



# Appendix C

## Traffic Assessment

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## Lennox Head Pacific Pines Estate Traffic Assessment

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August 2010



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## **EXECUTIVE SUMMARY**

This report has been prepared to address the traffic and transport implications of a modified development yield and form for the Pacific Pines estate at Lennox Head.

A critical constraint for the release of this land is the provision of local road linkages to ensure that existing residential properties are not adversely affected by increasing traffic demands. This aspect is particularly important in light of the timing of strategic linkages being delayed as a result of development slowing in the area and therefore impacting the land availability for these upgrades.

Current Ballina Shire Council planning envisages delivery of the northern and southern sections of Hutley Drive by 2016 however the southern section is subject to environmental impact approvals and the northern section ultimate design relies on traversing privately held land.

The Pacific Pines estate will ultimately comprise a mixture of standard and retirement residential, and retail centre land uses. It will generate in the order of 7,000 daily vehicle trips, a proportion of which will be internal to the development only. Access to the lands can be managed by linkages including Montwood Drive, Henderson Lane, Stoneyhurst Drive and the extension/s to Hutley Drive.

Based upon an assessment of daily traffic demands, the development impacts can be managed by the staged implementation of the network linkages as follows:

- Stage 1A: Interim access via Montwood Drive as the sole access is considered acceptable for Stage 1A based on its environmental capacity;
- Stage 1B-Stage 5: An additional access link to allow traffic to travel via Hutley Drive and Henderson Lane. This connection onto the existing road network would adequately serve the development prior to Stage 8;
- Stages 6 – 9: Inclusion of the left in/left out upgrade of Hutley Drive and related intersection works onto North Coast Road would accommodate the anticipated development traffic for all development stages. The extension of Hutley Drive is proposed to occur within the existing road reservation and therefore eliminates the requirement to enter into third party discussions as part of early staging;
- in accordance with Ballina Shire Council (BSC) planning, it is proposed that Hutley Drive ultimately extend to the north (connecting into Ballina Rd/Coast Road intersection) and to the south (connecting into North Creek Road/Skennars Head Road intersection). The Hutley Drive extensions are only required at a later stage once future growth and development is experienced.

***Lennox Head Pacific Pines Estate***

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The above linkages can be constructed in part by the development and in combination with Ballina Shire Council by way of an infrastructure agreement or using Section 94 contributions.

## **1.0 INTRODUCTION**

### **1.1 Background**

Cardno Eppell Olsen (CEO) has been commissioned by Petrac Lennox Head Pty Ltd (Receivers and Managers Appointed) to prepare a traffic impact statement to accompany an application for modifications to the existing approved concept plan for the Pacific Pines development at Lennox Head.

This report provides a summary of the expected traffic impacts of the proposed development on the surrounding network, based on the site development plans outlined within the Pacific Pines Modification Report prepared by Geolink.

### **1.2 Scope of Work**

The key objective of this assessment is to document the anticipated effects that the proposed development will have on the surrounding road network and to address traffic impacts as per Ballina Shire Council's Planning Scheme and current design guidelines. In order to achieve these objectives, the following tasks have been undertaken:

- identify the anticipated traffic generation from the proposed development;
- identify the existing environmental mid-block capacities on the existing road network;
- investigate the capacities of major road connections into and out of the site;
- identify appropriate staging and road infrastructure improvements accounting for any strategic issues concerning the current and ultimate road network layouts.

### **1.3 References**

In preparing this report, reference has been made to the following background material:

- Pacific Pines Application Previous application documents;
- Ballina Strategic Road Network Study Update (CEO) – 2007;
- Lennox Head Paramics Model (CEO) – 2008.

#### **1.4 Document Review**

Cardno Eppell Olsen has been previously commissioned by Ballina Shire Council (Council) to undertake a strategic road network update study for Ballina Shire in 2006, which was subsequently finalised in 2007 (*Ballina Strategic Road Network Study Update, September 2007*). As part of that study a sub-arterial route from Ballina Island to Lennox Head via either an upgraded North Creek Road and associated new bridge, or alternatively via a new link referred to as the Skennars Head Distributor, was identified as a potential solution to reduce the volume of through traffic passing through Ballina Island and East Ballina and to preserve future capacity along The Coast Road corridor. It was originally envisaged that the solution would involve either the northern section of North Creek Road, or an alternative alignment incorporating the existing section of Hutley Drive, fulfilling the sub-arterial function through the Lennox Head South precinct.

A more detailed assessment of the alternative sub-arterial routes through the Lennox Head South precinct was undertaken by Cardno Eppell Olsen in September 2006 (*Lennox Head South, Hutley Drive Traffic Planning Issues*). This assessment examined the cross-sectional requirements for a sub-arterial road against the physical constraints present along each route, from which it was concluded that neither Hutley Drive nor the northern section of North Creek Road had the potential to satisfy the proposed sub-arterial function.

Based on these findings a compromised solution has been resolved which seeks to share the distribution of locally-generated traffic in the Lennox Head South precinct across North Creek Road and/or Hutley Drive while reinforcing The Coast Road as the higher order route for through traffic.

## **2.0 DEVELOPMENT DETAILS**

### **2.1 Development Site**

Pacific Pines Estate is proposed to be located on a green field site at Lennox Heads. The development site is bounded by Hendersons Lane and the Lennox Meadows Estate to the north and existing residential subdivision to the south. Hutley Drive and its proposed future extension is aligned on the western boundary.

### **2.2 Proposed Site Layout Modifications**

The project is now proposed to be undertaken in nine stages and comprises of the following main changes:

- Montwood Drive extension to be slightly realigned. Reduced yield as a result of wetland expansion and removal of residential allotment;
- bring forward the ability to develop and release residential lots in the north-west corner of site, by creating two additional super lots within Stage 1B. The approved plans show this area as partly within Stage 2 and partly within Stage 10 which could constitute two additional super lots. It is proposed that these additional super lots be brought on-line concurrently with the construction of the approved Hutley Drive Extension (Stage 1C). It is proposed that Stage 1B and 1C be amalgamated since they both require the construction of Hutley Drive for public road frontage;
- an increase in the area of the proposed supermarket and specialty retail centre from the temporary floor area restriction to 1,200sqm which it is understood has been conditioned by existing approvals for early stages of the development.

### **2.3 Proposed Land Use**

The subdivision proposes a mix of land uses on the currently vacant site. The predominant land use would be residential (comprising standard residential and seniors lifestyle residential) dwellings with supporting retail and commercial services to meet the needs of the local community into the future. Table 2.1 shows the currently envisaged yield and staging by land use type.

**Table 2.1**

**Land Use Staging**

| <b>Stage</b> | <b>Residential<br/>(Dwellings)</b> | <b>Senior, Assisted and<br/>Independent Living<br/>(Dwellings)</b> | <b>Commercial<br/>and Retail<br/>(sq.m GFA)</b> |
|--------------|------------------------------------|--|---|
| Stage 1A     | 54                                 |  | 4,800   |
| Stage 1B     | 164                                | 137  | 0   |
| Stage 2      | 78                                 | 0  | 0   |
| Stage 3      | 65                                 | 0  | 0   |
| Stage 4      | 33                                 | 0  | 0   |
| Stage 5      | 39                                 | 0  | 0   |
| Stage 6      | 39                                 | 0  | 0   |
| Stage 7      | 21                                 | 0  | 0   |
| Stage 8      | 36                                 | 0  | 0   |
| Stage 9      | 30                                 | 0  | 0   |
| <b>TOTAL</b> | <b>559</b>                         | <b>137</b>   | <b>4,800</b>                                    |

It is noted that the staging identified in Table 2.1 above assumes a worst case for the purposes of the traffic assessment by including the proposed retail land uses within the first development stage (Stage 1A). In addition, the yield identified in Stage 1B is an estimate of development potential which could be realised, however this proposal involves the formation of super lots for those stages only at this time. Both the retail/commercial and retirement community uses will be subject to subsequent development applications/approvals.

### **3.0 EXISTING CONDITIONS AND PLANNING**

#### **3.1 Study Area**

The area considered in this study is bounded by Hutley Drive and its future possible extensions to the west and North Creek Road to the east.

The study area is predominantly comprised of residential dwellings. A small number of other land uses exist within the local area, primarily located south-east of the site. These include two schools and a retirement village.

#### **3.2 Road Network**

Key links of interest in the study area are:

- North Creek Road;
- Hutley Drive;
- Montwood Road;
- Henderson Lane;
- Stoneyhurst Drive.

The road hierarchy, associated volume thresholds and road width characteristics adopted in analysing the future design options are summarised below in Table 3.1.

**Table 3.1 Road Network Hierarchy Parameters**

| <b>Road Hierarchy</b> | <b>Volume Per Day (vpd)</b> | <b>Road Reserve Width</b>                                 |
|-----------------------|-----------------------------|---|
| Arterial Road         | 10,000-20,000               | 40m minimum   |
| Trunk Distributor     | 7,000-10,000                | 30m minimum   |
| Major Collector       | 3,500-7,000                 | 20m minimum without parking<br>25m with parking or median |
| Minor Collector       | 1,000-3,500                 | 17.5m minimum   |
| Access Street         | 300-1,000                   | 15m maximum   |
| Access Place          | 0-300                       | 15m maximum   |

Table 3.2 indicates the approximate hierarchy level assigned to each road. The timing of future upgrades works based on relevant staging has been based on these assumed road hierarchies and associated threshold volumes.

