

## **5. EXISTING ENVIRONMENT AND KEY ISSUES**

This section outlines the setting for the project and identifies the key environmental issues raised by the project, which will require investigation by the EIS.

### **5.1 Land Use and Tenure**

Land use on the southern end of Curtis Island is primarily rural based with small scale impacts to native vegetation from farming, predominantly cattle grazing. The small community of Southend is located 8 km to the east on the east coast of Curtis Island. Private residential properties are located on adjacent islands, including Tide, Turtle and Compigne Islands. Land tenure at the site is predominantly freehold, with a small section of leasehold on the northern boundary.

Gladstone features residential and commercial land use in the centre of the city. Industrial developments are located on the outskirts, predominately along the coastline to facilitate easy access to the port services. The Stuart Oil Shale Project (Queensland Energy Resources Limited) is located north-west of Fisherman's Landing and its mining and mineral development tenements extend north along and just inland of the Queensland coast. The land traversed by the proposed pipeline corridor on Curtis Island is primarily leasehold. Land tenure around Gladstone, in particular Fisherman's Landing, is predominantly freehold. Figure 5.1 shows the land tenure of the investigation area.

#### **Key Issues**

The proposed extension of the Gladstone State Development Area to include the southern part of Curtis Island, south of Graham Creek will change the land use on Curtis Island from rural-based activities to an industrial precinct.

### **5.2 Landforms, Geology and Soils**

The proposed LNG facility investigation area is undulating vegetated land. Relief ranges from sea level to approximately 100 m AHD. There are several north-south ridgelines extending across the site from Graham Creek.

Geology within the investigation area is late Carboniferous Shoalwater Formation sediments of the Curtis Island Group, comprising quartz arenite, mudstone, schist and gneiss. The soils are sodosol, meaning that the sub-soils are sodic and readily dispersible. Arenite-mudrock and miscellaneous unconsolidated sediments primarily dominate the mainland and land traversed by the pipeline corridor, although small areas of alluvium and granitoid may be encountered depending on the final route selected.

Data from the Department of Natural Resources and Water indicates that acid sulphate soils are associated with marine deposits around Gladstone. Recent surveys of Shell Australia's allocated site indicated acid sulphate soils may be present in the intertidal and low-lying areas but not on the elevated undulating land.

