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6. Land Use and Infrastructure

6.1 Introduction

This Chapter addresses Sections 3.1.1.3 to 3.1.1.6 and 3.1.2.2 of the Terms of Reference. It describes the existing land uses and land use planning framework, and discusses the potential impacts and constraints for future development in the impact area. The Chapter also discusses the potential impacts and proposed mitigation measures associated with the construction and operational phases of the project.

6.2 Existing Land Uses

For the purposes of this section, the study area includes the dam site (Lot 4 SP164198), associated dam infrastructure, and the following areas:

- ridgelines surrounding the dam site;
- the suburb of Gilston to the north;
- Worongary (Advancetown-Mudgeeraba Road) Road and Gold Coast-Springbrook Road to the east;
- Gold Coast City Council local government boundary to the west; and
- the proposed Full Supply Level (FSL) and proposed 1 in 100 year ARI flood level (including a nominal buffer area of approximately 1 km from the 1 in 100 year ARI level) to the south.

The study area is shown in **Figure 6-1**.

The land use information has been obtained from Gold Coast City Council’s (GCCC) databases, and detailed survey work conducted for the purposes of this EIS. Land use categories for the study area, and defining elements are presented in **Table 6-1**.

■ Table 6-1 Land Use Categories

Description	Definition
Residential	Premises comprising a small land parcel used for a residential purpose
Rural Residential	Premises comprising larger land parcels, predominantly used for a residential purpose, which may include small scale rural activities
Rural	Larger land parcels used predominantly for a rural purpose (e.g. grazing, dairy cattle)
Commercial	Premises used for a commercial purpose (e.g. restaurants, retail and office buildings)
Public Utility	Premises used for a community purpose such as potable water supply facility, electricity substation, or sewage treatment plant
Community Purposes	Premises used for a social or service purpose, generally provided by local, state or federal government (e.g. defence training, emergency services, library, health services, museum or other community organised use)
Education	Premises used for an educational purpose such as primary schools, secondary schools, universities and other public educational facilities
Sport, Recreation and Tourism	Premises used for a sport, recreation or tourism activities comprising facilities open to the public for use upon payment of a fee. This land use also includes tourist based commercial facilities such as accommodation, and galleries
Park	Premises open free to the public for a recreational purpose such as playgrounds and playing fields. Parks may include play equipment, picnic shelters, bikeways, kiosks, boat ramps and car parking
Conservation	Areas that used for the purpose of conservation of wildlife and habitat
Farm Forestry	Properties that are used to propagate, cultivate, manage, and harvest timber, including the collection of tree products in the plantation such as flowers, foliage and seeds

Properties that not currently being used for a specific purpose, such as vacant land, have been included in the land use category according to the surrounding land use, or the land use designated by the planning scheme. This reflects that planning intent for these sites and their expected likely land use.

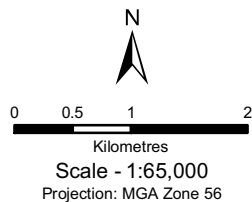
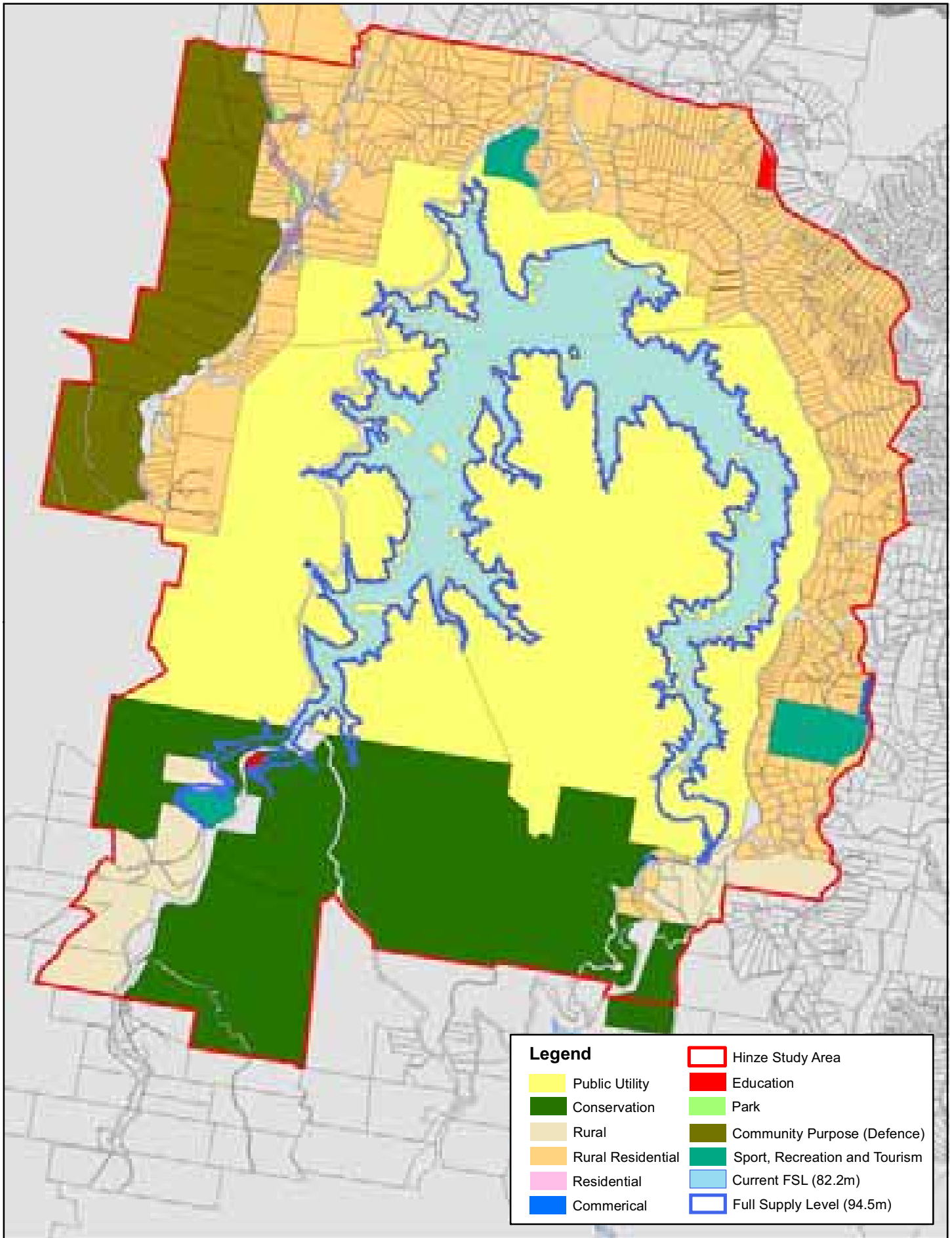


Figure 6-1
Existing Land Uses
Study Area
Hinze Dam Stage 3 EIS

6.2.1 Study Area Land Uses

The area to the north of the dam site is dominated by large allotments predominantly used for rural residential purposes, comprising a residence and often small scale rural activity such as hobby farming, cattle grazing, or horse training facilities. The Cedar Lake Country Resort and Equestrian Centre is located on the northern boundary of the dam site. The resort includes a restaurant, bar, accommodation and function facilities and also a number of recreational activities, including horse riding and bushwalking which utilise the existing trails located within the dam site.

The dam site is surrounded to the east and west by forested steep ridges. Panorama Drive Gold Coast Springbrook Road are located at the top of the eastern ridge and provide access to rural residential properties located on the top of the ridge. There are several small commercial premises and sport, recreation and tourism uses located to the east of the dam, including the Boomerang Golf Course and Ecostudio Fellinin Resort, and a landscaping supply business (**Figure 6-1**).

The Nerang Murwillumbah Road traverses the western ridge line, with Lower Beechmont Village located on top of this western ridge. The village is largely comprised residential properties, but also includes parks, a convenience store and visitor accommodation. The Land Warfare Centre, a military training facility for the Australian Defence Force, is located on the western boundary of the study area, adjacent to Lower Beechmont Village. The training area extends west into the Beaudesert Shire Council area. The remaining area west of the dam site comprises rural residential land uses

Immediately south east of the dam site, adjacent to the Little Nerang Creek, is a eucalypt plantation of approximately 3 ha, which provides a food source for the koala populations at David Fleay's Wildlife Park. A property on the western boundary of the plantation site contains Polly's Country Kitchen Café, a commercial premise which operates from Friday to Sunday. The remainder of this area is comprised of rural and rural residential activities (**Figure 6-1**).

On the southern boundary of the dam site is the Numinbah Forest Reserve which extends from the Gold Coast Springbrook Road in the east to the Nerang Murwillumbah Road to the west. Within the Forest Reserve, on the south-western boundary of the dam site is the Numinbah Environmental Education Centre. The Centre was established by Education Queensland in 1977, and provides educational programs on forest conservation, catchment care, bush regeneration and alternative energy for school students. The centre also includes camp style accommodation for up to 40 people.

A scout camp is located adjacent to the education centre, which used by various groups upon payment of a fee. The site contains barbeque and toilet facilities. The Model Aero Club also has a facility on the upper reaches of the Nerang River.

6.2.2 Site Land Uses

The dam site (Lot 4 RP 164198) is used primarily for municipal water storage purposes. The dam has a storage capacity of approximately 160 000 ML, and is currently the main water supply for the Gold Coast City Council local government area. The main feature of the dam site is the lake (Advancetown Lake), formed by the dam embankment with the balance of the site comprising natural vegetation. The existing land uses of the Hinze Dam site are shown on **Figure 6-2**.

