Pacific Pines
Part 3A Application (MP 07_0026)
Preferred Project Report

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Date: June 2008

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Table of Contents

Section *Page*

Illustrations

Appendices

1 Response to Submissions

1.1 Introduction

This report details the response to submissions in relation to the Pacific Pines Part 3A application.

The application relates to the subdivision of land known as Lot 234 DP 1104071 to create the final stages of an existing residential estate known as Pacific Pines. The application seeks Concept Approval for the whole of the development and a concurrent Project Approval for Stage 1 of the subdivision.

Illustration 1.1 shows an Illustrative Master Plan for the whole of the development as currently proposed. This Plan was not provided in the EA documentation and has been provided now to assist with an overall vision and understanding of the whole of the development.

The application was lodged under Part 3A of the *Environmental Planning and Assessment Act 1979* on 23 February 2007, and was publicly exhibited from 20 March to 2 May 2008.

This report responds to the submissions received by the Department of Planning following this exhibition. **Section 2** of the report provides the detailed response to all issues raised in State Agency submissions. **Section 3** addresses the issues raised within submissions received from the general public. **Section 4** details project amendments made to address these issues, and **Section 5** provides an environmental assessment of the amendments.

Updated sets of plans are also provided, with the updated set for the Concept Approval contained in **Appendix A**, and the updated set for the Project Approval contained in **Appendix B**. Updated Statements of Commitments are contained in **Appendix C**.

This report collates information and responses from the following inputs:

- Proponents – **Petrac**
- Urban Design – **Deicke Richards**
- Landscape Architecture – **Deicke Richards**
- Planning – **GeoLINK**
- Engineering – **Ardill Payne & Partners**
- Ecology – **Cardno**
- Bushfire – **GeoLINK**

1.2 Key Issues

It is clear from a review of all submissions that there are three key issues – building height, ecology (particularly threatened species protection) and traffic. A consolidated summary of our response to these issues is outlined below.

This is not to say that the proponents have not considered every submission made. Indeed amendments are proposed to address some issues and lessen perceived impacts. The amendments are explained, and assessed in later sections of this report.

Illustration 1.1 Illustrative Master Plan

1.3 Building Height

1.3.1 Context

The Far North Coast Regional Strategy (2006) provides a range of policies and actions to guide the future growth of the region. In part, these policies and actions have guided the urban design in a number of ways.

The Strategy establishes a target of 8,400 new dwellings for Ballina, to be provided by 2031. Given the range of opportunities and constraints identified within the Strategy for the area, it is clear that this will be an ambitious target.

Clearly, maximising the development potential of existing zoned land will be critically important to the ability to achieve this growth target.

The Pacific Pines site has been zoned for urban development for nearly 20 years. Over that time, there have been two separate subdivision layouts adopted for the land – the first adopted by Council in the early 1990's as a Development Control Plan, and the second, more recently adopted by the Minister for Planning in December 2006 as a Master Plan under *State Environmental Planning Policy No. 71 - Coastal Protection.*

Many of the issues raised in the submissions were assessed and addressed in the adoption of the 2006 Master Plan. They are addressed again now because the layout has been amended – arguably for the better.

The Far North Coast Regional Strategy outlines a number of 'Neighbourhood Planning Principles'. The following are relevant to a consideration of height:

- *A range of land uses to provide the right mix of houses, jobs, open space, recreational space and green space.*
- *Jobs available locally and regionally, reducing the demand for transport services.*
- *Streets and suburbs planned so that residents can walk to shops for their daily needs.*
- *Village centres are to be multifunctional, mixed-use (including residential) areas catering for diverse community needs.*

1.3.2 Design Intent

The key intent of the three-storey proposal for the neighbourhood centre is to provide for local shops at ground level, offices at first floor level, with residential units above, all within a relatively dense urban core in walking distance for the local population.

The Far North Coast Strategy estimates that at least 32,500 new jobs will be required across the Region as a result of future population growth. The Strategy notes "*A commitment to sustainability, productivity, creativity and innovation is fundamental to the Region's economic future*." There are, of course, many ways in which this can be achieved, but the provision of local employment opportunities within communities will certainly provide a part of this solution.

Council's strategic planning for Lennox Head has always included the future provision of a neighbourhood centre within the Pacific Pines site. By providing a small but strong centre that incorporates retail, commercial and residential components, the current proposal provides for this centre to be a key focal point for the whole of the North Creek Precinct.

It will remain, however, much smaller in scale than the existing Lennox Head Village Centre, providing a subservient and much more local scale of facilities. **Illustration 1.2** provides a comparison of the scale of the proposed centre to the existing Lennox Village CBD. Clearly, the Pacific Pines centre will always remain smaller than the Village centre.

