

# **MANGO HILL INFRASTRUCTURE DEVELOPMENT CONTROL PLAN**

**Precinct Plan No. 007**

**for**

**East Ridge Residential Precinct**

**North Lakes Development**

**5 September 2001**

(Approved subject to conditions by Council, under delegated authority, on the 5 September 2001  
(conditions incorporated into this document))

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## **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 details 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 *East Ridge Residential Precinct*. This document constitutes the precinct plan for the East Ridge 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 39.0 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 portions of the Open Space element, and is located adjacent to Mango Hill Village. The Village defines the eastern boundary with the precinct also being bounded by the North-South Arterial Road to the south, the future major road extension of Discovery Drive to the west, and future urban residential development and/or local community facilities to the north. 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; and*
- (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.”*

These desired environmental outcomes are not the only outcomes being sought by the DCP for this precinct and they must be read in conjunction with the entire DCP.

## **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.”*

Clause 9.2 of the DCP outlines the planning intent for the Major Open Space land use element.

## **5.0 Development Concept**

### **5.1 Development Context**

Figure 3 shows the urban design concept for the East Ridge Residential Precinct in relation to its wider development context. The precinct's location within a larger urban residential district extending northwards from the Town Centre Frame, its proximity to the east of the Central Open Space and Central East Residential Precincts and to the south of an east-west running linear park, and its location adjacent to Mango Hill Village have strongly influenced the design concept. Key principles to consider in the wider development context of the precinct are outlined below:

- 5.1.1 A high level of connectivity to both the north and the south is proposed via the extension northwards of Discovery Drive with three proposed access points off this major road.
- 5.1.2 A strong arrival image will be provided via a major roundabout entry off the Discovery Drive extension at the point where it provides views into the valley to the north and potentially reduces to a lower order road. The other two entry points off Discovery drive will also provide secondary landscaped entries into the precinct.
- 5.1.3 An informal grid pattern of collector and access roads is proposed to provide for a dispersal of traffic and a high level of connectivity.
- 5.1.4 This road pattern will also provide enhanced legibility as well as permeable landscape connections with frequent movement and view corridors to the proposed east-west valley open space to the north, linear park and buffer to the east, and the village and local parks within the precinct.
- 5.1.5 The gently sloping valley running along the northern edge of the precinct is proposed to be developed as a linear park which will

ultimately link Mango Hill Village to future local community facilities and the Central Open Space Precinct. This linear park will include the retention of stands of existing trees complemented by landscape treatments which largely replicate the natural landscape.

- 5.1.6 The linear park and buffer along the eastern edge of the precinct will link with other elements of the DCP Area open space system and may incorporate a recreational trail. The buffer to the village is to be no less than 5 metres wide. The adjoining linear park is to be a minimum of 15 metres wide. The linear park component of this corridor will be credited in accordance with the Mango Hill Infrastructure Agreement (MHIA).
- 5.1.7 A village park spine is proposed within the precinct as a major north-south structural landscape element. This park will provide a landscaped focal point for the whole precinct.
- 5.1.8 The proximity of the East Ridge Residential Precinct to the developing Lakeside Residential Precinct with its local community facilities node and to another proposed local community facilities node to the north has reduced the need for such facilities within the precinct.
- 5.1.9 The location of the East Ridge Residential Precinct in relation to the future Town Centre (approximately 10 minutes walk) means residents will have convenient access to a wide range of retail, commercial, employment, community, educational and recreational facilities which, as a consequence, further reduces the need for such facilities within the precinct.

## **5.2 Concept Overview**

The East Ridge Residential Precinct is proposed to be developed as a high quality, residential community comprising a mix of residential dwelling types. It will integrate a range of housing types with extensive 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 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.
- Provision will need to be made to largely self contain the childcare needs of the population 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 land use pattern for the precinct is shown in Figure 4. This plan identifies the principal land use elements which form the basic structure of the precinct, including:

- One residential village which has an overall capacity to accommodate approximately 375 dwellings or some 1,000 residents;
- District level open space in the form of a linear park following the main east-west overland flow path and incorporating stands of existing trees, wetlands, pedestrian / cycle paths and possibly local playing fields and park furnishings;
- Part of the linear park and buffer at the interface between the East Ridge Residential Precinct and Mango Hill Village;
- Local open space in the form of notionally located village and local parks serving adjacent housing generally in accordance with the residential planning principles established in the DCP;
- An internal road network with a legible geometry providing safe and convenient access for local traffic within the precinct and to a wide range of planned facilities in nearby precincts. These include:
  - (i) the Central Open Space Precinct which is being developed as a golf course to the west;
  - (ii) planned local community facilities at nodal points to the north-west and south, as identified in notional terms on the DCP Structure Plan;
  - (iii) Private and/or State schools to the south and potentially to the north (within the local community facilities nodes); and
  - (iv) The North Lakes Town Park and future Town Centre development to the south.