In addition to the water supply use of the dam, there are also extensive recreation facilities located within the dam site. These facilities cater for a range of event based and passive recreation uses as well as community based activities. The extent of recreation uses currently using Hinze Dam and their frequency and associated facilities is detailed in **Table 6-2**.

The location of these facilities is largely concentrated in the vicinity of the dam wall, although boat ramps are located on the eastern and western side of the upper reaches of the dam while horse riding trails are located on the

eastern side of the impoundment. The distribution of land uses within the vicinity of the dam wall is shown on **Figure 6-3**.

■ **Table 6-2 Current Recreation Use of Hinze Dam**

Recreation Activities	Frequency	Facilities
Picnic activities	Daily	Picnic shelters and furniture, BBQs, play equipment, kiosk, car parking, public toilets
Bushwalking	Daily	Designated walking tracks
Mountain Biking	Daily	Mountain bike trail
Horse riding	Daily	Riding trails
Fishing	Daily	The dam is stocked with a range of freshwater fish species
Boating (electric motors only)	Daily	Boat ramps, parking
Canoeing/ Kayaking/ Sailing	Daily	Boat ramps
Rowing	Monthly	Rowing course, officials building and shelters

Note: Swimming is not encouraged within the dam

Other uses and facilities within the dam site include the Dam Tasty Cafe, which is located adjacent to the main dam embankment, and two eucalypt plantations (farm forestry uses), which provide a food source for koala populations located off site at David Fleay’s Wildlife Park, and Dreamworld (refer **Figure 6-2** and **Figure 6-3**). As detailed in **Section 6.2.1** there is an additional plantation for David Fleay’s Wildlife Park located to the south of the dam.

6.2.3 Land Use Planning Framework

This section details the regional and local government planning framework relating to the project. **Section 1** of the EIS provides further details of the planning context of the project while the development approvals and statutory permits required by the project are listed in **Appendix B**.

South East Queensland Regional Plan

The South East Queensland Regional Plan (SEQRP) came into effect on 30 June 2005 under the *Statutory Instruments Act 1992*, and is also a planning instrument under the *Integrated Planning Act 1997*. The SEQRP seeks to manage the continuing high growth rate and associated change the SEQ region is experiencing. On average, the Region has experienced a growth rate of 55 300 people per year between 1986 and 2004. The primary purpose of the SEQRP is to provide a sustainable growth management strategy for the region to the year 2026.

The Hinze Dam is located within the Regional Landscapes and Rural Production Area of the SEQRP. The intent of this Area is protection of rural production or other non-urban values from encroachment by inappropriate development, particularly urban or rural residential development.

The SEQRP further designates the study area as a major water storage catchment, and applies policies which provide for the protection of the catchment for major potable water supplies from inappropriate land uses and development, and the maintenance of water quality.

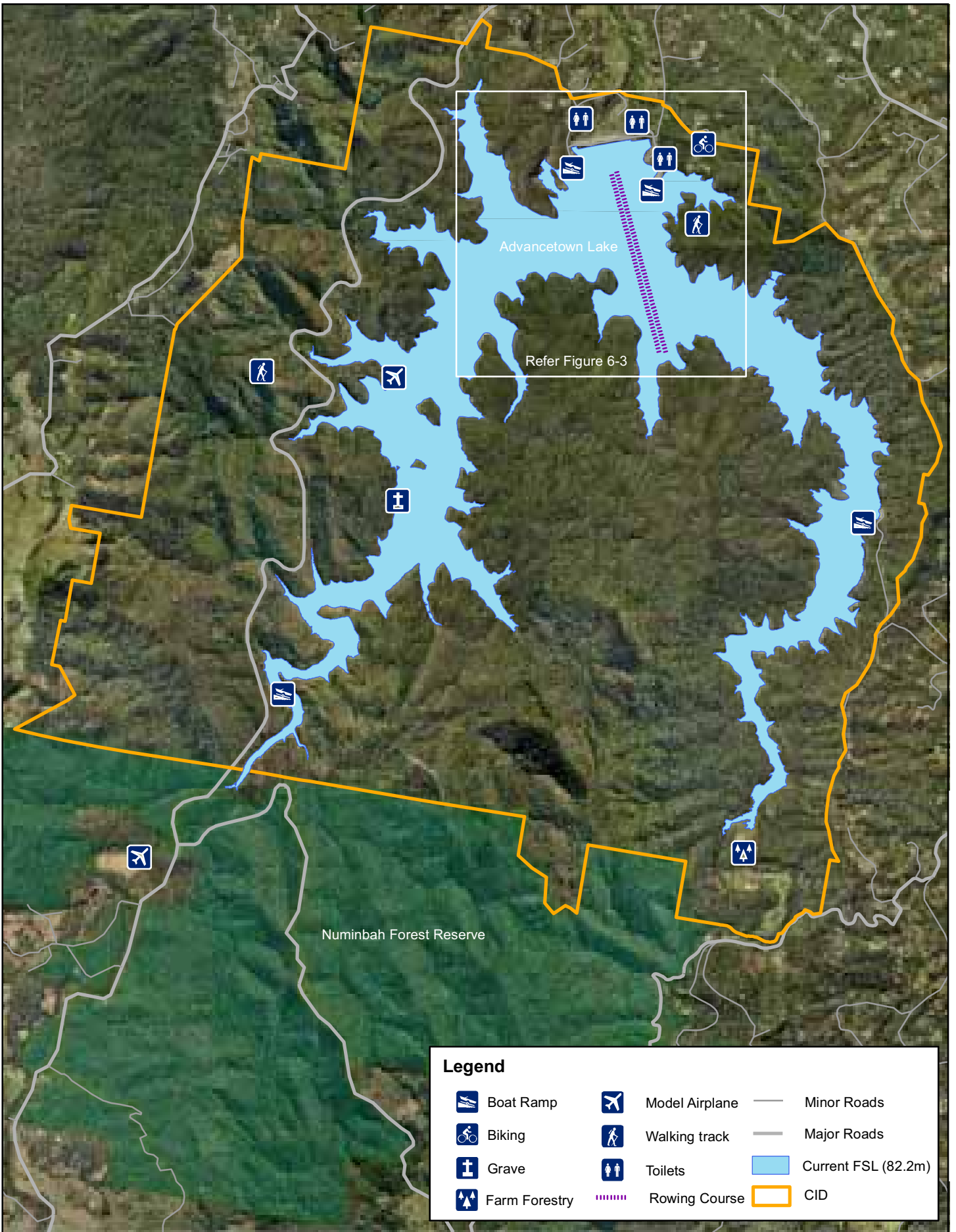
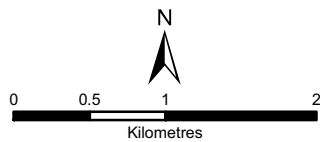


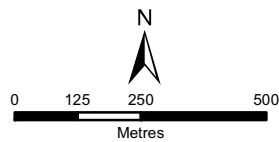
Figure 6-2

Existing Land Uses
Hinze Dam Site

Hinze Dam Stage 3 EIS



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Projection: MGA Zone 56



Scale - 1:15,000
Projection: MGA Zone 56

Figure 6-3
Existing Land Uses
Site Specific
Hinze Dam Stage 3 EIS

Gold Coast City Council Planning Scheme – Our Living City

Under the provisions of the GCCC Planning Scheme – ‘Our Living City’, the city of Gold Coast is divided into Domains which provide for the allocation and management of different land use activities and development. The study area is included in a number of Domains (**Figure 6-4**), a description of each and its intent is provided in **Table 6-3**.

■ Table 6-3 Planning Scheme Domain and Intent

Domain	Purpose/ Intent
Rural	Support the provision of a wide range of rural activities and legitimate rural economic activity within suitable hinterland areas, whilst protecting nature conservation, open space and landscape interest values of the land.
Park Living	Allow for a variety of opportunities for low density residential activity within areas of semi-rural landscapes, and maintain and enhance a parkland living environment as a transitional area between the urban parts of the City and the rural and natural landscapes of the hinterland.
Village (mixed use)	Provide for the maintenance of the existing rural villages within the City as specific character areas, which offer diverse lifestyle and housing choices for residents and visitors. It is intended to maintain the distinctive urban form and limited geographic spread of these settlements.
Community Purposes	Retain and reserve appropriate land throughout the City for community purposes and public infrastructure. These purposes and infrastructure encompass social facilities and important physical infrastructure and service establishments that are essential for urban living and often also necessary for rural communities.
Private Open Space	Regulate the private open space areas of the Gold Coast City for recreational purposes. This domain applies to land that is intended to be used for resort open space or for commercial recreation facilities that are predominantly, but not exclusively, maintained as open space.
Public Open Space	Provide for the protection of land in public ownership for nature conservation, outdoor recreation, landscape preservation, environmental buffers and natural resource management and natural hazard management purposes.
Emerging Communities	Provide for the development of suitable non-urban land for park living, urban residential, commercial or industrial purposes. To ensure that land identified for future park living or urban uses continues to be available for rural and open space uses, until it is required for development.