The primary function of the Pacific Pines centre is to provide for many of the daily needs of the local population, many of whom will be able to walk to the centre. Secondary functions will be the provision of local employment opportunities, through the first floor commercial space, again targeted at locals who will be able to walk to work. The provision of the additional storey of residential units will provide for people to live in the centre, providing life and vitality for the centre.

Development of the centre will be subject to a separate Development Application. The Concept Approval will establish the overall design code for that future application.

It is envisaged that the centre will contain around eight shops plus a small supermarket, totalling around 1,200m^2 of retail floor space. This retail space will front the Main Street, with at-grade car parking at the rear. The ultimate size of the retail is envisaged to be 3,000m^2 with commercial floor space (~800m^2) and approximately 22 'shop top' residential dwellings

The second three storey element is proposed for the Integrated Living Unit component of the retirement community. This building will contain a range of communal facilities at ground level, for use by all residents of the retirement community. Again, a future development application will determine the detail of the building, but the design intent is to have facilities integrated into the main street to form a strong part of the overall Pacific Pines community.

1.3.3 Comments / Concerns About Height

The key issues raised as concern regarding height can be summarised as follows:

- the Pacific Pines neighbourhood centre needs to be subservient to the existing Lennox Village Centre, and three storeys will result in a centre that is bigger than Lennox Village;
- questions as to why three storeys needs to also include a 15m height limit; and
- impacts on views and the visual impact of three storeys.

1.3.4 Response

The two key responses to height concerns are:

- the area proposed for three storeys has been reduced;
- the proposed height limit (i.e. metres above ground) has been redefined for the three storey control, to be consistent with the height definitions used in the Ballina Local Environmental Plan 1987; and
- the overall height limit has been reduced by 0.5m within the neighbourhood centre and 1.0m in the retirement community.

These amendments are further described in **Section 4**.

Neighbourhood Centre

The area within the Neighbourhood Centre proposed for three storeys has been amended as a response to the submissions during exhibition. A 70 per cent reduction in area of the three storey design is being proposed, following further design and function analysis of the Main Street. This revision aligns the three storey buildings into the dense Neighbourhood Centre hub only. Importantly, the buildings adjacent to the lake, i.e. community centre and tavern, have been reduced to two storeys. This reinforces the integration of the Main Street and the lake for everyday use by the community for recreation and socialising.

Illustration 1.2 Neighbourhood Centre Main Street Comparison

The Main Street is now single loaded to the north by mixed-use buildings. The height control for the three storey component of the mixed-use centre has been reduced to a height of 10.5m. **Illustration 1.3** shows how the control of 10.5m is derived. As shown, it accounts for appropriate ceiling heights for the ground floor retail spaces, appropriate ceiling heights for a first floor commercial use and allowances for air conditioning services to be located between ceilings and floors. It has been specifically derived to accommodate the mixed uses.

The bulk of this change represents a redefinition of the control. The original 15m control proposed in the EA documentation suggested that the measurement of 'height' be from natural ground level to the highest point of the building. This has now been amended to accord with the height control outlined within the Ballina LEP, which defines height as '*in relation to a building the topmost floor of which has a ceiling, means the distance measured vertically from any point on the ceiling of the topmost floor of the building to the ground level immediately below that point*'.

In addition to this redefinition, the height level has been reduced by 0.5m in the Neighbourhood Centre, providing a maximum height limit of 10.5m.

A control of 7m is proposed for the two storey component of the neighbourhood centre.

The resultant buildings will provide a positive architectural and community outcome by sleeving the Neighbourhood Centre car park and providing a pedestrian oriented Main Street. They will address Main Street and Hutley Drive with aspects of the lake and public sports fields.

The Concept Plan vision for these building provides a number of positive outcomes including;

- a distinctive destination for the North Creek Valley;
- vitality to the community heart through density and activity;
- consolidated business trading;
- provision of local employment opportunities within walking distance of a local population;
- increased diversity of business and employment opportunities;
- improved safety through passive street surveillance associated with residents living in the centre;
- generation of start-up business opportunities; and
- improved housing choice.

The Neighbourhood Centre is in the lowest part of the site and the remainder of the development looks down on this central area. This reduces the visual effect of the height.

The inclusion of mixed uses in a three storey building also assists with achieving greater densities within a smaller environmental footprint. It has allowed an urban design that provides significantly more public open space that was previously planned for the site (see **Table 4.1** of EA report). This can only be achieved by increasing densities in the retirement and Neighbourhood Centre areas+.

A three storey building height also allows for a more compact development, where approximately 70 per cent of all residents can be located within 400 m walking distance of the neighbourhood centre facilities.

