

as a result of construction works associated with this proposal.

3.6. Development Control Plans

The Ballina Shire Combined Development Control Plan (the Combined DCP) supports the provisions of the Ballina Local Environmental Plan 1987. The following chapters are relevant to the future development of the site.

3.6.1. Chapter 1 - Urban Land

Policy Statement 1 - Multiple Dwellings

The policy statement articulates assessment criteria to manage the development of multiple dwellings in Ballina Shire. It focuses on the efficient use of residential land and the preservation of the existing and future amenity. The policy sets out controls on the following desirable amenities:

- Density
- Landscaped Open Space
- Landscaping of Open Space
- Conservation of the urban character
- Amenity
- Parking
- Height Limitations
- Setbacks
- External Appearance / Compatibility with Existing Development

While these controls do not apply given the application does not seek consent for the construction of dwellings, they have been considered during the preparation of the proposed layout for the site.

Policy Statement 2 - Car Parking and Access

Policy Statement 2 of the DCP relates to car parking and vehicular access requirements for developments. It focuses on design controls for Parking Layout Standards including:

- Design Considerations
- Parking Requirements
- Manoeuvring Areas

- Driveways for Internal Roads
- Garage Setbacks From Roads and Streets
- Access from Laneways
- Kerb and Gutter Crossing Widths

The issues addressed in this Policy Statement are not relevant to the proposed development at this stage. The layout of the proposed development has been designed, however, to enable compliance with the parking, access and manoeuvrability standards specified in the DCP. These controls would be assessed in detail for future applications for dwellings associated with the subdivision.

Policy Statement 4 - Urban Subdivision

This policy statement sets out design principles for urban subdivisions in Ballina. The policy is concerned with ensuring the scale, type and traffic generating characteristics of proposed developments are compatible with the character and amenity of the surrounding residential areas.

The statement identifies Design Principles which predominantly relate to lot size. For residential allotments, the DCP provides the following guidelines:

- ~ Allotments created for residential development shall generally have a minimum area of 600sqm with a minimum frontage of 18m.
- ~ For residential buildings containing three or four units a lot with a minimum area of 1000m² with a minimum frontage/width of 22m is considered desirable.
- ~ For high density development proposals, a minimum aggregated allotment area of 2000m² is considered necessary.
- ~ Duplex allotments are recommended to be 800m², with a minimum frontage of 18m.

It should be noted that the above dimensions and lots sizes are recommended requirements only, as specifically stated in the DCP.

This proposal includes a mix of allotment sizes, ranging from small villa allotments of 400m², to “courtyard” allotments (445-500m²) and traditional allotments (575-875m²), as well as duplexes. A breakdown of these is provided below:

Size (m²) Number Dwellings

Villa allotments 400-410	5	5
Courtyard allotments 445-500	54	54
Traditional allotments 575-875	144	144
Duplex allotments 795-920	33	66
Total	236	269

The majority of allotments are traditional allotments, which are generally in accordance with the minimum lot sizes specified as desirable in the DCP. In addition, the proposed duplex allotments are generally in excess of the minimum 800m² recommended lot size.

The other lots do vary from the recommended requirements outlined on the Plan. These lots are consistent with the current market and provide for a good mix of housing options on the site. This is important in addressing issues associated with housing choice and affordability; issues that are particularly pertinent to coastal locations in New South Wales. Each lot has sufficient area for a dwelling house, gardens and potential expansion, as well as sufficient area to provide:

- ~ privacy between dwelling houses;
- ~ access to sunlight;
- ~ building separation for light and ventilation • retardation of fire and access for emergency vehicles;
- ~ efficient land use;
- ~ different and varied housing and development types;
- ~ retention of trees and natural features;
- ~ landscaping; and
- ~ regard for the amenity of the area.

Ballina Council are aware of the discrepancies and have not raised any issues with the proposed sizes.

The development site is also located within the area identified as River Oaks (refer Policy Statement 15 - River Oaks, discussed below). This policy statement provides further guidance in relation to lot sizes and densities specific to this site.

