

**MANGO HILL INFRASTRUCTURE
DEVELOPMENT CONTROL PLAN**

Precinct Plan No. 004

for

Southern Residential Precinct

North Lakes Development

19 December 2008

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1. Indicative Summary of Assessed Needs

1.0 Introduction

- 1.1 The Mango Hill Infrastructure Development Control Plan (DCP) provides for the creation of a precinct within any part of the DCP area chosen by the principal developer. The principal developer may then prepare a precinct plan and lodge it with Council for approval in accordance with the relevant provisions of the DCP.
- 1.2 The purpose of a precinct plan, as provided for in the DCP, is to show in indicative terms more detail for a planning area within one land use element of the DCP Structure Plan or across a number of elements. This planning area is created to allow for a more detailed interpretation of a part of the structure plan.
- 1.3 The principal developer has created a precinct to be known for planning purposes as the *Southern Residential Precinct*. This document constitutes the precinct plan for the Southern Residential Precinct.
- 1.4 The location of the precinct within the DCP area is shown on Figure 1. The area of the precinct is approximately 16.2 hectares although, consistent with DCP requirements, the areas and boundaries shown on the plan are only notional.
- 1.5 Where a discrepancy arises between the performance criteria of this precinct plan and the requirements of the DCP or Mango Hill Infrastructure Agreement, the requirements of the DCP or Infrastructure Agreement will prevail.

2.0 Structure Plan Context

The precinct comprises the Urban Residential land use element together with a small portion of the Open Space element, and is located in the southern part of the DCP area. It is broadly bounded by the Lakeside Residential Precinct (Precinct Plan No. 001) to the north, the town centre frame area to the east and south, and a future major road and the DCP area boundary to the west. The location of the precinct within the Structure Plan is shown on Figure 2.

3.0 General Desired Environmental Outcomes

In relation to the land use element of Urban Residential Area, the DCP states the following general desired environmental outcomes:

- “(a) to establish residential villages that have a high level of amenity and sense of community;*
- (b) to establish residential villages that are appropriately designed in the context of ecological sustainability and offer a range of dwelling types that are conveniently located with respect to community facilities, open spaces and public transport.”*

4.0 Planning Intent

Clause 6.2 of the DCP provides an outline of the planning intent for the Urban Residential Area, including the following summary:

“The urban residential area is intended to provide for a wide range of housing needs in a variety of forms, styles and densities to reflect the prevailing market demands. Residential development will occur in a collection of residential villages reflecting a range of densities being low, standard and medium density. Each village will focus on a centrally located village park. Villages are to be progressively developed having particular regard to the timely, efficient and economic provision of engineering and social infrastructure.”

The DCP recognises that each village may include other forms of residential accommodation in appropriate locations, particularly in more central areas. This precinct would be considered to be centrally located in relation to the Town Centre Core. Retirement villages and motels are examples of other forms of residential development outlined in the DCP for appropriate locations within Urban Residential Areas.

5.0 Development Concept

5.1 Development Context

Figure 2 shows the Structure Plan Context for the Southern Residential Precinct in relation to its wider development context. The precinct’s location, adjacent to the Town Park and North Lakes Golf Course, the Town Centre Core and Frame and other Urban Residential areas, and its timing as one of the first development precincts close to the town centre, have strongly influenced the design concept. Key principles to consider in the wider development context of the precinct are outlined below:

- 5.1.1 The Southern Residential Precinct is set within the wider context of the southern portion of the DCP area. This southern portion is situated south of Lake Eden and the golf course, and comprises the Town Centre (core and frame), Major Community Facilities, Urban Residential Area, and a local Community Facilities node.
- 5.1.2 The linear park, which has been developed as a golf course and town parklands, provides an attractive landscape character and a range of recreational opportunities. This major open space provides a unifying element linking the Lakeside Residential Precinct and the Southern Residential Precinct with the residential and mixed use Town Centre Frame Precincts to be developed, and connect these precincts to the wider DCP area. Pedestrian, bicycle and vehicular linkages to, across and around the Town Park and golf course have been determined in this context.