Most of the above facilities will be within a 10 to 15 minute walk (i.e. approximately 800 to 1,200 metre radius) 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 the various types of residential development.

## **6.0 Precinct Plan**

### **6.1 Introduction**

Figure 4, East Ridge 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 5 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**

One residential village is proposed with an overall capacity to accommodate approximately 375 dwellings or 1,000 residents. The village is to provide for a range of housing choices from traditional to small lot housing and, where appropriate, duplex dwellings and townhouse units. Rear lane access may also be provided to some small lots, which are typically located adjacent to parks, to achieve a distinctive architectural style and streetscape by removing garages and garbage collection to the rear of housing.

#### **6.2.3 Open Space**

The provision of open space within this residential village is influenced by its proximity to the proposed east-west linear park to the north and the North Lakes Town Park to the south, as well as topographic and existing vegetation considerations. The linear park and buffer along the eastern edge of the precinct will also provide a landscape backdrop to the residential village.

A large village park is proposed and will be within 400 metres walking distance of most residents. This park will provide a major lineal landscape focus for the residents of the precinct.

The village park will incorporate passive and active open spaces, and its lineal form is intended to provide a central structuring element for



the residential village. Consistent with the principle of locating small lot housing in prime locations, housing adjacent to this village park may include more tightly arranged small lot dwellings to create a sense of semi-enclosure along some edges to the park.

Parts of the overall linear park system are to be established along the northern edge of the precinct, towards the central eastern part of the precinct and long the eastern boundary of the precinct. The linear parks along the northern and eastern edges of the precinct will accommodate a pedestrian/cyclist pathway connecting through to the Central Open Space Precinct. The eastern linear park may also include a bridle trail

Local parks have also been proposed in the southern, central and northern parts of the precinct to provide a landscaped open space focus for residents within a 200-metre radius. The central local park may be merged with the nearby village park to form a large lineal open space which provides for both passive and active open space functions.

Consistent with the Mango Hill Infrastructure Agreement (MHIA), the village and local parks will provide a range of recreational opportunities which could include play structures, seating, drinking fountains and, in the case of the village park, shelters and picnic facilities. These village and local parks will be linked to the linear park system, North Lakes Town Park 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 to be provided within or in reasonable proximity of the East Ridge 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.	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 the regional public transport system.
Housing diversity is essential.	A range of lot sizes and dwelling types, including detached houses, and possibly duplex dwellings and townhouses.
Provision will need to be made for the childcare needs of the population.	A range of long day and occasional childcare services provided in local community facilities nodes and in the 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.	Within the southern and possibly within the central parts of the DCP area: Provision of facilities for pre-school and primary education. 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. childcare, ministry centres and libraries.
Local community facilities and services should be integrated within Urban Residential areas.	Facilities and services, eg. childcare and local shopping , provided in the southern and central local community facilities nodes (as identified on the DCP Structure Plan).
Access for people with disabilities.	Facilities which take account of the accessibility needs of people with disabilities.
Playgrounds	Provide adventure play spaces for 7-11 year olds. Provide meeting places for older children and the aged. Create larger district parks (ie. linear parks), incorporating a range of activity settings within reasonable proximity for residents of the precinct.
Structured recreational facilities should also be located in or adjoining district parks or schools (opportunity for co-location).	Some structured recreation facilities possibly co-located with schools to the south or possibly to the north of the precinct.

## 6.4 Transport and Circulation System

Consistent with the DCP Structure Plan, the internal road network is based on a modified grid layout. Roads are to be generally located along minor overland flowpaths and ridgelines or appropriately aligned in relation to the natural contours, wherever practicable. This road network will provide high connectivity throughout the precinct. Residential development will be structured around, and defined by, a pattern of generally north-south and east-west running streets to encourage visual linkages, connectedness and continuity of movement from surrounding residential areas. This pattern of roads will be structured around a north-south aligned village park centrally located within the precinct.

