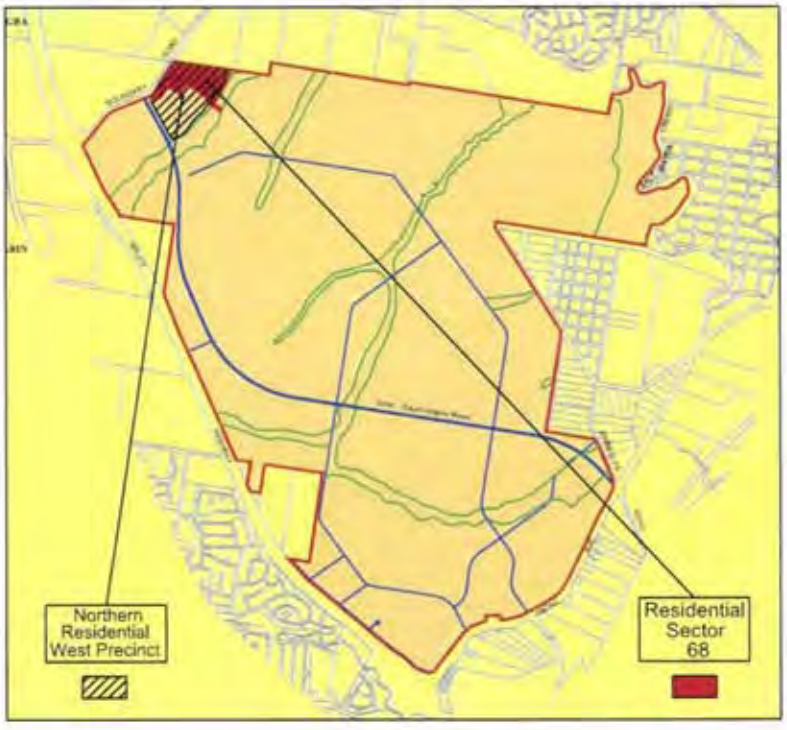
MANGO HILL INFRASTRUCTURE DEVELOPMENT CONTROL PLAN

Sector Plan 044-2000



Northern Residential West Precinct

Residential Sector 68

13 May 2014

MANGO HILL INFRASTRUCTURE DEVELOPMENT CONTROL PLAN

Sector Plan No. 044-2000

for

Residential Sector Sixty-Eight

Northern Residential West Precinct

North Lakes Development

13 May 2014

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1.0 Introduction\

1.1 The Mango Hill Infrastructure Development Control Plan (DCP) provides for the creation of a sector within a precinct. The area of the sector may be chosen by the principal developer. The principal developer must then prepare a sector plan and lodge it with Council for approval in accordance with the relevant provisions of the DCP.

1.2 A sector plan is the final plan in the plan making process. Its purpose is to provide the code of development for the land in the sector. It will form the basis for assessment of development applications and self assessable development.

1.3 To the extent this sector plan provides development requirements which are inconsistent with those in the planning scheme, local laws, policies and codes, the requirements in this sector plan prevail as provided by clause 1.11 of the DCP.

1.4 To the extent this sector plan does not provide development requirements, then the provisions of the planning scheme relevant to the particular form of development will apply as also provided by clause 1.11 of the DCP.

1.5 The principal developer has created a sector to be known for planning purposes as *Residential Sector Sixty-Eight*. This document constitutes the sector plan for Residential Sector Sixty-Eight.

1.6 The location of the sector within the DCP area and the Northern Residential North Western Precinct (the precinct) is shown on Figure 1.

1.7 Northern Residential North Western Precinct Plan No.044 outlines the intents and performance criteria to be complied with in the development of the sector. This sector plan outlines acceptable solutions which, if satisfied by development, will in turn achieve the requirements of the precinct plan.

2.0 Sector Plan Context

2.1 Residential Sector Sixty-Eight covers the first four stages of the northern portion of the Northern Residential North Western Precinct (Plan No. 044), which is referred to as 'The Rise' for marketing purposes. The Sector is bounded by linear Open Space (Tributary A) the existing Precinct 047 (Parkview) to the east. The sector forms part of the Urban Residential Area land use element. The location of the sector within the precinct is shown on Figure 2. The Precinct is bounded by the suburb of Narangba directly to the north and Boundary Road to the north-west. Precinct 044-1000 will be located to the south of the Precinct, bordering the North-South Arterial Road. The northern Bruce Highway interchange is located to the west (approximately 500 meters). The Mixed Industry and Business Area (MIBA), (including the approved Costco and Bunnings developments) will also be located to the west of the Precinct.. The Northern District Playing Fields, Schools and child care and the Bounty Boulevard Bus Route Collector road are also in close proximity to the Precinct.

2.2 The area of the sector is approximately 9.65ha. This area includes areas to be dedicated for internal roads and parks as well as the residential lots.

2.3 The plan in Figure 3 shows the final boundary of the Urban Residential Area land use element relative to this sector. The Proposed Metes and Bounds Description of the sector are provided in Annexure A.

3.0 General Desired Environmental Outcomes

3.1 General

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."

3.2 Specific

The DCP provides a number of specific desired environmental outcomes for the *Urban Residential Areas* element as outlined below:

"(a) To promote a diverse, innovative and highly flexible choice in low, standard and medium density housing in accordance with community aspirations, needs and affordability.

(b) To promote residential villages which are linked to the major road network, public transport services and community facilities through safe, convenient, legible local street and path networks.

(c) To provide residential villages which are focused on local open space and situated conveniently to local community facilities, including education and recreation facilities, convenience shopping and open space.

(d) To promote a community with a high standard of residential amenity characterised by convenience, accessibility, safety, privacy, high quality design and integrated planning.

(e) To ensure visual integration of residential development with the natural environment, including development responsiveness to the topography, drainage patterns and remnant stands of significant vegetation.

(f) To ensure the development of urban residential areas includes appropriate environmental protection measures and the potential effects of incompatible land uses or transport corridors are mitigated.

(g) To ensure urban residential areas develop sequentially and efficiently in residential villages, serviced with the community and engineering infrastructure necessary for achieving a high standard of residential amenity and quality of life for residents."

4.0 Planning Intent

4.1 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."*

4.2 The planning intent for Residential Sector Sixty-Eight is to provide for a range of traditional and small lot dwellings as well as medium density housing types including zero lot lined detached houses on small lots. Residents will be situated close to the district and local playing fields south-east of the sector and Tributary A east of the sector. Linear Park will buffer, the interface with Boundary Road, the Tributary A environmental corridor and provide recreational pedestrian/cyclist pathways. A large Local Park that is embellished to Village Park standard will be centrally located for all of the residents. The extent of open space to be provided in and adjoining this sector would be expected to exceed the main recreational and leisure needs of residents.

5.0 Development, Landscape and Environmental Concepts

5.1 Development Concepts

Residential Sector Sixty-Eight is proposed to be developed as a high quality, mixed residential community forming an integral part of the North Lakes development. It will comprise medium and low density housing including detached housing on small lots and a range of traditional and small lot dwelling types as provided for in the DCP (refer Figures 7a and 7b).

The Proposed Plan of Subdivision for the sector is shown in Figure 4. This plan identifies the following key land use elements:

(i) Part of a residential village accommodating 114 lots;
(ii) One Local Park, embellished to Village Park standards, of approximately 3,000m²;
(iii) An internal road network offering high connectivity and safe and convenient access for local traffic; and
(iv) Suitable pedestrian linkages, buffer/transition areas to the open space network and local park nodes along the linear parks surrounding the sector.

The broad principles for residential planning and design are outlined in the Northern Residential North Western Precinct Plan. More specific development and urban design principles behind the residential layout concept for this sector include the following:

(i) A standard residential development including low and medium density residential development including a mixture of detached housing on small lots (zero lot line).
(ii) Provision of a strong sense of arrival after crossing the bridge over Tributary A;
(iii) Incorporation of a modified grid road layout with high connectivity and responsiveness to topography/site shape;
(iv) Inclusion of street planting and attractive streetscapes for housing within the sector;
(v) Location of small lot housing generally on more gentle topography;
(vi) Location of larger lots generally on steeper topography; and
(vii) Streets aligned to minimise rear drainage where practicable.

5.2 Landscape Concepts

The landscape structure and treatment of the sector is shown in conceptual form on Figure 6. The principal spatial elements or key areas of the Landscape Concept Plan for the wider precinct as applied to the sector may be summarised as follows:

- *Major Open Space / Wildlife corridors:* Under the Structure Plan, Tributary A performs the function of both a major open space area and a wildlife corridor and forms one of the key community focal points for of the Precinct. Tributary A is located along the South-Eastern boundary of the Sector. The east-west connections through the tributary will provide convenient pedestrian / cyclist connections between the adjacent residential areas.

  To ensure the function of conserving habitat value a minimum vegetated corridor width of 80 metres exclusive of linear park is to be maintained. To this end, some areas along the north east edge of the corridor, inclusive of liner park verges, are to be re-vegetated with appropriate koala fodder trees as identified in the James Warren and Associates Ecological Assessment - Tributary A report dated March 2009. It is noted that much of the revegetation work will occur east of this Sector Plan, within the bounds of the Tributary A Sector Plan 031-5000. although the revetation works shall coincide with the linear park works for this Sector Plan 044-2000. .

- *Buffers and Transition Areas:* Buffers and transition areas will be established between the sector and incompatible land uses that are external to the site (in accordance with Section 9.1.2b of the DCP). These may incorporate loop roads or vegetated distances that utilise the open space system as an effective means for maintaining high levels of environmental quality through water management, habitat protection, wildlife corridor protection and acoustic buffering (in accordance with Section 9.1.2h of the DCP).

- *Central Local Park:* A Local Park (embellished to Village Park standard) is proposed with a minimum area of 3,000 square metres. This park is to be placed at a central location and provide landscaped open space focus for nearby residents. In accordance with the MHIA, the park will provide a range of recreational opportunities which could include play structures, picnic facilities, seating and drinking fountains. The proposal to provide a central Local Park in this Sector and the future Sector to the south (044-1000) is intended to split the area of the previously planned Village Park into two parks together providing the same level of service and a high degree of access to park land for all lots within the Sectors (all lots are within 150m walk of a park).

- *Local Park Nodes:* Other Local park nodes will be incorporated alongside the Tributary 'A' major open space or other linear open space in order to accommodate linkages and maximize use of the various forms of open space throughout the Sector. Such nodes will perform the function of the Local Parks as nominated on the Precinct Plan Map and be embellished to Local Park standard in accordance with the MHIA. Local park nodes will provide a range of recreational opportunities which could include play structures, picnic facilities, seating and drinking fountains.

- *Streetscape Planting:* The streetscape treatments of local collector and access streets will create 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, widened road reserves for collector streets within the sector may be provided to allow for additional special landscape treatments and visual linkages to the open-space, as well as ensuring a meaningful way of reinforcing different road types in the road hierarchy.

- *Linear park/s:* Will buffer the Tributary A environmental corridor in providing a continuous link between the Bruce Highway and the northern boundary of the DCP area for wildlife movement. Linear parks will accommodate recreational pedestrian/cyclist pathways, provide linkages throughout the precinct and surrounding precincts, and access to local parks on the fringes of the Sector. They will also accommodate artificial wetlands and water bodies for water management and buffer the interface with Boundary Road.

As part of the overall landscape strategy for the sector the natural features, such as the gently sloping topography, existing drainage lines and ridge lines, have been recognised. This site responsive approach to residential planning will be enhanced by landscape plantings within private gardens, and along public road reserves, as well as within proposed parkland.

The use of native species as the predominant plantings will visually reflect the existing natural setting of the DCP area, as well as offering benefits of reduced maintenance and water requirements (refer Annexure B). In addition, exotic and flowering species may be used as feature planting, for example, to announce entries to the sector, distinguish roadway networks and provide visual interest and contrast in parks and gardens.

Where appropriate, park and street furnishings and lighting will be utilised in addition to landscaping to create more liveable spaces for residents. These elements will be unified throughout the Northern Residential South Western Precinct and other adjacent residential precincts to establish a common theme.

5.3 Environmental Concepts

The broad environmental management concepts, principal elements and key planning objectives to implement these concepts are identified in the Precinct Plan. The key planning objectives for environmental management in the Sector Plan area are summarised as follows.

5.3.1 Stormwater Discharge

Ensure that stormwater infrastructure, constructed within the catchments of Tributaries A and 1, are designed to meet agreed discharge standards for specific stormwater pollutants and that peak flow regimes are at pre-development levels. Water discharged must meet the requirements of Environmental Protection Policy (EPP) Water, and in particular, must be designed to achieve the Annual Mean Concentrations at Chelmsford Road as stipulated in the Precinct Plan.

5.3.2 Flora & Fauna

The sector must facilitate protection of ecological processes and natural systems by providing the means for the establishment or enhancement of habitat areas and wildlife corridors primarily along the linear parks through the DCP area connecting with the regional open space network. Specifically, Tributary A is to be protected and maintained as a wildlife corridor and as such, revegetation work on the eastern edge of the linear park and adjoining Tributary A land is to incorporate suitable koala fodder trees.

5.3.3 Air Quality

To ensure people are protected from undue pollution of the air from smoke, dust, odour, fumes and gases generated by development within the Precinct. Air quality must meet the requirements of Environmental Protection Policy (EPP) Air and construction activities are to comply with Council's Policy LP32.

Detailed reporting has been undertaken within the subject site with respect to odour levels stemming from industrial activities north of Boundary Road. These studies include the *Narangba Industrial Estate Health Impact Assessment*, by Queensland Health and dated May 2011; and the *Odour Amenity Assessment 'Northern Residential' Precincts North Lakes*, by MWA Environmental dated 5 July 2011.

The abovementioned reports identify that the impact of odour upon the land within the precinct area does not exceed the threshold for odour nuisance as specified in the *Ecoaccess Guideline: Odour Impact Assessment from Development* produced and adopted by the Department of Environment and Resource Management (i.e. Odour concentrations are not predicted to exceed the 2.5 odour units in the 99.5th percentile, one hour average).

5.3.4 Noise

To ensure noise generated is not unreasonable noise generated from development should be reasonable as provided by the Environmental Protection Policy (EPP) Noise. Noise generated from development which is unreasonable is abated as required by EPP (Noise).

Development within the Sector must be carried in accordance with the recommendations of *The Rise Precinct, All Stages – Traffic Noise Report, prepared by Vipac dated 28 August 2013*. This includes the provision of a 1.8m noise barrier (incorporating mounding) within the transition buffer adjacent to Boundary Road and 2.8m high barrier within the 30m stretch of Boundary Road frontage immediately north of proposed Lot 104 (within the adjacent Sector 044-1000).

Some dwellings within the Sector, as identified in the abovementioned acoustic report, will require acoustic treatment to the second storey. The design of acoustic treatments will need to be performed according to the guidelines of AS/NZS 2107:2000, using the methodology detailed in AS 3671:1989. The use of mechanical ventilation will be necessary on dwelling floors that are acoustically treated or require closed windows to achieve acceptable internal noise levels. It is expected that treatment works would be limited to the choice of glazing and closed windows.

During construction of the Sector, 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).

5.3.5 Lighting

To ensure that lighting associated with development does not create a nuisance no person will cause, carry out or erect a light source in such a manner that light emanating from the source is a nuisance. Council may choose to provide lighting for sporting activities in the district playing fields. Surrounding development should acknowledge the use of the district playing fields which may include lighting in the future.

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.

