



SITE ANALYSIS

5.1 Existing Site Conditions

5.1.1 Topography

The site has an approximate elevation of less than 10m AHD and is located within a valley flat below the Illawarra Escarpment. There is a general slope down of less than 5 degrees to the south east towards Frazer's Creek.

5.1.2 Geotechnical

Field work was carried out on the site and 16 test pits were excavated across the site (Appendix 8) Preliminary Geotechnical Assessment Report). Topsoil was encountered in all test – pits to an average depth of 250mm with a maximum depth of 500mm. Beneath the topsoil was stiff to very stiff alluvial clay apart from one area in the flood zone where there was sandy soil underlain by soft to very soft black organic clays and silts with pockets of sand. In one test pit a 400mm layer of fill was encountered comprising firm to stiff alluvial clay with brick and concrete inclusions

5.1.3 Contamination

A Stage 1 Environmental Site Assessment has been carried out and a copy of this report is included in Appendix 9. The assessment comprised a detailed site inspection and a review of historical and background information. It identified that potentially contaminating activities associated with the use of the site as rural grazing land and a landscaping business include:

- Uncontrolled filling
- Maintenance of farm machinery
- Storage of chemicals, including petroleum hydrocarbons
- Pesticide and/or herbicide application
- Landscaping operations; and
- Asbestos containing materials and lead paint associated with structures

The report recommended that further studies be carried out, however, it was concluded that it is likely that the site can be made suitable for the proposed Business Park following any necessary remediation and validation of any identified contamination.

5.1.4 Flooding

A detailed Flood Modelling Report has been prepared for the existing conditions on the site and a copy of this is included in Appendix 10. The report discussed the following.

Macquarie Rivulet is located partly in the Shellharbour City Council local government area and partly in the Wollongong City Council local government area, on the New South Wales coastal plain approximately 100 km to the south of the city of Sydney. It drains an area of approximately 107 km² of mixed forest, pasture and urbanised land, discharging into the south-western corner of Lake Illawarra. Flooding in Macquarie Rivulet and its tributaries is adversely affected at some locations by bridges, culverts and intrusions of development onto floodplains. Flooding in the outfall reach of Macquarie Rivulet is in addition affected by the level of flooding in Lake Illawarra.

Modelling was undertaken to quantify existing flood behaviour in Macquarie Rivulet adjacent to Albion Park Airport between the Princes Highway Road Bridge and Albion Park village. This modelling involved data collection, construction, calibration and validation of hydrologic and hydraulic models and determination of flood levels and hazard levels within and/or adjacent to Lot 6 DP 1100435 and Lot B DP 109816 in a 100 year Average Recurrence Interval (ARI) and "Probable Maximum" design flood. It should be noted that this modelling specifically targets flood behaviour in this area in these events. It was not intended to and does not purport to provide information on flood behaviour outside the study area.

Data collection included, aerial survey, creek and structure survey and the collection and collation of recorded rainfall, flood heights and lake level data for historic storms. Calibration of models was undertaken using the 11th June 1991 flood event, with a high level of correlation between recorded and simulated peak flood discharges and levels. Using this calibration and allowing for changes occurring in the catchment after the June 1991 event, and Shellharbour City Council's draft blockage policy, flood behaviour in the study area was modelled for the 1% and PMF design flood events.