**Table 3.2** **Road Network Capacities**

| Road Name                 | Classification    | Volume per Day (vpd) |         |                |
|---------------------------|-------------------|----------------------|---------|----------------|
|                           |                   | Maximum              | Current | Spare Capacity |
| Montwood Drive            | Minor Collector   | 3,500                | 1,125   | 2,375          |
| Hendersons Lane           | Minor Collector   | 3,500                | 1,400   | 2,100          |
| Silkwood Road             | Minor Collector   | 3,500                | 1,400   | 2,100          |
| Stoneyhurst Drive         | Access Street     | 1,000                | 60      | 940            |
| Hutley Drive (existing)   | Minor Collector   | 3,500                | 730     | 2,770          |
| Hutley Drive (ultimately) | Trunk Distributor | 10,000               | N/A     |                |

#### North Creek Road

North Creek Road is aligned in a north-south direction and is located east of the site. This link is currently provided as a two-way, two lane road. The Cardno Eppell Olsen “Lennox Head Paramics Model” report describes this link as a Major Collector.

#### Hutley Drive

The currently constructed section of Hutley Drive is a two lane, two-way road which serves a local access function. Ballina Shire Council has identified a need to extend Hutley Drive to service the current and future residential developments. Cardno previously examined the cross-sectional requirements for a sub-arterial road against the physical constraints present along each route, from which it was concluded that Hutley Drive does not have the potential to satisfy a proposed sub-arterial function. It is therefore proposed that Hutley Drive be planned as a Major Collector serving the local community of Lennox head south and therefore not carrying significant through traffic as part of a longer traffic carrying route.

Current Ballina Shire Council planning identifies that the northern and southern extensions of Hutley Drive will be provided by 2016 which assumes that all relevant land parcels are fully developed including Pacific Pines. Since the previous assessment of the Pacific Pines development and associated network modelling was undertaken, development has somewhat slowed and the timing of road infrastructure works are likely to be delayed.

Hutley Drive would ultimately be provided as a dual carriageway within a 20m corridor. An off-road bicycle and pedestrian pathway is incorporated in the project scope. As a minimum, Hutley Drive would need to be classified as a Major Collector in the future.

Planning for the area includes the 'cutting' of North Creek Road at its northern end and the diversion of its traffic onto a new Reservoir Road link. It is proposed that the Hutley Drive extension will connect into the Reservoir Road link. This configuration will enable efficient network loading and minimise the number of conflicting legs at the North Creek Road/Coast Road roundabouts.

The Hutley Drive connection into Reservoir Road is contingent on the future northern link within the Indigo site. Therefore if the Hutley Drive link is to be achieved prior to the development of 3rd party land (Condon Family Site), an interim left in/left out link into North Creek Road may be an interim solution pending further investigation.

#### Montwood Drive

Montwood Drive serves an access function for residential properties in the local area and is described as a minor collector. Residential properties have direct access along the length of the link, which is curvilinear in nature. The Cardno Eppell Olsen "Lennox Head Paramics Model" report identifies a daily traffic volume at around 1,125vpd on this link.

#### Henderson Lane

Henderson Lane and Stoneyhurst Drive serve a local access function in the current network. Stoneyhurst Drive provides direct access for a small number (five) of residencies and ends immediately west of the development site. Henderson Lane provides a through function for the residential community north west of the site and connects Stoneyhurst Drive to North Coast Road. The Paramics Report documents a traffic volume of 1,400vpd on Henderson Lane.

#### Stoneyhurst Drive

Stoneyhurst Drive functions as a local access route in the current network. Stoneyhurst Drive provides direct access for a small number (five) of residencies and ends immediately west of the development site. The Paramics Report documents a traffic volume of 60vpd on Stoneyhurst Drive.

### **3.3 Background Growth**

There are a number of developments proposed in the local area, which have implications for the formation of, and timing of provision of local road network elements, particularly Hutley Drive. Construction of a number of the linkages is either contingent on their implementation as part of development related works or will only be achievable by way of funding sourced directly from development via Section 94 contributions levied by Ballina Shire Council. Given that the timing and final yields of development is difficult to ascertain with certainty, this assessment considers the road network requirements of the subject development independently. The background growth is therefore assumed to be zero or negligible.

## 4.0 DEVELOPMENT TRAFFIC

### 4.1 Traffic Generation

Daily traffic generation rates utilised for this assessment are consistent with rates applied within the currently approved master plan application. Table 4.1 lists the rate used for each land use type.

**Table 4.1** *Traffic Generation Rates*

| Category                              | Rate                 | Yield           | Trips |
|---------------------------------------|----------------------|-----------------|-------|
| Residential (Standard and Retirement) | 8 trips/dwelling     | 121 dwellings   | 4,480 |
| Assisted and Independent Living Units | 1 trips/bed          | 78 dwellings    | 156   |
| Seniors                               | 2 trips/dwelling     | 59 dwellings    | 59    |
| Commercial and Retail                 | 46 trips/100sq.m GFA | 4,800 sq. m GFA | 2,208 |

Given the nature of development comprising a mixture of residential, commercial and retail land uses, it is reasonable to anticipate that the distribution of traffic from the individual land uses will be different with a proportion internal (i.e. between the retails and residential uses) and the remaining external (i.e. between residential and external employment including Ballina. Consistent with previous reporting, the residential land uses are assumed to generate an internal demand of around 25% of the total traffic generation or 1,172 trips. This corresponds to around 53% of the total traffic generated by the commercial and retail component. The remaining 1,036 trips generated by the retail centre are assumed to have a destination outside of the development site.

### 4.2 Traffic Distribution

The majority of external traffic is expected to originate or have a destination in Ballina and the Lennox Head Town Centre. In consideration of the relative size of these population centres and the land use in the greater area, the following external distribution has been adopted:

Retail/Commercial Traffic:

- North: 75%;
- South: 25%.

Residential Traffic:

- North: 25%;
- South: 75%.

The distribution onto the local road network has been considered in detail for each stage of the development, based on the location of the development stage and the available network connections.

### **4.3 Access Arrangement**

In the longer term, the development proposes primary access via Hutley Drive, with secondary access via existing roads, including Montwood Drive and Stoneyhurst Drive/Henderson Lane. Given that the timing of the Hutley Drive upgrading works are dependent on the progress of other developments, this report considers access options for the initial and medium stages of the development.

As a staged approach, five options have been considered with assessment predominantly focused on the midblock capacities of the surrounding network. The options are discussed in the following sections.

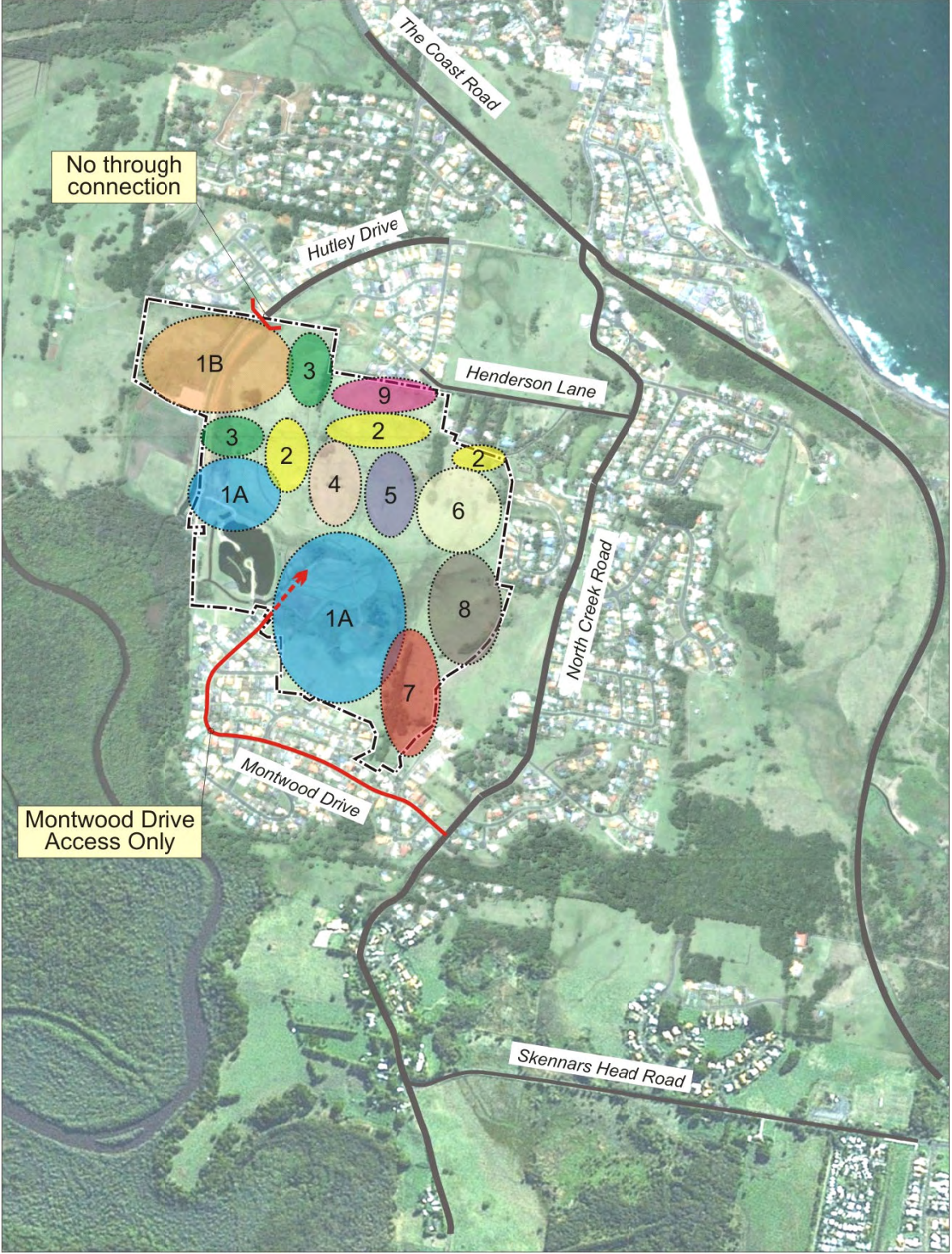
- Option 1 – Site access via Montwood Drive only;
- Option 2 – Site access via Montwood Drive and Hendersons Lane only;
- Option 3 – Inclusion of Hutley Drive extension to the north connecting into North Creek Road;
- Option 4 – Inclusion of Hutley Drive extension to the south connecting into Skennars Head Road/North Creek Road intersection;
- Option 5 – Ultimate scenario – inclusion of full extension of Hutley Drive to the north into Coast Road/Ballina Street intersection.