6.0 Land Use Rights

6.1 Clause 2.4.9 of the DCP requires the final specification of land use rights for land in a sector to be chosen from the supplementary Tables of Development in the DCP for each land use element. If a purpose set out in column B of a supplementary Table of Development is not nominated for land in the sector, then that purpose thereafter for that land becomes permissible development (column C).

6.2 Land within the sector may be used for the purposes specified in column A of the respective supplementary Table of Development for the Urban Residential Area element which is the subject of this sector plan.

6.3 The following purposes set out in column B of the supplementary table of development for the Urban Residential Areas element and the Open Space element are permissible purposes for land in this sector (i.e. they become column C purposes).

6.4 The Supplementary Table of Development (Urban Residential Areas Element) setting out the final specification of land use rights for land in this sector is contained in Annexure C.

7.0 Development Requirements

7.1 Introduction

Clause 2.4.2 of the DCP requires a sector plan to specify development requirements for land in the sector. Clause 1.11 of the DCP provides that to the extent a sector plan does not make these provisions, then the provisions of the planning scheme for that particular form of development will prevail.

7.2 General Requirements for all Development

The requirements for development specified in the planning scheme apply to development in this sector, except where inconsistent with requirements specified in clause 7.3 or the design and siting guidelines in Section 8 or where relaxations are granted in accordance with Section 10 of this sector plan.

For the purposes of this clause, where relevant:

(i) references in the planning scheme to a zone are to be taken as a reference to the Special Development Zone;
(ii) references in the planning scheme to an attached flat are to be taken as a reference to an associated unit; and
(iii) references in the planning scheme to a multiple dwelling are to be taken as a reference to apartments.

7.3 Specific Requirements

The following requirements apply to development within this sector:

7.3.1 Lot Number and Size

The maximum number of developable lots is 130, excluding proposed park and road reserves. Only one detached house is permitted on each lot.

The minimum area of each residential lot type is to be as specified in Table 1.

7.3.2 Vehicular and Pedestrian Access

.1 Indicative Vehicular Access locations are shown on the Sector Plan Map for smaller lots, and certain larger lots where special locational circumstances dictate the need for more specific access requirements. Other access point locations are acceptable where:

(i) the garage is not built to a zero lot line; or
(ii) site specific issues warrant a different driveway location (e.g. as a response to land form, streetscape works or manoeuvrability requirements for vehicles).

.2 Where optional vehicular access locations are shown on a lot (e.g. a corner lot), only one access point is to be used.

.3 Restricted Lot Access is highlighted on the Sector Plan Map. Driveways to lots are not permitted along those highlighted frontages.

.4 Provision for pedestrian access must be made within the sector as shown indicatively on the Sector Landscape Plan.

.5 Additional pedestrian pathways may be provided in locations and to details approved by Council.

7.3.3 Lighting and Glare Management

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

.2 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 sector plan are 10pm - 6am, unless otherwise varied by Council.

.3 Lighting must provide the level of illumination necessary for safe vehicular and pedestrian movement through the sector.

.4 Where provided within landscaped areas, the choice and location of lighting must allow for plant and tree growth and, conversely, not become obscured as the landscape matures.

.5 Permanent strobe, laser, flashing, oscillating, moving or alternating lights are not permitted.

7.3.4 Rain Water Tanks

Where a rain water tank is proposed, the following requirements are to be satisfied:

.1 All rain water tanks greater than $9m^2$ in area are to be located underground.

.2 All rain water tanks are to be located to ensure the tank is not visible from the street or adjoining areas of public open space, and does not obstruct private open space areas on the lot. Unfinished metal rain water tanks of any size are not permitted. Locating rainwater tanks of any size underground is encouraged.

7.3.5 Noise Attenuation Measures for Housing next to Major Roads

.1 For dwellings abutting Major Roads, a traffic noise fence (or other suitable treatment as proposed by a qualified acoustic consultant - such as an earth mound) is required to be constructed on the boundary of the sector, as part of the subdivision works, in order to reduce traffic noise levels on those dwellings.

.2 Where dwellings abutting Major Roads are elevated above the ground or are two

storey design, the predicted long term traffic noise levels may exceed 63dB(A). To minimise intrusion of traffic noise into these dwellings they are to be designed to Categories 3 or 4 as defined in Australian Standard AS3671-1989. There three (3) lots in the precinct which exceed the noise criteria at the first floor. The affected properties are outlined in The Rise Precinct: Traffic Noise Report by VIPAC, which is included within Annexure D of this Sector Plan. These properties include, Lots 131 to 133, which were modelled at 64 dB(A). Residents / builders should seek advice from an expert in dwelling design which reduces traffic noise intrusion.

8.0 Design and Siting Guidelines

The Northern Residential North Western Precinct Plan provides a comprehensive range of design intents and performance criteria for residential development which must be complied with in the development of Residential Sector Sixty-Eight. In addition to the precinct plan general criteria and by way of further elaboration on design intentions, a range of detailed residential design and siting guidelines have been included in this sector plan and are considered by Council to be acceptable solutions which are consistent with the performance criteria of the *Queensland Residential Design Guidelines* (QRDG).

As a standard residential development, the following guidelines relate to development on residential lots throughout the sector and, as stated above, represent acceptable solutions to a range of residential design and siting issues. The acceptability of modifications to any of the guidelines will need to be demonstrated to, and approved by, the Council after consultation with the principal developer. Any modifications will only be considered where site-specific issues warrant special consideration or where a variation can be demonstrated to achieve contemporary best practice in residential planning, design and development. The assessment of such modifications would be based on the intents and performance criteria specified in the Northern Residential North Western Precinct Plan.

Figures 5a, 5b, 5c and 5d Sector Plan Maps, show the Proposed Plan of Subdivision and key design and siting controls for the various lots within Residential Sector Sixty-Eight. As required by clause 2.4.8 of the DCP, Figures 5a, 5b, 5c, 5d, 5e and 5f, must also show indicatively the nature of intended development for urban residential land within 100 metres of the sector boundaries except for those parts of the sector which abut major roads or major open space.

8.1 Standard Residential Design and Siting Guidelines

Table 1 provides a summary of the key residential design and siting requirements in relation to the range of lot types proposed within the sector as a standard residential development. The design and siting requirements in Table 1 for each lot type must be complied with in the development of that lot type. These requirements must be read in conjunction with the development requirements contained in this document.

TABLE 1: KEY RESIDENTIAL DESIGN & SITING REQUIREMENTS SUMMARY

LOT TYPE	MIN. LOT SIZE (m2)	MINIMUM BUILDING SETBACKS (Refer to Note 1)										PRIVATE OPEN SPACE (POS)			MINIMUM CAR PARKING PROVISION (Refer to Note 2)		OTHER REQUIREMENTS (Refer to Note 3)	
				FIRST STOREY				SECOND STOREY										
		Typical Av. Lot Width (m)	Mandatory Zero Lot Line (as shown on Sector Plan Map)	Front (m) (Subject to additional garage setbacks where relevant)	Rear (m)	Side Setback (m) (for non ZLL boundary)	Secondary Street Setback (for corner lots)	Front (m)	Rear (m)	Zero Lot Line	Side Setback (m)	Indicative Location of POS shown on Sector Plan Map	Minimum Area (m^2)	Minimum Circle Diameter (m)	On-site	Visitor parks	Maximum Building Site Cover (%)	Indicative Driveway Location shown on Sector Plan Map
Medium Density – Town Villa	262.5	10.5	Yes	3	3	1.0	1.5	3	3	1.0	1.5	Yes	20	4.5	2	0.5	50	Yes
Medium Density – Town Premium Villa	312.5	12.5	Yes	3	3	1.0	1.5	3	3	1.0	1.5	Yes	20	4.5	2	0.5	50	Yes
Patio	350.0	14	No	3	3	1.5	1.5	3	3	1.0	1.5	Yes	25	5	2	0.5	50	Yes
Villa	320.0	10	Yes	3	3	1.0	1.5	3	3	1.0	1.5	Yes	25	5	2	0.5	50	Yes
Premium Villa	400.0	12.5	Yes	3	6[2]	1.0	1.5	3	6	1.0	1.5	Yes	40	5	2	0.5	50	Yes
Medium Density – Town Premium Courtyard	400	16	No	3	3	1.5	1.5	3	3	1.0	1.5	Yes	20	4.5	2	0.5	50	Yes
Courtyard	450.0	14	No	3	6[2]	1.5	1.5	3	6	1.5	2	Yes	40	5	2	0.5	50	Yes
Premium Courtyard	512.0	16	No	3	6[2]	1.5	1.5	3	6	1.5	2	Yes	40	5	2	0.5	50	Yes
Traditional	575.0	18	No	4.5	6[2]	1.5	3.0	4.5	6	1.5	2	Yes	60	5	2	0.5		
Premium Traditional	640.0	20	N/A	4.5	6[2]	1.5	3.0	4.5	6	N/A	2	No	-	-	3	0.5	50	No (except where specific access location required)

1 The side setback distance to the second storey may be reduced to ZLL where the side boundary adjoins the ZLL of another Terrace Lot or where exclusively to accommodate a stairwell access, for a length of not more than 6m.

2 Where a 6m setback is required a portion of the dwelling may extend to an absolute minimum rear setback of 3m, Where the portion of the dwelling (including patios, verandahs and pergolas) located between the 6m and 3m rear setback zone is not permitted to exceed 60% of the lot width measured across the rear boundary

3 The side setback may be reduced to 1m exclusively to accommodate a stairwell access, for a length of not more than 5m.

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IMPORTANT NOTES ON TABLE 1

The side setback distance to the second storey may be reduced to ZLL where the side boundary adjoins the ZLL of another Terrace lot

1. MINIMUM BUILDING SETBACKS

1. The minimum building setbacks outlined in Table 1 and illustrated on the Sector Plan Map do not take into account any features of the land, existing or proposed easements, and/or other underground services which may require increased building setbacks
2. The design of the development has taken into consideration the visibility at intersections and the amenity of the proposed neighbourhood. Consequently, for the purposes of the Standard Building Regulations (i.e. corner truncations setbacks), further application for corner truncation setbacks is not required, provided that the setback specifically dimensioned and referenced on the Sector Plan Map (figures 5a, 5b, 5c, 5d, 5e and 5f) is complied with.
3. Where a lot fronts a park, the Sector Plan Map may nominate that the garage is to be set back a minimum of 5.5 metres from the property boundary to provide additional space for on-site visitor car parking in lieu of the standard on-street parking provision.
4. Where a setback is specifically dimensioned and referenced on the Sector Plan Map (figures 5a, 5b, 5c, 5d, 5e and 5f), the Sector Plan Map requirement will prevail over Table 1.
5. On Traditional and Premium Traditional lots, unenclosed spaces such as verandahs, terraces, balconies, and pergolas may project into the front setback by a maximum distance of 1.5 metres provided the outermost projection is no closer than 3 metres from the front boundary. An additional setback to the garage in required as per note 2(d).
6. Where a 6m setback is required a portion of the dwelling may extend to an absolute minimum rear setback of 3. Where the portion of the dwelling (including patios, verandahs and pergolas) is located between the 6m and 3m rear setback zone, it is not permitted to exceed 60% of the lot width measured across the rear boundary

2. CAR PARKING PROVISION

(a) At least one on-site parking space is to be covered.

(b) A single storey dwelling on a Villa or Medium Density – Town Villa lot is only permitted to have a single width garage, however, a second covered car parking space may be provided in a tandem garage arrangement.

(c) Where a single garage is proposed on any lot, a minimum front setback of 5.5 metres is required for the garage.

(d) Where a third on-site parking space is required (i.e. for Premium Traditional lots), the minimum front setback for a double garage will be 4.5 metres.

(e) On-street car parking is to be provided at the rate of one space per two lots.

3. BUILDING SITE COVERAGE

(a) Except for Premium Traditional lots, pergolas, gazebos, verandahs, shade structures and other leisure and recreational purpose areas (whether fully roofed or not) are permitted as additional building site coverage to a further maximum of 10% of the total site area.

The summary of requirements in Table 1 are expanded below and the following are to be satisfied.

8.1.1 Dwelling Size

.1 The maximum building height is ten (10) metres measured from the natural ground level to the top of the roof.

.2 The maximum number of storeys is two (2). Attics which are wholly contained within the roof space are not defined as a storey.

.3 Where a two storey dwelling is proposed, the upper storey must extend for at least 50% of the total width of the dwelling (including the garage and verandahs) as viewed from all street frontage.

.4 A dwelling on a Patio lot may be one or two storeys.

8.1.2 Façade Treatment

.1 All lots are required to present appropriate rooms and windows to the street, according to the lot type as listed below:

(i) All lots must:

a. Have a minimum of 10% of the façade area of each dwelling (including garage or car port) facing the street or other public area as windows or glass;

b. One or more habitable rooms and windows facing the street; and

(ii) The front façade for Traditional and Premium Traditional dwellings are required to satisfy one of the following:

a. Two habitable rooms and windows facing the street; or

b. One or more habitable rooms which comprise a minimum internal width of 5.4 metres (excluding the width of the entry foyer), to be measured in the same plane as the front alignment of the garage. Significant glazing must be provided to this frontage proportional to the size of the room provided.

(iii) For Medium Density Town Premium Villa, Patio, Villa, Premium Villa, Courtyard and Premium Courtyard dwelling types with one or more habitable rooms at the front facade; significant glazing must be provided to this frontage proportional to the size of the room provided.

(iv) Where a two-storey dwelling is proposed, the requirement for habitable rooms and windows can be either fully or partly satisfied on the second storey.

(v) Where a two-storey dwelling is proposed on a Medium Density Town Villa (MDTV), and the requirement for the habitable rooms is fully satisfied on the second storey, dwellings are required to satisfy the following additional criteria:

a) to provide for appropriate presentation to the street the dwelling must either:

- recess the garage at least 900mm behind the alignment of the second storey and have a minimum of 20% of the facade area of each dwelling (including garage or car port) facing the street shall be windows or glass;

OR

- where the garage or carport is not recessed, the façade must:
  * have a minimum of 20% of the facade area of each dwelling (including garage or car port) facing the street shall be windows or glass; and
  * include a second storey verandah with a minimum width of 50% of the dwelling and minimum depth of 1200mm, and must not protrude into the front setback identified in Table 1.

.2 For lots fronting and having a common boundary with a secondary street, park, lake or containing dual street frontage the façade facing these features must mimic the design features and detail of the main façade of the dwelling, (i.e. through replicating the design, scale and dimension of roof style, stepping, setbacks, windows and verandahs).

8.1.3 Entry Treatment

.1 Front façades for all dwellings must incorporate at least one of the following design elements:

(i) A verandah with a minimum area of $6m^2$ and minimum depth of 1.5 metres, or
(ii) An entry portico with a minimum area of $4m^2$ and minimum depth of 1.5 metres.

.2 Where the site frontage is 18.0 metres or greater, unless the façade contains a step of a minimum depth of 1m (excluding the step at the garage), the following elements will be required in addition to clause 8.1.3.1:

(i) An entry portico and verandah with a minimum depth of 1.5m and a total minimum area of $10m^2$ (the element provided under clause 8.1.3.1 may be included as part of this total area), or
(ii) A full front verandah with a minimum depth of 1.5 metres for the length of the frontage of the dwelling (not including the garage).
(iii) An entry portico with columns that have a minimum width of 350mm and recess the doorway a minimum of 230mm.

.3 For lots fronting and having a common boundary with a secondary street, park, lake, or containing dual street frontage the façade facing these features must mimic the design features and detail of the main façade of the dwelling, (i.e. through replicating the design, scale and dimension of roof style, windows and verandahs).