Policy Statement 6 - Landscaping Guidelines

This policy statement provides landscape guidelines

for development in the Ballina Shire and are aimed at assisting those responsible for preparing landscape plans for developments which do not warrant employment of a professional landscape designer/architect. For the purposes of this application, a series of landscape concept plans have been prepared by Land Partners. Details of these plans are provided below:

- LS01: Cover and Index Sheet
- LS02: Landscape Site Plan
- ~ LS03: Partial Plans
- ~ LS04: Partial Plans
- ~ LS05: Playing Field Details
- ~ LS06: Landscape Schedule and Definition
- ~ LS07: Details

Final species choice will be addressed prior to construction. Local endemic species will be utilised for landscaping and street tree planting.

Policy Statement 9 – Vegetation Management

Consent has already been granted for the clearing of vegetation on the subject site. This application does not seek approval for the further clearing.

Policy Statement 11 - Flood Levels

This policy identifies the fill levels and minimum floor levels required for residential uses within the Ballina area to ensure flood immunity. Ballina Council has already approved an application relating to filling on the subject site (DA 2002/566). This application includes the proposed minor land recontouring to facilitate stormwater drainage and flood management on Lot 2 DP 107424. This is addressed in further detail in the Water Cycle Management Plan prepared by LandPartners and the Flood Study prepared by BMT WBM.

Policy Statement 15 - River Oaks Estate

This policy statement relates specifically to the subject site and surrounding allotments and is intended to provide guidelines for the development of the area. This statement seeks an integrated development outcome for the entire River Oaks area. The policy identifies that development of this area should be residential in nature and comprise low and medium density development such as traditional single detached housing, duplexes,

and dual occupancies with some medium density development in the areas designated as medium density.

The policy identifies a minimum allotment size of 600m² for single residence housing allotments. The proposed development does not comply with the minimum lot size of 600m², a justification for which is provided under “Policy Statement 4” above. A variety of allotment sizes are provided, creating an interesting development form. The development of the site incorporates 33 duplex allotments, generally consistent with the policy which identifies 34 duplexes. The proposal also provides for the creation of higher density, villa and courtyard allotments throughout the development, including some focused in proximity to the proposed sporting field, consistent with the policy which seeks for low and medium density residential development.

The traditional allotments proposed comprise a minimum allotment size of 575m² with a frontage of 18m. This development outcome, while less than the 600m² lot size, creates a consistent urban outcome, through the maintenance of the 18m frontage. The reduced lot size is considered to be broadly consistent with the intention of the low density residential area. This proposed development outcome for the site is consistent with the overall intentions of the policy and Urban Subdivision Policy.

The proposed development is generally consistent with the key elements of the open space network. A multi-purpose sports field is to be provided to service the projected population.

3.6.2. Chapter 11 - Mosquito Management

Chapter 11 of the Ballina Shire Combined DCP relates to Mosquito Management. It provides information relating to mosquitoes and guidelines for development in relation to mosquito development. As per the DCP, a Mosquito Impact Assessment was undertaken over the subject site.

The Assessment concluded that the development site has relatively low exposure to mosquitoes as demonstrated by current collection data. Development of the site will eliminate a portion of currently identified fresh water mosquito breeding habitat. From time to time, the report states that some species of mosquito will have some impact on the site, but that the site is not significantly different in its exposure to mosquitoes than

the general region.

3.6.3. Chapter 13 - Stormwater Management

Chapter 13 of the Ballina Shire Council Combined DCP applies to development of the subject site. This Chapter identifies an objective of no net increase in the average annual load of key stormwater pollutants and peak discharge flow rates, above that occurring under existing conditions. The proposed development has considered the current overland flow conditions for the site in the design of the layout.

Through the utilisation of detention basins and the implementation of rainwater tanks serving each of the residential lots within the proposed subdivision, as well as grassed swales and bio retention systems, the impact of the subdivision and subsequent development on downstream water quantity and quality can be managed so as to be within allowable guidelines.

The results of the MUSIC modelling (undertaken as part of the Water Cycle Management Plan by LandPartners) show a reduction in the post developed flows and pollutant levels to approximately equal to or below that of the pre developed levels due to the proposed treatment system mentioned in this report.

The Water Cycle Management Plan concludes that the best management practices incorporated in the Water Sensitive Urban Design proposal for the subdivision meet the requirements set by Ballina Shire Council in DCP 13 and their Urban Stormwater Management Code for new developments.