6.3 Land Tenure

The land tenure within the study area is presented on **Figure 6-5**. Land Tenure has been broadly described under the Digital Cadastre Database (DCDB) tenure codes and includes:

- Freehold – Land held in fee simple (freehold title);
- State land – land held by the State of Queensland as Unallocated State Land and other areas vested in the State (or Crown) but not held in fee simple or as a lease issued under the *Land Act 1994*. It also includes land that has been surrendered back to the State;
- State Leasehold – Leasehold land administered by the Department of Natural Resources and Water (DNRW);
- Reserve – State land reserved by the Department of Natural Resources and Water for community or public purposes which may be administered by various government departments or agencies;
- Road Reserves – State land dedicated as roads under the control of either Gold Coast City Council or the Department of Main Roads (State-controlled Roads).

Other tenures not described above but presented on **Figure 6-5**, include:

- Council Land – held by Gold Coast City Council under various tenures including freehold (**Figure 6-6**); and
- Unallocated State Land along watercourses (this does not include the Hinze Dam waterbody contained within lot 4 SP 164198).

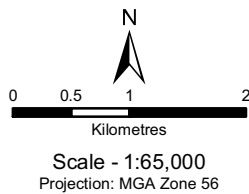
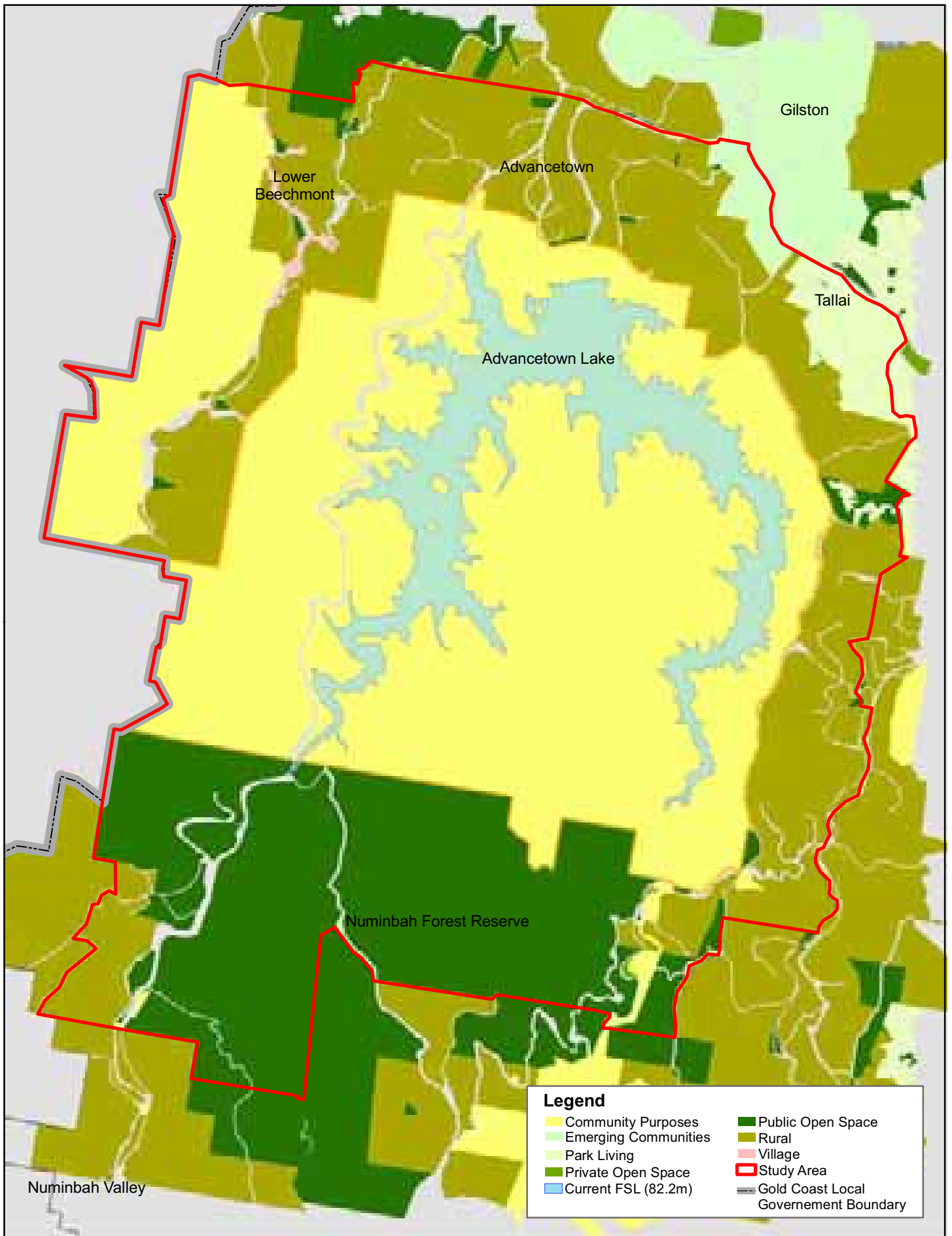
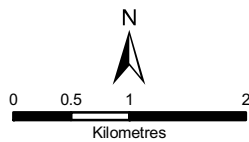
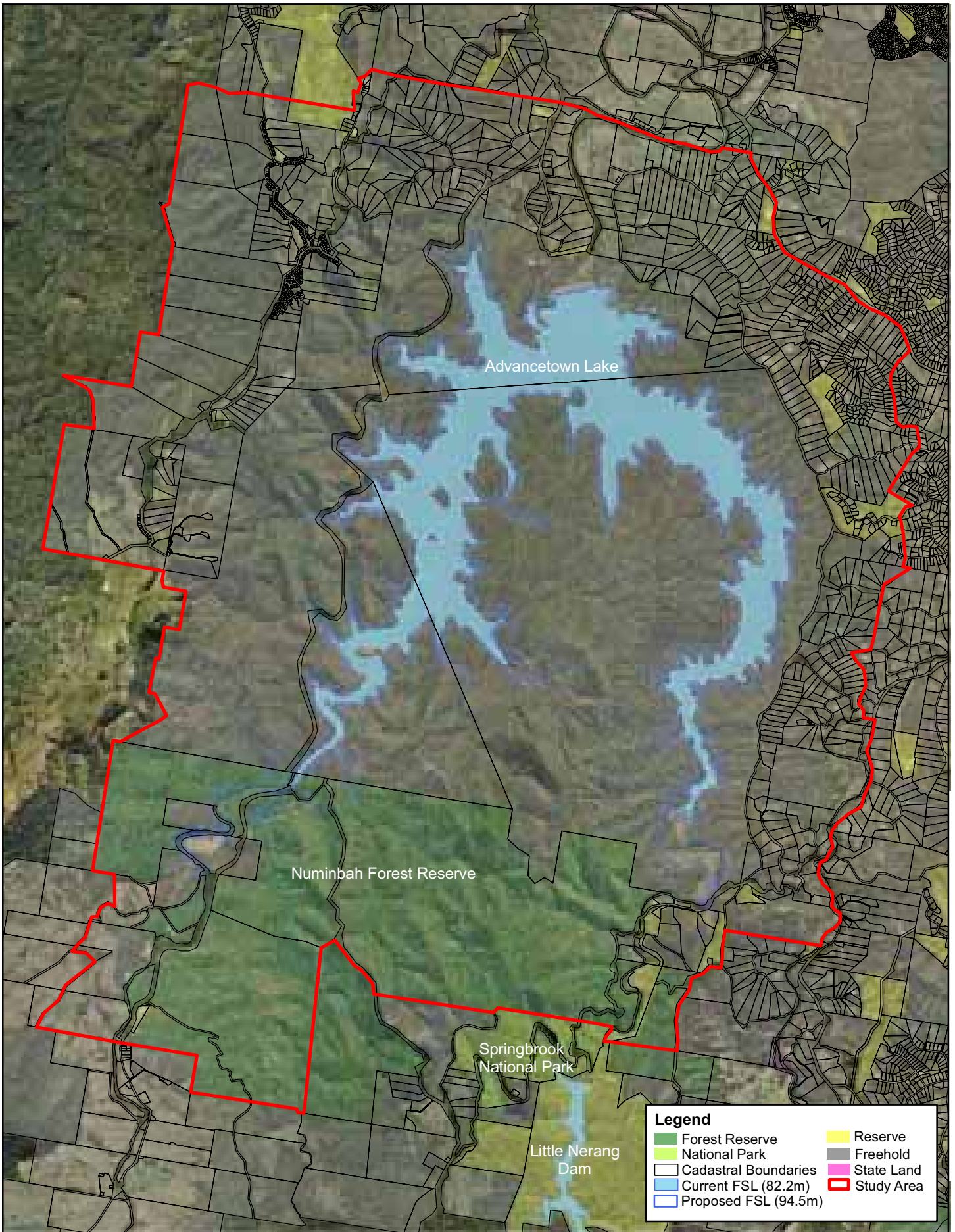