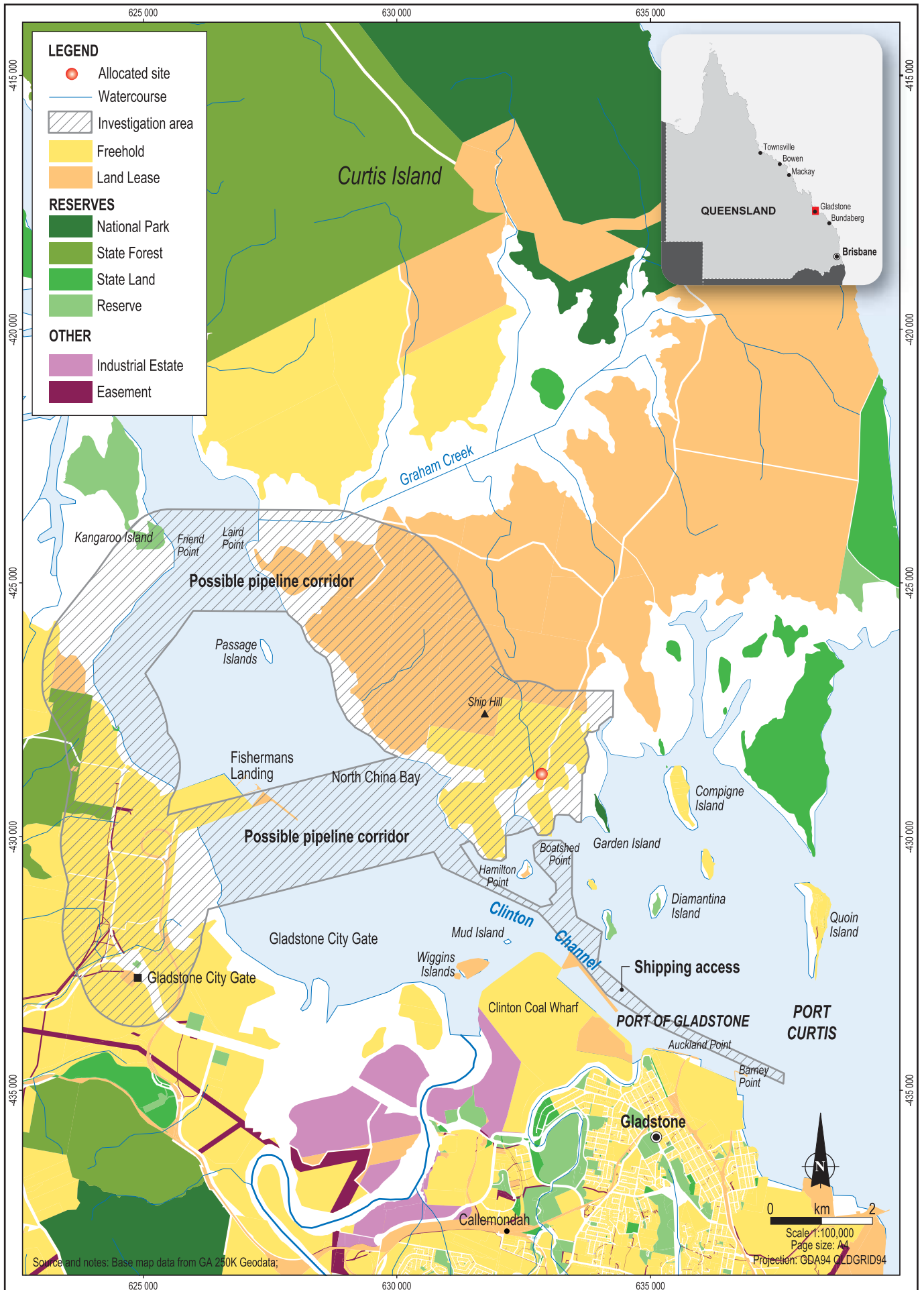


Figure 5.1 Land use and tenure

## Key Issues

The proposed project site would require clearing and some levelling of land to provide a suitable area for the facility. The potential for erosion at the site, particularly of stockpiled soil is a major issue for construction. There is moderate potential for wind erosion if soils are left bare and high erosion potential if bare soils are exposed to stormwater runoff or flowing water. Erosion may occur during operation of the facility if the site is not effectively rehabilitated.

Where present in low-lying areas, acid sulphate soils will need to be managed. On-site disposal and treatment will be carried out in accordance with applicable standards.

## 5.3 Terrestrial Ecology

A number of forest parks and conservation areas are located within the vicinity of the proposed Curtis Island Industry Precinct. The northern section of the island (north of Graham Creek) features Curtis Island National Park, which is situated approximately 8 km northeast from Shell Australia's allocated site, and Curtis Island State Forest located on the northwestern part of the island approximately 10 km from the site. Garden Island Conservation Park is located on the southern coast of the island, approximately 1 km southeast of the site.

Current regional ecosystem mapping developed by the Queensland Environmental Protection Agency (EPA) shows vegetation communities on the southern end of Curtis Island include 'endangered', 'of concern' and 'not of concern' regional ecosystems, as listed under the *Vegetation Management Act 1999* (Figure 5.2). Endangered forest red gum (*Eucalyptus tereticornis*) woodland to open forest communities on alluvial plains are located in the northern section of the investigation area. 'Of concern' remnant vegetation which comprises a complex mix of *Eucalyptus siderophloia*, *E. crebra*, *E. tereticornis* and *Corymbia intermedia* is found in the central section of the investigation area.

Botanical studies (3D Environmental, 2009) found areas of 'endangered' and 'of concern' regional ecosystems were more extensive and different to that mapped. Figure 5.3 shows the location and extent of regional ecosystems identified during the field investigation.

Queensland EPA's wildlife database provides a record of all wildlife sightings and listings of flora and fauna species under the Queensland *Nature Conservation Act 1992*. A database search of the investigation area, including a 5 km buffer, indicated a total of 206 flora and fauna species have been recorded in this area. A majority of the species were commonly observed in the area and were not listed under the Nature Conservation Act.

Small patches of 'endangered' and 'of concern' vegetation communities are present in the vicinity of the proposed pipeline corridor on Curtis Island, although this area is primarily populated by communities of remnant 'not of concern' vegetation. This vegetation supports vulnerable koala (*Phascolarctos cinereus*) populations.