### **4.4 Network Option 1**

Network Option 1 investigates the possible inclusion of Stage 1A and 1B only. The early stages would have limited access options and it would be reasonable to consider access via existing links. In this option, Montwood Drive would function as the sole access to the site. Figure 4.1 illustrates Network Option 1.

Figure 4.1

Network Option 1



**Table 4.2**

**Option 1 Review**

| Road Name                        | Volume per Day |       |                     |       |                | Comment   |
|----------------------------------|----------------|-------|---------------------|-------|----------------|---|
|                                  | Maximum Daily  | Base  | Development Loading | Total | Spare Capacity |   |
| Montwood Drive (Stage 1 A)       | 3,500          | 1,125 | 1,360               | 2,485 | 1,015          | Within an acceptable threshold  |
| Montwood Drive (Stage 1A and 1B) | 3,500          | 1,125 | 2506                | 3,631 | (-) 131        | Exceeds the road capacity threshold, further upgrading required prior to completion |

The mid-block capacity review indicates that only Stage 1A traffic could be directed via Montwood Drive without the theoretical capacity limits being exceeded. With development of Stages 1A & 1B, the total traffic volume on Montwood Drive is estimated at 3,631vpd. This slightly exceeds the recommended capacity of the link which is currently classified as a Minor Collector with an upper level capacity of 3,500vpd.

It is considered appropriate to provide an additional connection link to the north via Hutley Drive and Henderson Road to ensure that the development of Stages beyond the first stage (1A) do not have any adverse impacts upon the surrounding road network.

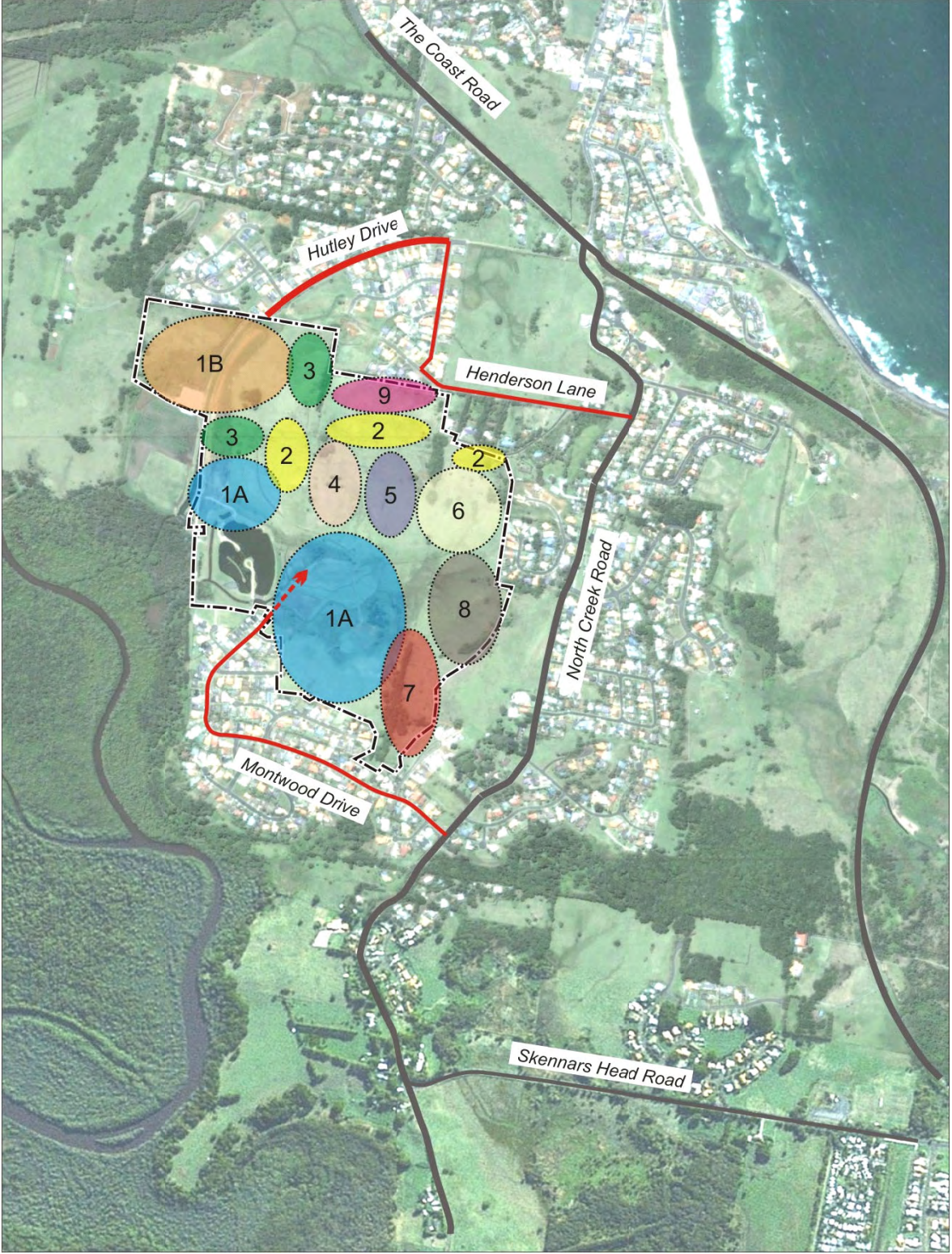
It should be noted that the sports fields are expected to generate traffic on weekends are not anticipated to have any significant impact on the traffic loading to the surrounding road network. As such they have not been included for the typical daily scenario assessed above.

#### **4.5 Network Option 2**

As the development progresses, it would be possible to extend the access connections to include Silkwood Road/Henderson Lane for destinations to the north as illustrated on Figure 4.2.

Figure 4.2

Network Option 2



**Table 4.3**
**Option 2 Review (Stages 1-5)**

| Road Name                       | Volume per Day |       |                     |       |                | Comment                        |
|---------------------------------|----------------|-------|---------------------|-------|----------------|--------------------------------|
|                                 | Maximum Daily  | Base  | Development Loading | Total | Spare Capacity |                                |
| Montwood Drive                  | 3,500          | 1,125 | 2,298               | 3,423 | 77             | Within an acceptable threshold |
| Hutley Drive/<br>Henderson Lane | 3,500          | 1,400 | 1,497               | 2,897 | 603            | Within an acceptable threshold |

As a result around 60% of development traffic from Stages 1 to 5 would use Montwood Drive and the remaining 40% would travel via Henderson Lane. This reduces the impact on Montwood Drive allowing the development to theoretically progress to the end of Stage 5 whilst maintaining demands within the recommended capacity. Beyond Stage 5, to accommodate increasing development demands, additional linkages should be pursued to ensure that the surrounding street system is not unreasonably impacted. It is recognised that other development within the catchment could potentially reduce the available spare capacity and therefore there would be benefit in securing additional linkages sooner.

#### 4.6 Network Option 3

Later stages of the development are expected to have primary access via Hutley Drive. Option 3 assumes that the northern extension of Hutley Drive is in place.

Based on previous modelling undertaken by CEO, Ballina Shire Council has identified that both northern and southern extensions of Hutley Drive are to be provided by 2016. This assumes all relevant land parcels are fully developed including Pacific Pines. Since the previous assessment and associated modelling was undertaken, development has somewhat slowed and the timing of road infrastructure works are likely to be delayed.

Delayed infrastructure for the area includes the 'cutting' of North Creek Road at its northern end and the diversion of its traffic onto the new proposed link via third party land. However, any staging of works from Stage 6 onwards of the Pacific Pines Estate requires a suitable connection onto the surrounding road network. Therefore the Hutley Drive northern extension is to be achieved prior to the development of 3rd party land (Condon Family Site).