3.7. Section 94 Contributions

There are a number of Section 94 Plans applicable to the subject site, including:

- ~ Ballina Roads
- ~ Water Supply Infrastructure DSP
- ~ Sewerage Infrastructure DSP
- ~ Water and Sewerage Infrastructure Planning

Any contributions applicable to the subject site will be calculated and included as a condition of consent. Section 94 developer contributions would be levied on the proposed development for the following categories/ amounts:

- | | |
|---|------------------|
| <ul style="list-style-type: none"> • Public Open Space | <p>\$158,000</p> |
|---|------------------|

- Ballina water augmentation \$685,000
 - Ballina Shire Council sewerage \$1.5 million
 - Community facilities \$253,000
 - Ballina Road Contribution Plan \$392,000
 - Rouse water \$800,000
- Total Section 94 Contribution: \$3.7 million
(ie \$16,000 per lot)

04

**PHYSICAL AND NATURAL
ENVIRONMENT**



Figure 4.1 Aerial Photograph

4.1. Introduction

The following section describes the natural environmental features of the site and other physical features such as drainage swales, roads and service infrastructure, such as existed prior to the commencement of filling operations. Site investigations were undertaken prior to site filling. This section provides a broad overview and summarises the findings of the technical studies and investigations prepared to support this development application. Technical studies are included as appendices. A site survey plan is detailed in Figure 4.2. Additionally Figure 4.3 shows proposed levels post filling.

4.2. Topography

The site is approximately 49.239 ha in size and is predominantly flat, with a gradual landfall away from the Pacific Highways towards adjoining Lot 2 DP1074242 to the south. Elevation ranges from 0.35 – 1.6 m AHD across the site, highest in the northern portions fronting the Pacific Highway and lowest in the low lying depressions draining the site from east to west.

4.3. Geology and Soils

The level plains of the subject site are described as sediment basins inland of the inner barrier dune system. The geological composition of the site is dominated by Quaternary estuarine alluvium overlain by and/or mixed with Quaternary (Pleistocene) sands generally of Aeolian origin (Morand 1994). DPI (2004) identifies four (4) distinct geological units within the subject site –

- ~ Holocene Levee
- ~ Holocene Estuarine Palaeochannel Fill
- ~ Holocene Floodplain
- ~ Holocene Tidal-Delta Flat

The subject site is wholly identified as the soil landscape Tyagarah (ty). This landscape is described as possessing the following characteristics:

Landscape – sediment basins of mixed estuarine and aeolian origin forming level to gently undulating plains. Relief is < 3 m, elevation is < 5 m and slopes < 1 m. extensively cleared open- and closed-forest.

Soils – deep (> 150 cm), moderately well-drained minimal Prairie Soils (Gn3.91, Gn2.81, Dd4.51) near Basaltic areas. Deep (> 150 cm), well-drained Podzols

(Uc2.33, Uc2) and Acid Peats (O) near barrier systems.

Limitations – Very strongly acid, permeable often waterlogged soils of low fertility and low water holding capacity with localised salinity. Very localized Acid Sulfate Soils and Potential Acid Sulfate Soils generally occurring along old estuarine areas.

4.5. Groundwater

The subject site has been recognised as a Coastal Sand Bed Groundwater System, supporting wetlands, terrestrial vegetation and hypogean ecosystems.

As part of the Acid Sulfate Soils Management Plan, investigations were made with regard to the groundwater conditions in site. Excavations as part of subsoil investigations revealed a relatively shallow groundwater table and subsequent site visits following moderate rainfalls across the region was observed to result in elevation of the groundwater levels within Lot 1.

Previous subsurface investigations undertaken by Soil Surveys Engineering Pty Ltd (Soil Surveys 2006) observed groundwater at depths of between 1.1 m and 2.0 m, with a typical water table height during normal, non-flood conditions identified as RL 0.5 m (± 0.5 m). Given the proximity of the tidally influenced North Creek Canal and the sandy nature of the subsurface environment, groundwater levels could be expected to vary in response to tidal influences and following periods of wet weather.

4.7. Biodiversity

4.7.1. Vegetation

The present dominant vegetation is best described as disturbed grazing land dominated by exotic grass (Buffalo, Paspalum, Carpet Grass) with common agricultural weed species (Scotch Thistle, Fireweed, Balloon Cotton Bush). Lower areas of pasture prone to inundation following rainfall events consist of Couch in addition to scattered Common Sedge. A single mature Tuckeroo has been retained in the northern section of the proposed playing fields.

A planted buffer of common rainforest species (Broad-leaved Palm Lily, Brown Kurrajong, Lilly Pilly) around the eastern, western and southern boundaries of the proposed playing fields has also recently been completed. These trees are all less than 1 metre in height.