Special streetscape treatments along the internal roads will promote the concept of a landscaped 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.

A hierarchy of roadways related to traffic function, including bus movements, is to be adopted in the detailed design of the precinct and adjacent major roads. The amenity of the residential village is to be preserved by discouraging the amount of through traffic by the implementation of special streetscape treatments, traffic management techniques and some culs-de-sac. The road network has been planned so that through traffic will be generally limited to the sub-arterial and arterial roads associated with the wider road network.

The main external road connections will be provided via three collector roads linked to the future major road extension of Discovery Drive along the western edge of the precinct. This major road will provide the main connection to the North-South Arterial Road, the Lakeside Residential Precinct and the Town Centre to the south, and future residential villages and local community facilities to the north.

The collector roads of the precinct will be design to link the residential village to adjacent major roads, and to the Town Centre and nearby local community facilities. Esplanade roads may be provided along side the various parks of the precinct to enable community 'ownership' and casual surveillance of these open space areas. Variations in the horizontal alignment of roadways and limited use of traffic management devices, together with the landscape treatment of verges and possible use of special threshold treatments, will assist in controlling vehicle speed within the precinct, particularly in local residential streets.

Residents of the East Ridge Residential Precinct will generally be within 400 metres (5 minutes walking time) of a local bus route. Provision will be made for buses to utilise the adjacent major roads to ensure this 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 meet the needs of the initial residents.

Pedestrian and bicycle circulation within the precinct will be a priority of open space and landscaping. Major commuter and recreational pedestrian/cyclist pathways will be provided within the proposed linear parkland, the Discovery Drive extension, and North-South Arterial Road along the northern, western and southern edges of the precinct, respectively. These major pathways will provide important north-south and east-west running linkages to surrounding residential villages and other major commercial, community and employment facilities throughout the DCP area. A possible recreational trail may also be provided within the linear park and buffer along the eastern edge of the precinct.

East-west pedestrian/cyclist movements through the precinct will be accommodated within the three entry collector road reserves off Discovery Drive. These pathways will run past the centrally located village and local parks as shown in notional terms on the Precinct Plan Map. At the local level, residential streets and local pathways will provide a network of linkages from homes to the major pedestrian/cyclist system.

## **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 6 and summarised as follows:

- *Linear Park:* The linear park along the northern frontage which is planned as a network of *linked* bushland and tree retention areas, possible managed waterways and water cycle management systems, and open spaces aligned with the principal east-west overland flow path. Another part of the DCP area linear park network will also be provided approximately midway along the eastern edge of the precinct primarily for detention purposes created within a natural landscape setting.
- *Mango Hill Village Linear Park and Buffer:* Lineal open space adjacent to Mango Hill Village to be integrated with the linear park system and to possibly include a recreational trail. The linear park and buffer may also allow opportunities for the retention of some stands of existing trees.
- *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 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 road. In particular, streetscape planting will

provide a meaningful way of reinforcing different road types in the road hierarchy.

The final location and size of the various park elements will be determined at the sector plan stage. The landscape treatment 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 landscaped 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/or fencing to establish an attractive visual and acoustic buffer and to enhance the amenity of residential development.

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

## **6.6 Engineering Services**

### **6.6.1 Water Supply**

A trunk water main has been constructed within the existing part of Discovery Drive road reserve along the south-western edge of the precinct. This will be extended along the extension of this major road to service the East Ridge Residential Precinct. The extension to trunk water mains from node 83D (refer Figure 8) will be built by the principal developer in accordance with the MHIA. Individual lots will be served by a network of reticulation mains designed in accordance with Council's Design Manual and Policy WS.W13.

### **6.6.2 Sewerage**

The sewerage system for the precinct will be based on a gravity reticulation strategy, which generally follows similar alignments to stormwater drainage paths for the trunk connection system.

The precinct will be connected to the trunk gravity systems referenced as TM3 and TM2 (refer Figure 9).

The TM3 trunk sewer will initially drain to the existing Council pump station PS116. The TM2 trunk sewer will drain to the existing Council pump station PS115. The local Council sewerage discharge

network connecting these pump stations to the major network is to be upgraded in accordance with MHIA requirements. The TM3 gravity sewer will ultimately drain further to the east to Pump Station 2, the generalised location of which is shown on Figure 9.

### 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 the precinct. The precinct will be serviced by underground power to pad-mounted transformers located within the local road reserves.