.4 All entrance foyers must include either sidelight or highlight windows in the entry alcove. The only exceptions are as follows:

(i) On all other lots where one large door with integrated glazing is used (the door is to be a minimum of 1.2m wide and contain no less than 20% of the door area as glazing.)
(ii) On all other lots where a set of double doors is provided.

8.1.4 Roof Form

.1 A minimum roof pitch of 25 degrees is to apply for all lot types.

.2 Innovative roof designs incorporating curved, flat or skillion elements will be assessed on their individual architectural merits by Council in consultation with the principal developer.

.3 A skillion roof is permitted on a two storey dwelling provided the roof design includes the following elements:

(i) The roof pitch is a minimum of 15 degrees;
(ii) A minimum of two roof planes are required. i.e. One continuous roof plane across the entire width of the dwelling is not permitted. A separate portico or verandah roof will be considered as a separate roof plane;
(iii) Overhangs/eaves not less than 600mm (excluding gutters) are to be incorporated except where a zero lot line has been utilised; and
(iv) Articulation and variation of materials used for the external walls.

.4 Where a skillion roof is proposed on a single storey dwelling, the roof design will be assessed on its individual architectural merit by Council in consultation with the principal developer. As a guide, the following elements should be considered:

(i) The roof pitch is a minimum of 15 degrees and it must be demonstrated that the skillion roof has a similar ridge height to that which would be achieved with a 25 degree pitch roof;
(ii) A minimum of two roof planes are required. i.e. One continuous roof plane across the entire width of the dwelling is not permitted. A separate portico or verandah roof will be considered as a separate roof plane;
(iii) Where two roof planes form a clerestory or similar, the height of this feature is to be in the order of 500mm;

(iv) Overhangs/eaves not less than 600mm (excluding gutters) are to be incorporated except where a zero lot line has been utilised; and

(v) Articulation and variation of materials used for the external walls.

.5 A flat roof is permitted on single storey dwellings on Traditional and Premium Traditional lots and on two storey dwellings on Courtyard, Traditional and Premium Traditional lots, provided the architectural design is submitted for prior peer review and approval by the Council in consultation with the principal developer and includes the following elements:

(i) The flat roof house style is to comply with all other relevant design and siting requirements of the Sector Plan.

(ii) The flat roof house style is not to be developed side by side and must not exceed 2 of any 5 adjacent houses within the streetscape, so as not to dominate the streetscape.

(iii) For lots fronting and having a common boundary with a secondary street, park, lake, or containing dual street frontage, the façade facing these features must include the same design features and detail of the main façade of the dwelling. (I.e. The side facade is to replicate the design, scale and dimension of roof style, stepping, setbacks, windows and verandah's of the front facade). In particular, a parapet is to screen the flat roof form viewed from the public domain.

(iv) Materials and finishes should be of a high standard with a minimum finish of render and paint or contemporary equivalent. (I.e. Bagged finish is not acceptable). Colours should be a mix of subdued earthy tones. (I.e. Use of singular colours or white or bright colours is to be avoided). White or bright roof colours are not to be used on flat roofs to avoid issues of glare or reflection to the upper levels of houses in the immediate surrounds.

.6 Where a flat roof is proposed the architectural design will be assessed by the Council on its individual architectural merit in consultation with the principal developer. As a guide the following elements should be considered:

(i) The flat roof must form an essential and integral component of the architectural design. The architectural design must demonstrate a high standard of contemporary urban design, present a uniform, distinct and meritorious theme and incorporate a high standard of materials and finishes. (I.e. Flat roofs included as a mixture of design themes or roof

forms, a singular feature, or as a building cost reduction measure will not be supported).

(ii) The façade is to contain sufficient detail by way of articulation, materials and colours to avoid a singular emphasis of the façade or the roof form (I.e. Avoid a stark appearance). Incorporation of embellishments, frieze, external screens and/or segmented window frames are likely to assist in this regard.

(iii) Feature panels or finishes to the façade should inter-relate with the function, detail, materials and colours of the overall architectural design. (I.e. Avoid a singular feature or finish out of context).

Where dispute arises upon the merit of the architectural design, the Council will defer to an independent peer review, at the discretion of the Council and the cost of the applicant.

8.1.5 Garages/Carports

.1 The garage requirements for each lot are summarised in the below table. It is noted that additional provisions are included under Table 1 regarding parking and setback provisions

	Patio		Villa and Medium Density – Town Villa		Premium Villa and Medium Density – Town Premium Villa		Courtyard Premium Courtyard and Medium Density Premium Courtyard		Traditional Premium Traditional	
	1 storey	2 storey	1 storey	2 storey	1 storey	2 storey	1 storey	2 storey	1 storey	2 storey
Single Garage	✓	✓	✓	✓	✓	✓	✓	✓	x	x
Double Garage	✓	✓	x	✓	✓	✓	✓	✓	✓	✓
Minimum Garage Setback	Single garage - minimum setback of 5.5 metres Double garage - minimum of 3.9 metres.								5.4m	4.5m*

* For two storey dwellings having a garage in line with, and not setback from, the main building line by at least 900mm, a section of the second storey must extend over no less than 50% of the garage width at the front building line.

.2 All garages and carports must:

(i) Be set back a minimum 900mm from the front building line (the front building line is a line containing no less than 3.4 metres of the dwelling excluding unenclosed spaces) or where a two storey section extends over no less than 50% of the garage, the garage may be in line with second floor;
(ii) Occupy no more than 55% of the length of the frontage of single storey homes; and
(iii) Incorporating a tilt up, panel lift doors or single roller doors. Double roller doors will be considered on their architectural merit where they complement the design of the dwelling.

.3 Triple garages are only permitted on two storey homes on lots with a minimum 20m frontage and must have:

(i) One parking bay and door integrated within the front façade where a two storey section extends over no less than 100% of the width of this garage, the garage may be in line with second floor;
(ii) All other garage doors set back a minimum 900mm from the front building line(the front building line is a line containing no less than 3.4 metres of the dwelling excluding unenclosed spaces).

8.1.6 Building Colours and Materials

.1 Bright colours, highly reflective finishes (eg. unfinished metal), and colours and finishes which are otherwise unsympathetic (eg. discordant patterns) are not permitted as major colours for roof, wall, garage door and other major vertical surfaces such as front courtyard walls and secondary street frontage walls.

.2 Roof, wall and garage door colours are to be selected to be complementary.

.3 Gutters and downpipes are to be prefinished or painted to match the dwelling, or to provide appropriate colour accents.

.4 The major wall materials are to be one or a combination of the following:

(i) Rendered painted masonry or bagged and painted masonry;
(ii) Fibre cement with rendered and painted textured finish;
(iii) Facebrick
(iv) Painted or stained weatherboard; or
(v) Stone or prefinished materials provided they have a natural appearance.

Other materials are to be considered on their merits by Council in consultation with the principal developer and, if acceptable, are to be recorded in Council's 'North Lakes Register of Alternative Acceptable Design Solutions'.

.5 Where a wall extends to the underside of eaves in a gabled roof or where the roof design incorporates a gable, it is to be treated as a wall extension element rather than a roof gable for the purpose of building material selection. Fibre cement cladding used as a minor element to this part of the wall or gable is therefore required to be rendered.

.6 The materials and colours to be used to infill above windows and doors on a façade facing a street or public area must be the same materials and colours used on the remainder of that façade.

.7 Roofing materials are limited to the following:

(i) Corrugated prefinished and coloured metal sheets (e.g. colorbond); or
(ii) Clay, concrete or slate tiles.

8.1.7 Building Controls

.1 Site coverage, as specified for each lot type in Table 1, is defined as that portion of a site covered by a building (including garages), fixed structure, or outdoor storage area, but not including unroofed parking areas and roof eaves. Pergolas, gazebos, verandahs, shade structures and other leisure and recreational purpose areas (whether fully roofed or not) are included in site coverage. Except for Premium Traditional lots, a further 10% building site cover is permitted to accommodate the above semi-enclosed outdoor structures, thereby permitting a maximum of 60%.

8.1.8 Building Setbacks

.1 Building setbacks for lots must comply with the setback requirements of Table 1 (unless dimensioned otherwise on the Sector Plan Map).

.2 *One Storey* (for single storey or ground floor of two storey buildings)

(i) Notwithstanding Section 8.1.8.1 for Traditional and Premium Traditional lots, unenclosed spaces such as verandahs, terraces, balconies, and pergolas may project into the front setback by a maximum distance of 1.5 metres provided the outermost projection is no closer than 3 metres from the front boundary.

(ii) Garage setbacks are outlined in Section 8.1.5.1.

(iii) Where a six (6) metre setback is required a portion of the dwelling may extend to an absolute minimum rear setback of three (3) metres where the portion of the dwelling (including patios, verandahs and pergolas) located between the six (6) metre and three (3) metre rear setback zone is not permitted to exceed 60% of the lot width measured across the rear boundary.

(iv) Side entry canopies or gateway structures over dwelling entries are permitted within the side boundary setback area.

(v) Eaves excluding gutters are permitted to extend up to 600mm within setback areas (other than where buildings are built to a zero lot line boundary), provided that a minimum side boundary clearance from eaves and gutters of 400mm is provided.

(vi) Setbacks other than a zero lot line are to ensure unrestricted pedestrian access around the dwelling.

.3 *Second Storey*

(i) The front and rear setbacks and the setback to a secondary street frontage (corner lots) for each lot type nominated on the Sector Plan Map are to comply with the setback requirements specified in Clauses 8.1.8.1, 8.1.8.2 (i) - (iii) and Section 8.1.8.4.

(ii) The second storey setback to a secondary street frontage is to be two (2) metres for a corner courtyard lot.

.4 Zero Lot Line Boundary Requirements

(i) Where lots have a mandatory zero lot line nominated on the Sector Plan Map, an external wall of the dwelling must be built to this boundary. The balance of any dwelling not built to this boundary must comply with the relevant side setback requirement for that lot type.

(ii) Where a non-mandatory zero lot line nominated on the Sector Plan Map is not utilised (or for the balance of any dwelling not built to this boundary) on a Traditional, Premium Courtyard, Courtyard or Patio lot,

it must comply with the relevant side setback requirement for that lot type.

(iii) Notwithstanding Section 8.1.8.4(ii) above, a side garage wall (maximum 9 metres in length with no openings) may be built a minimum of 1 metre from an unutilised zero lot line boundary on a Courtyard lot only.

(iv) Walls built to a mandatory or non-mandatory zero lot line boundary are to be constructed with materials and finishes consistent with the balance of the dwelling extending 150mm below the anticipated level of the adjacent lot's platform in accordance with Council's requirements.

(v) A building built to a zero lot line boundary must have a minimum length of wall on this boundary of six (6) metres. The maximum length of wall that can be built to a zero lot line boundary is 60% of the length of the nominated boundary.

(vi) Where an internal courtyard is incorporated on the zero lot line boundary, a courtyard fence to the height of 1.8 metres must be constructed in accordance with Section 8.1.10.7 or with the same finish as the zero lot line wall of the dwelling. For the avoidance of any doubt, the length of courtyard fence is not included in the minimum or maximum wall lengths identified in Section 8.1.8.4 (v).

(vii) A zero lot line tolerance of up to 250mm is permitted to accommodate a gutter overhang

8.1.9 Private Open Space and Landscaping

.1 The preferred location of the private open space nominated in Table 1 for each lot type other than Premium Traditional lots is shown on the Sector Plan Map, although other locations within each lot are acceptable having regard to the natural features of the lot, desirable northerly orientation, view opportunities and housing layout.

.2 Major private open space is to have a maximum gradient of 1 in 10.

.3 All private open space is to be designed to ensure useability, e.g. entry courts, outdoor living areas or service areas must demonstrate a clear relationship to the internal living area of the dwelling.

8.1.10 Boundary Fencing

.1 'Soft' enclosures and demarcations of the front property boundary, e.g. hedges, earth mounding and landscape planting, are encouraged. Where hedges are established to delineate a front boundary, gates may be

incorporated, providing established and vigorous plantings are utilised for hedges.

.2 Front fencing is not permitted with the following exceptions:

(i) secondary street frontages on corner lots; or
(ii) screening to front private courtyards.

.3 A wall or fence is required to enclose a front private courtyard must:

(i) include side returns extending a minimum of one (1) metre behind the front building line of the dwelling;
(ii) be a maximum of 1.8 metres high and be constructed of face brickwork or rendered and painted masonry piers and base (minimum 300mm base);
(iii) include infills of complementary masonry, coloured metal tube, painted or treated timber lattice or battens; and
(iv) not exceed 50% of the lot width.

.4 Despite clause 8.1.10.3 where the lot is identified as a Medium Density – Town Villa or a Medium Density – Town Premium Villa the following additional elements are required to enclose a front private courtyard:

(i) include side returns extending a minimum of one (1) metre behind the front building line of the dwelling;
(ii) be a maximum of 1.8 metres high and constructed of face brickwork or rendered and painted masonry piers and base (minimum 400mm piers and base);
(iii) include infills of coloured metal tube, painted or treated timber lattice or battens set at the rear of the fence piers with a minimum of 25% transparency;
(iv) Fencing between building line and side boundary is to be set back 1 metre from the front boundary;
(v) include dense or feature landscaping planted within the 400mm strip between frontage and courtyard fence infills;
(vi) provide a screen to the frontage of the nominated bin storage area set back a minimum of 2.0 metres, with dense or feature landscaping planted between the frontage and the bin storage; and
(vii) not exceed 50% of the lot width.

.5 Fencing on the secondary street frontage of corner blocks must:

(i) be a maximum of 1.8 metres high;
(ii) not extend for greater than 50% of the length of the secondary street boundary if solid fencing (less than 25% transparent when viewed directly on) is proposed; and
(iii) be constructed of:
(a) Painted or treated timber palings with capping and feature posts;

(b) Open style steel fencing coloured metal tube panels complemented by hardwood timber posts measuring 125mm x 125mm: or

(c) a decorative fence as stated in clause 8.1.10.3 (constructed either with or without a base.)

.6 Where zero lot line boundary is utilised, fencing is not permitted to be constructed along the boundary adjacent to this length of external wall (including when the 250mm tolerance is used).

.7 Solid pre coloured metal fencing is not permitted.

.8 All side and rear fencing (other than fencing referred to in section 8.1.10.8) must be:

(i) a maximum of 1.8 metres high;
(ii) constructed of treated timber paling; and
(iii) set back 1 metre behind the front wall of the dwelling.

.9 For the lots having a common boundary with a park, fencing along the common boundaries with the park is to be:

(i) a maximum of 1.8 metres high;
(ii) constructed of face brickwork or rendered and painted masonry piers (either with or without masonry base) and/or hardwood timber posts;
(iii) infills of coloured metal tube: and
(iv) any side fence must match the style, height and finish of the fence front the park extending no less than 1 metre behind the adjacent wall of the dwelling.

.10 Where the principal developer has constructed a fence, it must be maintained by the owner to the standard at which it was constructed.

.11 Vertical retaining walls must be no more than 1 metre above natural ground level. All earthworks greater than 1 metre in height must be stepped with a minimum 500mm landscape area between the walls. Retaining walls facing the street must be constructed from stone or masonry to match the dwelling. Timber retaining walls may be constructed along side boundaries and rear boundaries. Timber retaining walls may protrude forward of the front building line provided the wall tapers to meet the finished ground line at the front property boundary.