- 5.1.3 The proximity of the Southern Residential Precinct to the future Town Centre Core, Town Centre Frame and Major Community Facilities land use elements (less than five minutes walk to the Town Centre Core) means residents will have convenient access to a wide range of retail, commercial, employment, community, educational, recreational and public transport facilities which, as a consequence, reduces the need for such facilities within the precinct.
- 5.1.4 The need to create a strong arrival image with the North Lakes Sales and Information Centre and the initial stages of residential development has led to the creation of a landmark activity node around the eastern end of the 5 hectare Lake Eden and in close proximity to the Southern Residential Precinct
- 5.1.5 Lakefield Drive and Maddock Street forms the northern boundary of the precinct and will extend west from an intersection with Memorial Drive to provide the northern boundary of the site. It is also an option to provide access from the western edge of the precinct to a possible extension of the retirement village.
- 5.1.6 Public Cycle and Pedestrian paths provide a connection between Central Open Space to Endeavour Boulevard and Central Open Space to Town Park.
- 5.1.7 The southern boundary of the Southern Residential Precinct is fronted by a corridor of proposed Town Centre Frame mixed-use development, which interfaces with the Town Centre Frame. This corridor provides a strong link to the Core as well as a transitioning in scale and intensity between the Core and the lower intensity residential precinct.
- 5.1.8 To the east of Memorial Drive and Discovery Drive a major education, community facilities and recreation precinct is proposed, locating private and/or State educational facilities adjacent to the linear park with access to proposed district sportsfields. Lakefield Drive and the east-west linear park provides major pathway access from the residential precincts to these facilities.
- 5.1.9 An open space spine is proposed along the eastern boundary of the precinct providing a potential pedestrian and cycleway connection from the Town Park and linear park to the Town Centre Frame and Core.

5.2 Concept Overview

The Southern Residential Precinct is proposed to be developed as a high quality, residential community comprising a mix of residential dwelling types, including other forms of residential accommodation such as a retirement village and associated facilities (as anticipated by the DCP). It will integrate a range of low to medium density residential accommodation types with the future commercial and community facilities in the adjacent town centre, consistent with the DCP, together with areas of parkland, recreational open space and supporting engineering infrastructure.

The planning study, prepared in support of the DCP, envisages that the following community needs will be served by facilities to be established within or in reasonable proximity of the Southern Residential Precinct:

Overview of Assessed Community Service Needs

- A range of transport options will need to be provided, with emphasis on reducing dependence on private motor vehicles.
- Housing diversity is essential, including housing in a retirement village for retired and aged people.
- Provision will need to be made to largely self contain the child care needs of the population in the southern part of the DCP area.
- Schools need to be provided for the residents of the DCP area and surrounding areas. State and/or private schools should be located adjacent to open space.
- Local community facilities and services should be integrated with urban residential areas.
- Playgrounds are to be provided.
- Structured recreational facilities should also be located in or adjoining district parks or schools (providing possible opportunities for co-location).

The development concept and indicative arrangement of land use pattern for the precinct is shown in Figure 3. This plan identifies the principal land use elements which form the basic structure of the precinct, including:

- Other forms of residential accommodation which may include a retirement village with an overall capacity to accommodate approximately 250 dwelling units or approximately 340 residents;
- The balance of the residential village (western) which has an overall capacity to accommodate approximately 100 dwellings or 136 residents;
- Local open space within the precinct in the form of notionally located village and local parks;
- Water quality management within the network of open space;
- An internal road network with a legible geometry, providing safe and convenient access for local traffic within the precinct and to a range of facilities in the adjacent precincts. These include:-
 - i) the Town Park, linear park and golf course to the north;
 - ii) the Town Centre Core and Frame to the south and east;
 - iii) the private and/or State schools further to the east; and
 - iv) future MIBA development to the north-west.

Most of these facilities will be within a 10 to 15 minute walk of the precinct.