Figure 6-4
Planning Scheme Domains
Hinze Dam Stage 3 EIS

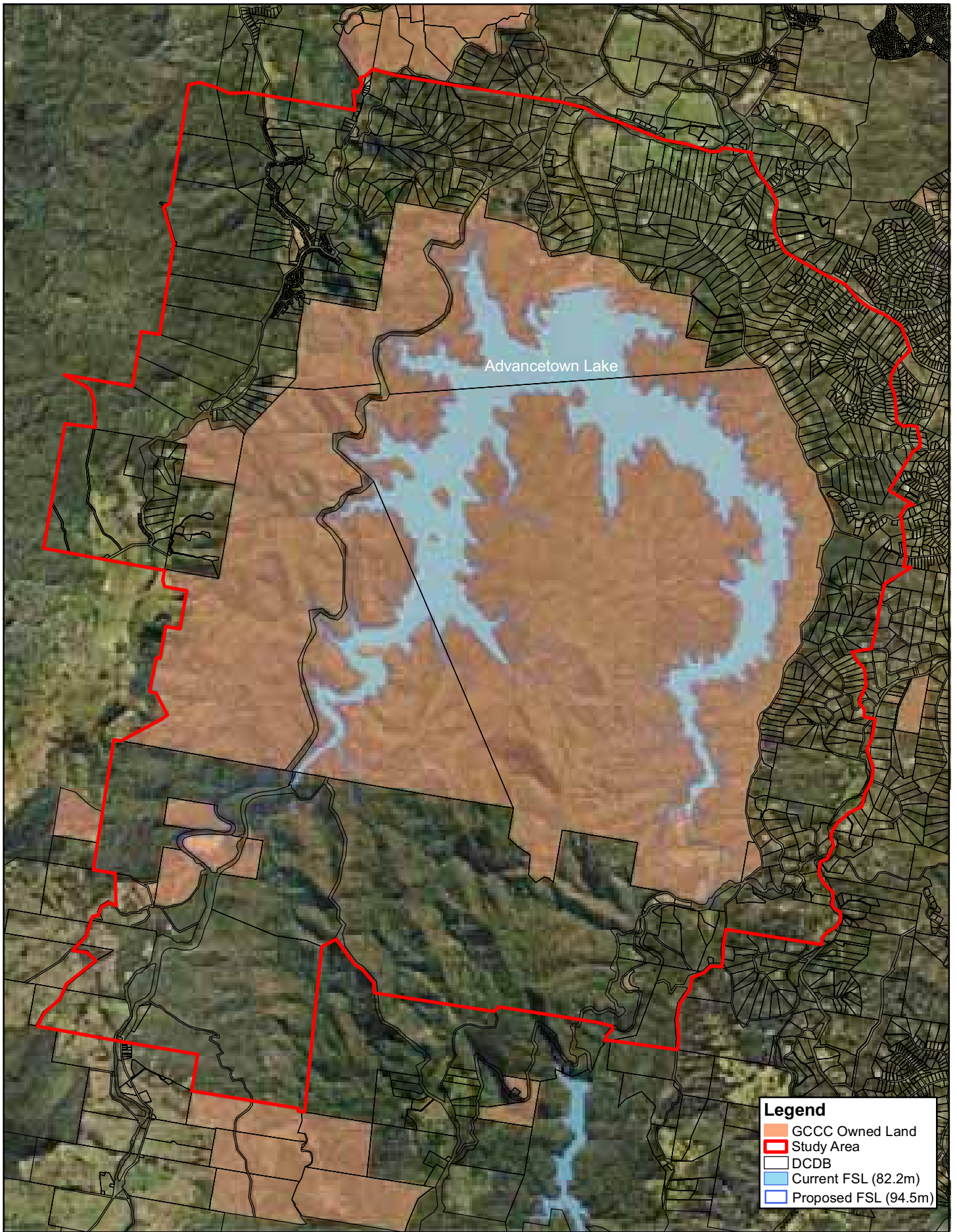


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Figure 6-5

Land Tenure

Hinze Dam Stage 3 EIS



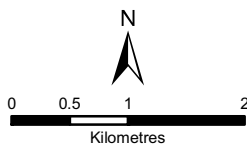
Legend

- GCCC Owned Land
- Study Area
- DCDB
- Current FSL (82.2m)
- Proposed FSL (94.5m)

Figure 6-6

Council Owned Land

Hinze Dam Stage 3 EIS



Scale - 1:65,000
Projection: MGA Zone 56

The Hinze Dam site (Lot 4 SP164198) is freehold in title and owned by the Gold Coast City Council. The majority of land surrounding the dam site to the north, east and west is freehold land held in private ownership. The Numinbah Forest Reserve is State Leasehold land administered by the EPA. The Reserve was previously designated as a State Forest under the *Forestry Act 1959* and was administered by the DNRW. However, the status of the reserve was changed in November 2000 to a Forest Reserve under the *Nature Conservation Act 1992 (NCA)*. The State Government has indicated its intention to designate the Numinbah Reserve as a National Park under the provisions of the NCA in the near future.

An Occupation Permit is held by Education Queensland over approximately 2.16 Ha of the Numinbah Forest Reserve which contains the Numinbah Valley Environmental Education Centre. The Permit is administered by the Queensland Parks and Wildlife Services under the *Forestry Act 1959* for the purpose of an education field study centre. The Permit was granted for a period of 7 years, and expires on 30 September 2008.

The increase in the FSL and 1 in 100 year ARI flood level will extend outside of the current dam site boundary on the western arm of the dam for approximately 2.9 km, and 4.1 km respectively and will traverse Council owned land (freehold title) and areas of the Numinbah Forest Reserve (**Figure 6-12**). On the eastern arm of the dam, the FSL will extend outside of the current dam site onto Unallocated State Land for approximately 300 m, whilst the 1 in 100 year ARI level will extend approximately 1.7 km outside of the current dam site boundary (**Figure 6-11**). Tenure will therefore need to be secured where the FSL and 1 in 100 year ARI flood levels extend outside the boundaries of Council owned land. This may either be secured by freehold title reserve, lease or easement. The acquisition process is described in **Section 6.5**.

6.3.1 Native Title

Pursuant to Department of Natural Resources and Water, Queensland Claim Activity Mapping, there are currently no registered native title claims over the Gold Coast Local Government Area. As identified in **Chapter 17**, there are four Aboriginal Parties recognised as an 'Aboriginal Party' under the *Aboriginal Cultural Heritage Act 2003* for the Gold Coast Area, including:

- Eastern Yugambah Limited;
- Gold Coast Native Title Group;
- Kombumerri Aboriginal Corporation for Culture - Yugambah Museum, Language and Heritage research Centre; and
- Ngarang-Wal Gold Coast Aboriginal Association.

Although there is no registered native title claim over the Gold Coast Local Government area, in 2006 the Gold Coast Native Title Group lodged a claim over all vacant Crown land in the Gold Coast region (Claim No. QUD345/2006). The claim is currently awaiting the application of the 'Registration Test' in accordance with the provision of the *Native Title Act 1993*.

Both the Ngarang-Wal Gold Coast Aboriginal Association and Eastern Yugambah Limited have made a separate native title claim over areas of the Gold Coast, however neither claim has been registered.

6.4 Infrastructure

The Hinze Dam is a major facility supplying potable water for the Gold Coast region and contains a range of infrastructure which is shown on **Figure 6-7**.

6.4.1 Dam Site

The existing infrastructure of the dam is detailed in **Table 6-4**, and the location of the infrastructure is shown on **Figure 6-7**. **Chapter 3** describes the existing and the proposed dam infrastructure in further detail.

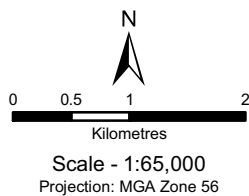
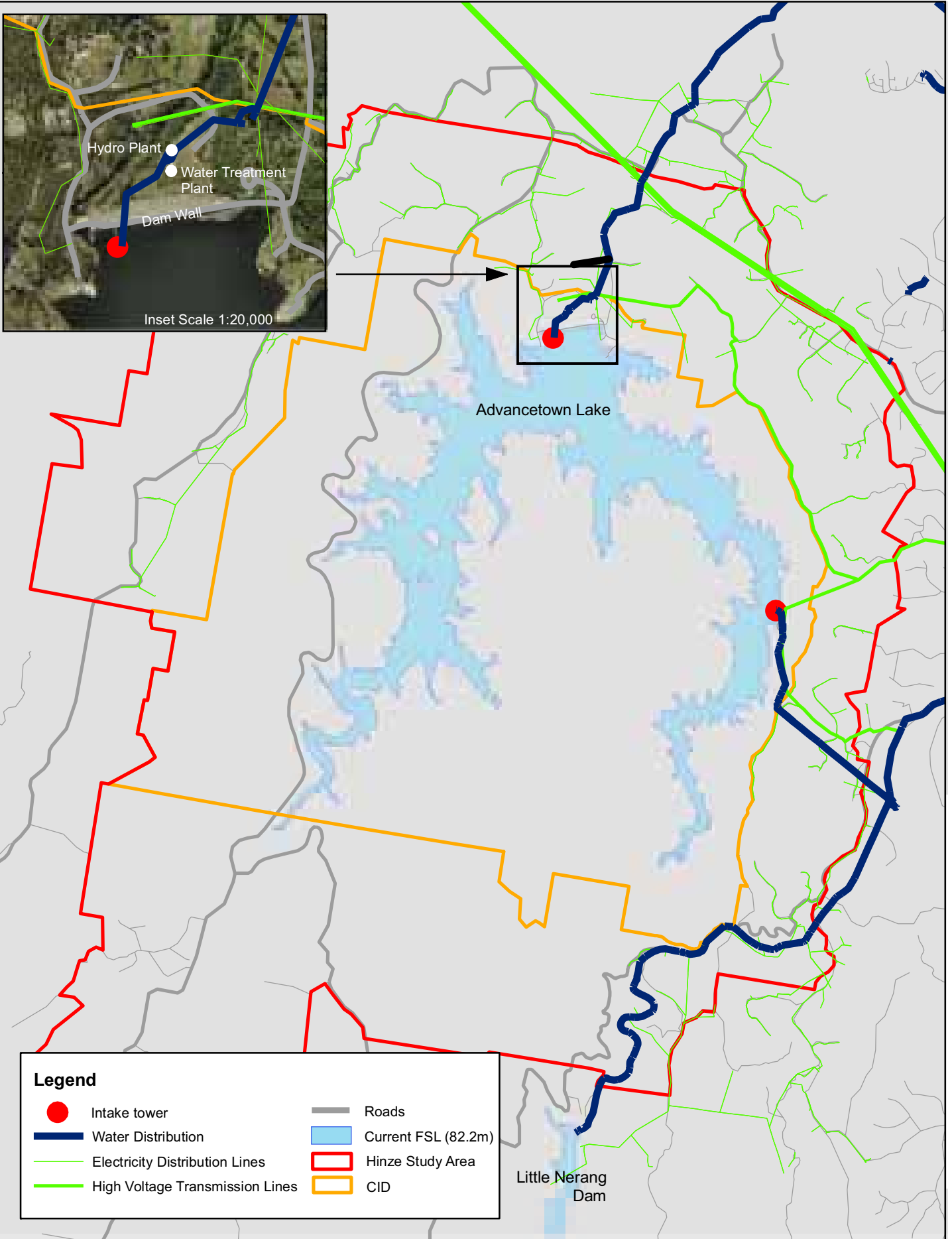