.12 An integrated front private courtyard fence and retaining wall is permitted, provided that the total height of the combined front fence and retaining wall does not exceed 1.8m in height. Alternatively, the front private courtyard fence must be setback a minimum of 1.0m from the top of the retaining wall and incorporated with landscaping to the street frontage.

.13 A building or structure and any retaining wall on a lot is to be structurally independent of a building or structure or retaining wall on an adjoining lot.

8.1.11 Driveways

.1 One driveway is required for each lot, and must be completed prior to occupation of the dwelling.

.2 Plain concrete driveways are not permitted (e.g. A plain concrete driveway with a border and/or motif only is not permitted).

.3 Indicative Vehicular Access locations are shown on the Sector Plan Map for smaller lots, and certain traditional lots where special locational circumstances dictate the need for more specific access requirements and must be complied with unless otherwise approved. Other access point locations are acceptable where:

(i) the garage is not built to a zero lot line; or
(ii) site specific issues warrant a different driveway location (e.g. as a response to land form, streetscape works or manoeuvrability requirements for vehicles).

.4 All driveways must:

(i) be no wider than three (3) metres wide at the property boundary for a single garage or carport;
(ii) be no wider than five (5) metres at the property boundary for a double width garage or carport; and
(iii) allow for at least 500mm of landscaping between the driveway and the side property boundary.

.5 Driveways are to be paved for their full width (i.e. "car tracks" are not permitted).

.6 The maximum grade for driveways is 1:5 except for lots which have a single garage, where additional carparking spaces are to be provided on the driveway, a maximum grade of 1:8 is required. All driveway grades from the property boundary (not the kerb) to the garage are to conform with the North Lakes standard drawings for residential driveway layout and construction. The profile of the section of driveway between the front property boundary and the kerb is to follow the Council approved grade.

.7 If a footpath has been constructed in front of your property the driveway must abut and not cut through the footpath. The balance of the driveway between the footpath and the kerb may be plain concrete to match the footpath.

.8 If a crossover is provided and not used then it must be removed and the verge and kerb must be constructed at the owners cost, to Council's standard.

8.1.12 Lots Fronting a Park

.1 Where a lot fronts a park, the Sector Plan Map may nominate that the garage is to be set back a minimum of 5.5 metres from the property boundary to provide additional space for on-site visitor car parking in lieu of the standard on-street parking provision.

.2 Despite any other requirements for fencing in this document, fencing to a park frontage is permitted to be 1.2 metres high only unless provided by the principal developer.

.3 The principal address and letterbox location for the lot will be facing the street frontage.

8.1.13 Planting Requirements and Landscape Structures

.1 Landscaping of the front garden for lots with a front boundary of 14 metres or wider, or on corner blocks both the front and external side garden must include the following as a minimum at the time of planting:

(i) 3 plants, each at a minimum of 2 metres in height, and
(ii) 5 plants, each at a minimum of 1 metre in height, and
(iii) Garden beds mulched and edged, and
(iv) Turf to the remainder of the front garden area.

.2 Landscaping of the front garden for lots with a front boundary less than 14 metres wide must include the following as a minimum at the time of planting:

(i) 1 plant, at a minimum of 2 metres in height, and
(ii) 5 plants, each at a minimum of 1 metre in height, and
(iii) Garden beds mulched and edged, and
(iv) Turf to the remainder of the front garden area.

.3 Landscaping of the front garden for MD-V and MD-PTV lots must include the following as a minimum at the time of planting:

(i) Dense or feature landscaping planted within the 400mm strip between frontage and courtyard fence infill panels; and
(ii) Provide a screen to the nominated bin storage area, set back a minimum of 2.0 metres from the frontage, with dense or feature landscaping planted between the frontage and the bin storage.

8.1.14 Ancillary Structures

.1 *Landscaping*

The minimum landscaping requirements outlined above are to be retained and maintained to an acceptable standard.

.2 *Letter box*

The letterbox is to complement the dwelling.

.3 *Sheds*

Sheds greater than 9 square metres in area are to meet the building setback requirements for all lot types. The design, appearance and materials of these sheds are to complement the appearance of the main dwelling by meeting the requirements for building materials and colours of a main dwelling (refer Clause 8.1.6). All rain water tanks greater than $9m^2$ in area are to be located underground.

Unfinished ruetal sheds and rainwater tanks of any size are not permitted. Sheds and rainwater tanks of any sizes are to be suitably screened from the street. and park (i.e. located behind or to the side of the main dwelling, screened by landscaping and/or side fence returns, etc.).

.4 *Shade Sails*

Shade sails, with a combined area greater than $9m^2$, are to meet building setback requirements for all lot types.

.5 *Pergola*

Ground level open type pergolas may be built abutting any side boundary. No part of any such structure abutting a side boundary is to be attached to the wall of an adjoining building.

.6 *Signs*

Signs and hoardings for advertising products and businesses are not permitted on residential lots with the exception of businesses being undertaken from home within the definition of a detached house, approved home occupations or display home signage, which may only be erected with the prior approval of the principal developer. Builders/tradespersons` signs are permitted where they are required on lots but only during construction.

.7 *Air Conditioners*

Air conditioners are to be located below the caveline and screened from public view. Air conditioning units may only be permitted above the eaveline if they are of a low profile and coloured to match the roof colour.

Roof-mounted or unscreened wall and window mounted air conditioning units facing the street or parks are not permitted.

.8 *Television/Radio Antennae & Satellite Dishes*

Internal or under the roof antennae are encouraged. An external antennae, if required, is to be located towards the rear of the dwelling. Satellite dishes are only acceptable below the roof line.

.9 *Solar Water Heaters*

Where practicable, solar water heaters are to be located on roof pitches which minimise their visibility from public areas. Solar collector panels are to lie on the roof and not be supported on a frame. Where practicable, storage tanks are to be detached and concealed from view by locating them within the roof space.

.10 *Other Structures*

Clotheslines, hot water systems, gas systems, fuel storage tanks, rainwater tanks and meter boxes are to be screened or located away from any street or park frontage.

.11 *Unsightly Objects*

To maintain an attractive overall streetscape, trucks, caravans, boats or trailers are not permitted to be parked on lots unless they are completely housed within a garage or screened from public view.

.11 *Bin Storage*

A screened enclosure, suitable to accommodate 2 x 240L wheelie bins (no higher than 1.5m and no wider than 2m), shall be provided to the side of the dwelling (preferred) or forward of the main building line. Where forward of the main building line the enclosure shall be no closer than 1 metre to the front property boundary and suitably screened by landscaping between the enclosure and the boundary.

8.2 Specific Duplex Dwelling Development Design and Siting Guidelines

The following Specific Guidelines for lots which have been identified as possible duplex dwelling sites on the Sector Plan Figures 5a-5d are to be complied with in the development of any duplex dwelling on these lots.

8.2.1 Building Controls

The duplex dwelling units must comply with all requirements in Section 8.1 relating to the relevant lot type with the following exceptions:

.1 All duplex dwellings are to be two storeys.

.2 Where a duplex dwelling is developed a separate driveway will be required for each dwelling unit (i.e. one from the frontage and one from the secondary frontage) and must be completed prior to occupation of the dwelling. Plain concrete driveways are not permitted, or an expanse of plain concrete on the driveway must not be visible (eg. a plain concrete driveway with a border and/or motif only is not permitted).

.3 The front façade of each dwelling unit is to incorporate an entry portico or porch with a minimum area of $4m^2$ and a minimum depth of 1.5m.

.4 Each dwelling unit is to provide an internal storage area with a minimum volume of $8m^3$. This storage area may form part of the garage. Freestanding sheds are not permitted.

.5 Garages are to be setback a minimum distance of 3.0m from any street frontage.

.6 Two on site car parking spaces are required per dwelling unit including a minimum of one covered car parking space per dwelling unit.

.7 Each dwelling unit is to provide a covered outdoor area with a minimum area of $10m^2$ and a minimum depth of 2.5m.

.8 Each dwelling unit is to have a separate letter box.

.9 Where fencing is proposed along the secondary frontage of a lot where a duplex dwelling is proposed, the fence is permitted to extend for that entire frontage (excluding vehicular access points), provided it is the same quality as a private courtyard fence as detailed in Section 8.1.10.3.

.10 Landscaping is to be provided along the front boundary and the secondary frontage of a lot where a duplex dwelling is proposed including the following as a minimum at the time of planting:

(i) 4 plants, at a minimum of 2 metres in height, and
(ii) 10 plants, each at a minimum of 1 metre in height, and
(iii) Garden beds mulched and edged, and
(iv) Turf to the remainder of the front garden area.
(v) Plantings are to be evenly dispersed along both frontages.

8.3 Landscaping of Parks and Road Reserves

8.3.1 Design Strategy

.1 Landscaping is an integral part of the total design of the DCP area and landscape development within the road reserves in this sector must be consistent with the overall intent of the Landscape Concept Plan and landscape design principles for the wider precinct.

.2 Landscaping within the sector must:-

(i) be predominantly native planting species;

(ii) unify the sector through planting type, texture, colour and hard landscaping elements;

(iii) be in scale with the buildings and outdoor spaces;

(iv) create a comfortable and attractive environment;

(v) screen utility installations from public view;

(vi) ensure that planting effects are contextually appropriate within the broader landscape strategy for the precinct;

(vii) achieve an aesthetic balance of en masse groundcover planting, shrub planting and canopy tree planting;

(viii) address the landscaping of the various areas as shown on the Sector Landscape Plan in accordance with the requirements of this clause; and

(ix) ensure that if plant species are chosen which are different for the purpose of creating visual and horticultural interest, they are nevertheless compatible aesthetically and ecologically with each of the other species chosen for the various areas.

.3 The species of trees, shrubs and ground covers used road reserves are to be selected from the Plant List in Annexure B. Plants of similar characteristics may be substituted for a species in the Plant List and other plant types may be permitted, if approved by Council.

.4 The Sector Landscape Plan (refer Figure 6) shows the areas of road reserves to be landscaped based on the Proposed Plan of Subdivision. The layout and location of planting areas and the like are shown in indicative terms only and will vary as a result of detailed design development.

8.3.2 Streetscape Design

The locations of street planting along the residential streets within the sector are shown indicatively on the Sector Landscape Plan. This plan also shows the indicative locations and alignments of carriageways and pathways which may be provided.

8.3.3 Landscape and Planting Plan

The final landscaping and planting within road reserves of the sector, including details on planting size, layout and density, must be carried out in conformity with Landscape and Planting Plans prepared in accordance with the requirements of this sector plan by a qualified Landscape Architect. These plans must be submitted to, and approved by, the Council at the time of lodging a development application for operational works or building works.

8.4 Signage and Artworks within Parks and Road Reserves

8.4.1 Signage within the road reserves of the sector must provide:

.1 visible and legible signs;

.2 an uncluttered streetscape;

.3 professional and co-ordinated graphics for the identification of different uses within the sector (if required);

.4 signs compatible with their surroundings; and

.5 generally simple, robust and low maintenance signage elements.

8.4.2 The location, form, scale, materials and colour selection of signage must be in keeping with the residential environment and must not dominate the urban landscape at ground level.

8.4.3 Works of high quality urban art, including paving patterns, water features and sculptures, are encouraged. These artworks must contribute strongly to enhancing the architecture and landscape of the residential environment, and achieve humanising elements.

9.0 Infrastructure Obligations of the Principal Developer

9.1 Infrastructure to be Provided

The infrastructure required to be provided by the principal developer to serve the sector 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. These obligations are summarised as follows:

9.1.1 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 The provisions and timing of construction of the North-South Arterial Road from Bounty Boulevard to Node D (and connecting with Boundary Road, Endeavour Boulevard and the internal MIBA road network to the final standard of construction) will be completed by the date Council approves a Sector Plan which allows for development of 85% of the DCP area, or when required by conditions of development approval in accordance with Section 4.2.2 (h) of the MHIA, whichever is the sooner.

.3 The provisions and timing of construction of the North-South Arterial Road from Node D to Node C (and connecting with Endeavour Boulevard and Discovery Drive) will be completed to the final standard of construction by the date Council approves a Sector Plan which allows for development of 90% of the DCP area, or when required by conditions of development approval in accordance with Section 4.2.2 (h) of the MHIA, whichever is the sooner.

.4 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.

9.1.2 Water

.1 Construct internal reticulation systems to service all properties in the sector.

.2 Construct a water supply network within the DCP area, including those sections of the mains shown on Figure 9, necessary to service the anticipated demand in the precinct; and

.3 Provide contributions towards water headworks and bulk water supply in accordance with the MHIA.

9.1.3 Sewerage

Unless already provided, construct all internal sewerage systems to service the properties in the sector and make contributions towards sewerage headworks in accordance with the MHIA, and unless otherwise agreed with Council:

.1 Construct the gravity trunk sewer main GTS6 from the connection point with the internal sewerage system to the proposed GTS5 as shown on Figure 10 – Sewerage Headworks;

.2 Construct the trunk gravity main TM6 from the connection point with the internal sewerage system to the proposed gravity trunk sewer main GTS6.

.3 Construct an Interim Sewerage Discharge Scheme to cater for sewerage discharge until scheme in points 2 and 4 above is completed, if required.

9.1.4 Stormwater

.1 Construct stormwater management works progressively in accordance with the Stormwater Management Plans for Tributary A as approved by Council; and

.2 Construct stormwater drainage systems to roads, parks and lots as required by the MHIA and Council's Design Manual. Drainage on the perimeter of the Sector is to incorporate mounding in the buffer area adjacent to boundary road.

9.1.5 Parks

The requirements for park provision throughout the DCP area are set out in the DCP and the MHIA and those areas of the sector to be provided as park are shown on the Proposed Plan of Subdivision (refer Figure 4). The estimated areas of each park type to be provided within this sector are as follows:

- One centrally located Local Park (embellished to Village Park standard): 3,000m²; and
- Local and linear parks at the perimeter of the Sector

9.1.6 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;

.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.

9.1.7 Communications

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

9.2 State Government Infrastructure Requirements

9.2.1 There are no items of State Government infrastructure to be provided by the principal developer in conjunction with the development of the precinct.

9.2.2 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.

9.3 Infrastructure Affected by Development

9.3.1 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.

9.3.2 The infrastructure described in clauses 9.1 and 9.2, together with the obligations of the principal developer under the MHIA, is required to mitigate the adverse affects on such infrastructure.

9.4 How the Required Infrastructure Relates to the Infrastructure Agreements

9.4.1 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 9.1 are the principal developer's obligations under the MHIA.

9.4.2 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.

9.5 Program for Infrastructure Provisions

9.5.1 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 2011. The completion of the roadworks where approved by Council will be as described in clause 9.1.1 and the MHIA.

9.5.2 Except as described elsewhere in this clause, no other works depend on the provision of this infrastructure.

9.5.3 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.

9.6 Water and Sewerage Demands

9.6.1 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 78.05. ET;

.2 For the purpose of assessing sewerage capacity, the estimated number of Equivalent Persons for this precinct is 301.628 EP.

10.0 Assessment of Compliance with Precinct Plan Performance Criteria

As stated in section 8.1, the design and siting guidelines contained in this sector plan are considered by Council to be acceptable solutions which are consistent with the performance criteria of the *Queensland Residential Design Guidelines* and satisfy the performance provisions of the precinct plan. Other design and siting solutions will be considered by Council on their merits having regard to the performance criteria of the precinct plan.

11.0 Definitions

If a term used in this sector plan is defined by the DCP or the Infrastructure Agreement then that term or expression has the meaning given to it by the DCP or the Infrastructure Agreement unless the context otherwise required.

