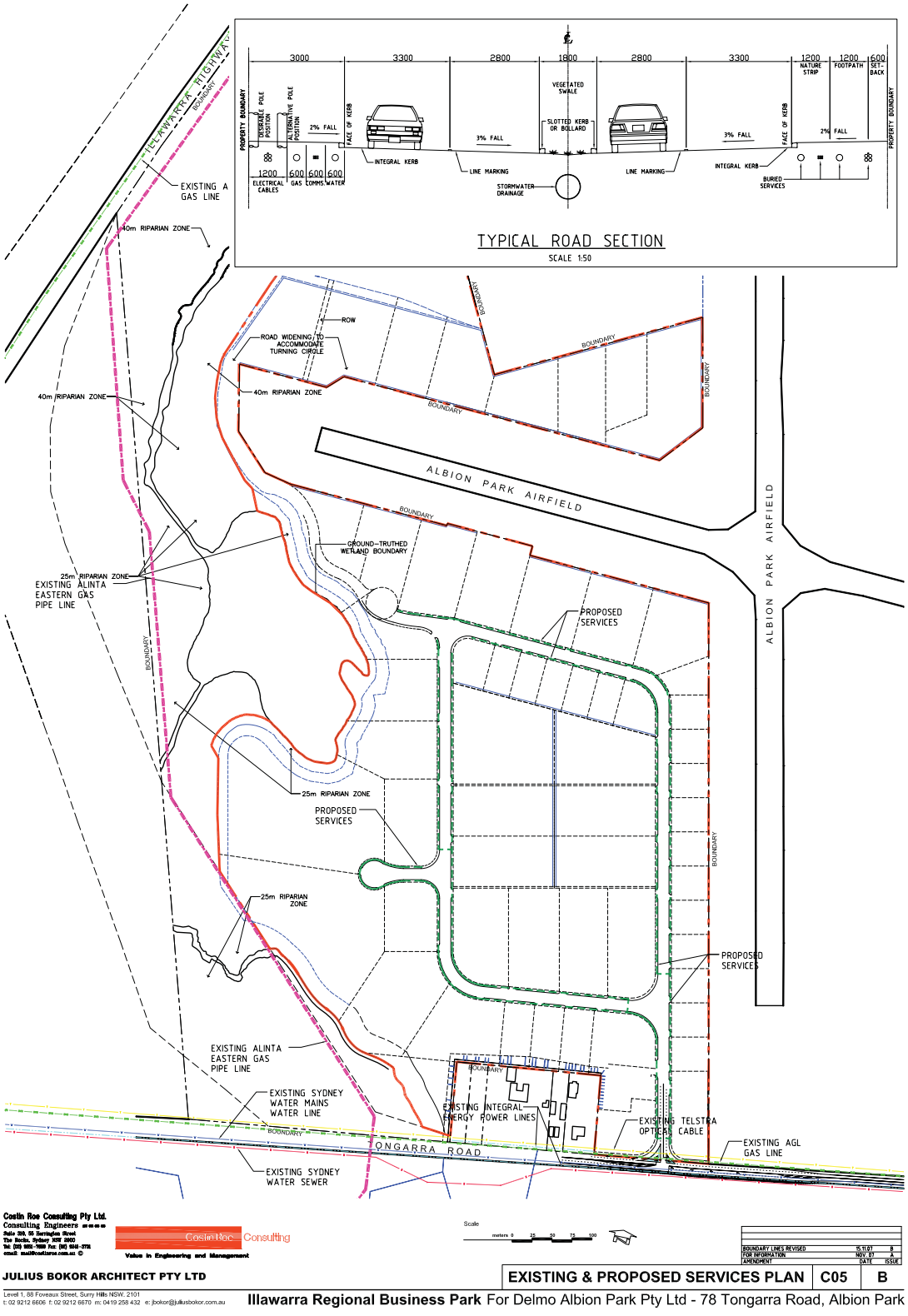

Figure 2.10 Services Plan

2.9 Utilities

All general services will be located in the verge areas of the road alignment. Connections will generally be into existing services in Tongarra Road.

B DESIGN GUIDELINES AND CONTROLS