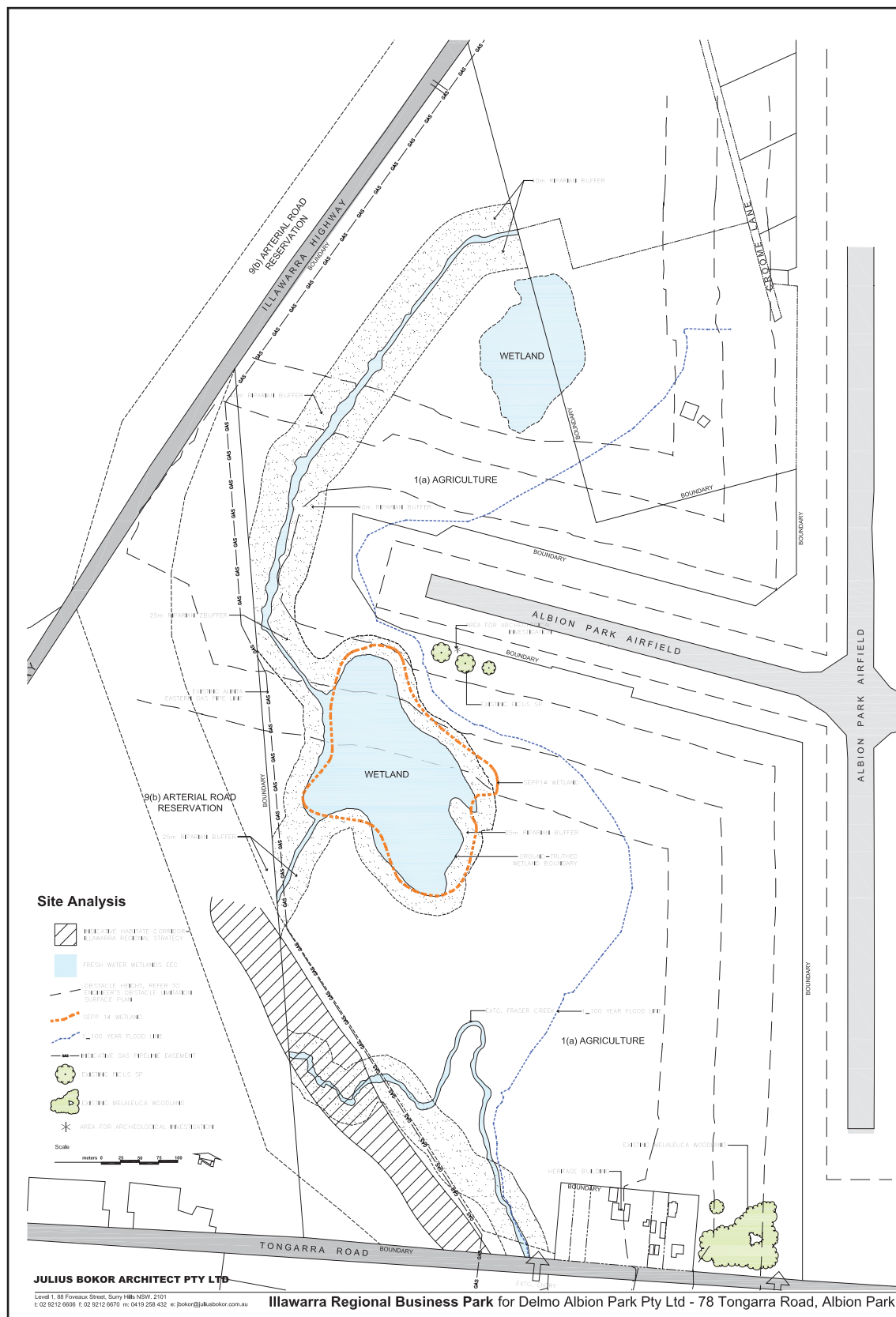


Figure 5.1 Site Analysis Plan

This modelling established a 1% AEP design flood surface adjacent to the Albion Park airport north-south runway that has little surface gradient (marginally below RL 6.5 m AHD upstream of Meadow Bank rising to marginally above RL 6.5 m AHD adjacent to the western end of the east-west runway. The flood surface then rises a little further, to RL 6.6 m AHD at the U bend in Frazers Creek, some 300m downstream of Tongarra Road. There is then a steep rise in flood surface level up to RL 8.5m AHD immediately downstream of the culvert beneath Tongarra Road.

Peak flood velocities adjacent to the study area are relatively low, being typically less than 0.1 m/sec but increasing to about 0.9m/sec around the western end of the east-west runway and to about 1m/sec in the small channel immediately downstream of the Tongarra Road culvert. In a PMF event, flood elevations in the study area are approximately 1.5 m higher than in a 1%AEP event but again exhibit a very flat surface gradient (ranging from RL 8.0m AHD at Meadowbank to RL 8.2 m AHD immediately downstream of the Tongarra Road culvert). While the 1% AEP flood event would reach but not significantly overtop the north-south runway (currently RL 6.4mAHD at the western shoulder at the sag), the PMF event would do so at considerable depth (about 1.6m at the sag) overtopping all of the northern arm of the north-south runway in the process. The western half of Lot 6, south of the runway and most of Lot 6 north of the runway would be inundated by a 1% or greater flood event. Lot B would be free of flooding in a 1%AEP event but the northern corner of the land would be inundated in a PMF event. The provisional flood hazard in areas of inundation would, for the most part, be 'high'.

5.1.5 Geology and Soils

The site is situated in the Fairy Meadow soil landscape group. This comprises alluvial flats, floodplains, valley flats and terraces below the Illawarra Escarpment. Local relief is less than 10m with slopes usually less than 5%.

Fairy Meadow soils are shallow to moderately deep (50 – 100 cm) alluvial loams and siliceous sands on terraces with prairie soils and yellow podsollic soils occurring on the drainage plains. The limitations of this soil landscape group are noted as being a flood hazard, of low wet bearing strength and having highly permeable topsoil with high seasonal water tables.

Groundwater appears to flow generally to the north-east and may follow the Frazer's Creek and Macquarie Rivulet watercourses. There are three registered bores within a 2km radius of the centre of the site. Salinity in the bores is

recorded as being "salty".

Salinity may be a potential issue relating to development of the site especially if cut and fill earthworks take place as when saline soils are disturbed during site development they can produce numerous problems due to the release of salts, which can affect plant growth, building materials, including pavement and roads, erosion and water quality.

There is a low probability of acid sulphate soils being present and if they are present they will be widespread, sporadic and may be buried by alluvium sediments. The depth is likely to be greater than 3m below ground surface.

5.1.6 Wetlands and Watercourses

A study has been carried out of the waterways and wetlands on the site and a copy of this is included in Appendix 12.

Frazers Creek flows in a northerly direction through the western parts of the subject site, leaving and then re-entering the site in the southwest. Most of Frazers Creek has only a sparse and highly modified riparian vegetation cover, as a result of the long established agricultural activities on the site. There are small stands of she-oaks along parts of the Creek, although most consist of isolated large specimens some of which (at the end of the airport runway) are regularly lopped.

Substantial parts of the Frazers Creek channel have been either artificially constructed or substantially modified in the past, as indicated by the straight lines of several of the channels (particularly in the northern half of the site). In addition, there are mounds of earth at the edge of the Frazers Creek channel at various locations on the site, indicating the use of excavators to deepen and possibly straighten the original natural channel.

The site supports two wetlands which have both been modified by earthworks and by ongoing cattle grazing. The southern wetland (located near the western boundary in the centre of the site and immediately southwest of the east-west runway of the airport) has been designated a Coastal Wetland (No. 382) pursuant to SEPP 14. A low flow channel has been constructed along the western side of the southern wetland on the site, and there is a mound of earth in the centre of the northern wetland. Both wetlands are subjected to regular and significant impacts from cattle grazing and physical disturbance.