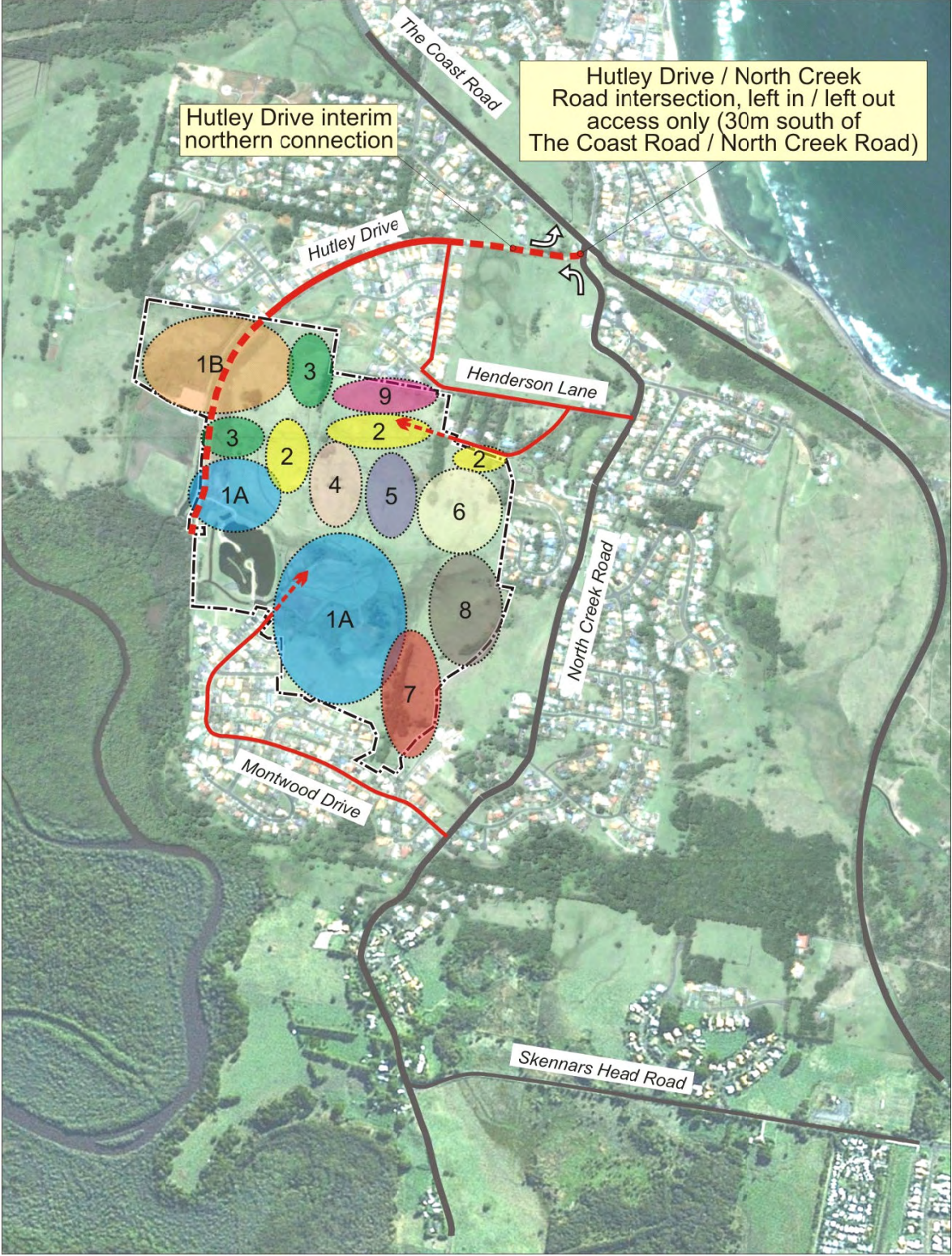
### ***Lennox Head Pacific Pines Estate***

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As part of Stage 6 (or earlier if achievable) an alternative interim left in/left out link into North Creek Road has been investigated, as shown on Figure 4.3 below (see Appendix B for conceptual intersection treatment). This interim restricted movements connection facilitates the early advancement of Hutley Drive to North Creek Road utilising existing road reservation. The left in/left out connection is necessary given the close proximity to the Coast Road/North Creek Road intersection and would require construction of a central median on North Creek Road to effectively ban any right turn manoeuvres.

Figure 4.3

Network Option 3



**Table 4.4**

**Option 3 Review (All Staging)**

| Road Name                                 | Volume per Day |       |                     |       |                | Comment                        |
|---|----------------|-------|---------------------|-------|----------------|--------------------------------|
|   | Maximum Daily  | Base  | Development Loading | Total | Spare Capacity |                                |
| Montwood Drive                            | 3,500          | 1,125 | 2,160               | 3,285 | 215            | Within an acceptable threshold |
| Henderson Lane                            | 3,500          | 1,400 | 364                 | 1,764 | 1,736          | Within an acceptable threshold |
| Hutley Drive<br>Left in/left out scenario | N/A            | N/A   | 1,847               | 1,847 | N/A            | Within an acceptable threshold |

The interim extension of Hutley Drive to North Creek Road would allow traffic to be alleviated from both Montwood Drive and Henderson Road Links. It is expected that the development can be fully accommodated within this road infrastructure staging option whereby no further infrastructure upgrades are considered warranted.

#### 4.7 Network Option 4 and Option 5

Network Option 4 includes all features of Option 3, plus the southern extension of Hutley Drive. Network Option 5 shows the inclusion of the Hutley Drive northern extension to the Coast Road/Ballina Street intersection. Current planning suggests that the northern access would be provided via a new link through an adjacent development. The details of this connection are not considered further as part of this report. Figure 4.4 and 4.5 depict the likely future road upgrading of Hutley Drive brought about by future developments.

**Table 4.5**

**Option 4 (All Scenarios)**

| Road Name                              | Volume per Day |       |                     |       |                | Comment                        |
|--|----------------|-------|---------------------|-------|----------------|--------------------------------|
|  | Maximum Daily  | Base  | Development Loading | Total | Spare Capacity |                                |
| Montwood Drive                         | 3,500          | 1,125 | 316                 | 1,441 | 2,059          | Within an acceptable threshold |
| Henderson Lane                         | 3,500          | 1,400 | 381                 | 1,781 | 1719           |                                |
| Hutley Drive Left in/left out scenario | N/A            | N/A   | 1,916               | 1,916 | N/A            | Within an acceptable threshold |
| Hutley Drive -South                    | 10,000         | N/A   | 2,074               | 2,074 | 7,926          |                                |

**Table 4.6**

**Option 5 (All Scenarios)**

| Road Name          | Volume per Day |       |                     |       |                | Comment                        |
|--------------------|----------------|-------|---------------------|-------|----------------|--------------------------------|
|                    | Maximum Daily  | Base  | Development Loading | Total | Spare Capacity |                                |
| Montwood Drive     | 3,500          | 1,125 | 316                 | 1,441 | 2,059          | Within an acceptable threshold |
| Henderson Lane     | 3,500          | 1400  | 230                 | 1,630 | 1,870          |                                |
| Hutley Drive South | 10,000         | N/A   | 2,067               | 2,067 | 7,933          | Within an acceptable threshold |
| Hutley Drive North | 10,000         | N/A   | 2,074               | 2,074 | 7,926          |                                |