Figure 6-7

Existing Infrastructure

Hinze Dam Stage 3 EIS

■ **Table 6-4 Dam Infrastructure**

Dam Infrastructure	Description
Main Embankment (referred to as dam wall)	<ul style="list-style-type: none"> ■ Central clay core, earth and rockfill ■ Crest Length - 600 m ■ Height - 63.5 m
Saddle Dam Embankment	<ul style="list-style-type: none"> ■ Central clay core, earth and rockfill ■ Crest Length - 140 m ■ Height - 8.5 m
Spillway	<ul style="list-style-type: none"> ■ Ungated overflow gravity structure with slot and ogee crest shape ■ Width - 60.0 m total, 24.5 m chute
Intake Towers	<ul style="list-style-type: none"> ■ 2 Multi level intake towers
Outlet Pipes	<ul style="list-style-type: none"> ■ Main pipe - 1440 mm dia ■ Scour pipe - 806 mm dia

Water is piped via two pipelines from Hinze Dam to the Molendinar and Mudgeeraba water treatment plants and then distributed through the Gold Coast water supply pipeline network.

A hydro-power plant is located immediately below the main embankment wall (**Figure 6-3**). The environmental flows from Hinze Dam run through the hydro-power plant prior to being released into the Nerang River. The plant produces approximately 15 kW per day or 100 MWH/yr of energy, which is allocated for operation of the pump station and additional energy to the grid.

A sealed road is situated on the top of the main embankment providing access from one side of the dam to the other, and is a road used by local residents and visitors to gain access to and from Gilston and Advancetown Road. The embankment also includes a pedestrian pathway adjacent to the road to enable people to walk across the wall.

6.4.2 Surrounding Area

Access to the dam is provided by two Council owned and maintained roads. Advancetown Road provides access to the western side of the main dam embankment, and Gilston Road provides access to the eastern side of the embankment. These roads are linked on the site by the road across the main embankment.

The Nerang Murwillumbah Road, a State controlled road (owned and maintained by the State), traverses the site and provides access to the south western suburbs of the Gold Coast, and Lamington National Park. Beechmont Road, a Council owned road, traverses the western ridgeline of the study area, and provides access to the village of Lower Beechmont. The Gold Coast Springbrook Road traverses part of the southern boundary of the site and provides access to the Little Nerang Dam and Springbrook National Park. Both Beechmont Road and Gold Coast Springbrook Road are popular tourist drives, and are frequently used by cyclists.

A high voltage transmission line (33kV) is located to the north and east of the dam site, which also provides high voltage power to the pump station and upper intake tower. Power for the lower intake tower is provided via a conduit from the lower pump station. There are also a number of Energex distribution lines located within the study area, which provide power to various facilities within the dam site.

Telecommunications to the site is limited and is supplied via a local exchange.

6.5 Sensitive Environmental Areas

There are a number of sensitive environmental areas located within close proximity to the study area, or which could directly be affected by the project. Sensitive environmental areas are those areas which have been designated under legislation.

Figure 6-8 presents the location of sensitive environmental areas in relation to the project site.

Although the area within the dam site (Lot 4 SP164198) surrounding the Advancetown Lake is predominantly vegetated, it does not have a legislative designation as a sensitive environmental area. However, the site does provide habitat for a number of protected flora and fauna species. These species, potential impacts and mitigation measures associated with the construction and operation are discussed in **Section 9**.

The Numinbah Forest Reserve covers an area of approximately 2 184 ha and is located immediately south of Hinze Dam and is shown on **Figure 6-8**. The area has recently been declared a Forest Reserve under Part 4A of the *Nature Conservation Act 1992* and is currently administered by the Environmental Protection Agency (EPA). The purpose of this declaration is to assist with the dedication of areas within State Forests, timber reserves or Land Act reserves as protected areas. Furthermore, the Forest Reserve declaration provides an interim measure to assist the dedication of an area as a protected area. It is understood the State Government intends to designate the Numinbah Forest Reserve as a National Park under the *Nature Conservation Act 1992* in the near future.

Three National Parks, which are also declared World Heritage Areas, are located south of the dam site within the Nerang River catchment (**Figure 6-8**). These National Parks and their distance from the site are:

- Springbrook National Park (5 km);
- Lamington National Park (10 km); and
- Natural Bridge National Park (15 km).

There are no declared fish habitat areas or RAMSAR wetlands in the vicinity of the study area, however the Nerang River flows into Southport Broadwater which is adjacent to the Jumpinpin-Broadwater and Coombabah Fish Habitat Areas and RAMSAR wetlands (**Figure 6-8**).

6.6 Impact Assessment and Mitigation

This section discusses the potential impacts of the project on current land use activities and infrastructure during construction and operation, and the measures proposed to minimise these impacts.

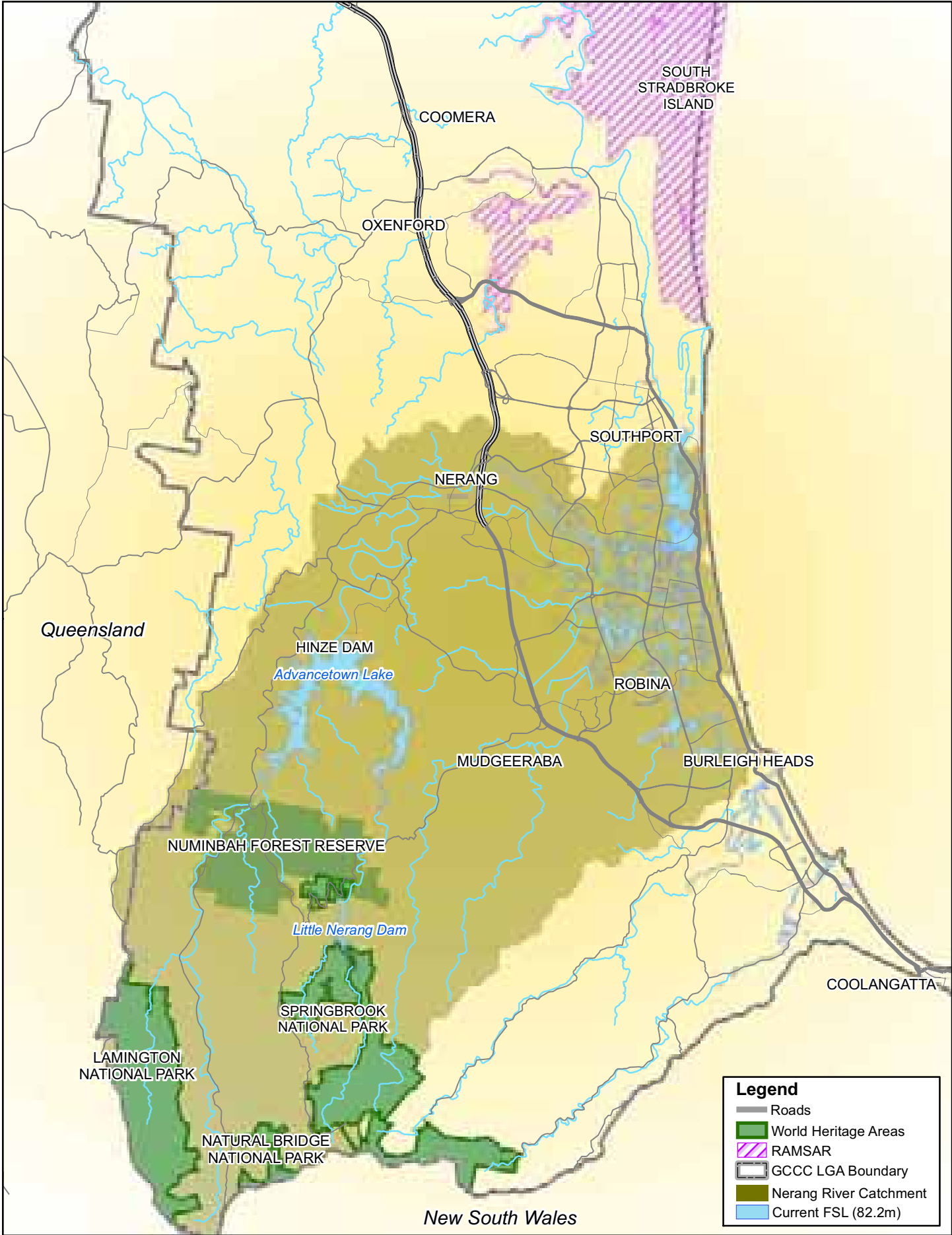
6.6.1 Dam Site

Construction

All construction activities, including the sourcing of rock and clay material for the dam structures, will be conducted within the current dam site (**Figure 6-9**). Construction will necessitate closure of the dam site to the public throughout the construction period, which is planned to commence in October 2007 and continue until November 2010. Therefore the main impact on land use activities during construction relate to the closure of the recreation activities that are currently undertaken in the vicinity of the dam wall, and on the use of the access road across the main embankment.