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5.1.7 History of Use and Existing Use

The site has long been used for rural purposes. It appears that from 1901 to 1977 the site was owned by individuals and farmers and was most likely used for rural grazing purposes. Since then it appears most of the site has been used for grazing cattle while an area in the central portion of the site and an area in the south east corner of the site was potentially used for soil mixing for a landscaping business. Anecdotal evidence suggests that filling has occurred in various areas across the site.

5.1.8 Viability of Existing Uses

Although the land is currently used for agricultural purposes, a large area of the site consists of wetlands and is prone to flooding. This limits its agricultural use to low intensity activities. It is estimated only half of the current land, approximately 40 hectares would be suitable for more intensive agricultural uses.

The current use is grazing which is a relatively low value-adding agricultural activity. In the short term the current use seems viable, unless the opportunity cost of land is considered. The land is being used by one small-scale farm firm and employs less than five persons. The farmer apparently is keen to sell, which indicates that farming is unlikely to be the 'highest and best use' when opportunity cost is taken into account. In the medium to longer term, the economic viability of the land's current use is questionable. As surrounding developments such as residential and commercial uses in Albion Park and Illawarra Regional Airport intensify, land values rise and local government rates will increasingly make the economic viability of the farm marginal and eventually unviable.

5.2 Flora and Fauna

A detailed assessment report on the flora and fauna on the site has been prepared and is included in Appendix 15.

5.2.1 Flora and Vegetation

The site supports four main vegetation types:

- the modified wetland vegetation in the two wetlands in the centre and in the north of the subject site;
- the modified and artificial riparian vegetation along Frazers Creek (through the western parts of the site);
- the stand of paperbark swamp forest in the southeastern corner of the subject site; and

- the extensive areas of pasture and artificial vegetation through the majority of the site.

The only other native vegetation present on the site is a stand of three large fig trees in the centre of the site adjacent to the east west run-way of the airport.

Wetland

Notwithstanding the levels of disturbance or modification in both wetlands, the vegetation present has the characteristics of an "endangered ecological community" listed on the Threatened Species Conservation Act 1995 (TSC Act) as Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (FWCF). It is to be noted that this community includes artificial sites as well as sites which have been highly modified, and is not confined to undisturbed or natural wetland habitats.

Frazers Creek

Most of the riparian zone along Frazers Creek has been highly modified as a consequence of the agricultural and other activities on the subject site. Most of the original riparian vegetation has been removed, and most (if not all) of that present along Frazers Creek on the site has either been planted or has been established following previous clearing of vegetation along the Creek. There is no natural or undisturbed riparian vegetation along Frazers Creek anywhere on the site.

Paperbark Swamp Forest

The small stand of swamp forest in the southeastern corner of the site (adjacent to Tongarra Road and the airport) has a canopy exclusively of the Paperbark *Melaleuca decora*. The trees are of a uniform height and age, and are likely to be regrowth following either previous fire or clearing for agricultural purposes although the trees are mature and have recently flowered. The understorey contains a mixture of introduced pasture grasses and native herbs and grasses, although it is predominantly of native species. The stand of vegetation is grazed and is surrounded by introduced pasture, developed sites and Tongarra Road.

This vegetation has many of the characteristics of the "endangered ecological community" known as Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (SSFCF). There are larger patches of this community to the east (east of the north-south runway of the Illawarra Regional Airport) and to the south. The stand of vegetation on the site is isolated by surrounding cleared or developed lands, Tongarra Road and the airport.

Agricultural Lands

The majority of the site consists of introduced pasture and areas which had been previously subjected to horticultural and/or pasture improvement activities. Cattle grazing is still a feature of the subject site, with the farmhouse and farm buildings located in the southern parts of the site near Frazers Creek. There are also some derelict structures located in the central parts of the site (south of the western extremity of the east-west runway of the airport), along with three large fig trees which are clearly of some considerable age.

There are two other areas of disturbance on the subject site, being the sheds and associated disturbed portions of the site in the southeast (north of the function centre on Tongarra Road) and an area which has been disturbed by excavation and spoil dumping in the southeastern part of the site. The latter area is characterised by weeds and introduced plant species, with piles of rubble, debris and rubbish.

Threatened Plants and Endangered Ecological Communities

The site supports disturbed and modified examples of two "endangered ecological communities" listed on the TSC Act:

- the FWCF community, which is present within the two wetlands on the subject site, albeit in a highly disturbed state in some parts; and
- the SSFCF community, which is located in the southeastern part of the subject site. This small patch of the SSFCF community has been subjected to grazing activities over a long period, and is isolated from other stands of the community by surrounding agricultural lands, existing development (to the immediate west), Tongarra Road (to the south) and the Illawarra Regional Airport (to the immediate east).

No threatened plant species have been recorded on the site. Given the intensive and long-term agricultural activities which have been undertaken on the site, and the high levels of disturbance of most of the subject site, it is not considered particularly likely that any of the threatened plant species known from the general locality would be present.

5.2.2 Fauna and Fauna Habitats

The site displays four fauna habitat types as represented

by the four plant communities present on the site. The farm buildings and structures also provide some limited potential habitat for certain native fauna species, particularly those which are adaptable and capable of using such artificial features (including individuals of a few threatened microchiropteran bats).

The habitat features and resources present on the site are common and widespread throughout the general locality, and are typical of the Illawarra region in general. None of the resources or habitat features are particularly restricted or uncommon.

No threatened fauna species have been recorded on the site during the site inspections or field investigations which have been undertaken to date. It is, however, highly likely that individuals of some threatened species would utilise habitats on the subject site on occasions at least, particularly:

- threatened microchiropteran bats, some of which are common and widespread and many of which would be capable of utilising parts of the subject site (particularly the watercourse, wetlands and woodland) for foraging purposes;
- individuals of the Grey-headed Flying Fox, which would doubtless feed on the fruits of the three fig trees adjacent to the airfield during the fruiting season of those trees; and
- individuals or groups of some threatened wetland species.