Figure 4.4

Network Option 4

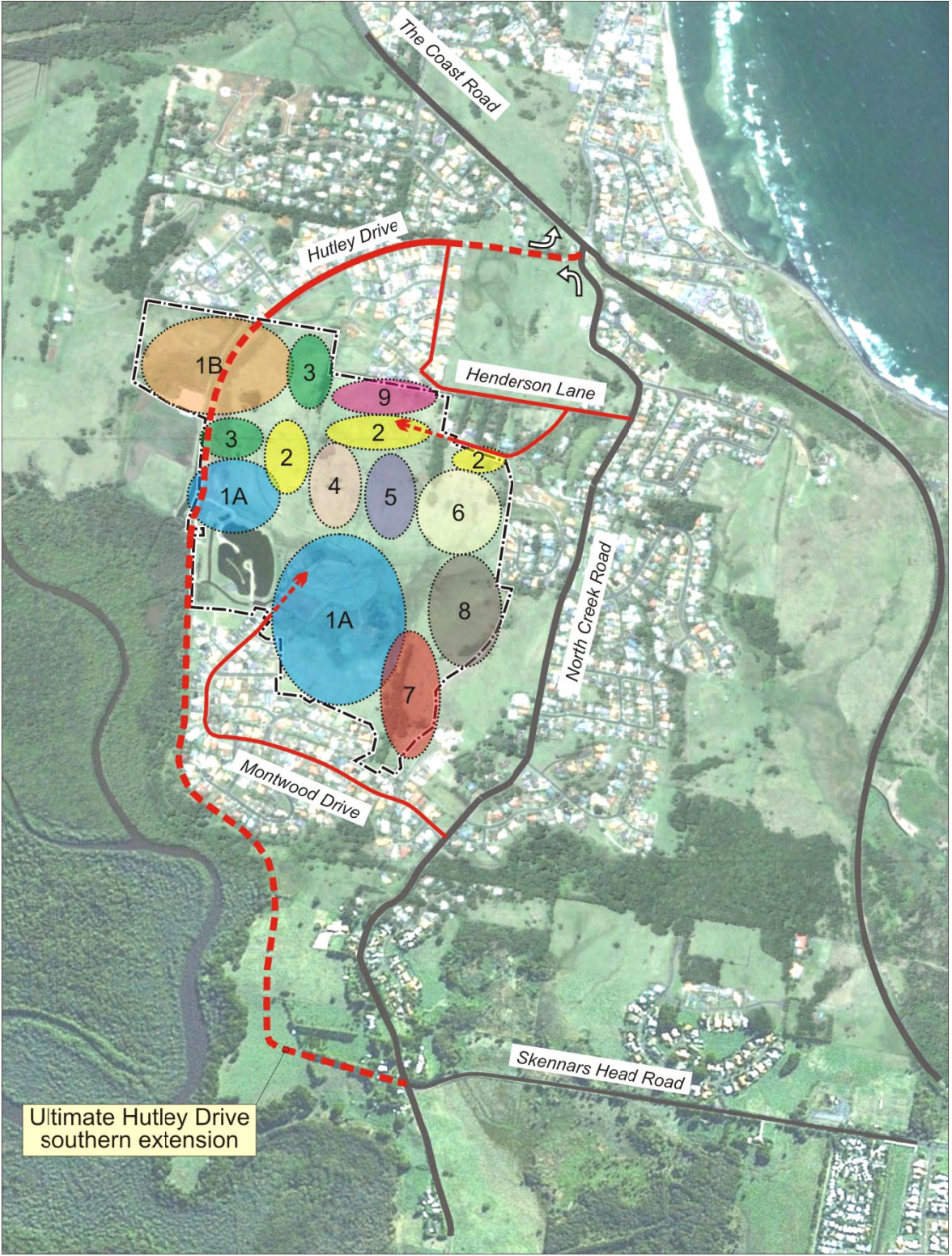
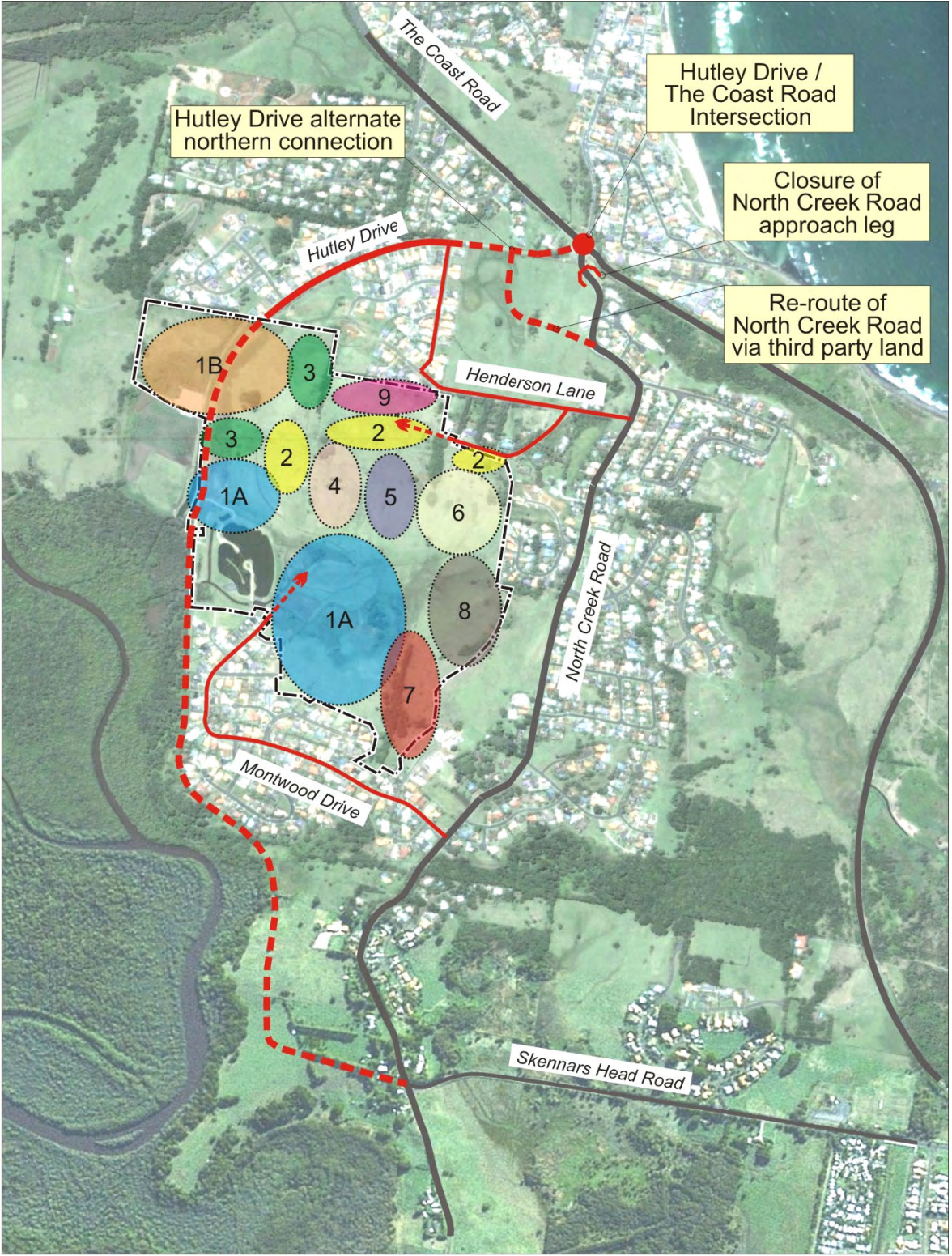


Figure 4.5

Network Option 5



## ***Lennox Head Pacific Pines Estate***

The network distribution would be similar to that of Network Option 4, although Option 5 would be expected to minimise or remove development traffic on Stoneyhurst Drive/Henderson Lane.

Table 4.5 and Table 4.6 indicate that the extension of Hutley Drive will allow some further reductions in daily traffic flows and reliance on the local road network. However, it is considered that the links are not warranted as a result of the development traffic which can be fully accommodated within the Option 3 layout shown on Figure 4.3.

Table 4.7 outlines the timing of the necessary road infrastructure upgrading works brought about by the development staging. No further upgrading is considered warranted as part of this development.

**Table 4.7** *Development Road Infrastructure Upgrading Requirements*

| <b>Stage</b>                                      | <b>Access arrangements</b>  | <b>Road Access Infrastructure Requirements</b> |
|---|---|--|
| Stage 1A  | Montwood Drive  | Access connection into existing Montwood Drive |
| Stage 1B  | Montwood Drive<br>Hutley Drive/Henderson Road   | Access connection into Hutley Drive            |
| Stage 2   |   |  |
| Stage 3   | Montwood Drive<br>Hutley Drive/Henderson Road<br>Hutley Drive/North Creek Road<br>(left in/left out)          |  |
| Stage 4   |   |  |
| Stage 5   |   |  |
| Stage 6   |   |  |
| Stage 7   |   | Hutley Drive extension to North Creek Road     |
| Stage 8   |   |  |
| Stage 9   |   |  |
| Ultimately<br>- No additional development traffic | Montwood Drive<br>Hutley Drive/Henderson Road<br>Hutley Drive/North Creek Road<br>(left in/left out)          |  |
| Ultimately<br>- Additional Development Traffic    | Montwood Drive<br>Hutley Drive/Henderson Road<br>Hutley Drive North Extension<br>Hutley Drive South Extension |  |

## **5.0 CAR PARKING PROVISION**

This section of the report details the proposed car parking arrangements and operations for the development as part of early staging. A breakdown of the proposed car parking requirements and provision for the retail component of Stage 1A is outlined below. It is envisaged that car parking provision for residential dwellings within subsequent stages will be in accordance with the Ballina Shire Council's Development Control Plan – Chapter 1 – Policy Statement No.2 – Car Parking and Australian Standards 2890.1 and 2890.2.

### **5.1 Ballina Shire Council Requirements**

Table 5.1 below identifies the car parking requirements in accordance with Ballina Shire Council Planning Scheme for various land use categories.

**Table 5.1** *Ballina Shire Council Car Parking Requirements*

| <b>Land Use</b>     | <b>Development Yield (GFA)</b> | <b>Car Parking Rate (per 100sq.m)</b> | <b>SCRC Parking Requirements (spaces)</b> |
|---------------------|--------------------------------|---------------------------------------|---|
| Office (Commercial) | 800sq.m                        | 1 space per 40sq.m (GFA)              | 20  |
| Shop (Retail)       | 4,000sq.m                      | 4.4 spaces per 100sq.m (GLFA)         | 176                                       |
| <b>TOTAL</b>        |                                |                                       | <b>196</b>                                |

### **5.2 Proposed Car Parking Supply**

The development proposes to provide in the order of 250 car parking spaces which is well in excess of the number of car parking spaces required under the Development Control Plan. It should be noted that the sporting fields identified as part of the early staging shall provide for all parking on-site subject to detail design. It is therefore considered that this will not impact upon the parking provision for the retail components.

It is expected that the provision will be refined as the design progresses however this assessment identifies the approach which should be applied and indicates that no issues with respect to adequate parking supply are envisaged.

## **6.0 CONCLUSION**

Ballina Shire Council Infrastructure planning currently envisages delivery of the northern and southern extensions of Hutley Drive by around 2016 assuming that development of the surrounding precincts (including the Pacific Pines Estate) progresses. Since the previous assessment and associated modelling was undertaken, development has somewhat slowed. As a result, the midblock capacity of the local network linkages has been reviewed to determine an appropriate access strategy and any upgrading works to accommodate the modified development form.

In relation to the Pacific Pines development, the following modifications are proposed:

- Montwood Drive extension to be slightly realigned for the reestablishment of hairy joint grass. Reduced yield as a result of wetland expansion and removal of residential allotment;
- bring forward the ability to develop and release residential lots in the north-west corner of site, by creating two additional super lots within Stage 1B.
- it is proposed that Stage 1B and 1C be amalgamated since they both require the construction of Hutley Drive for public road frontage;
- an increase in the area of the proposed supermarket and specialty retail centre.

Based on the traffic generating parameters described in this report the following staging and road connections are recommended:

- Stage 1A: Interim access via Montwood Drive as the sole access is considered acceptable for Stage 1A based on its environmental capacity;
- Stage 1B-Stage 5: An additional access link to allow traffic to travel via Hutley Drive and Henderson Lane. This connection onto the existing road network would adequately serve the development prior to Stage 6;
- Stages 6 – 9: Inclusion of the left in/left out upgrade of Hutley Drive and related intersection works onto North Coast Road would accommodate the anticipated development traffic for all development stages;
- the extension of Hutley Drive is proposed to occur within the existing allocated road reserve and therefore eliminates the requirement to enter into third party discussions as part of early staging;
- the interim Hutley Drive extension into North Creek Road is an interim solution however is consistent with Council's ultimate planning and road hierarchy for the catchment area;
- with the Hutley Drive extension in place, traffic volumes on all links are within recommended ranges and the network would have spare capacity to accommodate further growth;

**Lennox Head Pacific Pines Estate**

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- the assessment demonstrates that providing that the linkages proposed are implemented in a timely manner consistent with the proposed staging, there are no traffic reasons for limiting the retail floor space as was previously conditioned;
- cost estimates to undertake the necessary works on Hutley Drive are in the order of \$930,000 based on costing from Ballina Shire Council's Section 94 scheme. A further \$30,000 is required for the temporary Hutley Drive/North Creek Road intersection treatment. It is considered that a longitudinal section plan is required to further refine the costings associated with necessary earthwork requirements.