The precinct plan shows the major land uses and structuring elements in sufficient detail to allow for the preparation of more detailed sector plans. The areas and locations of the various land uses, roadways, intersections, parkland and other elements are indicative only and will be subject to variation following detailed subdivision and engineering design. Consistent with the DCP, it is important that flexibility be maintained for future planning which needs to be responsive to changing requirements of the community and the market place. Sector plans to be prepared in the future for individual stages and land uses will provide more detail on the precise locations of roads, parks and various forms of development.

5.3 Development Requirements

The subject site may be developed in a staged manner or as a single entity, provided that for each stage development is undertaken in an integrated manner and the balance of the undeveloped land is maintained in a manner acceptable to the Principal Developer.

6.0 Precinct Plan

6.1 Introduction

Figure 3, Southern Residential Precinct Plan Map, provides a more detailed interpretation of the land use planning and development intents for a part of the North Lakes Structure Plan. The key principles which have determined the urban design structure for the precinct plan are summarised on Figure 4 and explained below.

6.2 Land Use Pattern

6.2.1 Background

In accordance with section 2.3.2(f) of the DCP, the desirable land uses are to be identified in generic terms during the preparation of this precinct plan. The desirable land uses are described below. The sector plans stemming from this precinct plan will finalise the specific land use rights as required by section 2.4.9 of the DCP.

6.2.2 Urban Residential

A retirement village or other special forms of medium density residential is proposed to be developed on the eastern side of the precinct. The retirement village may include a range of different dwelling types including self-contained townhouse-styled units, condominium-styled units, and apartment-styled units. The retirement village will include community facilities, private open space, and sport and recreation facilities principally for the use of residents, which will cater for the local park needs of the future residents.

Any development will be undertaken in an integrated manner linking with the linear open space system, including the pedestrian and bicycle path network, the local road network, and the nearby town centre.

The balance of the residential village is proposed for a possible extension of the retirement village on the western side of the precinct with an overall capacity to accommodate a range of dwelling types including potentially medium density apartments and villas accommodating approximately 136 residents or 100 dwellings. Golf front housing, forming part of this village, is proposed along the northern boundary of the precinct, which may consist of dual frontage lots fronting onto the golf course.

6.2.3 Open Space

The provision of open space within the precinct is influenced by its proximity to the Town Centre, linear park and golf course. These open spaces forming the northern boundary of the precinct provide a range of recreational opportunities, including the golf course, an ornamental lake, playgrounds, walkways, picnic areas, informal open space areas, an outdoor amphitheatre, seating and viewing facilities.

A village park is proposed towards the eastern edge of the precinct. The village park is positioned to cater for both this precinct and the expected development within the adjoining Town Centre Frame designation.

The village park will establish a lineal open space link to accommodate part of the trunk pedestrian/cycle link to the Town Centre Core from the Town Park.

A further local park has been designated within the eastern portion of the precinct. However, if this area is developed as a retirement village, the internal facilities will be seen as providing for the local park needs of the residents. This does not alter the requirements of the Mango Hill Infrastructure Agreement (MHIA) for the dedication of parkland and works by the Principal Developer.

Consistent with the MHIA, the village and local parks will provide a range of recreational opportunities including play structures, seating, drinking fountains and, in the case of the village parks, shelters and picnic facilities. These village and local parks will be linked to the linear park, Town Park, golf course and local community facilities via recreational pathways, and the local road network.

6.3 **Summary of Assessed Needs**

The following table (Table 1) provides an indicative summary of the key community needs and the services and facilities proposed to be provided within or in reasonable proximity of the Southern Residential Precinct.