Given the nature and condition of the site, there is no likelihood that either a "viable local population" or even individuals of any threatened fauna species would be dependent on or reliant on the site and/or the habitats and resources present for their survival in this locality. Most of the threatened fauna species which could occur on the site are highly mobile and wide-ranging, and many are migratory (several of which migrate thousands of kilometres each year).

5.3 Heritage and Archaeology

5.3.1 Background

A detailed report has been prepared on the Aboriginal and Historical Heritage of the Business Park site and a copy of this is included in Appendix 19 of this EAR. The aims of the heritage assessment were to identify and record

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the extent and nature of any heritage sites within the site and the possible impacts of the proposed development on any neighbouring heritage sites.

5.3.2 Built Heritage

The site was part of one of the early land grants in the Shellharbour area granted by Governor Macquarie to Andrew Allen in January 1817. In 1875 part of the land was acquired by Samuel Marks and he built Wanalama as his homestead which became known as Marks Villa. The land went through several changes of ownership over the years and was eventually purchased by the Johnston family in 1916. In 1942 the Australian Government resumed 28 ha of the land for the construction of a wartime airfield. It was an emergency airfield and one of its primary functions was the training of RAAF pilots for the defence of the Illawarra. Construction of the airfield required the moving of two homesteads including Wanalama, built in about 1875, and a number of farm buildings 2km to the west of the property, where the three fig trees now stand. None of these buildings are heritage listed in the Shellharbour Local Environmental Plan.

Adjacent to the site is the heritage listed is the villa of Ravensthorpe which is heritage listed in the Shellharbour Local Environmental Plan. This was constructed around 1893 and is an example of late Victorian architecture. It was the house of the first resident physician in the area, Dr Bateman. The curtilage of Ravensthorpe includes the grounds and adjoining workers cottages.

5.3.3 Aboriginal Heritage

Aboriginal people have lived in the general Illawarra region for at least 20,000 years. However, many Pleistocene and early Holocene sites are likely to be now below sea level so the early signature of human occupation is likely to be greatly abbreviated. Most sites discovered by archaeological survey probably date from the mid to late Holocene, the period after the stabilisation of sea levels at approximately today's levels. The distribution patterns are believed to be as follows:

- Artefact scatters: a common site type that is found on level and well-drained land adjacent to sources of fresh water;
- Middens: another common site type found close to estuarine environments or in coastal situations (especially rocky headlands, platforms or dunes).
- Isolated finds: these can occur anywhere in the landscape;
- Sites with shell and artefacts: likely to be found

on elevated ground near wetlands or stream channels;

- Scarred trees: these will be found in situations where old growth forest survives; and
- Burials: likely to occur in situations where deep sand or soil is present, or where there is evidence of past occupation (such as middens)

If this predicted site patterning is accurate then any sites in the study area, with its location back from the coast and in close proximity to fresh water, could be expected to mainly consist of artefact scatters or isolated artefacts. Middens are unlikely to occur in this area in anything other than sparse scatters, while the absence of old growth forest precludes the possibility of scarred trees. Burials are a possibility however, especially in the alluvium bordering Frazers Creek.

Previously recorded sites were examined and none were on the site.

5.4 Access

Access to the site is currently available from the Illawarra Highway and from Tongarra Road. Tongarra Road (east of Station Road) is utilised by the majority of traffic.

5.5 Traffic and Transport

Traffic

A detailed Traffic Study has been carried out of the site and this is included in Appendix 17. The study shows that the key roads in the vicinity of the site are the Princes Highway, the Illawarra Highway, Tongarra Road and Station Road.

The Princes Highway is the principle north south arterial route along the coast and provides regional links to the major centres of Wollongong and further north to Sydney and to Shellharbour to the south.

The Illawarra Highway provides an east west arterial road link between the Princes Highway at Albion Park and the Hume Highway. Tongarra Road is the eastern extension of the Illawarra Highway from Albion Park through to the Princes Highway.

Station Road is a local collector road link along the eastern side of the Albion Park airport between Tongarra Road and the Princes Highway.

Historical traffic flow data indicates that the Princes Highway is the main road within the vicinity of the site carrying approximately three times the volume of traffic

along the Illawarra Highway. With regard to traffic growth the available data shows that:

- The rate of traffic growth is decreasing along the Princes Highway
- Traffic growth at the eastern end of the Illawarra Highway is negligible
- Both the eastern and western ends of Tongarra Road have experienced traffic flow decreases between 2000 and 2003.
- Traffic flows along the Princes Highway and to a lesser degree other roads in the vicinity experience a high degree of seasonal variation. Flows are higher during summer

Traffic surveys were undertaken on the road network surrounding the site during December 2006. These showed:

- Northbound bias of traffic flow along the Princes Highway and Illawarra Highway during the AM peak period (reverse for the PM peak);
- Eastbound bias of traffic flow along Tongarra Road during the AM peak period (reverse for the PM peak);
- Station Road is utilised by the majority of traffic travelling to and from the north when travelling between Tongarra Road and the Princes Highway;
- travelling to and from the south when travelling between Tongarra Road and the Princes Highway;
- The Illawarra Highway is the primary route used by traffic from Albion Park traffic travelling north to the Princes Highway (and vice versa); and
- There are currently unbalanced traffic flows at the Princes Highway / Illawarra Highway roundabout

The operation of the key intersections in the vicinity of the site were analysed and it was shown that with the exception of the Princes Highway/Illawarra Highway intersection each of the analysed intersections operate with satisfactory average vehicle delays and good levels of service. It is considered that the poor operation of the Princes Highway/Illawarra Highway intersection in the am peak is the presence of unbalanced traffic flows. It is understood that the RTA is currently investigating opportunities to resolve this existing operation constraint.