***Appendix A***  
***Site Layout Plan***



|                              | STG 1A | STG 1B* | STG 2 | STG 3 | STG 4 | STG 5 | STG 6 | STG 7 | STG 8 | STG 9 | TOTAL |
|------------------------------|--------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| LARGE LOTS                   |        |         | 1     |       |       |       | 7     | 6     | 12    | 1     | 27    |
| TRAD LOTS >800               | 17     | 11      | 10    | 7     | 1     | 3     | 24    | 8     | 16    | 19    | 116   |
| TRAD LOTS 600-800            | 35     | 53      | 19    | 21    | 30    | 36    | 8     | 1     | 8     | 10    | 221   |
| DUPLEX LOTS                  | 2      | 4       | 3     |       | 2     |       |       |       |       |       | 11    |
| SMALL AFFORDABLE 450-600     |        | 11      | 5     |       |       |       |       |       |       |       | 16    |
| REAR LANE LOTS               |        | 10      | 40    | 37    |       |       |       |       |       |       | 87    |
| PARK COURT LOTS              |        | 14      |       |       |       |       |       | 6     |       |       | 20    |
| SHOP TOP HOUSING*            |        | 22      |       |       |       |       |       |       |       |       | 22    |
| INDEPENDENT LIVING UNITS*    |        | 28      |       |       |       |       |       |       |       |       | 28    |
| ASSISTED LIVING UNITS*       |        | 50      |       |       |       |       |       |       |       |       | 50    |
| DETACHED RETIREMENT LOTS*    |        | 59      |       |       |       |       |       |       |       |       | 59    |
| DETACHED REAR LANE LOTS*     |        | 39      |       |       |       |       |       |       |       |       | 39    |
| TOTAL (approximate numbers)  | 54     | 301     | 78    | 65    | 33    | 39    | 39    | 21    | 36    | 30    | 696   |
| * developed within superlots |        |         |       |       |       |       |       |       |       |       |       |

- 100m SEPP 26 BUFFER
- SEPP 14 WETLAND
- 10m BOUNDARY BUFFER
- SITE BOUNDARY



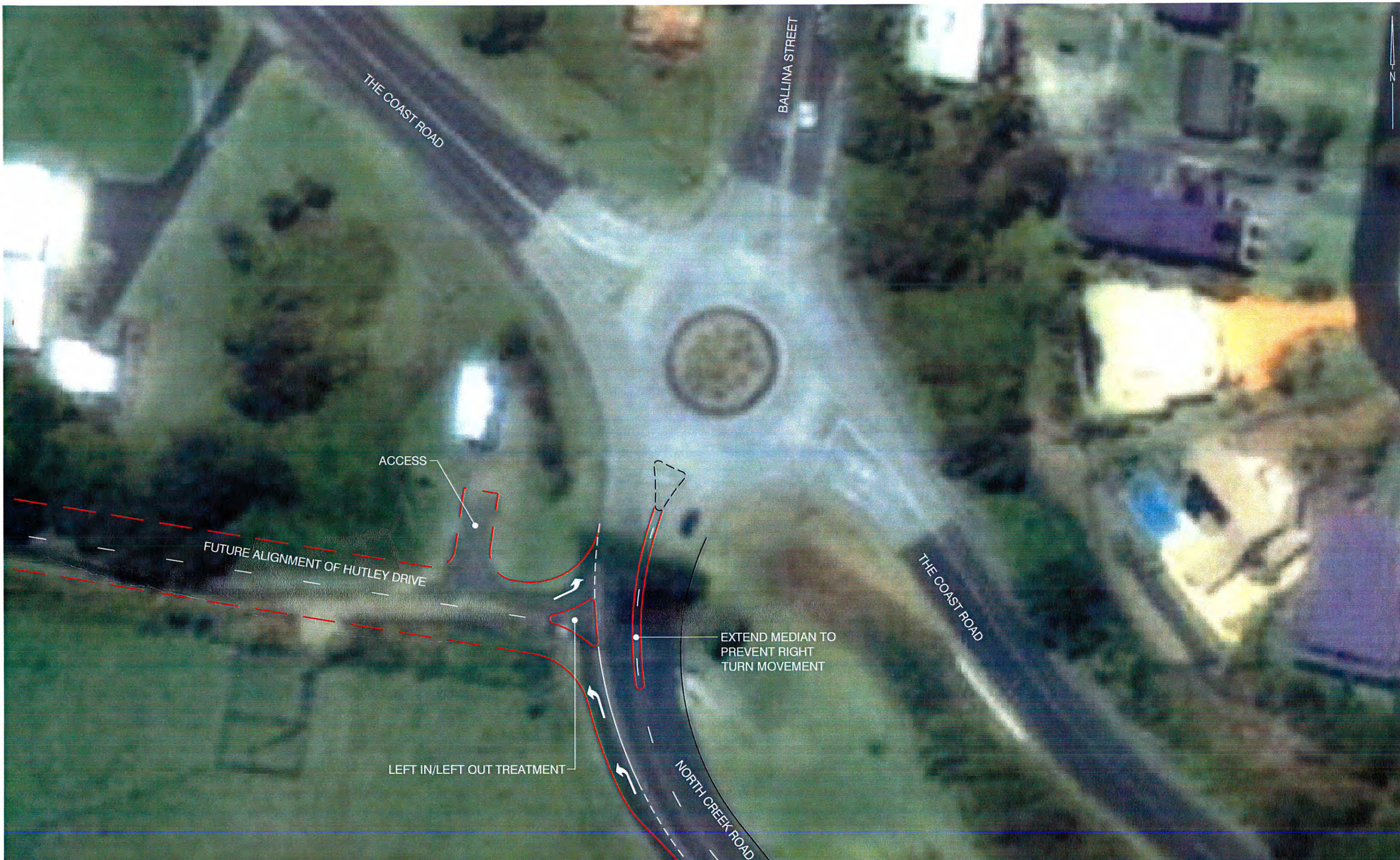
STAGING & LOT TYPOLOGIES



***Appendix B***

***Temporary Hutley Drive/North Creek Road***

***Intersection Layout***



5 0 10m 20m  
SCALE @ A1 1:250

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AutoCAD Filename: I:\03\CIVIL\OTHER OFFICES\EPPELL OLSEN\CEG08754 - Lennox Heads (Pacific Pines)\Cad\03 Sketches\CEG08754\_SK01.dwg



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DELFIN LEND LEASE

HUTLEY DRIVE, LENNOX HEADS

HUTLEY DRIVE INTERSECTION

SCALE :- 1:250

A1

DATE :- JULY, 2010

Rev.A

JOB No.

CEG08754

SKETCH No. 01

HUTLEY DRIVE INTERSECTION



# Appendix D

## Statements of Commitment

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## STATEMENTS OF COMMITMENTS – PROPOSED MODIFICATIONS, SEPTEMBER 2010

### Statement of Commitments – Concept Plan

| <i>Issue</i>                 | <i>Commitment</i>  | <i>Actions and Timing</i>   |
|------------------------------|--|---|
| General                      | The developer will carry out the development in accordance with the Environmental Assessment Report, prepared by GeoLINK and dated December 2007, as amended by the Preferred Project Report dated May 2008; in accordance with the Concept Plan illustrations C1 – C11 (as modified); Modification Report prepared by GeoLINK, September 2010; Environmental Impact Assessment and Mitigation Strategy (Cardno, Aug 2010); and in accordance with the specialist supporting reports.  | Detailed plans will be submitted to Ballina Shire Council for approval prior to issue of a construction certificate for Stage 1, demonstrating compliance as required.<br><br>Development applications will be submitted to Ballina Shire Council for approval for all subsequent stages. The applications shall demonstrate compliance with the approved Concept Plan and this Statement of Commitments. |
| Environmental Management     | An over-arching Environmental Management Plan (EMP) will be prepared and will detail specific management actions for all green space areas included in the Amended Concept Plan. The EMP will address at a minimum: <ul style="list-style-type: none"> <li>▪ vegetation management;</li> <li>▪ fauna habitat management;</li> <li>▪ landscaping and revegetation requirements;</li> <li>▪ integrated weed management;</li> <li>▪ stormwater management;</li> <li>▪ mosquito management;</li> <li>▪ asset protection zone management; and</li> <li>▪ waste management.</li> </ul> | A copy of the EMP will be provided to DEWHA, DoP, DECCW and Ballina Shire Council for consideration and approval prior to issue of a Construction Certificate for Stage 1.  |
| Conservation Zone Protection | After an agreed establishment and maintenance period., the Conservation Zone will be transferred to Ballina Shire Council for inclusion into the Environmental Protection Zone 7(a) - Wetlands pursuant to the Ballina Local Environmental Plan (E2 Environmental Conservation under the draft Ballina LEP 2010).  | The maintenance period and regime will be agreed as part of the EMP.  |
|                              | The five (5) Park Court allotments that directly adjoin the Conservation Zone will be fenced in a manner that prohibits access to the Conservation Zone and the construction of gates along the common boundary will be also be prohibited.  |   |