Table 1: Indicative Summary of Assessed Needs

Community Service Needs	Development to Provide
A range of transport options will need to be provided, with emphasis on reducing dependence on private motor vehicles.	<ul style="list-style-type: none"> • An effective community design to promote the viability of public transport. • Local accessibility to facilities and services, especially by pedestrian routes and cycleways. • Community bus to serve initial residents of the DCP area and link to regional public transport system. • Public transport interchange in nearby town centre.
Housing diversity is essential.	<ul style="list-style-type: none"> • In the standard residential development, a range of lot sizes and dwelling types, including detached houses, and possibly duplex dwellings and townhouses. • Other forms of residential accommodation such as a retirement village, may include a range of self-contained townhouse-styled dwelling units, condominium-styled units and apartment-styled units.
Provision will need to be made for the child care needs of the population.	<ul style="list-style-type: none"> • A range of long day and occasional child care services provided in the adjacent town centre.
Schools need to be provided for the residents of the DCP area and surrounding areas. Schools should be located adjacent to open space.	<p>Within the adjacent areas of the southern part of the DCP area:</p> <ul style="list-style-type: none"> • Provision of a primary school with a pre-school. • A possible P-12 school by either the State and/ or a private provider. • Possible shared use of facilities to minimise duplication and increase community accessibility. • Integration of some social infrastructure facilities may be possible eg. child care, ministry centres and libraries.
Local community facilities and services should be integrated with Urban Residential areas.	<ul style="list-style-type: none"> • Facilities and services, eg. child health services, community nursing and outreach support programs, provided in the adjacent Town Centre Frame.
Access for people with disabilities and for aged people.	<ul style="list-style-type: none"> • Equitable access for people with disabilities and aged people.
Playgrounds	<ul style="list-style-type: none"> • Provide adventure play spaces for 7 - 11 year olds. • Provide meeting places for older children and the aged. • Create larger district parks (ie. linear park and Town Park) incorporating a range of activity settings within reasonable proximity of the precinct.
Structured recreation facilities should also be located in or adjoining district parks or schools (opportunity for co-location).	<ul style="list-style-type: none"> • Some structured recreation facilities possibly co-located with schools further to the east of the precinct.

6.4 Transport and Circulation System

Consistent with the DCP Structure Plan, the internal public road network of the precinct is based on a modified grid layout. Public roads are to be generally located along minor overland flowpaths and ridgelines or running with the natural contours, and will provide high connectivity throughout the precinct.

If part of the precinct is developed as a retirement village, then within that housing component, the road network will likely branch out from a single, centrally located entry road and generally follow the natural contours of the site. This special residential development will be structured in an informal pattern of land use that responds to the contours of the precinct and provides for a connection of pedestrian paths linking through the development.

Special streetscape treatments along the internal public and private roads will promote the concept of a 'green' environment, thereby enhancing the driving experience. Major entry points to the precinct may also incorporate gateway signage and ornamental landscaping to create a strong sense of community identity.

The amenity of the residential village is to be preserved by discouraging through traffic and by the implementation of streetscape treatments and traffic management techniques. The road network has been planned so that through traffic will be generally limited to the major road and the road that form the southern and northern boundaries of the precinct respectively. These roads link the Southern Residential Precinct to adjacent sub-arterial roads and arterial roads and to the town centre.

The proposed esplanade road (Lakefield Drive) along the linear park and Town Park will enable casual surveillance of these major open spaces. Variations in the horizontal alignment of roadways and limited use of traffic management devices, together with the landscape treatment of verges and the use of special threshold treatments, will assist in controlling vehicle speed adjacent to the precinct, particularly in lower order residential streets and access places. In particular, special treatment will be required where the Major Recreational Path is within the road reserve adjoining the Urban Residential area in the northern portion of this precinct. This treatment should ensure cyclist/pedestrian safety and reduce the potential for conflict with vehicular movements.

Finnegan Drive will cross the linear park to the north of the precinct between the Town Park and the golf course. This road connects the Lakeside Residential Precinct on the northern side of Lake Eden to the Southern Residential Precinct and the town centre.

Along the eastern edge of the precinct another road will provide an important connection through to the future town centre.

Residents of the Southern Residential Precinct will largely be within 400 metres (5 minutes walking time) of a local bus route. Provision will be made for buses to utilise adjacent major roads to ensure that a high level of access to public transport is achieved. In accordance with section 10.2.2 of the DCP, a community bus service has been commenced by the principal developer to address the needs of the initial residents.