Public Transport

Rail services are provided via the South Coast Rail Line.

The closest rail stations are Albion Park (1.4km) and Oak Flats (3.3km). There are about 7 trains during the am and pm peaks.

There are 4 bus routes which pass the site along Tongarra Road travelling from Albion Park to Wollongong and Shellharbour. Three of the routes travel to the above rail stations. The site is well served with public transport.

Air Services

QantasLink provides services between the Illawarra Regional Airport adjacent to the site and Melbourne.

Bicycle

There is a route along Tongarra Road.

Pedestrians

Unsealed pedestrian paths are typical in the area.

5.6 Urban Context

5.6.1 General

The site is situated at Albion Park within a kilometre of the coast at Koona Bay to the east of the site. Between the site and the coast is the Princes Highway and part of the industrial/ residential area of Albion Park. Land to the west of the site is rural stretching to the foot of the escarpment leading to Kangaroo Valley. There are major new residential areas to the south and south west of the site on the higher land. A visual character analysis has been carried out of the surrounding area which considers the environment of the site and the views and vistas in the area.

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5.6.2 Character Analysis

For the purposes of the analysis the environment of the site has been divided into 5 areas as follows:

Area 1: Immediate environs of the site

Area 2: Illawarra Highway and land to the west of the site

Area 3: Princes Highway and land to the east of the site

Area 4: Tongarra Road

Area 5: Hillside Residential Areas to the south of the site

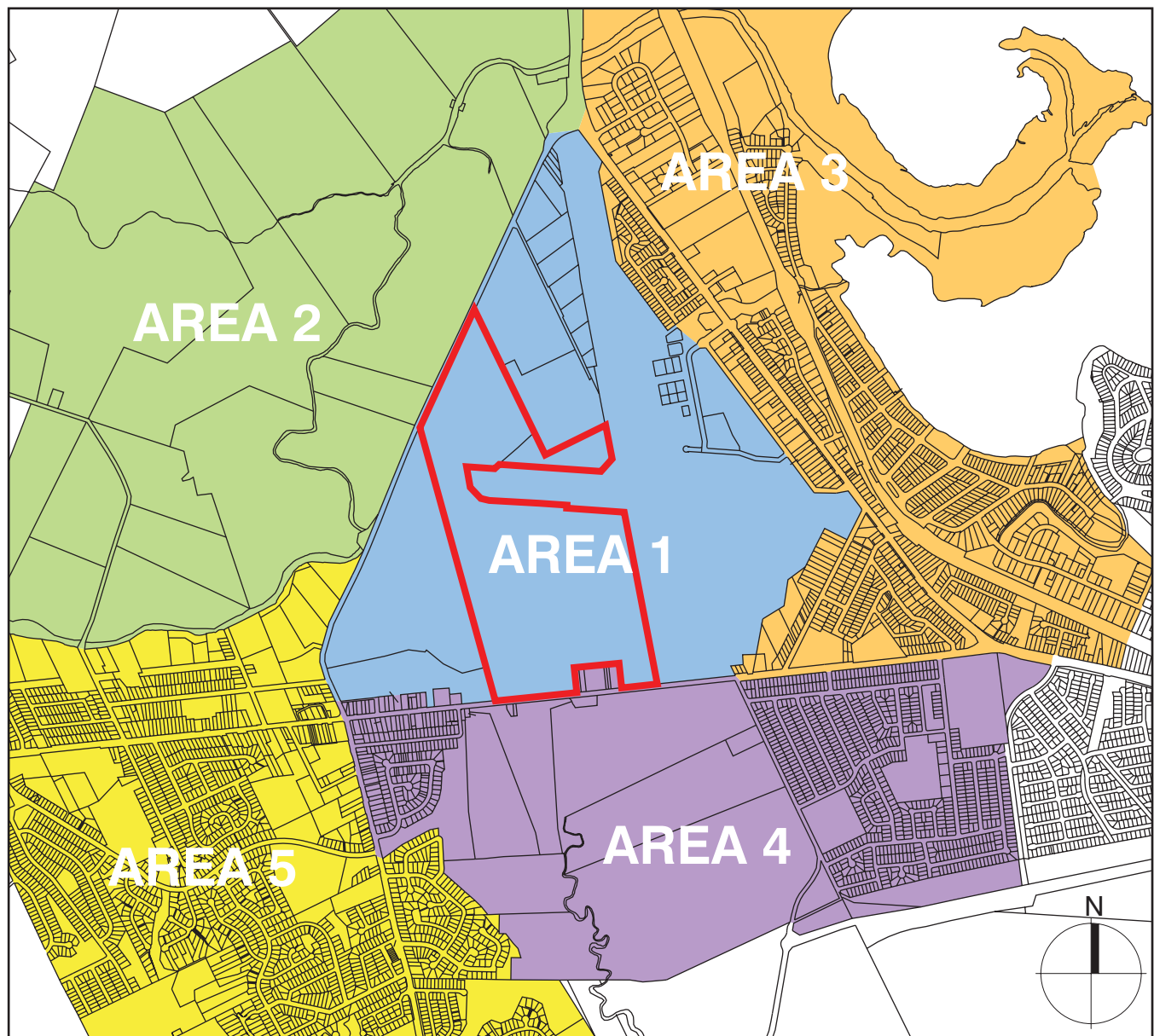


Figure 5.6.1 Plan of Character Areas

Area 1: Immediate Environs of the Site

Immediately adjacent to the site to the west is the Albion Park airport. The east west runway of the airport actually intrudes into the site. The airport is on flat and slightly built up land and has a wire security fence around it. The airport buildings comprising a small terminal and aircraft hangars and associated uses are located to the west adjacent to the entry to the airport from the Princes Highway.