| <b>Issue</b>                          | <b>Commitment</b>  | <b>Actions and Timing</b>  |
|---------------------------------------|--|--|
| Conservation Zone Management          | <p>A specific Conservation Zone Management Plan (CZMP) will be prepared and will detail specific management actions for the Conservation Zone that address the following issues:</p> <ul style="list-style-type: none"> <li>▪ delineation of the proposed Conservation Zone;</li> <li>▪ protection measures for retained vegetation;</li> <li>▪ weed removal and control;</li> <li>▪ surface and sub-surface hydrology;</li> <li>▪ revegetation and landscaping within the Conservation Zone;</li> <li>▪ the provision of suitable access to facilitate management of Conservation Zone;</li> <li>▪ community awareness and education;</li> <li>▪ the staging of management actions and works;</li> <li>▪ performance indicators against which the success of the CZMP is to be assessed at specified intervals;</li> <li>▪ ongoing monitoring and maintenance;</li> <li>▪ adaptive management mechanisms and processes;</li> <li>▪ documentation and reporting; and</li> <li>▪ roles and responsibilities.</li> </ul> | <p>A copy of the CZMP will be provided to DEWHA, DoP, DECCW and Ballina Shire Council for consideration and approval prior to issue of a Construction Certificate for Stage 1.</p> |
| Construction Environmental Management | <p>Prior to the commencement of any construction works on the site, stage-specific Construction Environmental Management Plans (CEMP) will be prepared that clearly state the restrictions associated with the presence of threatened flora species and the Freshwater wetland EEC, and the penalties that will be enforced should construction activities result in any unauthorised disturbance to the retained populations and community. The CEMPs will be consistent with the requirements of the over-arching EMP but will be presented in a format that is targeted directly at contractors involved in the construction of the estate.</p>   | <p>Each CEMP shall be submitted to and approved by DoP, DEECW and Ballina Shire Council prior to the issues of construction certificates for each stage of the development.</p>    |

| <b>Issue</b>                      | <b>Commitment</b>   | <b>Actions and Timing</b>   |
|-----------------------------------|---|---|
|                                   | <p>Each Construction Environmental Management Plan (CEMP) shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>the manner in which public access will be managed during both construction and operation; and</li> <li>methods to be utilised to protect all threatened flora and fauna habitat and EECs on the site during construction.</li> </ul> |   |
| Integrated Water Cycle Management | The proponent will commit to constructing the creek corridors to convey major flood waters and to design of the subdivision such that the flood planning levels are set at those recommended within Council's relevant Floodplain Management Plan;  | Stormwater management details and details of all earthworks will be submitted to Council for approval prior to the issue of a Construction certificate for Stage 1. Approved stormwater controls / management measures will be constructed prior to the issue of a Subdivision Certificate.   |
|                                   | The proponent will construct WSUD measures, including small dry detention systems up-stream of the Water Quality Control Pond, above the 1% ARI flood extent;   | Details will be outlined in the stormwater management plan submitted to Council for approval prior to the issue of a Construction certificate for Stage 1. Approved stormwater controls / management measures will be constructed prior to the issue of a Subdivision Certificate.  |
|                                   | The proponent will also commit to ongoing monitoring of stormwater quality and continued maintenance of the stormwater treatment train  | <p>Details of monitor regimes will be provided to Council for approval prior to issue of a Construction certificate for Stage 1.</p> <p>Management of the Water Quality Control Pond will be taken over by Council in 2010 whilst management of the stormwater conveyance systems will be split between Council and land owners depending on specific land uses and future titling.</p> <p>Monitoring shall be carried out of the stormwater measures in each stage, for a period of two years following construction of that stage. Summary reports shall be provided to Council after twelve months and at the end of the monitoring period outlining the monitoring undertaken and the results obtained.</p> |
| Acid Sulfate Soils                | Sampling (at a rate of 1/1000 m <sup>3</sup> of excavated material) and laboratory analysis will be undertaken within areas of the site below RL 10 m, where excavation is proposed below natural ground level. The results will be used to determine appropriate liming rates and management requirements if necessary   | An Acid Sulfate Management Plan will be submitted to Council for approval prior to the issue of a Construction certificate for Stage 1.   |

| <b>Issue</b>             | <b>Commitment</b>  | <b>Actions and Timing</b>  |
|--------------------------|--|--|
| Infrastructure Provision | The proponent will provide reticulated potable and non-potable water supply, sewerage, telecommunications facilities and underground electricity to all lots.  | Details will be provided to Council for approval prior to the issue of a Construction certificate for Stage 1. For all other stages, details will be provided with subsequent Development Applications.  |
| Community Facilities     | The proponent will provide a multi-purpose community hall, with a floor space of approximately 300 m <sup>2</sup> , located within the neighbourhood centre.   | A 'super lot' will be created in Stage 1 (see Project Approval), with an area of approximately 1,990m <sup>2</sup> . Subsequent to approval of the Project Application, the proponent will lodge a development application for the Community Hall. The proponent will build the hall and associated car parking following approval and dedicate the land and completed hall to Council at a date to be agreed. |
| Mosquito Impact          | A comprehensive mosquito management plan shall be prepared that addresses the commitments below and includes the details of the required monitoring program. The Plan shall address the management of exposure to <i>Verrallina funerea</i> , <i>Culex annulirostris</i> and <i>Aedes procax</i> associated with the conservation areas within the site. | The management plan shall be provided with the application for Construction Certificate for Stage 1 and then updated as relevant to accompany development applications for subsequent stages.  |
|                          | Street lighting will be provided with shields or yellow filters to minimise artificial light attracting mosquitoes from the Ballina Nature Reserve into residential areas;   | Details will be provided to Council for approval prior to the issue of a Construction certificate for Stage 1, and with all subsequent Development Applications for future stages of the development   |
|                          | Exposure to <i>Aedes vigilax</i> and mosquitoes in general will be effectively managed in residential allotments by standard type mosquito screening fitted to residential dwelling windows and external doors to restrict entry of mosquitoes during occasional periods of high mosquito numbers.   | This information will be provided with all future sales information  |
|                          | Mosquito awareness materials should be made available to residents of Pacific Pines.   | This information will be provided with all future sales information  |
|                          | Rainwater tanks included (potentially) within the development should be protected by having mosquito proof screens fitted to openings including inspection openings and overflows. Such screens should be made of durable material such as stainless steel. The mesh size should not provide an aperture of more than 1mm.                               | This detail will be assessed in future development applications. Information will be provided with all future sales information.   |

| <i><b>Issue</b></i> | <i><b>Commitment</b></i>   | <i><b>Actions and Timing</b></i>  |
|---------------------|--|---|
|                     | Monitoring of all mosquito management measures shall be carried out by the developer.  | Monitoring shall be carried out for the works in each stage, for a period of two years following completion of construction of that stage. Reports shall be provided to Council at the end of twelve months and at the end of the monitoring period summarising the effectiveness of the controls   |
| Traffic and Access  | The proponent will construct the extension of Hutley Drive, from the northern boundary of the site to a point approximately 50m south of the intersection with Main Street (i.e. southern boundary of Lot 234).  | Details will be provided to Council for approval prior to the issue of a Construction certificate for Stage 1. Hutley Drive will be constructed in accordance with approved plans prior to the release of a Subdivision Certificate and will be maintained by the developer for a period of 12 months following completion of construction.   |
|                     | All internal roads will be constructed in accordance with the road types identified in <b>Appendix F</b> of the EA documentation (as amended) and in accordance with relevant local and Australian Standards.  | Details will be provided to Council for approval prior to the issue of a Construction certificate for Stage 1. Internal roads will be constructed in accordance with approved plans prior to the release of a Subdivision Certificate and will be maintained by the developer for a period of 12 months following completion of construction. |
| Cultural Heritage   | Nominated representatives from Jali LALC will be engaged to monitor initial excavations.   | Monitoring will be carried out by strip sampling by grader scrape of the lower slopes.<br><br>The Proponent/Project Managers must give prior warning of at least two weeks of the programme of works to the Jali LALC. The costs of monitoring are to be negotiated between the Proponent and the Jali LALC.                                  |
|                     | If, in the process of works within the site, that at any time it is believed materials of an Aboriginal origin are found, works at the location must stop immediately. The NSW DECC Regional Office – Coffs Harbour and Jali LALC must be advised and advice sought as to the most appropriate course of action to follow. Jali LALC may also wish to inform Traditional Owner respondents and seek their views as to how cultural heritage values might be impacted and to how best to mitigate potential impacts. Works must not proceed in the specific location without written consent of the DECC and Jali LALC. | A protocol relating to this requirement will be developed and all site construction staff will be trained in the protocol   |

| <b>Issue</b> | <b>Commitment</b>   | <b>Actions and Timing</b>   |
|--------------|---|---|
|              | <p>Prior to any vegetation clearing and initial earthworks contractors be advised of the statutory requirements of the <i>National Parks and Wildlife Act 1974</i> (NSW) that in regard to Aboriginal sites or relics: it is an offence to knowingly disturb, deface, damage or destroy, or to permit the disturbance, defacement, damage or destruction of a relic without first obtaining written consent to do so from the Director General of the DECC.</p>   | <p>A protocol relating to this requirement will be developed and all site construction staff will be trained in the protocol</p> <p>An Aboriginal Cultural Heritage Education Program will be developed for induction of personnel and contractors.</p> |
|              | <p>The areas identified as potentially of local significance will not be subject to any modification without the consent of the Traditional Owners. These areas will be:</p> <ul style="list-style-type: none"> <li>▪ fenced off by a temporary fence during any construction on nearby land to prevent inadvertent damage by work vehicles; and</li> <li>▪ when fenced, signed with notification that the area inside the fence is culturally sensitive and that it is an offence under Section 86 of the <i>National Parks and Wildlife Act 1974</i> (NSW) to harm Aboriginal Cultural Heritage.</li> </ul> |   |