The Queensland coastline adjacent to Curtis Island is largely dominated by remnant 'not of concern' vegetation communities. Fragmented essential habitat is present throughout the region and supports the rusty monitor (*Varanus semiremex*), little pied bat (*Chalinolobus picatus*), koala (*Phascolarctos cinereus*) and wallum froglet (*Crinia tinnula*).

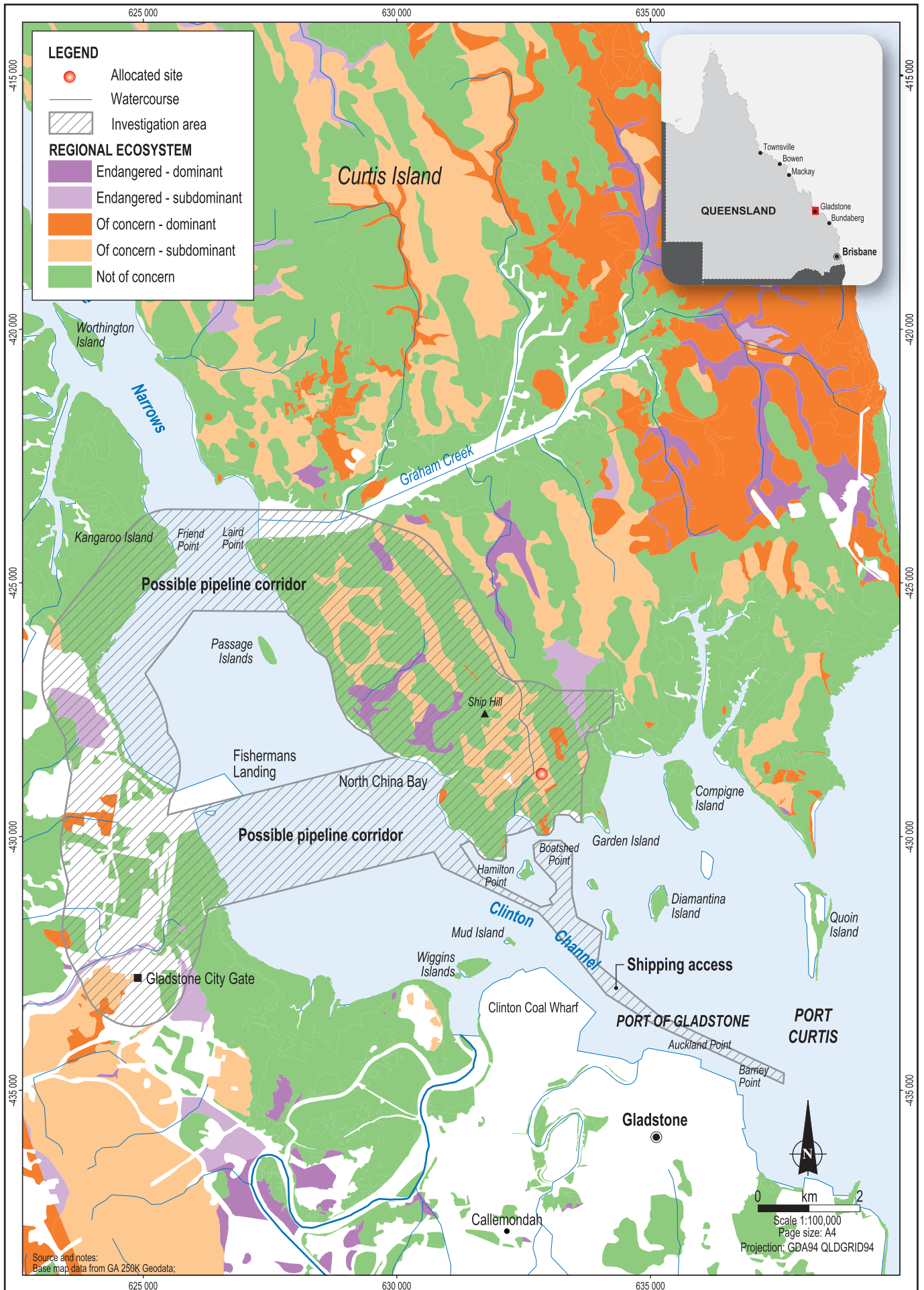


Figure 5.2 Regional ecosystems