The other boundaries of the site are open farmland and there are some industrial uses along Tongarra Road and the Illawarra Highway. There are extensive views to the site from both the Illawarra Highway and Tongarra Road.

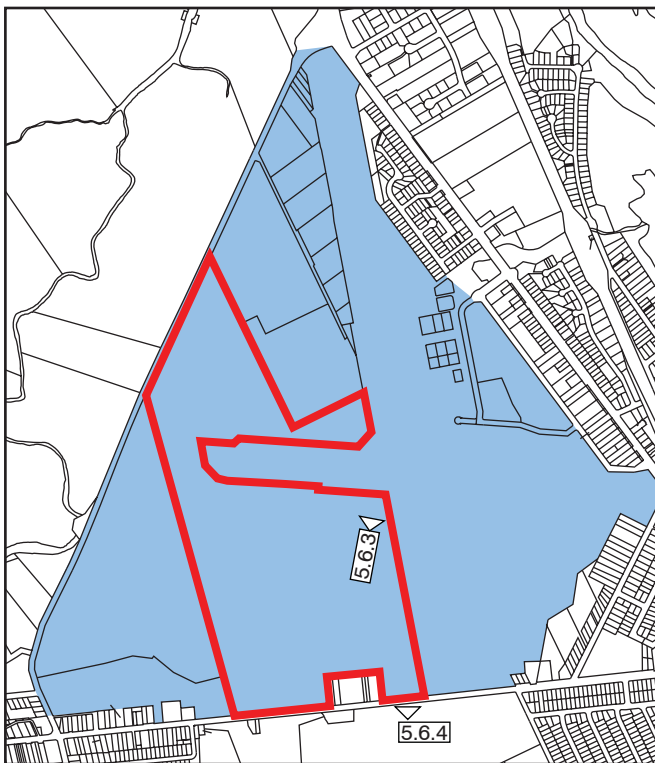


Figure 5.6.2 Area 1



Figure 5.6.3 Airport Security Fence



Figure 5.6.4 View of Airport and North/South Runway

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Area 2: Illawarra Highway and Land to the West of the Site

The Illawarra Highway runs along part of the western boundary of the site. There are some houses on the eastern side of the highway close to the intersection with the Princes Highway. To the west of the highway the land is generally open rural landscape with distant views of the escarpment. New housing is visible to the north west of the Highway by the Princes Highway intersection. The views to the south along the Illawarra Highway are of the escarpment and the housing areas situated on the lower slopes.

The site is visible from the Highway for most of its length between the Princes Highway and Tongarra Road.

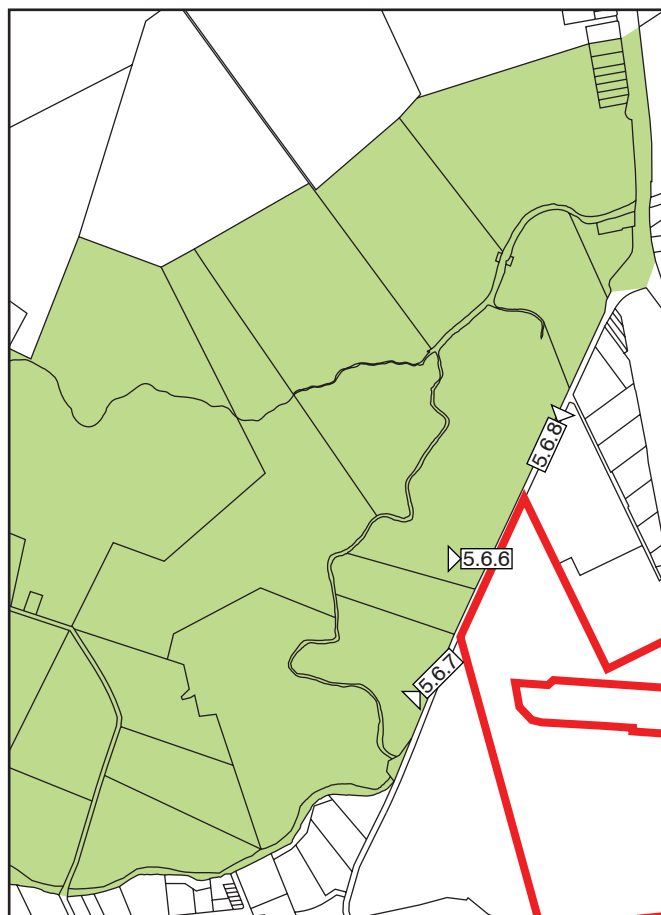


Figure 5.6.5 Area 2



Figure 5.6.6 View to West from the Illawarra Highway



Figure 5.6.7 New Housing to the South West of the Highway



Figure 5.6.8 View to the North East along the Illawarra Highway

Area 3: Princes Highway and Land to the East of the Site

The site does not have any frontage to the Princes Highway as it is separated from it by the airport. The Highway has a small residential area on its western side adjacent to the airport and to the east the development is largely retail and warehouse/storage uses.

The Highway carries large volumes of traffic and this tends to dominate the visual environment in this area.

The site is generally not visible from the Princes Highway.