## Statement of Commitments – Project Plan

| <i><b>Issue</b></i>          | <i><b>Commitment</b></i>   | <i><b>Timing</b></i>  |
|------------------------------|--|---|
| General                      | The developer will carry out the development in accordance with this Environmental Assessment Report, prepared by GeoLINK and dated December 2007; in accordance with the Project Plan illustrations P1 – P8 (as modified); Modification Report prepared by GeoLINK, September 2010; Environmental Impact Assessment and Mitigation Strategy (Cardno, Aug 2010); and in accordance with the specialist supporting reports.   | Engineering design plans and drawings will be provided to Council with an application for a Construction Certificate.   |
| Environmental Management     | An over-arching Environmental Management Plan (EMP) will be prepared and will detail specific management actions for all green space areas included in the Amended Project Plan. The EMP will address at a minimum: <ul style="list-style-type: none"> <li>▪ vegetation management;</li> <li>▪ fauna habitat management;</li> <li>▪ landscaping and revegetation requirements;</li> <li>▪ integrated weed management;</li> <li>▪ stormwater management;</li> <li>▪ mosquito management;</li> <li>▪ asset protection zone management; and</li> <li>▪ waste management.</li> </ul> | A copy of the EMP will be provided to DEWHA, DoP, DECCW and Ballina Shire Council for consideration and approval prior to issue of a Construction Certificate for Stage 1.  |
| Conservation Zone Protection | After an agreed establishment and maintenance period., the Conservation Zone will be transferred to Ballina Shire Council for inclusion into the Environmental Protection Zone 7(a) - Wetlands pursuant to the Ballina Local Environmental Plan (E2 Environmental Conservation under the draft Ballina LEP 2010).  | The maintenance period and regime will be agreed as part of the EMP.  |
| Conservation Zone Management | A specific Conservation Zone Management Plan (CZMP) will be prepared and will detail specific management actions for the Conservation Zone that address the following issues: <ul style="list-style-type: none"> <li>▪ delineation of the proposed Conservation Zone;</li> <li>▪ protection measures for retained vegetation;</li> <li>▪ weed removal and control;</li> <li>▪ surface and sub-surface hydrology;</li> </ul>  | A copy of the CZMP will be provided to DEWHA, DoP, DECCW and Ballina Shire Council for consideration and approval prior to issue of a Construction Certificate for Stage 1. |

| <b>Issue</b>                          | <b>Commitment</b>   | <b>Timing</b>   |
|---------------------------------------|---|---|
|                                       | <ul style="list-style-type: none"> <li>▪ revegetation and landscaping within the Conservation Zone;</li> <li>▪ the provision of suitable access to facilitate management of Conservation Zone;</li> <li>▪ community awareness and education;</li> <li>▪ the staging of management actions and works;</li> <li>▪ performance indicators against which the success of the CZMP is to be assessed at specified intervals;</li> <li>▪ ongoing monitoring and maintenance;</li> <li>▪ adaptive management mechanisms and processes;</li> <li>▪ documentation and reporting; and</li> <li>▪ roles and responsibilities.</li> </ul>  |   |
| Construction Environmental Management | <p>Prior to the commencement of any construction works on the site stage-specific Construction Environmental Management Plans (CEMP) will be prepared that clearly state the restrictions associated with the presence of threatened flora species and the Freshwater wetland EEC, and the penalties that will be enforced should construction activities result in any unauthorised disturbance to the retained populations and community. The CEMPs will be consistent with the requirements of the over-arching EMP but will be presented in a format that is targeted directly at contractors involved in the construction of the estate.</p> <p>Each Construction Environmental Management Plan (CEMP) shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>▪ the manner in which public access will be managed during both construction and operation; and</li> <li>▪ methods to be utilised to protect all threatened flora and fauna habitat and EECs on the site during construction.</li> </ul> | Each CEMP shall be submitted to and approved by DoP, DEECW and Ballina Shire Council prior to the issues of construction certificates for each stage of the development.  |
| Integrated Water Cycle Management     | <p>The proponent will commit to constructing the creek corridors to convey major flood waters and to design the subdivision such that the flood planning levels are set at those recommended within Council's relevant Floodplain Management Plan;</p>  | <p>Details of all stormwater management measures will be provided to Council for approval with the Construction Certificate application. Approved stormwater controls / management measures will be constructed prior to the issue of any Subdivision Certificate for the relevant stage.</p> |

| <i><b>Issue</b></i>      | <i><b>Commitment</b></i>  | <i><b>Timing</b></i>  |
|--------------------------|---|---|
|                          | The proponent will commit to the continued use of the existing Water Quality Control Pond as a tertiary treatment system and main detention dam/recycling source for the proposed development;  | Details of all stormwater management measures will be provided to Council for approval with an application for a Construction Certificate. Approved stormwater controls / management measures will be constructed prior to the issue of any Subdivision Certificate for the relevant stage.   |
|                          | The proponent will construct WSUD measures, including small dry detention systems up-stream of the Water Quality Control Pond, above the 1% ARI flood extent;   | Details of all stormwater management measures will be provided to Council for approval with the application for Construction Certificate. Approved stormwater controls / management measures will be constructed prior to the issue of any Subdivision Certificate for the relevant stage.  |
|                          | The proponent also commits to ongoing monitoring of stormwater quality and continued maintenance of the stormwater treatment train.   | Details of all stormwater management measures will be provided to Council for approval with the application for Construction Certificate.<br>Management of the Water Quality Control Pond will be taken over by Council in 2010 whilst management of the stormwater conveyance systems will be split between Councils and land owners depending on specific land uses and future titling.<br>Monitoring shall be carried out of the stormwater measures in each stage, for a period of two years following construction of that stage. Summary reports shall be provided to Council after twelve months and at the end of the monitoring period outlining the monitoring undertaken and the results obtained. |
| Acid Sulfate Soils       | Sampling (at a rate of 1/1000 m <sup>3</sup> of excavated material) and laboratory analysis will be undertaken within areas of the site below RL 10 m, where excavation is proposed below natural ground level. The results will be used to determine appropriate liming rates and management requirements if necessary. It is not proposed to sample material borrowed from areas above the 10m AHD contour as these are unlikely to contain PASS. | An Acid Sulfate Soils Management Plan will be provided to Council for approval with the application for Construction Certificate.   |
| Heritage and Archaeology | The Jali LALC will be engaged to monitor initial investigations;<br>a recommended protocol will be adopted if any materials of an Aboriginal origin are found on the site during excavation works; and contractors will be advised of the statutory requirements of the National Parks and Wildlife Services Act 1974 in regard to any items / relics found during construction.  | Representatives of Jali will be engaged prior to the commencement of construction for all future stages.  |

| Issue                    | Commitment   | Timing   |
|--------------------------|--|--|
|                          | If, in the process of works within the site, that at any time it is believed materials of an Aboriginal origin are found, works at the location must stop immediately. The NSW DECC Regional Office – Coffs Harbour and Jali LALC must be advised and advice sought as to the most appropriate course of action to follow. Jali LALC may also wish to inform Traditional Owner respondents and seek their views as to how cultural heritage values might be impacted and to how best to mitigate potential impacts. Works must not proceed in the specific location without written consent of the DECC and Jali LALC. | A protocol relating to this requirement will be developed and all site construction staff will be trained in the protocol  |
|                          | Prior to any vegetation clearing and initial earthworks contractors be advised of the statutory requirements of the <i>National Parks and Wildlife Act 1974</i> (NSW) that in regard to Aboriginal sites or relics: it is an offence to knowingly disturb, deface, damage or destroy, or to permit the disturbance, defacement, damage or destruction of a relic without first obtaining written consent to do so from the Director General of the DECC.   | A protocol relating to this requirement will be developed and all site construction staff will be trained in the protocol  |
| Infrastructure Provision | The proponent will provide reticulated potable and non-potable water supply, sewerage, telecommunications facilities and underground electricity to all lots.  | Servicing plans will be provided to Council for approval with the application for Construction Certificate. All services will be constructed prior to the issue of any Subdivision Certificate for the relevant stage.   |
| Traffic and Access       | All internal roads will be constructed in accordance with the road types identified in <b>Appendix F</b> of the EA documentation (as amended) and in accordance with relevant local and Australian Standards.  | Road layout plans will be provided to Council for approval with the application for Construction Certificate. Internal roads will be constructed prior to the issue of any Subdivision Certificate for the relevant stage. Roads will be maintained by the developer for a period of 12 months following completion of construction.   |
| Community facilities     | The proponent will provide a multi-purpose community hall, with a floor space of approximately 300 m <sup>2</sup> and associated car parking, located within the neighbourhood centre.   | A 'super lot' will be created in Stage 1 (see Project Approval), with an area of approximately 1,990 m <sup>2</sup> . Following approval of the Project Application, a Development Application will be prepared and lodged with Ballina Shire Council seeking approval for the construction of the community building, and associated car parking, within the 'super lot' created during Stage 1B. |

| <b>Issue</b>        | <b>Commitment</b>  | <b>Timing</b>   |
|---------------------|--|---|
| Mosquito Management | A comprehensive mosquito management plan shall be prepared that addresses the commitments below and includes the details of the required monitoring program. The Plan shall address the management of exposure to <i>Verrallina funerea</i> , <i>Culex annulirostris</i> and <i>Aedes procax</i> associated with the conservation areas within the site. | <p>The management plan shall be provided with the application for Construction Certificate for Stage 1.</p> <p>Monitoring shall be carried out for the works in Stage 1, for a period of two years following completion of construction of that stage. Reports shall be provided to Council at the end of twelve months and at the end of the monitoring period summarising the effectiveness of the controls</p> |