Pedestrian and bicycle circulation will be a priority of open space and landscape planning. The parkland along the northern edge of the precinct together with the Town Park will provide the main spine of the pedestrian/cycleway. These paths will link the Southern Residential Precinct and wider park system via pathways (both off and on-road) to the Town Centre, Mixed Industry and Business Area and adjacent Urban Residential Precincts. A pathway crossing of the golf course towards the western end of the precinct will provide off-road access to development north of the precinct.

6.5 Open Space and Landscape Concept

The landscape setting of the precinct will be established to ensure its integration into the surrounding local and regional landscapes. Open space provisions within the precinct will form part of the comprehensive and integrated system of open space planned for the DCP area, fulfilling aesthetic, recreation, transportation and environmental management functions. The principal spatial elements or key areas of the Landscape Concept Plan for the precinct are illustrated on Figure 5 and summarised as follows:-

- *Linear Park (to north-west of precinct):* The linear park has been developed as a golf course incorporating a network of linked landscaped areas, managed waterways and water cycle management systems (e.g. gross pollutant traps, artificial wetlands and the lake) and open spaces aligned with the principal east-west overland flow path.
- *Town Park (to the north-east of precinct):* An urban park on the edge of the

precinct and integrated with the linear park system. This park is intended to form part of a series of interconnected urban parklands extending throughout the town centre and Southern Residential Precinct. It incorporates a 5 hectare lake, an outdoor amphitheatre, possible future commercial parkland concessions such as a restaurant and catering premises, public gardens and more formalised areas of landscaped open space, and picnic and recreational facilities. The park also forms an important arrival node and setting for both this precinct and the Lakeside Residential Precinct.

- *Village and Local Parks:* Active and passive recreation areas of minimum 5,000 square metres and 2,000 square metres respectively, and placed at convenient locations across and/or adjacent to the precinct to serve the needs of local residents in accordance with residential planning principles outlined in the DCP.
- *Streetscape Planting:* Streetscape treatments of major roads and local streets creating a cohesive and positive impression of the development, with selection of plant materials for roadways based on aesthetic, practical, maintenance and safety considerations, and the intended scale and characteristics of each reserve width in the hierarchy.

The final location and size of the various park elements will be determined at the sector plan stage. The landscape treatments of these areas will be planned in such a way that their different roles, natural features and locational characteristics will be recognised and enhanced. The resulting open space system within the precinct should have diversity and interest for a wide range of users while at the same time serving as a mechanism for restoring the DCP area's degraded landscape environment.

The Landscape Concept Plan promotes the planting of predominantly native species to reflect the original natural setting of the DCP area. This planting strategy will establish a landscape framework which enhances habitat values, reduces maintenance and water requirements, influences the built form in terms of visual integration and creates a 'green' environment for residents and visitors. Exotic and flowering species may be used primarily for special colour accents at significant entry points or as feature planting within parks. The landscape planning will also include the enhancement of major roads adjacent to the precinct with the planting of trees and provision of acoustic mounds and fencing to establish an attractive visual and acoustic buffer and to enhance the amenity of adjacent residential development.

The landscape treatment of residential frontages to streets and parkland will be controlled through design and siting guidelines in the sector plan. These guidelines will give particular attention to ensuring a consistent landscape effect along residential frontages to the Town Park/linear park.

Attractive entry statements, which may include gateway signage walls, landscape planting and possibly water features, will be used to create a sense of arrival.

6.6 Engineering Services

6.6.1 Sewerage

Sewerage infrastructure will be provided by a trunk gravity sewer within the adjacent linear park. The gravity sewer will ultimately drain further to the east via trunk gravity main TM1 to Pump Station PS 180, the generalised location of which is shown on Figure 8. PS 180 will discharge directly to Council's Murrumba Downs Sewerage Treatment Plant.

6.6.2 Water Supply

Trunk water mains have been constructed along Memorial Drive and Lakefield Drive and will be extended along the latter road to service the precinct. A second connection to Council's water supply network has been made via the 916mm trunk water main which has been built by the principal developer from node 89 to 83c in accordance with the MHIA (refer Figure 7). Individual lots will be served by a network of reticulation mains designed in accordance with Council's Design Manual and Policy WS.W13.