A small area of immature Grey Mangrove occurs in the southern portion of Lot 2 south of the access track to the STW, while a narrow strip of Swamp Oak occurs along the western fenceline.

Modified drainlines within Lot 1 support limited scattered areas of vegetation. Drainline communities are highly disturbed, with parts of drainlines being excavated to a width of up to 10 metres and all vegetation removed. As such, this environment has very little conservation value.

Lot 269 currently supports part of a contiguous community of Swamp Oak, which contains occasional Cockspur and the weed species Coastal Morning Glory. The Swamp Oak community is characteristic of the Endangered Ecological Community 'Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions' and consequently has a high conservation value. It is recognised that this vegetation has been degraded to some degree by invasive weed species, notably along exposed edges. A small portion of this vegetation will also be cleared as per DA 2002/566.

All trees on Lot 1 have been recently cleared in accordance with DA2006/650, issued by Ballina Shire Council. Exotic grassland at the site is considered to have a low conservation value.

Established pasture within Lot 2 site is currently being used for grazing purposes, while Swamp Oak vegetation within Lot 269 is not grazed. Further cleared grazing land with pockets of Swamp Oak is located to the west of the site, with Swamp Oak and Mangrove vegetation abutting North Creek Canal to the east.

It is noted that the southern portion of Lot 2 flanking the West Ballina STW has been identified in a Vegetation Management Plan (VMP) by James Warren & Associates and approved by Ballina Shire Council. Under the VMP, a total of two hectares of vegetation characteristic of the Endangered Ecological Community 'Subtropical Coastal Floodplain Forest' is to be established in the south-western portion of Lot 2, with 1.4 hectares to be planted by Rayshield Pty Ltd, and the balance to be planted out by Natuna Pty Ltd (owners of Lot 269 and additional land to the east). It is noted that the rehabilitation area addressed in the VMP (JWA 2006) is the result of Ballina Shire Council requesting compensation for the clearing of vegetation within Lot 1, and for approval of vegetation clearing within Lots 268 and 269 which has not yet

commenced.

4.7.4. Fauna

The Flora and Fauna Assessment identified two (2) amphibian species, twenty-six (26) common avifauna species and one introduced mammal species at the subject site. Many of the species present at the site were observed foraging opportunistically along recently cleared and disturbed drainlines.

Due to the removal of nearly all available treed habitat from within Lot 1, there are few opportunities for fauna for breeding/roosting/nesting and few forage resources available over the majority of the site. Most fauna groups within the locality are likely to forage widely and utilise better quality habitat, such as vegetation fringing North Creek Canal, or Swamp Oak vegetation within Lot 269 and adjacent to the site.

4.8. Air Quality

The proposed development is located on the periphery of an existing residential area of Ballina. The site adjoins the Pacific Highway, a significant arterial road in the region. The site is located approximately 4 kilometres of the employment area adjacent to Ballina City Centre. There are sewerage treatment works located approximately 500m metres to the south of the site, however there is no evidence that indicates odour from the treatment plant is an issue.

The National Environment Protection Council (NEPC) sets ambient air quality standards to assist in safeguarding the public from the impacts of air pollution. Impacts may include diminishing human health as well as damage to vegetation and buildings. The National Environmental Protection Measures for Ambient Air Quality sets standards for six pollutants; ozone, particles, carbon monoxide, sulphur dioxide, nitrogen dioxide and lead. Requirements for monitoring are detailed within the National Environmental Protection Measures, however, no monitoring of air quality is undertaken in the Far North Coast region.

As Ballina Shire does not have major polluting industry or heavy manufacturing, air quality is generally good (State of the Environment Report 2006). The most significant adverse impacts to air quality in Ballina Shire are those caused by open burning in the sugar cane industry and other agricultural activities such as land clearing and disposal of macadamia waste product.

Council have developed a range of management responses to address key issues associated with air quality. Complaints in relation to air quality have been generally decreasing over the last few years and air quality impacts are considered acceptable.

4.9. Noise

The proposed subdivision is located approximately 4km from Ballina Airport. The 'noise exposure contour' map for the Ballina Airport (Chapter 4 of the Ballina Shire Combined DCP) indicates that the site is 2km away from the 50m buffer around the 20 ANEF contour as depicted in contour mapping provided with the plan. The site is therefore unaffected by any significant noise level of aircraft both taking off and landing at Ballina Airport.