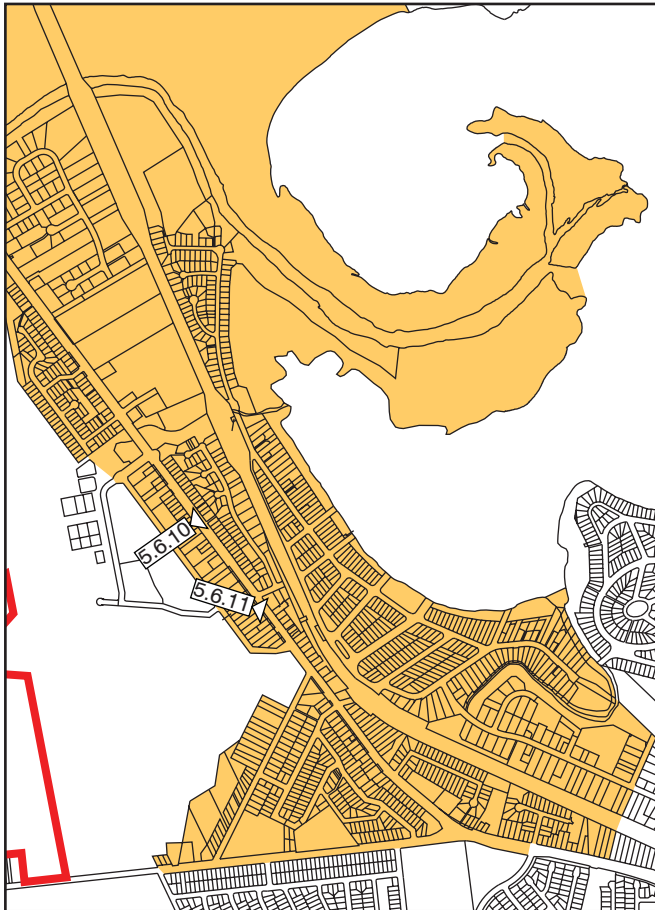


Figure 5.6.9 Area 3



Figure 5.6.10 Uses along the Princess Highway



Figure 5.6.11 Uses along the Princess Highway

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Area 4: Tongarra Road

Tongarra Road provides the main entry point to the site and extensive views of the site. The southern side of Tongarra Road is open rural land opposite the site leading to the Albion Park Sporting Complex off Croom Road. The land is undulating with some stands of trees. There are three houses adjacent to the site including the heritage guest house.

There is extensive residential development at both the eastern and western ends of Tongarra Road but these areas do not have views of the site.

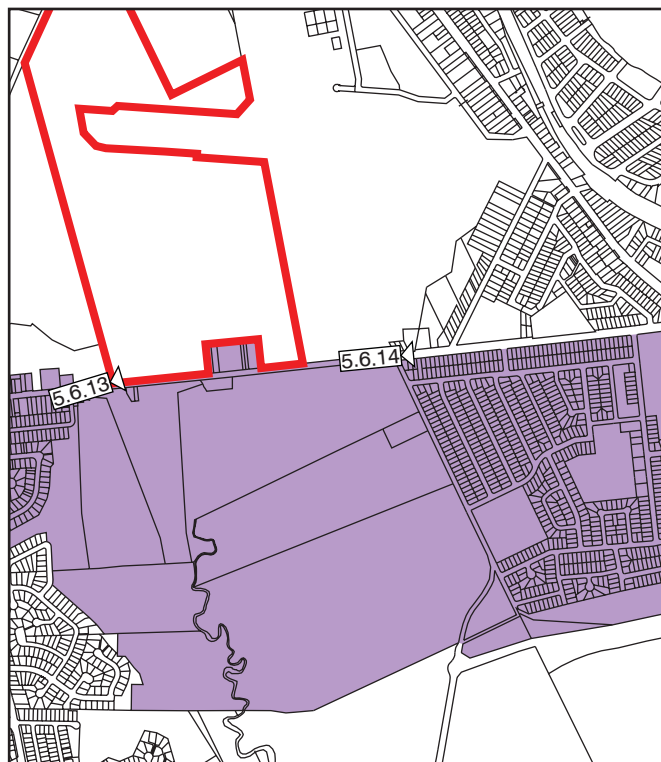


Figure 5.6.12 Area 4



Figure 5.6.13 View to the West along Tongarra Road



Figure 5.6.14 View from Tongarra Road

Area 5: Hillside Residential Areas to the South of the Site

There are extensive new residential areas to the south of the site on the slopes of the escarpment. These areas are visible in the distance as a backdrop to the site. However, the site itself is generally not visible from these areas because of the topography and the trees in the middle distance between the residential areas and the site. These obscure views of the site from most of these areas.

The site is visible as a distant view from the highest slopes around Abercrombie Street.