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ANNEXURE A

PROPOSED METES AND BOUNDS DESCRIPTION FOR URBAN RESIDENTIAL AREAS ELEMENT OF SECTOR

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METES & BOUNDS
NORTHERN RESIDENTIAL WESTERN PRECINCT
NORTHERN RESIDENTIAL WESTERN SECTOR TWO

FROM THE POINT OF COMMENCEMENT BEING ON AMG COORDINATES

EASTING –500177.068 METRES, NORTHING –6990122.887 METRES, THENCE

IN A NORTH WESTERLY DIRECTION AT A BEARING OF 302°0'

FOR A DISTANCE OF 139.179 METRES (MORE OR LESS), THENCE

IN A NORTH EASTERLY DIRECTION AT A BEARING OF 32°0'

FOR A DISTANCE OF 32 METRES (MORE OR LESS), THENCE

IN A NORTH WESTERLY DIRECTION AT A BEARING OF 302°0'

FOR A DISTANCE OF 162 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 212°0'

FOR A DISTANCE OF 26 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 227°0'

FOR A DISTANCE OF 3.106 METRES (MORE OR LESS), THENCE

IN A WESTERLY DIRECTION AT A BEARING OF 257°0'

FOR A DISTANCE OF 3.106 METRES (MORE OR LESS), THENCE

IN A WESTERLY DIRECTION AT A BEARING OF 287°0'

FOR A DISTANCE OF 3.106 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 208°04'40"

FOR A DISTANCE OF 18.042 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 212°0'

FOR A DISTANCE OF 32 METRES (MORE OR LESS), THENCE

IN A NORTH WESTERLY DIRECTION AT A BEARING OF 302°0'

FOR A DISTANCE OF 93.003 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 212°0'

FOR A DISTANCE OF 82.34 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 242°0'

FOR A DISTANCE OF 32.571 METRES (MORE OR LESS), THENCE

IN A NORTH WESTERLY DIRECTION AT A BEARING OF 332°0'

FOR A DISTANCE OF 13.04 METRES (MORE OR LESS), THENCE

IN A NORTHERLY DIRECTION AT A BEARING OF 342°03'20"

FOR A DISTANCE OF 3.605 METRES (MORE OR LESS), THENCE

IN A NORTHERLY DIRECTION AT A BEARING OF 2°10'

FOR A DISTANCE OF 3.605 METRES (MORE OR LESS), THENCE

IN A NORTHERLY DIRECTION AT A BEARING OF 22°16'40"

FOR A DISTANCE OF 3.605 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 236°19'20"

FOR A DISTANCE OF 20.313 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 242°0'

FOR A DISTANCE OF 35.005 METRES (MORE OR LESS), THENCE

IN A NORTHERLY DIRECTION AT A BEARING OF 345°30'

FOR A DISTANCE OF 6.608 METRES (MORE OR LESS), THENCE

IN A NORTHERLY DIRECTION AT A BEARING OF 359°30'

FOR A DISTANCE OF 8 METRES (MORE OR LESS), THENCE

IN A NORTHERLY DIRECTION AT A BEARING OF 12°40'

FOR A DISTANCE OF 8 METRES (MORE OR LESS), THENCE

IN A NORTH EASTERLY DIRECTION AT A BEARING OF 25°50'

FOR A DISTANCE OF 8 METRES (MORE OR LESS), THENCE

IN A NORTH EASTERLY DIRECTION AT A BEARING OF 32°23'50"

FOR A DISTANCE OF 292.048 METRES (MORE OR LESS), THENCE

IN AN EASTERLY DIRECTION AT A BEARING OF 98°19'10"

FOR A DISTANCE OF 410.435 METRES (MORE OR LESS), THENCE

IN A SOUTHERLY DIRECTION AT A BEARING OF 197°0'

FOR A DISTANCE OF 78.153 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 212°0'

FOR A DISTANCE OF 87.451 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 208°0'

FOR A DISTANCE OF 99.021 METRES (MORE OR LESS), THENCE

IN A SOUTH EASTERLY DIRECTION AT A BEARING OF 122°0'

FOR A DISTANCE OF 63.154 METRES (MORE OR LESS), THENCE

IN A SOUTH WESTERLY DIRECTION AT A BEARING OF 208°0'

FOR A DISTANCE OF 28.185 METRES (MORE OR LESS),

TO THE POINT OF COMMENCEMENT AND CONTAINING AN AREA OF

9.65 HECTARES (MORE OR LESS).

We, RPS Australia East Pty Ltd A.C.N. 140 292 762 hereby certify that the Metes and Bounds description contained herein has been prepared by the company and the AMG connection used for the commencement point has been determined by field survey.

.....

Cadastral Surveyor/
Authorised Delegate

01-08-13

Date

ANNEXURE B

PLANT LIST

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Annexure C: Plant List -
Residential Sector Sixty-Six
Public Parks & Road Reserves

Trees & Palms	
Acmena smithii	Lilly Pilly
Agathis robusta	Kauri Pine
Allocasuarina littoralis	Black She Oak
Allocasuarina torulosa	Forest She Oak
Araucaria cunninghamia	Hoop Pine
Archontophoenix cunninghamia	Pickabean Palm
Backhousia citriodora	Lemon Scented Myrtle
Backhousia myrtifolia	Carrol
Banksia integrifolia	Coast Banksia
Barklya syringifolia	Crown of Gold Tree
Brachychiton acerifoliun	Flame Tree
Brachychiton rupestre	Bottle Tree
Buckinghamia celsissima	Ivory Curl Flower
Callistemon salignus	Pink Tips
Callistemon viminalis	Weeping Bottlebrush
Callitris columellaris	Bribie Island Pine
Castanospermum australe	Black Bean
Casuarina cunninghamia	River She Oak
Casuarina glauca	Swamp She Oak
Cupaniopsis anacardioides	Tuckeroo
Elaeocarpus eumundii	
Eucalyptus citriodora	Lemon Scented Gum
Eucalyptus ptychocarpa	Swamp Bloodwood
Eucalyptus curtisii	Plunkett Mallee
Euodia elleryana	Pink Euodia
Ficus hillii	Hill's Fig
Ficus macrophylla	Moreton Bay Fig
Ficus rubignosa	Port Jackson Fig
Flindersia australis	Crows Ash
Flindersia pimenteliana	Flindersia
Flindersia schottiana	Bumpy Ash
Grevillea robusta	Silky Oak
Harpullia pendula	Tulipwood
Hymenosporum flavum	Native Frangipanii
Livistona australis	Livistona
Livistona decipiens	Weeping Cabbage Palm
Livistona nitida	Livistona
Lophostemon confertus	Brush Box
Lophostemon suaveolens	Swamp Box
Melaleuca linariifolia	Snow in Summer
Melaleuca leucadendron	Small Leaved Paperbark
Melaleuca quinquenervia	Broadleafed Paperbark
Metrosideros queenslandicus	Queensland Golden Myrtle
Oreocallis sp. nova (wickhamii)	Tree Waratah
Podocarpus elatus	Brown Pine
Roystonia regia	Cuban Royal Palm
Syzygium australe	Scrub Cherry

Annexure C: Plant List -
Residential Sector Sixty-Six
Public Parks & Road Reserves

Trees & Palms	
Syzygium franchisee	Giant Water Gum
Syzygium leuhmanii	Small Leaved Lilly Pilly
Syzygium paniculatum	Dwarf Magenta Cherry
Tristaniopsis laurina	Water Gum
Waterhousia floribunda	Weeping Myrtle
Xanthostemon chrysanthus	Golden Penda
Shrubs	
Baeckea sp. Mt Toza	Dwarf Baeckea
Baeckea virgata	Twiggy Myrtle
Baeckea virgata dwarf	Dwarf Baeckea
Banksia Birthday Candles	Dwarf Banksia
Banksia ericifolia	Heath Banksia
Banksia integrifolia	Coastal Banksia
Banksia robur	Swamp Banksia
Banksia spinulosa var collina	Hairpin Banksia
Callistemon Dawson River	Dawson River
Callistemon Little John	Little John
Callistemon Ned Kelly	Ned Kelly
Callistemon pachyphyllus	Bottlebrush
Cyathea australis	Rough Tree Fern
Gardenia Florida	Double Gardenia
Grevillea "Coconut Ice"	Coconut Ice
Grevillea "Majestic"	Majestic
Grevillea "Robyn Gordon"	Grevillea
Grevillea "Superb"	Superb
Grevillea banksii	Red Silky Oak
Grevillea Honey Gem	Honey Gem
Grevillea Ned Kelly	Ned Kelly
Hovea acutifolia	Pointed Leaf Hovea
Leptospermum flavescens	Tantoon Tea Tree
Leptospermum petersonii	Lemon Scented Tea Tree
Leptospermum Pink Cascade	Pink Cascade
Melaleuca linariifolia Snowflake	Dwarf Tea Tree
Pittosporum revolutum	Brisbane Laurel
Pittosporum undulatum	Mock Orange
Syzygium Blaze	Dwarf Lilly Pilly
Syzygium Elite	Compact Lilly Pilly
Syzygium Tiny Trev	Dwarf Lilly Pilly
Tibouchina jules	Tibouchina
Westringea fruticosa	Wynyabbie Gem
Groundcovers	
Agapanthus africanus	Lily of the Nile
Agapanthus orientalis	Lily of the Nile
Agapanthus Peter Pan	Dwarf Agapanthus
Anigozanthos hybrids	Kangaroo Paws

Annexure C: Plant List -
Residential Sector Sixty-Six
Public Parks & Road Reserves

Blechnum cartilagineum	Fern
Cissus rhombifolium	Grape Ivy
Groundcovers	
Cissus Ellen Danica	Grape Ivy
Crinum pendunculatum	River Lily
Dianella revoluta	Flax Lily
Dietes bicolor	Japanese Iris
Dietes grandiflora	Japanese Iris
Evolvulus pilosus	Blue Sapphire
Gardenia radicans	Dwarf Gardenia
Grevillea Bronze Rambler	Bronze Rambler
Grevillea Royal Mantle	Prostrate Grevillea
Hardenbergia violacea	Purple Coral Pea
Hardenbergia violacea Bushy Blue	Bushy Blue
Helichrysum ramosissimum	Yellow Buttons
Hemerocallis species	Day Lily
Hibbertia dentata	Toothed Guinea Flower
Hibbertia scandens	Snake Vine
Liriope "Evergreen Giant"	Linope
Lomandra hystrix	Creek Mat rush
Lomandra longifolia	Mat Rush
Lomandra multiflora	Long Leaved Mat Rush
Myoporum ellipticum	Creeping Boobialla
Myoporum parvifolium	Myoporum
Pittosporum Miss Muffet	Dwarf Pittosporum
Pittosporum tobira	Miss Muffet
Viola hederacae	Native Violet
Zierra Carpet Star	Carpet Star
Grasses	
Cynodon dactylon	Green Couch
Danthonia induta	Wallaby Grass
Digitaria didactyla	Blue Couch
Greenlees Park	Hybrid Couch
Poa australis	Native Poa
Vines	
Jasminum polyanthum	Jasmine
Pandorea pandorana	Wonga Wonga Vine
Pandorea jasminoides	Bower of Beauty
Trachelospermum jasminoides	Variegated Star Jasmine
Trachelospermum jasminoides	Star Jasmine

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ANNEXURE C

SUPPLEMENTARY TABLE OF DEVELOPMENT (URBAN RESIDENTIAL AREAS ELEMENT) FOR THIS SECTOR

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SUPPLEMENTARY TABLE OF DEVELOPMENT (URBAN RESIDENTIAL AREAS ELEMENT) FOR RESIDENTIAL SECTOR SIXTY-SIX

Purposes for which premises may be erected or used without the consent of Council (Permitted Development) **COLUMN A**	**Purposes for which premises may be erected or used without the consent of Council subject to conditions (Permitted Development subject to conditions)** **COLUMN B**	**Purposes for which premises may be erected or used only with the consent of Council (Permissible Development)** **COLUMN C**	**Purposes for which premises may not be erected or used (Prohibited Development)** **COLUMN D**
Associated unit in association with lot types 1-3 (table 6.1 of the DCP) Caretaker's residence Detached house Display home Domestic storage and recreation structures where <8% of the site area Family day care centre Local utilities Park	**Any one or more of the following purposes on land nominated for that purpose or purposes on an approved sector plan.** Sales and information centre Duplex Dwelling Townhouse Units **Any purpose in this column not nominated for land by the sector plan becomes for that land a permissible development.**	**For land in a sector any purpose not listed in Column A, D or included in Column B but not nominated for that land in an approved sector plan**	Adult product shop Agriculture Air strip Amusement premises Animal husbandry Aquaculture Bulk garden supplies Camping grounds Car park Car wash Caravan park Casino Catering premises Cattery Cemetery Commercial services Communication services Communication station where part of any mast is higher than 10m above ground level, or is attached to a building and projects more than 3m from that building Community premises Concrete batching plant Contractor's depot Convention centre Correctional institution Crematorium Cultural facility Dairy Educational establishment Entertainment library Extractive industry Fuel depot Funeral parlour General industry Hardware centre Hazardous industry Heavy vehicle parking Heavy vehicle sales Helicopter landing site Hospital

Purposes for which premises may be erected or used without the consent of Council (Permitted Development) COLUMN A	Purposes for which premises may be erected or used without the consent of Council subject to conditions (Permitted Development subject to conditions) COLUMN B	Purposes for which premises may be erected or used only with the consent of Council (Permissible Development) COLUMN C	Purposes for which premises may not be erected or used (Prohibited Development) COLUMN D
			Host farm Hotel Indoor recreation Institution Junk yard Kennels Licensed club Lot feeding Mini-brewery Motel Motor sport or shooting Occasional market Office Outdoor recreation Outdoor sales Passenger terminal Piggery Place of worship Poultry farm Re-cycling depot Restaurant Retail nursery Retail showroom Rural industry Service industry Service station Shop >200m^2 GFA Shopping centre Showground Simulated conflict Special use Stable Stock sales yard Technology industry Tourist facility Transport terminal Transportable home village Turf farming Vehicle hire depot Vehicle sales yard Veterinary clinic Veterinary hospital Warehouse

The provisions of the Supplementary Table of Development are subject to section 2.4.9 of the DCP.

ANNEXURE D

'The Rise' Acoustic Report

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KN Group Pty Ltd

Rise Precinct, All Stages
North Lakes Development

Traffic Noise Report

Report No. 70Q-13-0308-TRP-515113-0
28 Aug 2013

DOCUMENT CONTROL

Rise Precinct, All Stages - North Lakes Development

Traffic Noise Report

REPORT NO:
70Q-13-0308-TRP-515113-0

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	QA Representative	

REVISION HISTORY:		
Revision No.	**Date Issued:**	**Reason/Comments:**
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EXECUTIVE SUMMARY

Vipac Engineers & Scientists Ltd (Vipac) was commissioned by KN Group Pty Ltd to carry out a traffic noise study for all stages of the Rise Precinct, within the North Lakes Development.

The scope of this study is to predict traffic noise levels at Lots in the Rise Precinct, and make recommendations to mitigate traffic noise using traffic noise barriers where necessary.

In this study, traffic noise is assessed under Pine Rivers Shire Council traffic noise criteria, as Moreton Bay Regional Council does not yet have its own traffic noise criteria.

For the Rise Precinct area, a traffic noise barrier varying between 1.8 m and 2.8 m in height is recommended along the north-western and south-western boundaries of the precinct. This barrier is necessary to comply with PRSC traffic noise criteria at the ground floor level.