The site is not in the line of flight paths from Ballina Airport and would not have any affect on its operations.

Given the site's location in relation to the Pacific Highway, there are likely to be noise impacts from traffic. The Department of Planning has requested an acoustic report to address potential noise impacts and proposed noise mitigation measures for road traffic noise for the site. This report has found that that part of the site fronting Pacific Highway is exposed to noise levels above the criteria at ground floor level. This is considered acceptable in the report, as the average person cannot detect less than a 3 dB shift in sound pressure level. This is discussed further within the Acoustic Assessment carried out by Carter Rytenskiid Group, which also provides recommendations in relation to noise attenuation measures for the future development.

4.10. Environmental Risk

4.10.1. Flooding

Prior to Council's consent DA 2002/566 Lot 1,3 and 5 on DP 1074242 was identified as being subject to the Q100 flooding events. Subsequently Council's approval required that the land be raised to 2.1 metres AHD.

Notwithstanding, Council are now required to review flooding and developments in flood prone areas in accordance with the 'Floodplain Development Manual, The Management of Floodliable Land. 2005'. Consequently Council are exhibiting the "Ballina Flood Study Update 2007".

Flood modelling undertaken for the 2007 Study sought

to identify the risks associated with 5,20.50, 100 and 500 year ARI flood events in addition to PMF events. In this regard our site was considered to be at risk from flooding.

The risk, however, is able to be managed through the provision of the proposed drainage swale through Lot 2 on DP 1074242. The provision of the drainage swale is consistent with the Study's recommendations.

4.10.2. Acid Sulfate Soils

The subject land has been identified within an area defined as having a high probability of occurrence of ASS materials. Council's ASS Planning Map (BSC 2003) places the subject land within areas defined as Classes 2 and 3.

An Acid Sulfate Soils Management Plan has been prepared over the subject site. The findings of this report have indicated the presence of ASS materials within the subject site to be limited to the northern portion (Lot 1) and the northern and western section of Lot 2, excluding the area south-east of the small dam construction on Lot 2.

As previously indicated, the site is currently being filled in accordance with consent DA 2002/566. Appendix 4 includes the Acid Sulfate Soils management plan approved as part of the filling works. Please note this Management Plan is provided at the request of the Department of Planning and does not form part of the subdivision application.

4.10.3. Mosquitos

A Mosquito Risk Assessment has been undertaken over the subject site. This assessment has found that the site has relatively low exposure to mosquitoes. From time to time, certain species of mosquito will have some impact on the site, although it is not considered significantly different in its exposure to mosquitoes than the general region.

4.10.4 Bushfire

The site is identified on Ballina Shire Council's Bushfire Map as being bushfire prone. Lot 1 has been cleared of vegetation and contains only grassland. The main stands of significant vegetation lie east of the proposed Link Road corridor, Lot 268. While Lot 1 contains no significant conservation values or threatened species or communities, Lot 268 contains Endangered Ecological

Community 'Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions'.

Vegetation surrounding the Subdivision Site for a distance of 140 metres occurs as:

- Grazed pasture to the south and west (including some adjacent Swamp Oakforest to the southwester corner);
- Managed vegetation and Paperbark Forest to the north;
- Swamp Oak Forest, Mangrove Forest and Forest Red Gum (*Eucalyptus tereticornis*) Forest to the east-south east; and
- Grassland with scattered isolated tree (eg. Camphor Laurel, Coral Tree, etc) to north east.

4.11. Cultural Heritage

A Cultural Heritage Assessment has been undertaken for the subject site. As part of this assessment, an Archaeological Assessment was conducted over the subject land with the assistance of the Jali Local Aboriginal Land Council (LALC) in 1997 (Piper 1997). No archaeological sites were found. Matters of European Heritage are also addressed in this report. No European heritage sites were found.

4.12. Site Drainage and Stormwater Management

A water way traverses the site from the south western corner, traveling first north east to the northern boundary and then heading generally in a south easterly direction. The water way picks up flows from the Pacific Highway and catchments to the north of the highway at two culvert crossings, directing this water generally in a south easterly direction through the site.

The water way exits the site along the south eastern portion of the site and spreads over the adjoining lot. The grades within the water way are such that water flows only occur when upstream heads overcome the flat grade to drive water along it.