Gas mains have been constructed along Discovery Drive and will be extended 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**

In general, the stormwater in the precinct will be handled by a conventional system of piped drainage in lots and roads. Where possible, controlled overland flow paths may be incorporated into the road drainage design to augment the proposed landscaping strategy. The system will be designed in accordance with Council's Design Manual and the Stormwater Management Plan for Tributaries 2 and 3 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 an overall stormwater management strategy to manage the impacts of development on 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**

*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 three storeys over car parking), 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 Objective**

### **8.1 Stormwater Discharge**

#### *Objectives*

To ensure that stormwater infrastructure, constructed within the catchments of Tributary 3 and Tributary 2, is 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 requirement of Environmental Protection Policy (EPP) Water, and in particular, must be designed to achieve the following Annual Mean Concentrations and Chelmsford Road:

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

The design parameters for peak flows must not exceed the values in the Stormwater Management Plans 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 purpose 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.

## **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 Stage Government in accordance with the DCP. Initial infrastructure works have been completed as part of development of the adjacent Lakeside and Central East Residential Precincts. The infrastructure obligations relevant to the East Ridge 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 street lighting. Any reference to initial construction in this section is a reference to construction approved by Council in accordance with the rezoning conditions and the MHIA.

- .1 All internal collector roads and access streets;
- .2 A four-lane median divided arterial road being the extension of Discovery Drive from Node C north to the first intersection of the precinct in accordance with the MHIA. The initial standard of construction is to be a two-lane divided road.
- .3 A two-lane undivided sub-arterial road for the further extension of Discovery Drive through to the northern boundary of the precinct.
- .4 A four-lane median divided road being the North-South Arterial Road with provision for a public transport corridor between Node B and Node C in accordance with the provisions of the MHIA. The initial standard of construction will be a two-lane road together with possible works required on roadways abutting the precinct.
- .5 Intersections at the intersection points along the extension northwards of Discovery Drive to suit the standard of construction of adjacent roads including, if required, auxiliary left turn, right turn, stand-up lanes and traffic signals. The staging of traffic signals may be undertaken in accordance with a timetable approved by Council as per the MHIA; and
- .6 Bikeways and pathways, including commuter and recreational bikeways generally as shown on Figure 4, 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 water supply network within the DCP area, including those sections of the mains shown on Figure 8, necessary to service the anticipated demand in the precinct; and
- .3 Provide contributions towards water headworks and bulk water supply in accordance with the MIBA.

#### 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 trunk gravity main TM3 from the connection point with the internal sewerage system to the existing Council pump station PS116 initially and ultimately to the future pump station PS2 as shown on Figure 9;
- .2 Construct the trunk gravity main TM2 from the connection point with the internal sewerage system to the existing Council pump station PS115.
- .3 Construct upgrade of the existing Council pump stations PS115 and PS116;
- .4 Construct the extension of rising main RM116 and new rising main RM115 from PS115 to the existing interim pump station TPS2 with ultimate connection to pump station PS1;
- .5 Construct the ultimate pump stations PS1 and PS2, and discharge rising mains RM1 and RM2 in accordance with the staging requirements of the MHIA and Interim Sewerage Discharge Scheme.

#### 10.1.4 Stormwater

- .1 Construct stormwater management works progressively in accordance with the Stormwater Management Plans for Tributary 2 and Tributary 3 as approved by Council; and
- .2 Construct stormwater drainage systems to roads, parks and lots as required by the MHIA and Council's Design Manuals.

#### 10.1.5 Park

- .1 Provide as part of the linear park those areas of linear park generally as shown on Figure 4;
- .2 Provide as part of the linear park and buffer that area of linear park and buffer generally as shown on Figure 4;
- .3 Provide a village park generally as shown on Figure 4;

- .4 Provide local parks generally as shown on Figure 4;
- .5 Provide Park Enhancement Works in all parks.

#### 10.1.6 Electricity Supply and Lighting

- .1 Provide underground electricity distribution to all properties within the precinct to Energex (or another appropriate supplier of electricity) and Council standards; and
- .2 Provide high voltage electricity services to service the precinct to Energex (or another appropriate supplier of electricity) and Council standards.

#### 10.1.7 Communications

- .1 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 services must 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.

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 effects on such infrastructure.

#### **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 December 2001. 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 or 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 MHIA, 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 333 ET; and
- .2 For the purpose of assessing sewerage capacity, the estimated number of Equivalent Persons for this precinct is 1125 EP.