24 Lots in the Rise Precinct exceed PRSC traffic noise criterion at the first floor level. For Lots where the noise criterion is exceeded, the relevant floors require acoustic treatment. The design of acoustic treatments for the future buildings will need to be performed according to the guidelines of AS/NZS 2107:2000, using the methodology detailed in AS 3671:1989.

The use of alternative ventilation will be needed on floors that are acoustically treated or require closed windows to achieve acceptable internal noise levels. It is expected that to comply with AS/NZS 2107:2000 at the first floor, the works would be limited to choice of glazing and closed windows.

TABLE OF CONTENTS

1. INTRODUCTION

Vipac Engineers & Scientists Ltd (Vipac) was commissioned by KN Group Pty Ltd to carry out a traffic noise study for all stages of the Rise Precinct within the North Lakes Development.

The scope of this study is to predict traffic noise levels at Lots in the Rise Precinct, and make recommendations to mitigate traffic noise using traffic noise barriers where necessary.

Vipac has produced traffic noise reports for other stages of the North Lakes development, including Stages in the Hilltop North, Hilltop South, Bridgehaven, Woodside, Eastridge, Lakeside, Crestwood, Woodvale, and Northern Golf Course, Fairway Chase and Town Centre residential precincts.

This study is carried out according to the guidelines and criteria set out in the Pine Rivers Shire Council's Local Planning Policy PSP6, *"Traffic Noise Attenuation"*.

2. CRITERIA AND GUIDELINES

In this study, traffic noise is assessed under Pine Rivers Shire Council (PRSC) traffic noise criteria, as Moreton Bay Regional Council does not yet have its own traffic noise criteria.

The applicable document for this traffic noise study is the Pine Rivers Shire Council's document PSP6. The applicable paragraphs state that:

Traffic Noise Barriers shall be provided to obtain traffic noise reduction when:

(B) *The combined expected minimum noise levels generated by traffic exceed 63 dB(A) $L_{10(18hour)}$ on any part of the residential allotment.*

3. TRAFFIC NOISE MODELLING

3.1 MODELLING SOFTWARE

Traffic noise single point calculations and colour noise contour maps were produced using SoundPLAN software. SoundPLAN noise modelling software was developed by Braunstein & Berndt International, a leading firm of transportation and environmental engineers in Germany. The software is one of the leading software products available for road, rail and industry noise prediction.

3.2 TRAFFIC NOISE MODEL PARAMETERS

Modelling was based upon advice and data received from KN Group Pty Ltd and Sinclair Knight Merz (SKM). The following parameter values and data files were used for predicting traffic noise.

3.2.1 Position and Heights of Single Point Receivers

Single point receivers were positioned on Lots at the worst case position for traffic noise, i.e. they were positioned assuming that residential buildings were at the minimum setback from the most exposed lot boundary.

Receiver heights of 1.8m and 4.6m above natural terrain levels have been used for the ground floor and first floor receivers respectively of future residences on Lots likely to be most affected by traffic noise. This is equivalent to receiver heights of 1.6 m for the ground floor, as specified by PRSC, plus a slab height of 0.2 m. The first floor is calculated by adding 2.8 m for the height of a storey.

3.2.2 Traffic Noise Source Parameters

The only existing road affecting the development is the Bruce Highway. This is also the only state controlled road affecting noise levels at the development. Traffic parameters used to calculate existing noise levels were determined from traffic details as shown in Table 3-1.

It should be noted that traffic details shown in Table 3-1 were not used to calculate future traffic volumes, only existing traffic volumes for calibration. Future traffic volumes and percentage commercial vehicles were provided by SKM, from their computer traffic model.

Table 3-1: Bruce Highway traffic data.

Year	Traffic growth rate	Road Surface	% CV	Traffic Speed
2006	6.6 % (5 year previous)	Dense Graded Asphalt	7.8	100 km/h

Predicted future Traffic volumes were supplied by SKM. VIPAC understands these are 'ultimate' traffic flows which are for the year 2021. All future traffic volumes used in the model are given in Table A-1 in Appendix A. A diagram showing the location of all roads included in the noise model is shown in Figure A-1 in Appendix A.

Traffic noise levels were predicted using the UK CoRTN procedure.

Dense Graded Asphalt was modelled as the road surface for all roads. No road surface correction is applied to the base noise level calculated by SoundPLAN because the base noise level prediction assumes dense graded asphalt road surface.

Traffic Volume Conversions

The traffic volumes provided by SKM are for the total traffic volume in both directions (AADT). A conversion factor of 0.94 was used to convert 24 hour traffic volumes to 18 hour traffic volumes in order to calculate $L_{A10(1:8hr)}$ noise levels.

Traffic Noise Model Calibration

Noise Logging was conducted on the Bruce Highway on two separate occasions. A calibration constant was calculated from the logger data and applied to the Bruce Highway noise sources. The calibration constant was –1.7 dB(A). See Appendix C for noise logging details.

3.2.3 Geographical Data

The following geographical data was used to create the SoundPLAN Geo-Database model:

- Terrain: CONTOUR PRELIM 130730 OPT B.dwg, received 13/8/2013;
  nlWestDTMMay06.dwg, received 26/8/2013;
  investa-landpartners.dwg, received 1/4/2011;
  overall layout.dwg, received 1/4/2011
  NLBP Contours.dwg, received 27/7/2010;
  Bruce Hwy ex cont, received 23/4/2007

- Road alignment: nlWestDTMMay06.dwg, received 26/8/2013; Bruce Hwy ex cont, received 23/4/2007;
- Lot boundaries & numbers: x13-127base.dwg, received 13/8/2013;
- Barrier Base heights: From RL at property boundary as determined from terrain Data.
- Houses: Residential buildings positioned in the noise model on all Lots in the Rise Precinct. Receivers were attached to houses accordingly. Houses were positioned and dimensioned based on PRSC PSP6

4. NOISE MODELLING RESULTS

As per the requirements of PRSC policy PSP6 the following maps and plots are included in Appendix B.

Figure B-1: Map showing the location of the Rise Precinct in the North Lakes Development;

Figure B-2: Map showing the terrain data used for modelling;

Figure B-3: Predicted ground floor free field traffic noise contours without noise barriers;

Figure B-4: Predicted first floor free field traffic noise contours without noise barriers;

Figure B-5: Predicted ground floor free field traffic noise contours with the recommended traffic noise barriers;

Figure B-6: Predicted first floor free field traffic noise contours with the recommended traffic noise barriers; and

Figure B-7: Map showing the height and location of the recommended barriers.

Note: SoundPLAN adds a 2.5 dB constant to noise levels at discrete receivers attached to buildings. This constant represents the reflected noise from the façade of the building. All criteria include this façade reflection. This 2.5 dB addition is not included in the Grid Noise Maps.

Predicted noise levels at Lots in the Rise Precinct area are up to 70 dB(A) facade adjusted $L_{A10(18hr)}$ at the ground floor, and up to 73 dB(A) $L_{A10(18hr)}$ at the first floor. A noise barrier is required for Lots to meet the PRSC 63 dB(A) façade adjusted $L_{A10(18hr)}$ noise criteria.

A noise barrier solution was designed to address traffic noise while also considering the following requirements.

- PRSC allows for a maximum mound/fence combination height of 3 m
- PRSC allows for a maximum fence height of 2 m
- It is not considered reasonable to design barriers to achieve compliance with noise criteria at the first floor

The noise barrier solution recommended consists of a noise fence up to 2 m in height, with the remainder of the barrier height up to 2.8 m comprised of an earth mound. The barrier varies in height from 1.8 m to 2.8 m.

The recommended barrier solution is detailed in Figure B-7 in Appendix B.

Predicted Traffic Noise Levels at the Ground floor with the Recommended Barrier

Predicted façade adjusted noise levels at the ground floor of Lots are up to 63 dB(A) with the construction of the noise barriers presented in Figure B-7 in Appendix B . This complies with the PRSC noise criteria of 63 dB(A).

Predicted Noise at the First floor with the Recommended Barrier

Predicted façade adjusted noise levels at the first floor of Lots are up to 73 dB(A) with the construction of the noise barriers presented in Figure B-7 in Appendix B. This exceeds the PRSC noise criteria of 63 dB(A). 25 Lots in the Rise Precinct exceed the noise criteria at the first floor as shown in Table 4-1.

Table 4-1: Lots exceeding noise criteria at first floor level.

Lot	$L_{A10(18hr)}$ dB(A))	Lot	$L_{A10(18hr)}$ (dB(A))	Lot	$L_{A10(18hr)}$ dB(A))
84	73	92	72	100	73
85	72	93	72	101	73
86	72	94	72	102	73
87	72	95	72	103	73
88	72	96	72	104	73
89	72	97	72	131	64
90	72	98	73	132	64
91	72	99	73	133	64

For lots where the noise criteria are exceeded, the relevant floors will require a further site specific acoustic assessment. The design of any acoustic treatments for the future buildings will need to be performed according to the guidelines of AS/NZS 2107:2000, using the methodology detailed in AS 3671:1989.

The use of alternative ventilation will be needed on floors that are acoustically treated or require closed windows to achieve acceptable internal noise levels. It is expected that to comply with AS/NZS 2107:2000 at the first floor, the works would be limited to choice of glazing and closed windows.

5. BARRIER CONSTRUCTION

Traffic noise barriers may consist of an earth mound, an acoustic fence, or a combination thereof. Barriers should be constructed in accordance with PRSC requirements and Main Roads Standard Specification MRS 11.15, "Noise Barriers". Of most importance, barriers should have no gaps between palings, or between palings and posts and ground. A minimum surface density of 12 5kg/m^2 should be used.

6. CONCLUSIONS

For the Rise Precinct area, a traffic noise barrier varying between 1.8 m and 2.8 m in height is recommended along the western and northern Precinct boundary. This barrier is necessary to comply with PRSC traffic noise criteria at the ground floor level.

24 Lots in the Rise Precinct exceed PRSC traffic noise criterion at the first floor level. For lots where the noise criterion are exceeded, the relevant floors require acoustic treatment. The design of acoustic treatments for the future buildings will need to be performed according to the guidelines of AS/NZS 2107:2000, using the methodology detailed in AS 3671:1989.

The use of alternative ventilation will be needed on floors that are acoustically treated or require closed windows to achieve acceptable internal noise levels. It is expected that to comply with AS/NZS 2107:2000 at the first floor, the works would be limited to choice of glazing and closed windows.

APPENDIX A: ROAD SECTION AND TRAFFIC VOLUME DETAILS

Figure A-1: Road Sections Used in Model as Detailed in Table 3-1

Table A-1: Traffic Volumes on Road Sections Used in the Traffic Noise Model

Road	Road Section	Direction of Travel	Predicted Future Traffic volumes (18hrs)	% HV	Posted Speed
North South Arterial Rd	A	N	11,128	5	80
North South Arterial Rd	A	S	11,128	5	80
Boundary Rd	A	E	12,465	5	80
Boundary Rd	A	W	12,465	5	80
Boundary Rd	B	E	12,465	5	80
Boundary Rd	B	W	12,465	5	80
Boundary Rd	C	E	3,046	5	80
Boundary Rd	C	W	3,046	5	80
Bruce Highway	-	N	50,216	7.8	100
Bruce Highway	-	S	50,216	7.8	100