6.6.3 Energy

Electricity supply will be provided by Energex or another appropriate supplier of electricity. The primary supply to the area is ultimately proposed to be augmented by a major high voltage line located along the North-South Arterial Road and via Anzac Avenue to a sub-station located outside of the precinct. The precinct area will be serviced by underground power to pad-mounted transformers located within the local road reserves.

Gas mains have been constructed along Memorial Drive and will be extended along Lakefield Drive to service the precinct. Gas will be available as an underground supply to individual lots.

Electrical and gas services will generally follow the alignment and timing of the precinct's internal road network.

6.6.4 Communications

Communications and cable services will be installed underground. The network will be installed at each stage of subdivision development. Communication towers are not proposed to be located within this precinct.

Communications services will generally follow the alignment and timing of the precinct's internal road network.

6.7 Stormwater Management

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The linear park and Town Park contain a major flow path which drains the upstream catchment to the west as well as the precinct catchment. Lake Eden, stormwater filtration wetlands and gross pollutant traps are being integrated into this continuous open space system. The stormwater flow from a portion of the town centre area will be diverted to a detention basin proposed to be constructed to the north of this precinct within the linear park. These devices are part of an overall stormwater management strategy to manage the impacts of development on stormwater flows and quality.

The individual sectors within the Southern Residential Precinct will be serviced by an underground pipe system servicing individual sub-catchments. The system will be design in accordance with Council's Design Manual and the Stormwater Management Plan for Tributary C as approved by Council. At appropriate locations the major drainage will be fed through a system of gross pollutant traps, stormwater filtration wetlands and detention basins as part of the overall management strategy to manage the impacts of development of stormwater flows and quality before discharging from the DCP area into adjoining land.

7.0 Design Intents and Performance Criteria - Urban Residential Area and Major Open Space Land Use Elements

7.1 Residential Design

Queensland Residential Design Guidelines (QRDG), Queensland Department of Local Government and Planning, provides statements of intent and performance criteria for a range of design elements which are applicable to housing development, open space planning and residential street design within the precinct. The QRDG criteria cover the range of urban residential development forms, including detached housing, attached housing (eg. duplex dwellings, townhouses and residential units up to 3 storeys over carparking), and residential components of mixed use projects. Both the QRDG and *AMCORD - a National Resource Document for Residential Development* (the basis of QRDG with modifications to suit Queensland conditions) are recognised by the DCP as providing appropriate design and siting principles for residential development within the DCP area. By adopting this precinct plan, Council has resolved to apply the provisions of QRDG to this precinct and has made a similar resolution in accordance with Section 45 of the Standard Building Regulation.

The performance criteria outlined in the QRDG are intended to promote best practice in urban residential design and enable more creative and efficient use of land in relation to a wide choice of housing styles. Compliance with these criteria is required for all development works in the Urban Residential Area and Open Space land use elements.

8.0 Environmental Management Objectives

8.1 Stormwater Discharge

Objectives

To ensure that stormwater infrastructure, constructed within the catchment of Tributary C, is to be designed to meet agreed discharge standards for specific stormwater pollutants and that peak flow regimes are at pre-development levels.

Performance Indicators

Water discharged must meet the requirements of Environmental Protection Policy (EPP) Water, and in particular, the stormwater control infrastructure is to be designed to achieve the following Annual Mean Concentrations at Kinsellas Road:

- Total Phosphorous - 0.1 mg/l
- Total Nitrogen - 0.75 mg/l
- Suspended Solids - 50 mg/l

The design parameters for peak flows must not exceed the values in the Stormwater Management Plan approved by Council.

8.2 Flora & Fauna

Objectives

To re-establish fauna habitats and wildlife corridors.

To re-establish stands of native vegetation.

Performance Indicators

Retention of any significant remnant stands of native vegetation in areas of open space where reasonable and practicable.

Establishment of new stands of appropriate native vegetation which incorporates food species for indigenous fauna.

8.3 Air Quality

Objectives

To ensure people are protected from undue pollution of the air from smoke, dust, odour, fumes and gases generated by development within the precinct.