A man made channel connects to the natural water course at the south west corner of the subject site and travels south along the western boundary of Lot 2. Flow from the natural water course is partially diverted along this man made channel during rain events. This

channel discharges into another channel at the southern boundary of Lot 2 through a 600 mm dia RCP with no flood gate attachment.

4.13. Water Services

The Ballina Urban Lands Release Strategy (2000) stated that as at 2000, water to the Ballina-Lennox Head area was supplied by Rous County Council. A reliable water supply equivalent to 26.4ML/day was available to Ballina - Lennox Head. The peak demand at that time was 16.8ML/day or 64% of capacity.

4.14. Sewer

The Ballina Urban Lands Release Strategy (2000) indicates that the sewerage system to West Ballina is serviced by the Lennox Head Sewage Treatment Plant.

Existing plant is licensed to a capacity of 18000 EP. There is a current planning approval in place for staged increase in capacity to 58000 EP (a condition of consent requires review of current technologies prior to implementation of each stage).

4.15. Electrical and Telecommunications

An electricity easement currently extends through the site, running north-south. This easement will be relocated within the Link Road.

4.16. Roads, Transport and Access

The subject site is located adjacent to, and on the southern side of the Pacific Highway in the northern approach to Ballina. The Pacific Highway comprises two traffic lanes in the vicinity of the subject site and is subject to a speed limit of 60km/hr. The intersection of the Pacific Highway and North Creek Road currently has Austroads Type 'C' turning lane treatment.

The Roads and Traffic Authority's publication 'Traffic Volume Data for the Hunter and Northern Regions 2004' indicates that the 2004 AADT on the Pacific Highway in the vicinity of the subject site was 12,627vpd. It is therefore estimated that the current 2007 AADT is approximately 13,800vpd.

Current access to the site is via a road easement off the Pacific Highway, which traverses Lots 1, 2 and 269.

There are 2 bus companies which service Ballina and the local area, providing direct links to several locations,

including Byron Bay, Lismore, Lennox Head, Bangalow and Newrybar. Route 641 ("Blanch's Bus") to Byron Bay and Bangalow bypasses the subject site.

4.17. Community and Social Infrastructure

There are a range of community and welfare services available in the Ballina Shire. These are detailed on their website, within the "Facts and Figures" section. In summary, there are the following services available in the Ballina Shire:

- ~ Health Services: The Ballina District Hospital is situated in Ballina, and approximately 30 minutes to the west in Lismore are the Lismore Base Hospital and St. Vincent's Private Hospital. Ballina and Alstonville both have staffed Ambulance Stations and Community Health Centres. Ballina Shire is also well serviced by a large number of private health care providers and specialists, including GPs, dentists, radiologists, pathologists and other health care specialists.
- ~ Education: Education facilities in Ballina Shire cater for approximately 7,000 school aged children. There are 19 primary schools and 4 secondary schools in the Shire. Additionally, there are 5 nongovernment primary schools and 1 non-government secondary school in the Shire.
- ~ The North Coast Institute of TAFE has two campuses located in Ballina Shire. The major tertiary institution in the region, Southern Cross University, is located in Lismore, approximately 30 minutes west of Ballina.
- ~ Youth Services: Ballina Youth Service is a support, advocacy and referral service for disadvantaged youth aged 13-24 years. The service provides support, develops youth programs, and oversees the running of the Ballina Youth Activities Centre.
- ~ Aged Care Services: There is a high demand for aged care services in the Shire. There are four aged care facilities accommodating aged people in Ballina Shire. There are also three aged care hostels in Ballina, which provide a higher level of care, and a number of elderly care services operate in the Shire,

Ballina Shire Council however, has lower per capita expenditure on Environmental Management and Health, Recreation and Leisure, and Community Services.

4.18 Easements

The site is transversed by a number of easements for

drainage, access and sewerage/electrical infrastructure. Refer to Figure 4.2 Site Survey and Appendix 18.

4.19 Public Access North Creek Canal

There is no formal public access to the North Creek Canal foreshore. Access is limited to a unsealed road reserve that adjoins the foreshore. The road reserve commences near the bridge east of the site and provides an additional access point for the existing farm house.

The proposed development will not provide formal access to the foreshore. Public access will be facilitated by the adjoining Natuna development. The proposed development will provide pedestrian and cycle facilities up to the Natuna site to allow future residents to access the foreshore.