The recreation facilities that will be unavailable during the construction phase include the following:

- picnic grounds;
- rowing course;
- walking tracks and Mountain bike tracks;
- horse riding trails; and
- two northern boat ramps located to the east and west of the dam wall.



Legend

- Roads
- World Heritage Areas
- RAMSAR
- GCCC LGA Boundary
- Nerang River Catchment
- Current FSL (82.2m)

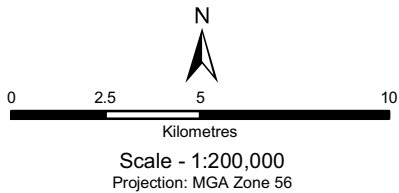
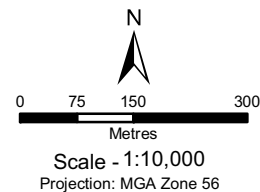


Figure 6-8
 Environmentally Sensitive Areas
 Hinze Dam Stage 3 EIS



Legend







-  CID
-  Construction Buildings
-  Dam Embankment
-  Quarry
-  Clay Borrow
-  Haul Road

Figure 6-9
Construction Site
Layout

Hinze Dam Stage 3 EIS

Boating and other water-based activities such as fishing and boating will be restricted during the construction period to eastern and western arms of the dam, with the northern area of the lake will not be accessible to recreational users.

A Recreation Continuance Plan (the Continuance Plan) has been prepared to address recreation during construction with this being implemented to minimise impacts on recreational users. Some of these measures that have been incorporated into the plan include:

- upgrading of the boat ramps on the eastern and western arm of the Advancetown Lake. The facilities will include a sealed designated access track and ramp facility, sealed parking area, and also includes public toilet facilities. The western boat ramp upgrade will also include a memorial park in memory of the Guinea family, whose grave sites will be inundated by the proposed Full Supply Level. Further information regarding the impacts and mitigation on the grave sites is provided in **Chapter 17**;
- the Gold Coast Mountain Bike Club have approached a private property owner within the Beaudesert Shire, and are currently constructing a new mountain bike facility that will host mountain biking competitions and events. The facility will be operated and managed by the Club; and
- access to the eastern horse riding trails will have little impact during construction and the use of the site for model planes will continue through this period.

The existing picnic grounds, rowing course, horse trails and walking trails located within the vicinity of the dam will not be available during the construction phase, and no alternative facilities are proposed at the site during this period.

The Dam Tasty Cafe is currently leased from the Council and is privately operated. The cafe will permanently close prior to the commencement of construction as the main Dam embankment and saddle dam will traverse this area (**Figure 6-9**). The lease for the cafe will expire in September 2007 in accordance with the existing lease conditions.

The access road along the main dam embankment will be closed to public access during the three year construction period, with all traffic directed to use Latimers Crossing Road (**Figure 13-1**). The diversion of traffic along Latimers Crossing Road will primarily impact on the residents along Gilston Road and Duncan Road, as this alternative route will result in an average increase in travel time of approximately 3-5 minutes. Road infrastructure and traffic movements around the dam during construction are addressed in further detail in **Section 13** of this EIS.

The Fleay's koala feed plantation located below the dam wall, will not be available from the commencement of the construction phase. However, an existing plantation is located immediately south of the eastern arm of the dam (**Figure 6-1**) with this providing fodder for Fleay's Wildlife Park during the construction period.

Operation

The proposed dam structures will impact on some existing areas of parkland and associated recreation facilities located in the vicinity of the dam wall, while the increased FSL will impact on some of the walking/mountain bike track and the area currently used for the model flying club.

A Recreational Master Plan (the Master Plan) has been prepared for the Hinze Dam site. The objective of the Master Plan is to provide for long term recreation use that balances the requirement to protect water quality, while providing sustainable recreation opportunities for the community. The Master Plan, shown on **Figure 6-10**, provides for a range of passive and active recreation opportunities following the construction of the dam. The proposed recreation facilities and their location on the site are described in **Table 6-5**.

■ **Table 6-5 Proposed Recreation Facilities**

Activity	Facilities	Precinct
Picnic activities	Picnic shelters and furniture, BBQs, play equipment, car parking, public toilets, open grassed areas, high quality landscaping.	1 – Lakeside Park 3 – Downstream Park Area
Interpretive Centre	Interpretive centre, public car parking and amenities, cafe	2 – Information / Interpretive Centre
Bushwalking	Designated tracks	1 – Lakeside Park 5 – Outdoor Recreation and Mountain Bike Area
Mountain Biking	Reconstruction of the sections of the track used for walking and mountain biking, public amenities.	5 – Outdoor Recreation and Mountain Bike Area
Horse riding	Designated trails	7 – Eastern Trails
Fishing	Upgrade of 2 southern boat ramps, including car parking, concrete ramps and toilet facilities.	6 – Upstream Boat Ramps
Boating	Upgrade of 2 southern boat ramps, including car parking, concrete ramps and toilet facilities.	6 – Upstream Boat Ramps
Canoeing/ Kayaking/ Sailing	Upgrade of 2 southern boat ramps, including car parking, concrete ramps and toilet facilities.	6 – Upstream Boat Ramps

The design and approval process for the construction of the upstream boat ramps has commenced. These ramps will provide much upgraded facilities for the water based recreation users of the dam and associated public amenities which are currently not available in these locations.

Council is currently investigating sites for the relocation of both the Fleay’s and Dreamworld koala food plantations, which area located immediately below the main dam embankment, and on the south eastern arm of the dam respectively (refer **Figure 6-3**).

As previously discussed, the Dam Tasty Cafe facility will permanently cease operation prior to the construction phase commencing. The Recreational Master Plan provides for an interpretive centre which incorporates a food outlet. The proposed location of the interpretive centre is on the western side of the main dam embankment, north of the proposed lakeside park (**Figure 6-10**).

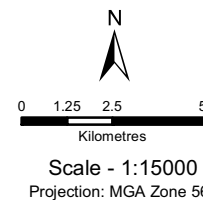
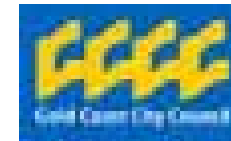
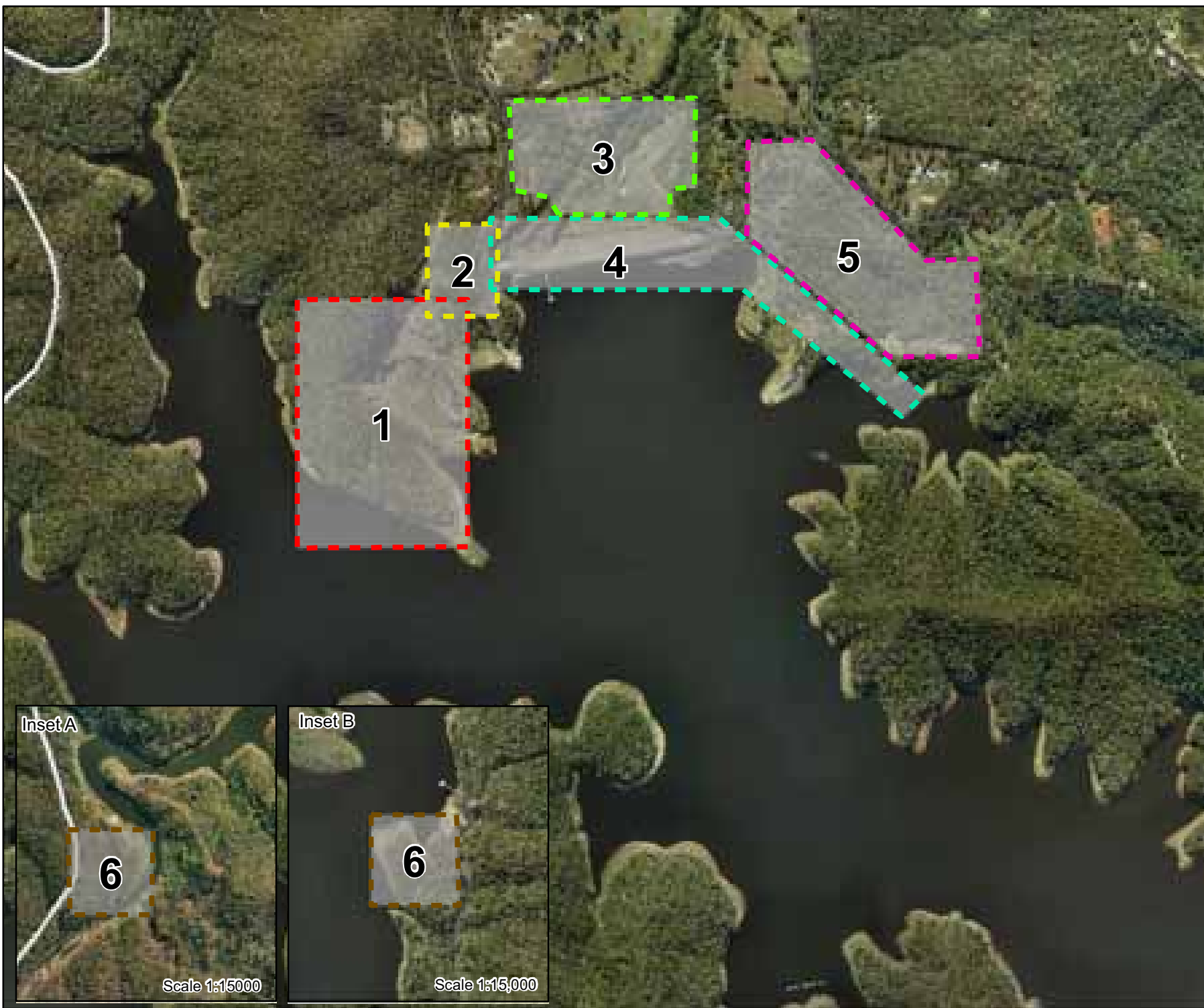
Access across the top of the main embankment will be reinstated for pedestrian and cycling use upon completion of the construction works, but no public vehicular access will be available. Maintenance and emergency vehicles will have access to the embankment road during the operational phase. The alternative connecting route for the public between Gilston Road and Advancetown Road will be via Latimers Crossing Road, this is shown in **Figure 13-1** in **Section 13**. The location of this access and discussion of the road network in the vicinity of the dam is discussed in further detail in **Section 13** of this EIS.