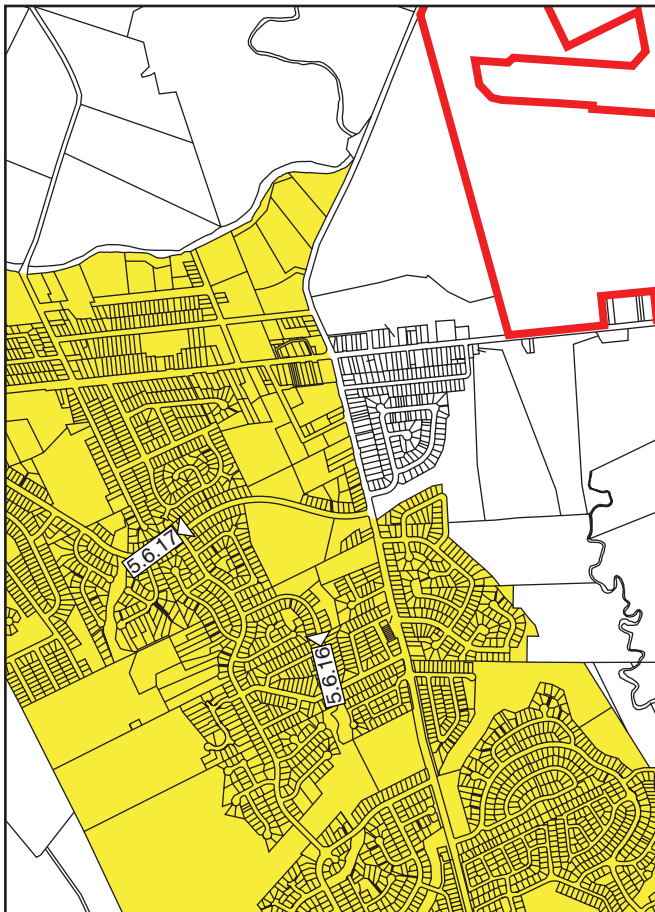


Figure 5.6.15 Area 5



Figure 5.6.16 View from the hillside residential areas



Figure 5.6.17 View from the hillside residential areas

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5.6.3 Summary

The immediate area around the site, apart from the airport is generally in rural open land uses with a small industrial area off Illawarra Highway. There are some houses scattered along the major roads around the site. To the east of the site, along the Princes Highway there are some light industrial uses, retail uses and bulky goods retailing.

There are several residential areas surrounding these rural areas with the major ones to the south on the escarpment and to the east off the Princes Highway. There is extensive vegetation in the rural areas and this generally obscures views of the site from the residential areas located there apart from the highest areas. Generally only the highest of residential areas have distant views of the site.

The site itself is generally seen in the context of the airport and the surrounding rural lands.

5.7 Economic Context

An Economic Assessment of the site and development context has been carried out by SGS Economics and Planning and a copy of the report is included in Appendix 11.

The study found that the Illawarra Regional Strategy requires councils to ensure an adequate supply of strategically-located employment land to create 30,000 new jobs, on top of the region's current 100,765 jobs. Wollongong is identified as a regional city, with the capacity for 10,000 new jobs. West Dapto and Kembla Grange have the capacity for 8,400 new jobs. About 478 hectares of existing vacant zoned employment lands in Wollongong must be protected. Shellharbour and Kiama councils are requested to create new employment lands, to overcome an expected shortfall. The Strategy notes there are social, economic and environmental benefits in increasing local job opportunities to reduce the current 16 per cent outward commuter rate.

The Strategy identifies a shortfall of vacant zoned employment land in the Shellharbour LGA. Of the 535 hectares of vacant zoned employment land within the region, only 49 hectares are in the council area. Shellharbour City Council will need to identify additional employment land over the next 25 years to address this shortfall and encourage small business growth and diversification. Key employment lands and infrastructure within the Shellharbour LGA include the Illawarra Regional Airport, Shellharbour City Centre and the Shell Cove

precinct.

The demand for employment land will be driven by:

- A perceived need to increase employment self containment of the workforce, reducing the present 20+ % percent of the workforce commuting to Southern Sydney and providing them with careers in Wollongong; and
- The role of Shellharbour and Kiama as dormitory areas for Wollongong, together with the shortage of employment land in those LGAs, means that some 50% to 60% of the increased employment for their residents needs to be absorbed within the Wollongong LGA.

Important growth sectors for local employment recognised by Shellharbour Council are aeronautical industry, transport and logistics and tourism. The airport plays a crucial role in respect to these three sectors' future prosperity. The regional airport in Albion Park, the Illawarra Regional Airport, and its small scale aeronautical industry and services sector is seen as a key driver of the local economy.

The vast majority of employment land in Shellharbour, 666 hectares or 75%, is used for mining activities. Shellharbour Council has identified that there is a shortage of industrial land. Land use patterns show the predominance of small businesses in Shellharbour's economy. Most parcels in Shellharbour are smaller than 5 000 m² in size. By contrast, less than 6% of parcels are larger than 1 hectare. Nearly all large parcels of 10 hectares and over are taken up by the mining industry.

Projected additional demand for industrial land between 2006 and 2031 in Shellharbour LGA is expected to be between 66 and 92 hectares for selected activities. Total demand for employment land is expected to lie between 93 and 130 hectares. These estimates do not include potential influx of displaced activities from Sydney or any other major developments. It is expected demand would be aimed at small parcels between 1 000 and 5 000 square metres and to medium-sized parcels of 5 000 m² to 1 hectare. Currently, most supply of industrial land is dispersed over the area. A larger combined industrial estate would offer flexibility to certain users. In addition, there is a perceived unmet demand for parcels of between 3 and 5 hectares.

5.8 Social Context

5.8.1 Population Growth

The Wollongong statistical sub-district, consisting of the LGAs of Wollongong, Shellharbour and Kiama, is an important population growth area for the Greater Sydney area. Over the last fifteen years population has increased considerably. Especially in Shellharbour and Kiama, population growth rates have been well above NSW average. In Shellharbour, population increased from just over 46 000 in 1991 to 57 071 in 2001. Average growth rates were approximately twice the NSW average.

Recent ABS data show that population growth has accelerated even more since 2001. Estimated population for Wollongong (SSD) in 2003 accounted for just over 190 000, and for Shellharbour nearly 62 000.

According to ABS population projections to 2002-2022 population of Shellharbour is expected to grow twenty four per cent between 2002 and 2022. Its growth rate is much higher than for Wollongong SSD (11% population increase) and NSW as a whole (16% population increase).

5.8.2 Employment

The continuing population growth in the area will lead to a continuing increase in the demand for employment and employment lands in the area. Self-containment of employment is an important issue within the Shellharbour Council area just as is recognised in the Illawarra Regional Strategy. Youth unemployment is a serious issue in the region, with youth unemployment rates lying around 34.5% in Shellharbour (ABS (2002), Regional Statistics). Shellharbour has a relatively young population which worsens the impact in the local context. Young workers are in general less mobile and therefore local employment opportunities for this group are of crucial importance.

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SITE ANALYSIS