Performance Indicators

Air quality must meet the requirements of Environmental Protection Policy (EPP) Air.

During construction of the precinct:

- complaints in excess of one per week may indicate unacceptable work practices. For the purposes of this clause, a complaint is one resulting in the issue of an abatement notice under EPP (Air); and
- construction activities are to comply with Council's Policy LP32.

8.4 Noise

Objectives

To ensure noise generated is not unreasonable.

Performance Indicators

Noise generated from development is reasonable as provided by the Environmental Protection Policy (EPP) Noise.

Noise generated from development which is unreasonable is abated as required by EPP (Noise).

During construction of the precinct infrastructure complaints in excess of one per week may indicate unacceptable work practices. For the purposes of this clause, a complaint is one resulting in the issue of a noise abatement notice under EPP (Noise).

Provision of traffic noise amelioration in accordance with Council Policy LP25.

8.5 Lighting

Objectives

To ensure that lighting associated with development does not create a nuisance.

Performance Indicators

No person will cause, carry out or erect a light source in such a manner that light emanating from the source is a nuisance.

All lighting other than public lighting (e.g. road lighting) is to comply with AS4282-1997

Control of the obtrusive effects of outdoor lighting. The curfew hours applicable to this precinct are to be 10pm - 6am, unless otherwise varied by a sector plan or Council resolution.

9.0 Special Design Criteria

During the course of development and as contemplated by the DCP, variations to Council's existing development standards are anticipated and will be considered on their technical merits with reference to the intents and performance criteria outlined in previous sections of this precinct plan. Technical details and supporting information on design variances will be recorded in Council's *North Lakes Register of Alternative Acceptable Design Solutions*.

10.0 Infrastructure Obligations of the Principal Developer

10.1 Overview of Infrastructure Obligations

The infrastructure required to be provided by the principal developer to serve the precinct includes internal and external infrastructure to be provided in accordance with the Mango Hill Infrastructure Agreement 1999 (MHIA) and agreements made with the State Government in accordance with the DCP. Initial infrastructure works have been completed as part of development works associated with the Lakeside Residential Precinct. The infrastructure obligations relevant to the Southern Residential Precinct are summarised as follows:

10.1.1 Roads

Construct the following roads including carriageways, stormwater drainage, verges, bus setdowns, footpaths, bikeways, landscaping, traffic control devices and streetlighting. Any reference to initial construction in this section is a reference to construction approved by Council in accordance with the rezoning conditions and MHIA.

- .2 The remaining two lanes of the four lane median divided arterial road (North Lakes Drive) between Node H and Node I in accordance with the MHIA;
- .3 The construction of a four-lane sub-arterial road running east-west along the southern boundary of the precinct from its intersection with Memorial Drive;
- .4 The construction of roads forming the eastern and western boundaries of the precinct;
- .5 Bikeways and pathways, including commuter and recreational bikeways generally as shown on Figure 3, in accordance with the MHIA.

The construction of the abovementioned infrastructure to the final standard is to be undertaken in accordance with the staging and timing outlined in the MHIA. The initial standard of construction referred to above will be undertaken to suit the rate of

development of the precinct. Where initial construction is not stated, the road is to be constructed to the standard described above to suit the rate of development of the precinct.

10.1.2 Water

- .1 Construct internal reticulation systems to service all properties in the precinct;
- .2 Construct a connection at Node 89 and a connection through to Node 83C;
- .3 Construct a water supply network within the DCP area (including those sections of the mains shown on Figure 7) necessary to service the anticipated demand in the precinct; and
- .4 Provide contributions towards water headworks and bulk water supply in accordance with the MHIA.

10.1.3 Sewerage

Construct all internal sewerage systems to service the properties in the precinct and make contributions towards sewerage headworks, and unless otherwise agreed with Council:

- .1 Construct the remainder of the rising main RM1 as shown on Figure 8 from the precinct to Murrumba Downs Sewerage Treatment Plant;
- .2 Construct Pump Station PS 180 shown on Figure 8;
- .3 Extend Trunk Gravity Main TM1 as shown of Figure 8;

10.1.4 Stormwater

- .1 Construct stormwater management works progressively in accordance with the Stormwater Management Plan for Tributary C; and
- .2 Construct stormwater drainage systems to roads, parks and lots as required by the MHIA and, to the extent it is not applicable, Council's Design Manual.