6.6.2 Surrounding Area

Construction

Given that all construction activities (including quarry activities), will be conducted within the existing dam site, the impacts on land use activities within the greater study area during construction will primarily be associated with the increased traffic volume on local roads. Two routes have been selected for site access during the construction phase with these shown on **Figure 13-4** in **Section 13**.

A traffic management plan will be prepared in consultation with the Department of Main Roads and will be implemented during the construction phase to manage and minimise impact on the surrounding residents. **Chapter 13** further describes the impacts and mitigation measures associated with the project.



Legend

- 1. Lakeside Park
- 2. Information/Interpretive Centre
- 3. Downstream Park Area
- 4. Dam Wall and Saddle Dam
- 5. Outdoor Recreation & Mountain Bike Area
- 6. Upstream Boat Ramps



Figure 6-10

Proposed
Recreation Plan

Hinze Dam Stage 3

The Alliance is progressing the valuation of one property that may require acquisition. The subject property is required to facilitate the provision of haul roads around the Hinze Dam necessary for construction activities and certainty of clay supplies. The Alliance is currently in negotiations with the land owner to acquire the property through a voluntary purchase arrangement. However, in the event that a voluntary purchase outcome cannot be reached, Council may acquire the property through compulsory acquisition under the provisions of the *Acquisition of Land Act 1964*.

Operation

The impacts on land use associated with the operation of the Dam will be associated with road infrastructure and the properties affected by the FSL and 1 in 100 year ARI flood level. Although the Dam structures will be constructed within the existing dam site the proposed FSL and 1 in 100 year ARI flood levels will traverse private freehold land, and the Numinbah Forest Reserve.

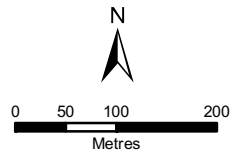
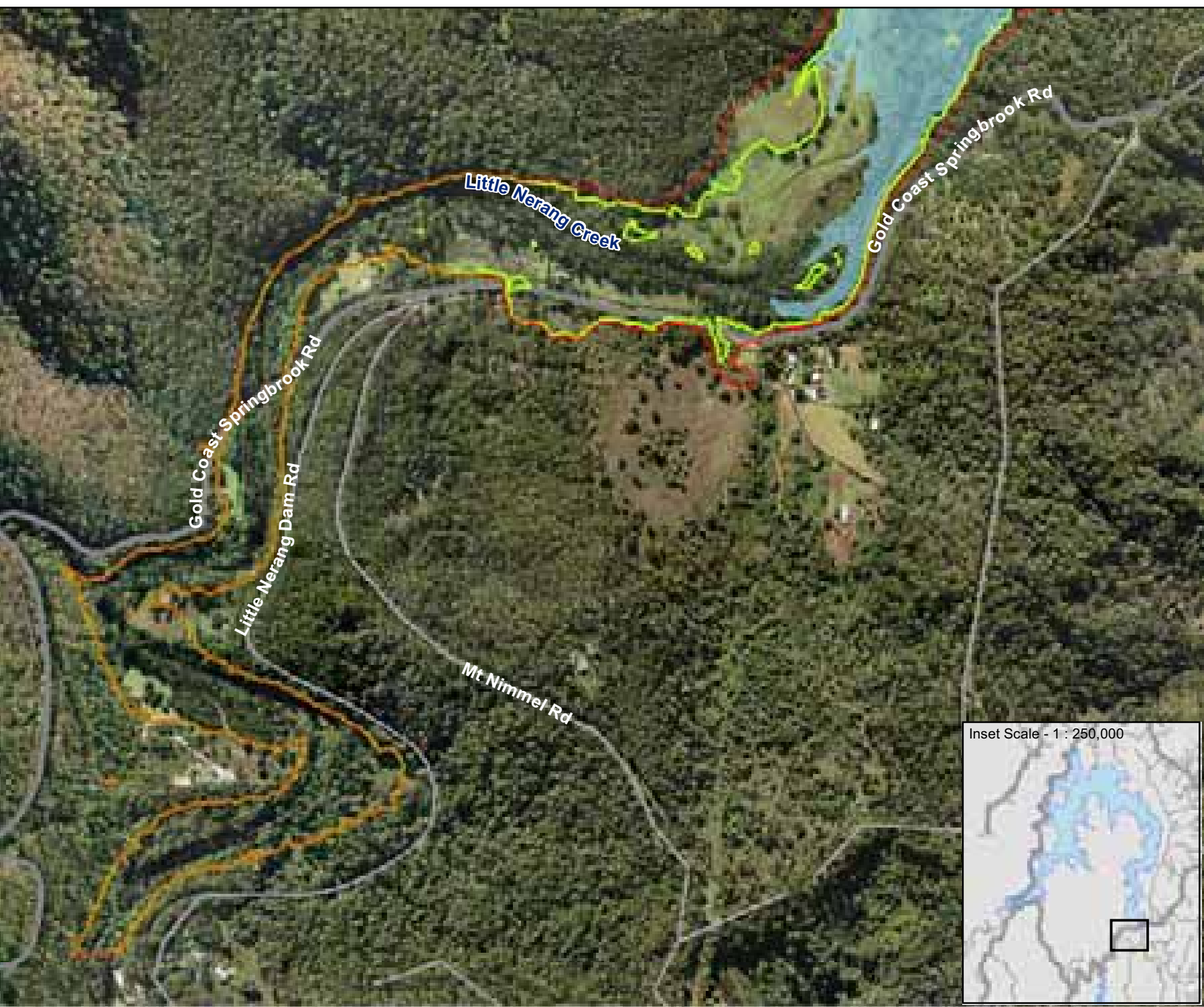
The increase in the 1 in 100 year ARI flood level will temporarily inundate part of five freehold parcels on Little Nerang Creek and Gold Coast Springbrook Road (**Figure 6-11**). Beyond Lot 11 RP807069, the 1 in 100 year ARI flood levels coincide for the existing dam configuration and the proposed HDS3 upgrade, therefore there is no change to the existing flood impacts beyond this point. Easements are proposed for the areas inundated in a 1 in 100 year ARI flood event and these will be obtained through a voluntary agreement process with the land holders under the *Land Title Act 1994*. In the event that a voluntary easement cannot be reached, the easements will be obtained through compulsory acquisition under the provisions of the *Acquisition of Land Act 1964*. The easements will be registered against the land title, and will prohibit habitable structures within the easement.

As previously discussed, the FSL and 1 in 100 year ARI flood level will extend outside of the current dam site, and traverse Council owned land and part of the Numinbah Forest Reserve (refer **Figure 6-12**). The tenure acquisition process over these areas will be dependant on the designation of the Forest Reserve. If the reserve remains as a Forest Reserve, title will be obtained through revocation of the area under Section 70E of the *Nature Conservation Act 1992*. If the Reserve status changes to National Park, the area will need to be revoked under Section 34 of the NCA. It is likely that the revoked area will become Unallocated State Land for the purposes of natural resource management. As a condition of the revocation process, the Gold Coast City Council may be required to offset this area with a suitable vegetated site. Council have identified an area on the southern area of Lot 4 SP164198, which is adjacent to the Numinbah Forest Reserve as a possible offset.

Prior to State Parliament agreeing to the revocation of the areas, Native Title will need to be addressed. The DNRW have confirmed that Native Title has been extinguished over some parts of the Forest Reserve, as pastoral leases have previously been issued over these areas. The Alliance is seeking confirmation from the DNRW as to whether the 24KA notification process under the *Native Title Act* (NTA) is able to be applied to the FSL and 1 in 100 year ARI flood areas. If the notification is not able to be applied, Native Title will likely be extinguished through an Indigenous Land Use Agreement (ILUA) or compulsory acquisition under the NTA.