APPENDIX B: NOISE MAPS, BARRIER DETAILS AND TERRAIN DATA

Figure B-1: Location of the Rise Precinct in the North Lakes Development

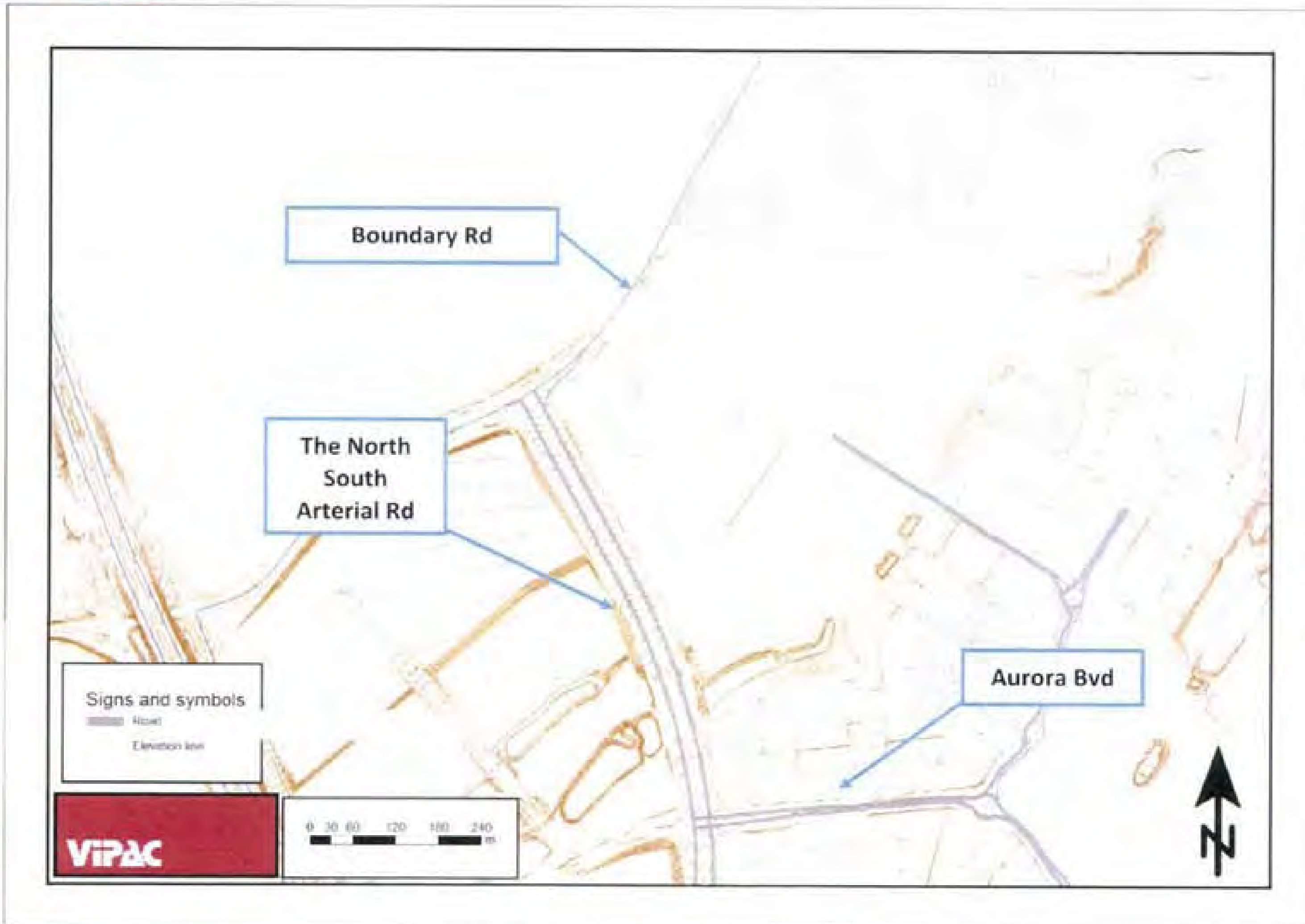

Figure B-2: Terrain Data Used in Traffic Noise Model

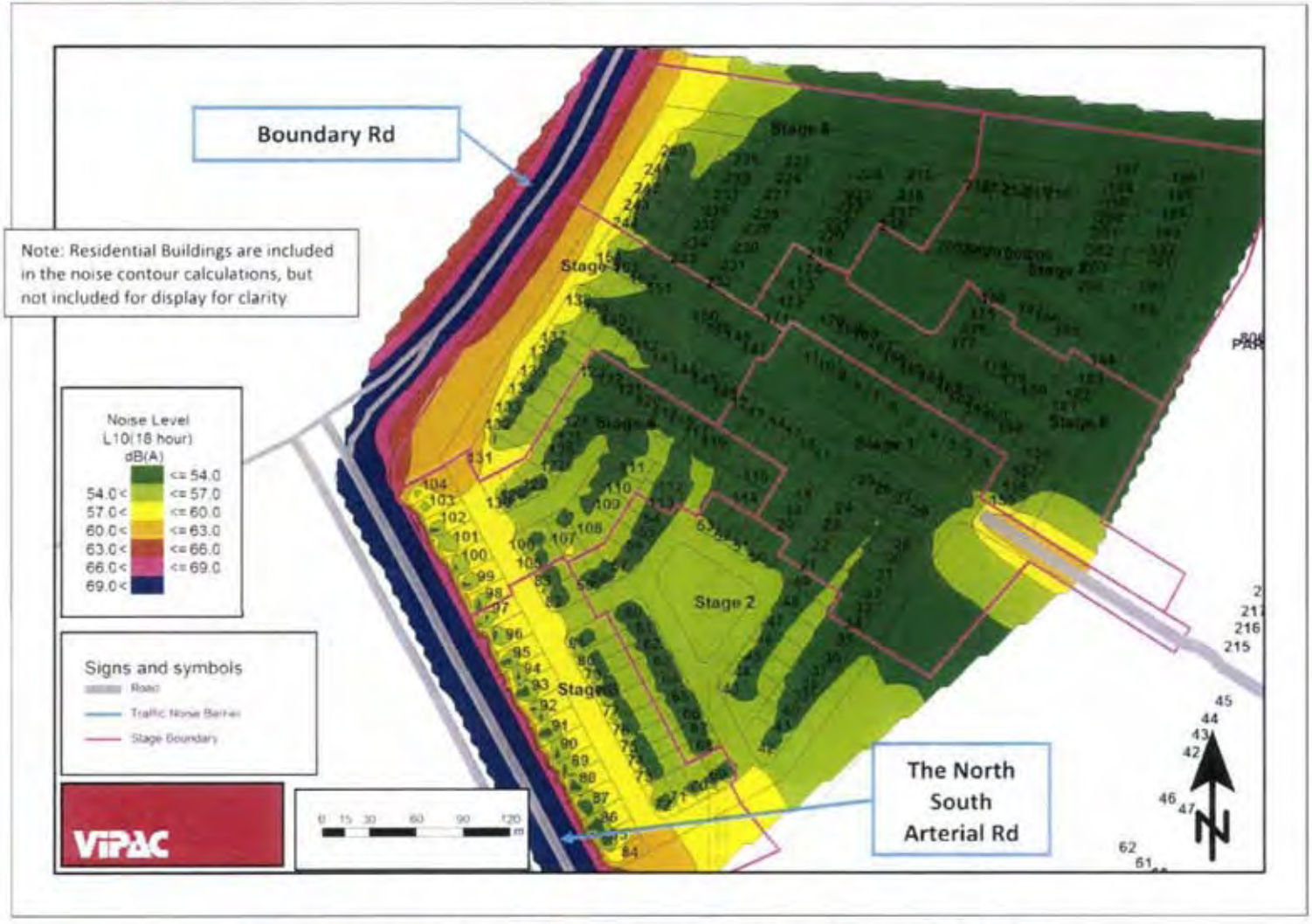

Figure B-3: Predicted Ground Floor Free Field Traffic Noise Contours with No Barriers

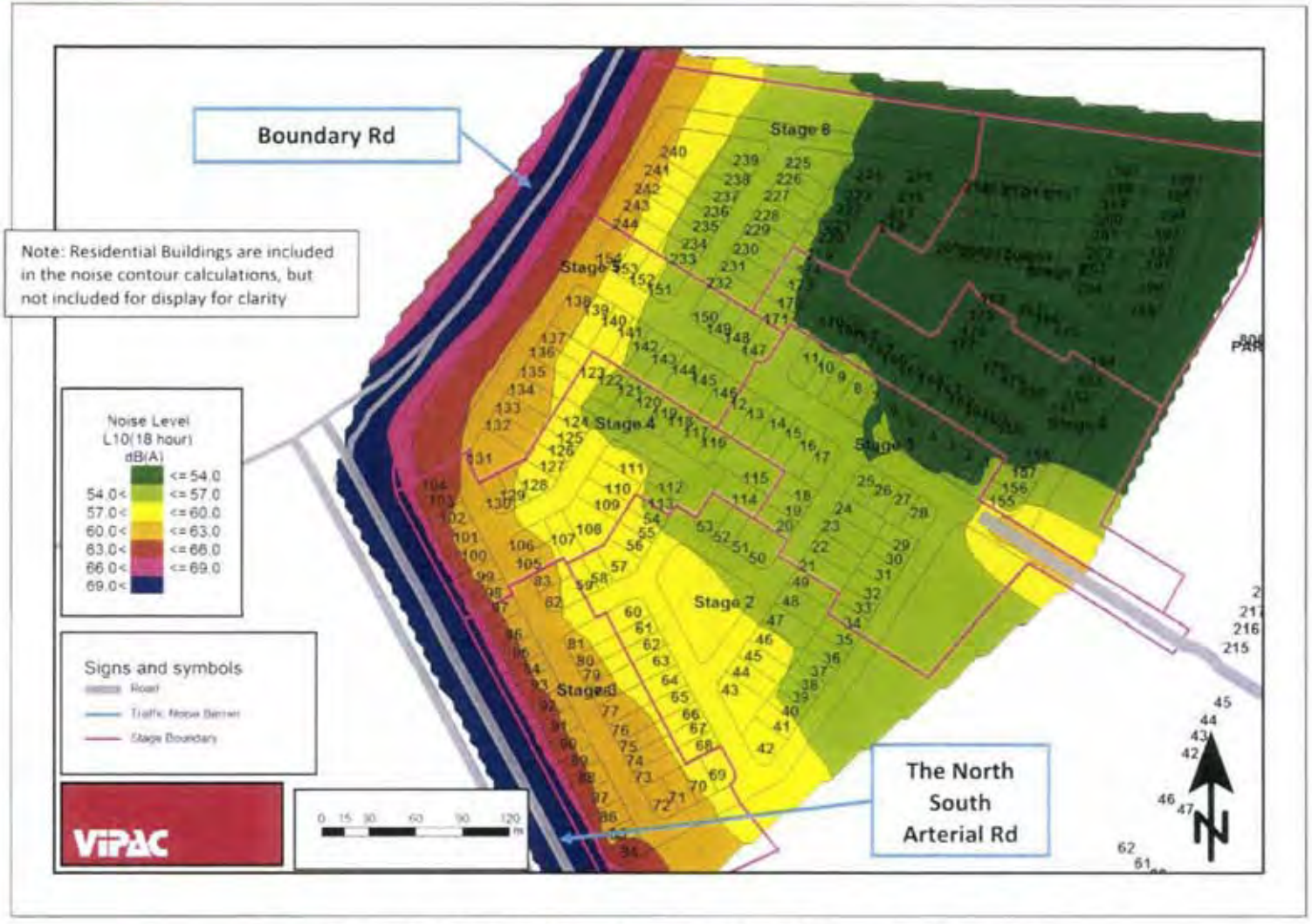

Figure B-4: Predicted First Floor Free Field Traffic Noise Contours with No Barriers

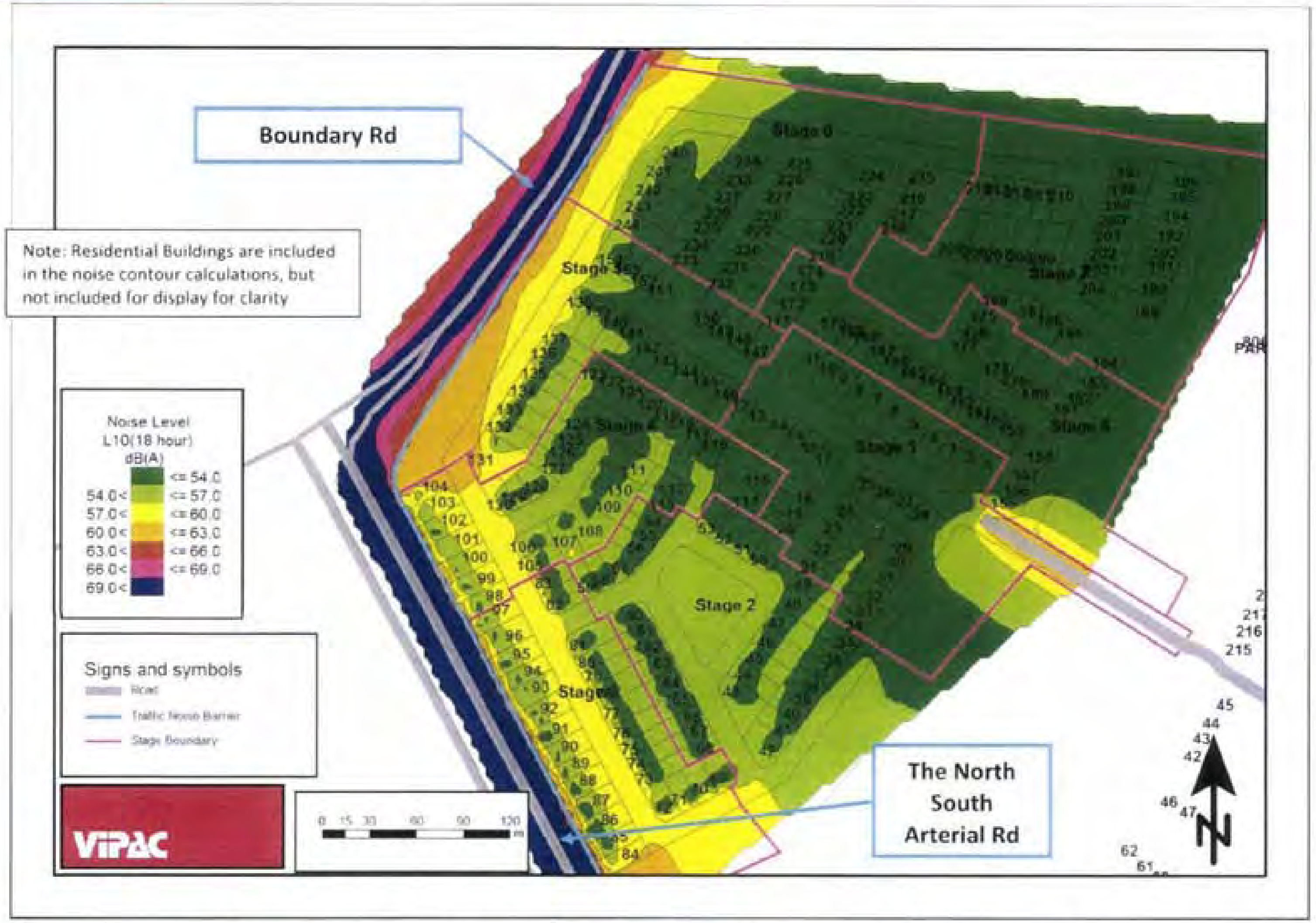

Figure B-5: Predicted Ground Floor Free Field Traffic Noise Contours with the Recommended Barriers

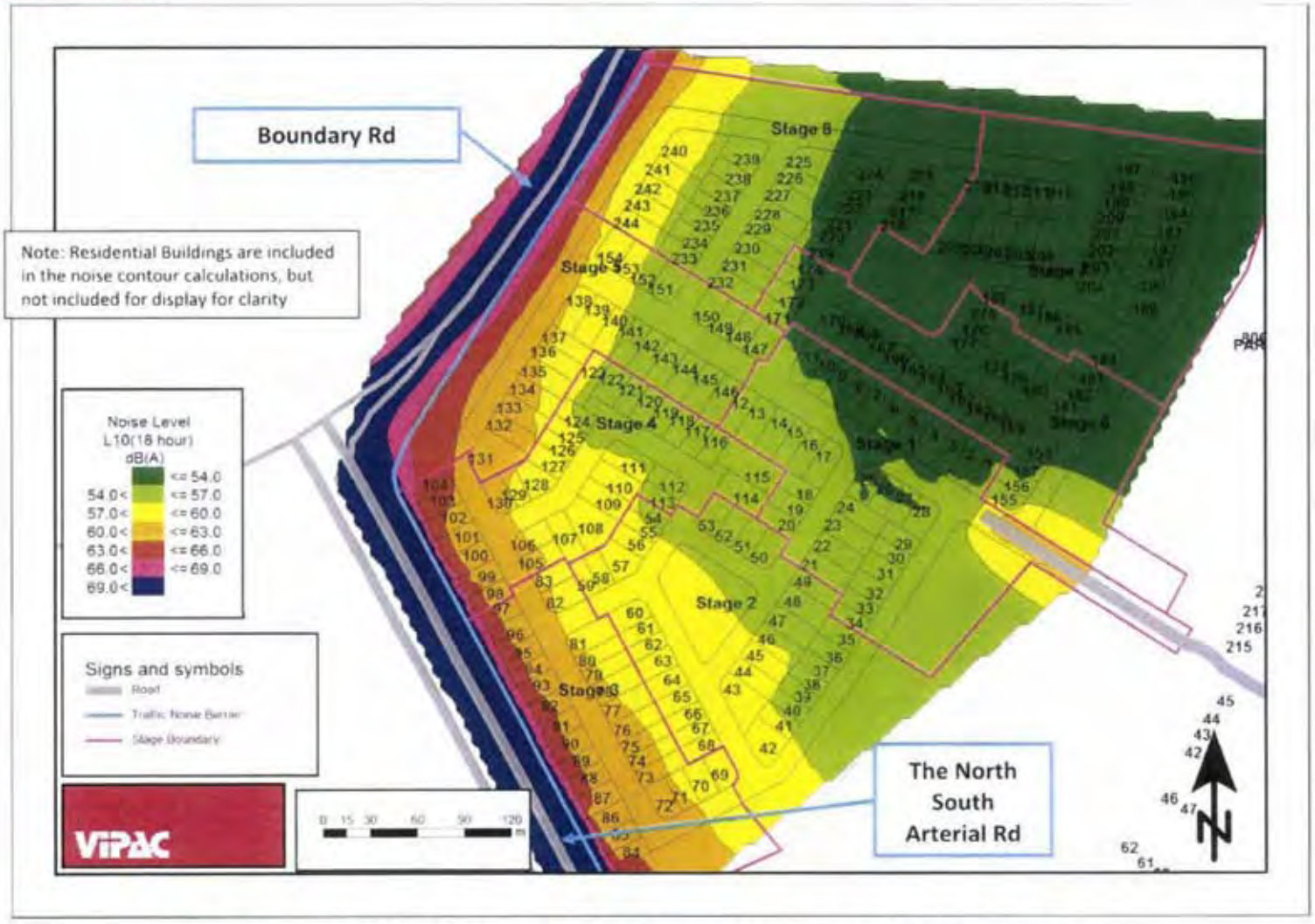

Figure B-6: Predicted First Floor Free Field Traffic Noise Contours with the Recommended Barriers