10.1.5 Park

- .1 Provide as part of the linear park that area of linear park generally as shown on Figure 3;
- .2 Provide village park generally as shown on Figure 3;
- .3 Provide local parks generally as shown on Figure 3; and
- .4 Provide Park Enhancement Works in all parks.

10.1.6 Electricity Supply and Lighting

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- 1 Provide underground electricity distribution to all properties within the precinct to Energex (or another appropriate supplier of electricity) and Council standards;
- .2 Provide public lighting to all roads, streets, parks and other public areas and facilities within the precinct to Energex (or another appropriate supplier of electricity) and Council standards; and
- .3 Provide high voltage electricity services to service the precinct to Energex (or another appropriate supplier of electricity) and Council standards.

10.1.7 Communications

Arrange for the installation of underground telephone communications services for all properties in the precinct.

10.2 State Government Infrastructure Requirements

- 10.2.1 There are no items of State Government infrastructure to be provided by the principal developer in conjunction with the development of the precinct.
- 10.2.2 A local bus service is to be provided to service the precinct in accordance with the agreement with Queensland Transport
- 10.2.3 The principal developer must contribute towards the cost of providing kerbside infrastructure associated with the public transport system. Such contribution is to be in accordance with the agreement with the State Government.

10.3 Infrastructure Affected by Precinct Development

- 10.3.1 The development of this precinct may place demands on the following infrastructure:

- .1 Roads external to the DCP area and accessing to the precinct;
- .2 Water supply infrastructure;
- .3 Sewerage infrastructure;
- .4 Stormwater;
- .5 Parks;
- .6 Community facilities;
- .7 Electricity and gas supply;
- .8 Communications systems; and
- .9 State Government Infrastructure.

- 10.3.2 The infrastructure described in clauses 10.1 and 10.2, together with the obligations of the principal developer under the MHIA, is required to mitigate the adverse affects on those items of infrastructure, which are affected by, or required as a result of, the development of the precinct.

10.4 How the Required Infrastructure Relates to the Infrastructure Agreements

- 10.4.1 The MHIA describes the infrastructure which must be provided by the principal developer as part of its obligations to provide infrastructure, as envisaged by Chapter 12 of the DCP. The works described in clause 10.1 are the principal developer's obligations under the MHIA.
- 10.4.2 Infrastructure Agreements have been entered into by the principal developer with the Department of Main Roads and Queensland Transport. Any infrastructure requirements of those State Government Departments relating to this precinct will be provided in accordance with the existing agreements.

10.5 Preliminary Program for Infrastructure Provision

- 10.5.1 The principal developer will provide all the infrastructure referred to in clause 10.1 at times to satisfy the requirements of the MHIA which provides for the infrastructure to be constructed to meet the rate of development in the precinct. Initial infrastructure works are anticipated to be constructed by June 2003. The completion of the roadworks where approved by Council will be as described in clause 10.1.1 and the MHIA.
- 10.5.2 The local bus service will be provided in accordance with clause 10.2.2.
- 10.5.3 Except as described elsewhere in this clause, no other works depend on the provision of this infrastructure.
- 10.5.4 Council is to use its best endeavours, including its powers of resumption if lawful, to obtain all necessary rights to permit the construction of water and sewerage infrastructure if such infrastructure is constructed on land external to the DCP area over which Council does not have such rights.

10.6 Estimated Water and Sewerage Demands

- 10.6.1 As required by the Infrastructure Agreement, the principal developer states as follows:-
- .1 For the purpose of assessing water supply capacity, the estimated number of Equivalent Tenements for this precinct is 204 ET;
 - .2 For the purpose of assessing sewerage capacity, the estimated number of Equivalent Persons for this precinct is 813.6 EP.