An Occupation Permit under the *Forestry Act 1959* for educational purposes exists over part of the Numinbah Forest Reserve, which contains the Numinbah Valley Environmental Education Centre. The FSL and 1 in 100 year ARI flood levels will traverse parts of the permit area, however, no building structures will be affected by these levels. The Permit expires on the 30 September 2008, and the permit area will need to be revised with the administering authority (Qld Parks and Wildlife).

As indicated earlier, the access road along the main dam embankment will not be reinstated for public vehicular use during the operation of the dam. Connection between Gilston and Advancetown Road will be via Gilston Latimers Crossing Road (refer **Figure 13-1**). This diversion will result in an average increase in travel time of approximately 3-5 minutes for the residents along Gilston Road and Duncan Road.



Scale - 1:7,500
 Projection: MGA Zone 56

- Legend**
- Current Q100 (89.6m)
 - Proposed Q100 (101.1m)
 - Roads
 - DCDB
 - Proposed FSL (94.5m)

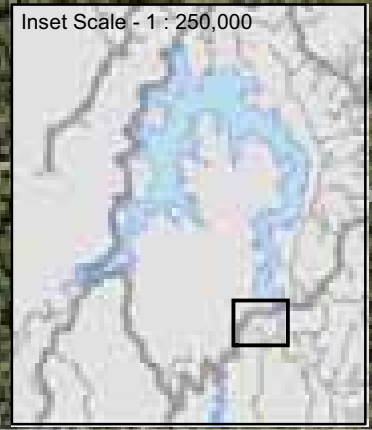
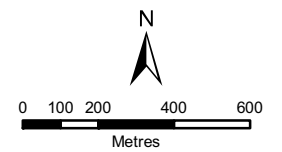
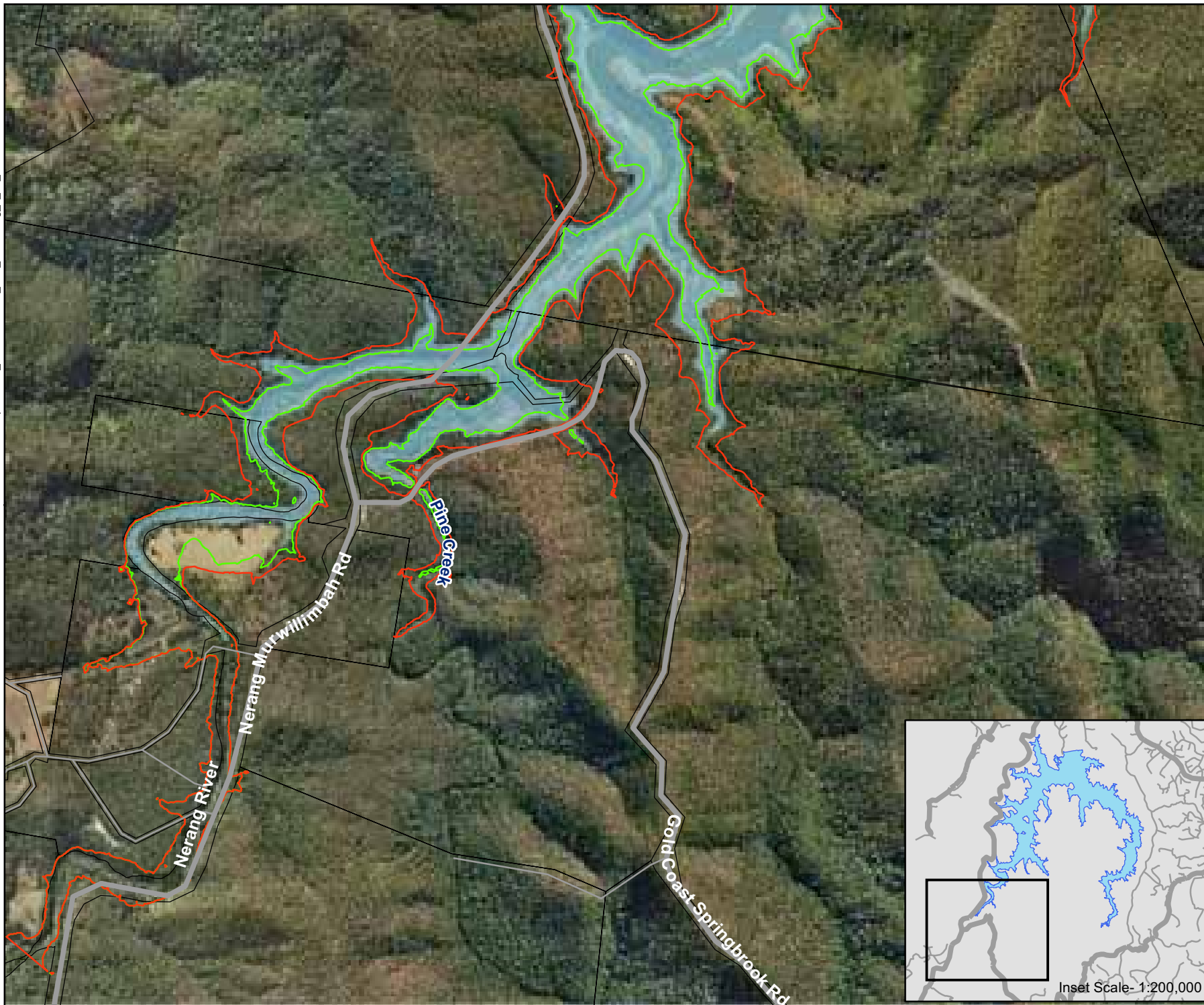


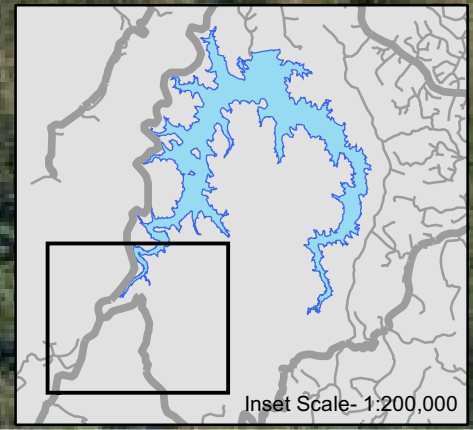
Figure 6-11
 Proposed FSL and
 Q100 Inundation
 Areas - Eastern Arm
 Hinze Dam Stage 3 EIS



Scale - 1:20,000
Projection: MGA Zone 56

Legend

- Current Q100 (89.6m)
- Proposed Q100 (101.1m)
- Roads
- DCDB
- Proposed FSL (94.5m)



Inset Scale: 1:200,000

Figure 6-12
Proposed FSL and Q100 Inundation Area - Western Arm
Hinze Dam Stage 3 EIS

Minor road upgrades also required along Gold Coast Springbrook Road and the Nerang-Murwillumbah Road, as some areas will be partially inundated at FSL, or during 1 in 50 year ARI and 1 in 100 year ARI flood events 1 in 50 year ARI flood (refer **Figure 6-3**). One section of Gold Coast-Springbrook Road has been identified as being susceptible to flooding. This section is located approximately 250 m east of Little Nerang Creek, and it is proposed to vertically realigned as advised by the Department of Main Roads. Other minor upgrade works are required, and are detailed in **Chapter 13**.

Given the upstream location of the National Parks and distance from the site, the project may have a minor impact on these areas during flood events, as water will remain in these areas for a short duration until the flood waters have passed over the spillway.

The existing environmental flow released from the dam will not change once the works are complete, and the quality of water being released will be managed to meet current requirements of the Interim Resource Operations Licence. Given the distance of the project to the RAMSAR wetland, and the maintenance of the environmental flow, the project is unlikely to impact on the wetland area.

6.7 Conclusion

This section identified the existing land uses within the site and surrounding area, the potential impacts associated with both the construction and operational phases of the project.

The construction works, including the sourcing of rock and clay will occur within the site boundary. This will necessitate closure of the dam site to the public throughout the construction period, which is planned to commence in October 2007 and continue until November 2010. Therefore the main impact on land use activities during construction will be related to the recreation activities that are currently undertaken within the site and the use of the access road across the main dam embankment.







The location of the new dam infrastructure and the increase in the Full Supply Level will cover the existing recreational facilities, including the Dam Tasty Café facility on the north eastern area of the Dam. A Recreation Master Plan has been prepared which provides for the re-establishment of recreational facilities within the Dam site. The plan also includes the provision of an information centre and kiosk facility, which will provide numerous community facilities that are currently not available at the site.

The closure of the access road over the main embankment will result in an average increase in travel time of approximately 3-5 minutes for the residents along Gilston Road and Duncan Road.

The FSL and 1 in 100 year ARI flood levels will extend outside of Council owned land, onto Unallocated State Land and freehold land on the eastern arm and into the Numinbah Forest Reserve on the western arm. The Council are currently negotiating tenure in the form of easements with land owners and State Government over the impacted properties.



Legend

 Proposed Road Upgrade	 DCDB
 Minor Roads	 Current FSL (82.2m)
 Main Roads	 Proposed FSL (94.5m)

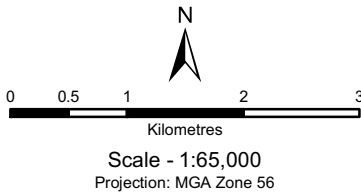


Figure 6-13
 Proposed Road Upgrades
 Hinze Dam Stage 3 EIS