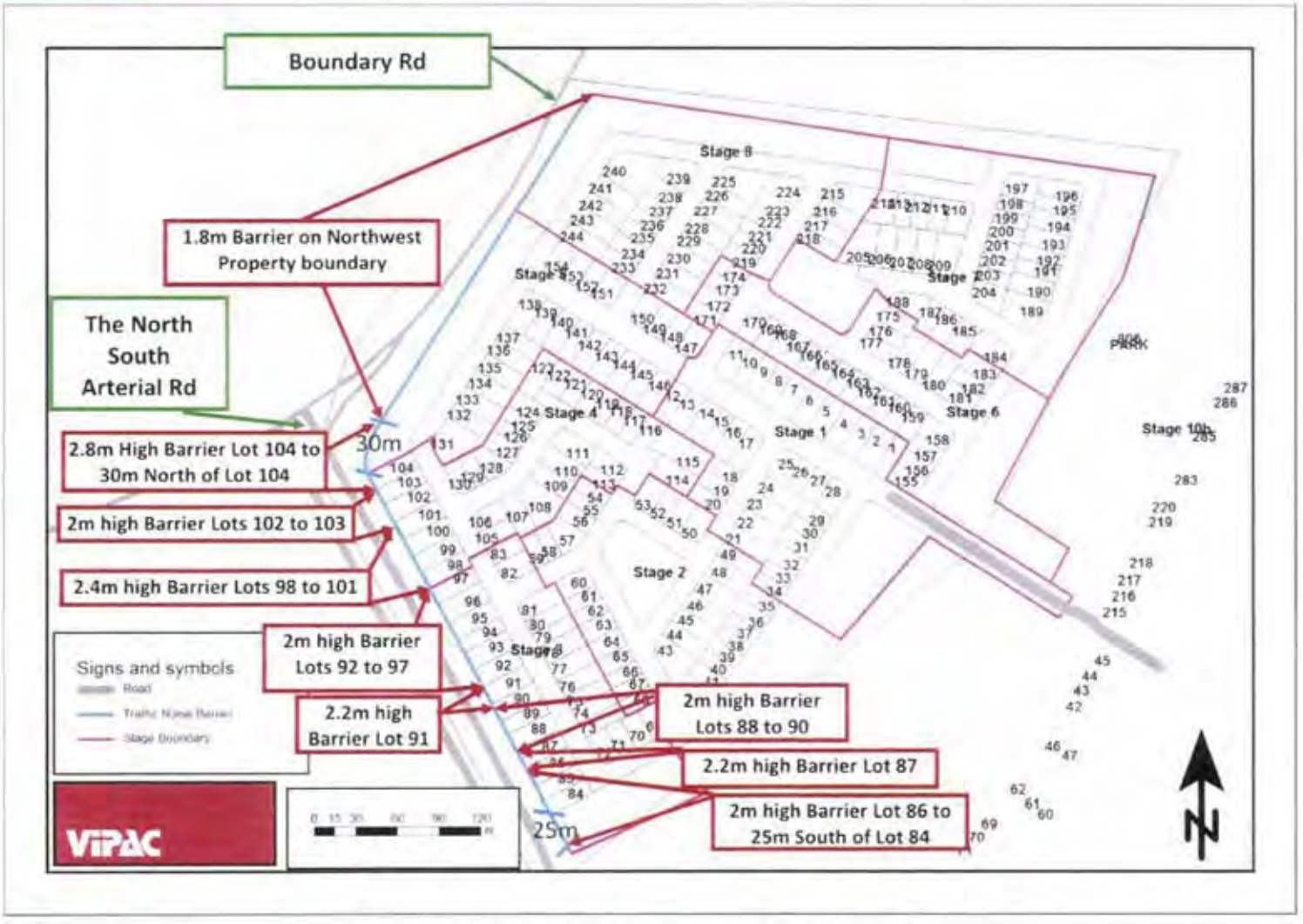

Figure B-7: Rise Precinct Recommended Barrier Solution

APPENDIX C: NOISE LOGGING DETAILS

Noise logging measurements of the Bruce Highways was performed at two locations, L1 and L2. Logger Locations are shown in Figure C-1 below. Noise data collected for Locations L1 and L2 is shown in Figure C-2 and Figure C-3. The characteristics shown are typical of traffic noise.

Figure C-1: Locations of noise logging measurements of Bruce Highway Traffic Noise

Instrumentation used for measurements and measurement details are listed in Table C-1 and Table C-2 respectively.

Table C-1: Instrumentation

Logger ID	Instrument	Serial Number	Lab Calibration Due	Field Calibration
L1	Larson Davis LD812 Type 1 Sound Level Meter	0529	28/7/2008	94.0 dB(A) before 94.0 dB(A) after
L2	Larson Davis LD812 Type 1 Sound Level Meter	0529	28/7/2008	93.8 dB(A) before 93.8 dB(A) after
N/A	B&K Type 4230 Acoustic Calibrator	725011	9/08/2007	N/A

Table C-2: Measurement details for Logger L1

Detail	Logger L1 Information	Logger L2 Information
Microphone Height	1.5m	1.5m
Microphone Orientation	Pointing vertically upwards	Pointing vertically upwards
SLM Time Weighting	Fast	Fast
SLM Frequency Weighting	A	A
Measurement Interval Period	15 minutes intervals	15 minutes intervals
Logger location	25m east of the Bruce Highway.	On exposed slope 150m east of the Bruce Highway.
Date of measurement	Between 10th July and 14th July 2007	Between 31st July and 4th August 2007
Weather condition during measurement	Fine weather, no rain and mild winds	Fine weather, no rain and mild winds

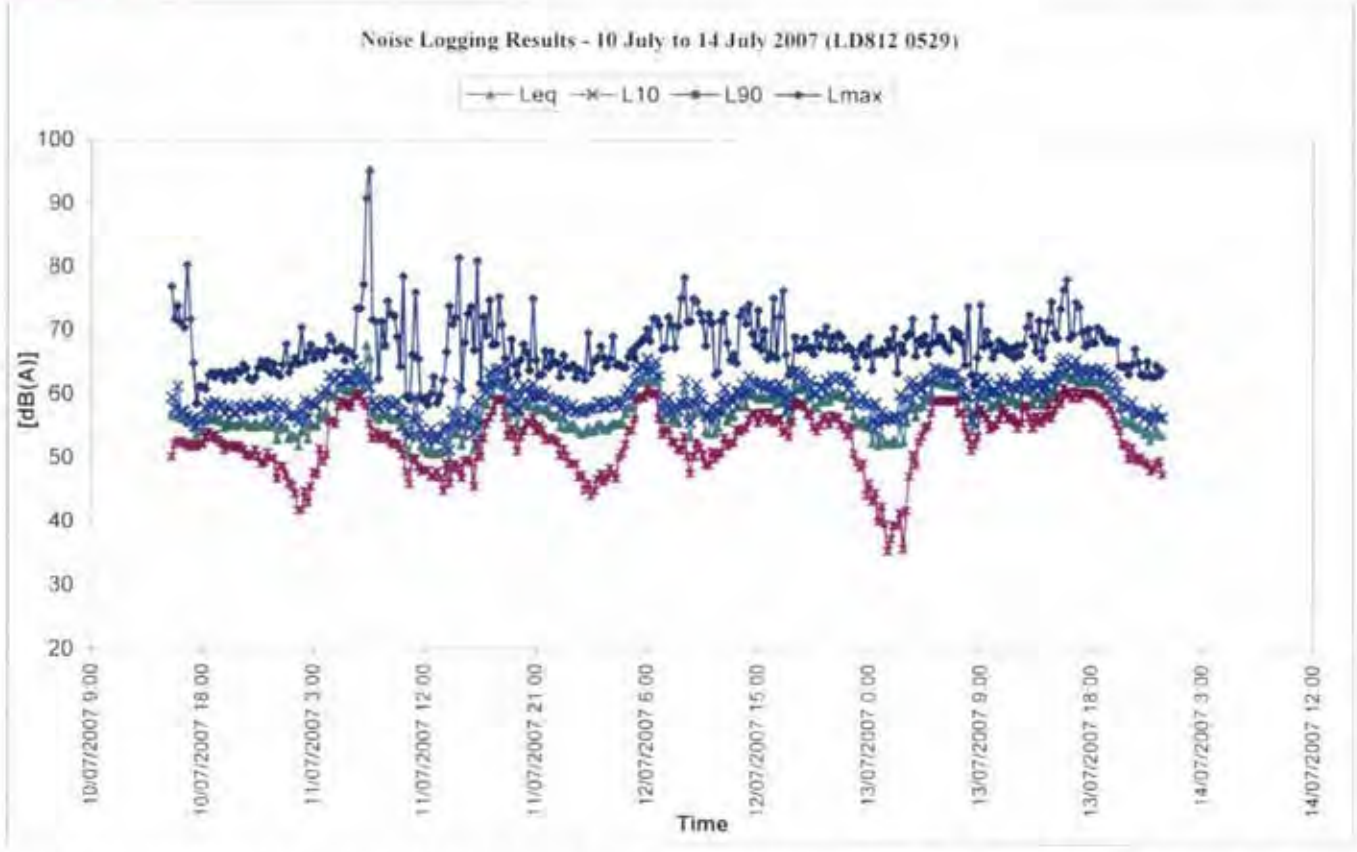

Figure C-2: Ambient noise levels measured near the Bruce Highway, North Lakes (Logger Location L1) on 10th July to 14th August 2007.

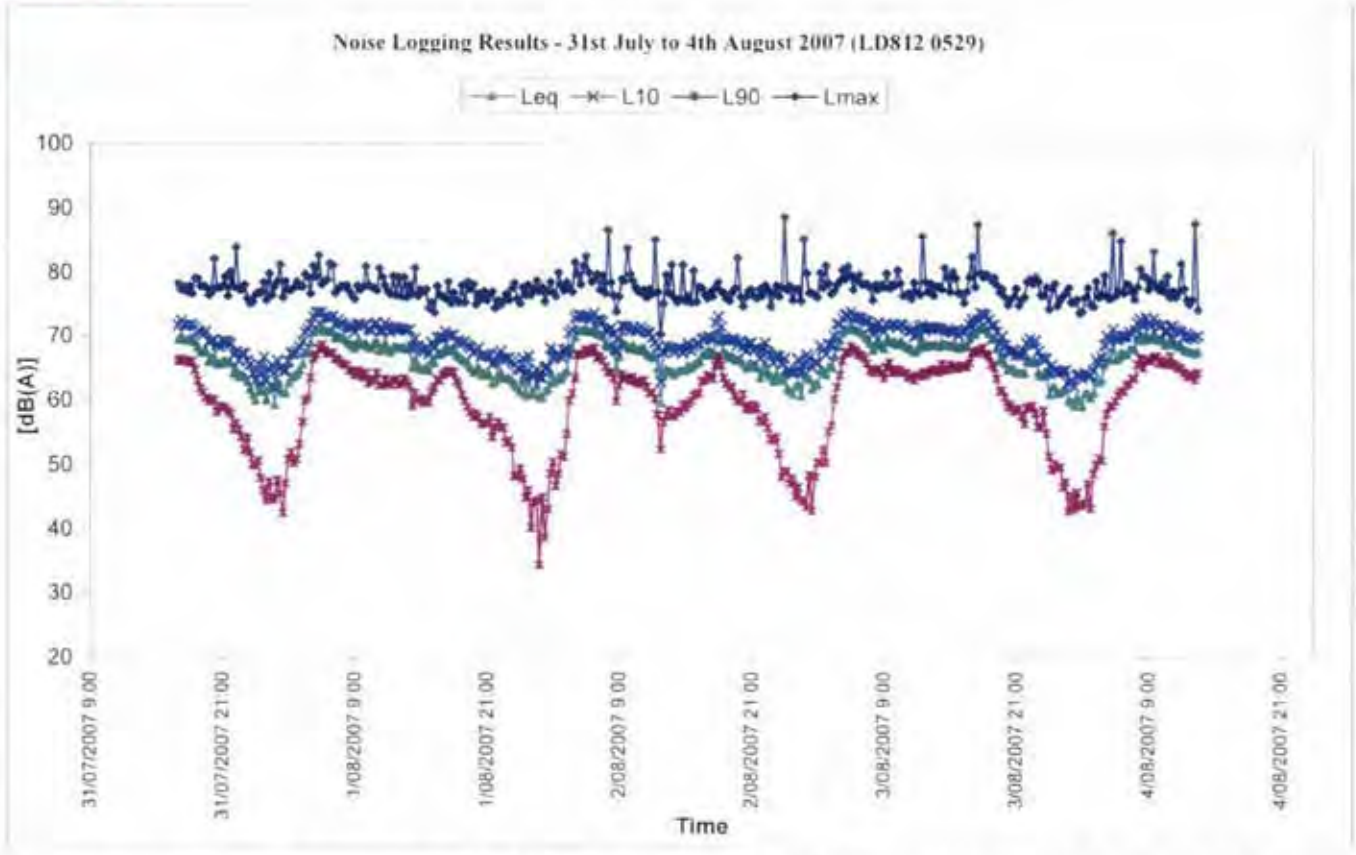

Figure C-3: Ambient noise levels measured near the Bruce Highway, North Lakes (Logger Location L2) on 31st July to 4th August 2007

Noise descriptors calculated from logging data are tabulated in Table C-3:. Data for logger L1 after 15:00pm 22/2/06 was excluded due to contamination from rain noise.

Table C-3: Noise descriptors calculated from measured data

Noise Descriptor	Period	Measured Noise Levels (dB(A))	
		L1	L2
LA10,18hrs	6am to 12 midnight	59.0	69.9
LAmax,24hrs	24 hours	70.1	79.8
LA90(18 hr)	6am to 12 midnight	53.1	61.8
LA90(8 hr)	10pm to 6am	49.2	53.5
LAeq,1hr	maximum 1 hour (24 hours)	62.6	71.0
LAeq,1hr	maximum 1 hour (10pm - 6am)	61.0	70.2
LAeq	average day time – 7am to 6pm	58.5	68.1
LAeq	average evening time - 6pm to 10pm	58.8	66.8
LAeq	average night time - 10pm to 7am	57.3	66.2
LA90	average day time – 7am to 6pm	50.1	54.8
LA90	average evening - 6pm to 10pm	54.8	60.4
LA90	average night time - 10pm to 7am	50.1	54.8
LA90	Minimum night time 10pm to 7am	44.0	46.8
LAmax	average day time – 7am to 6pm	71.5	80.2
LAmax	average evening - 6pm to 10pm	68.4	78.6
LAmax	average night time - 10pm to 7am	67.6	79.9
LAeq,1hr	maximum day/evening time – 7am to 10pm	61.8	70.2
LAeq,1hr	maximum night time - 10pm to 7am	61.0	70.2
LA1	maximum 1 hour (24 hours)	67.5	76.1
LA1	maximum 1 hour (10pm to 6am)	64.4	75.7
LA1	maximum 1 hour (7am to 10pm)	67.4	75.5
LA1	maximum 1 hour (10pm to 7am)	65.1	75.7
Laeq	average, 24 hours	58.7	67.4

C.1 CALIBRATION

Noise model calibration details are included in Table C-4

Table C-4 Calibration Details

Noise Level	$L_{A10(18\ hour)}$ dB(A)	
	Location L1	Location L2
SoundPLAN predicted Noise Levels	61.1	72.0
Noise Logger Measured Noise Levels	59.8	69.9
Difference	-1.27	-2.12
Average	-1.7	

As such, the calibration constant for the Bruce Highway noise sources is –1.7 dB(A).