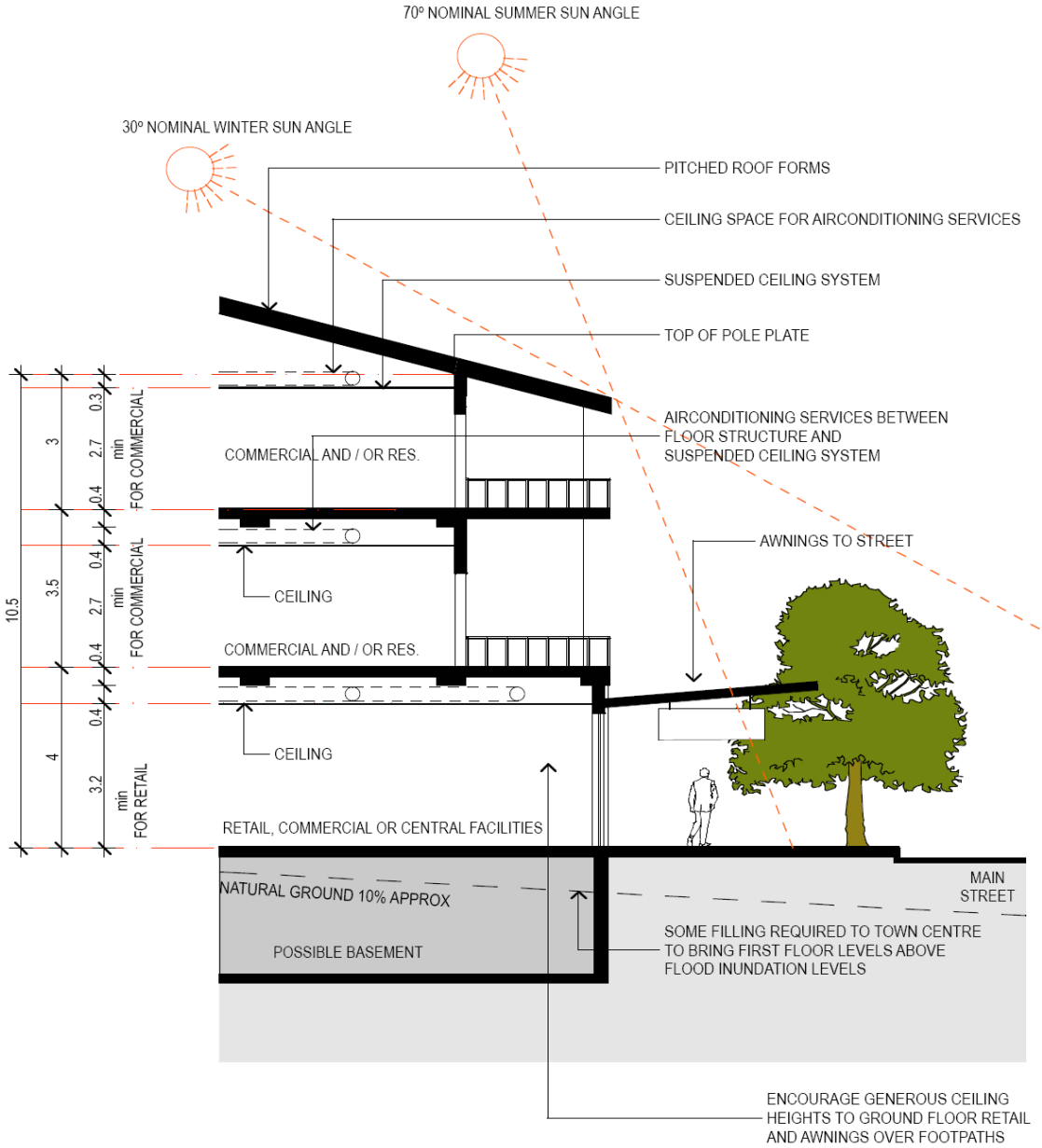


Illustration 1.3 Derivation of Height Control

Petrac has listened to the submissions and has scrutinised the Concept Plan. The revised design contains 70 per cent less area proposed for three storey buildings and the remainder is proposed at a reduced height. These remaining elements are vital for the Concept Plan and for the creation of a distinctive destination and a vibrant community. The design also remains consistent with the design objective to create a community heart for North Creek Valley.

A main street with three storey mixed use buildings is not new to Northern New South Wales. Sawtell, south of Coffs Harbour, has shops with people living in housing above similar to those proposed in the Concept Plan. The Sawtell community has a quaint main street in a beautiful seaside town with three storey mixed use buildings.

Sawtell Main Street

The pictures reveal the main street with apartments above shops, plus coastal character and shared zones along the main street. It is also worthy to note that Sawtell main street length is similar in size to the Concept Plan proposal.

Retirement Community – buildings adjacent to the lake

The retirement building heights have been amended as a response to the submissions during exhibition. Again, the three storey height control has been redefined to accord with the Ballina Shire Council requirements and a reduction of 1.0m is being proposed for that control, as a result of further design and function analysis of the integrated retirement community.

The buildings will however remain at three storeys for a number of key reasons that are highlighted below.

Illustration 1.4 shows a cross-section of the structure measurements and the graduation of the total height.

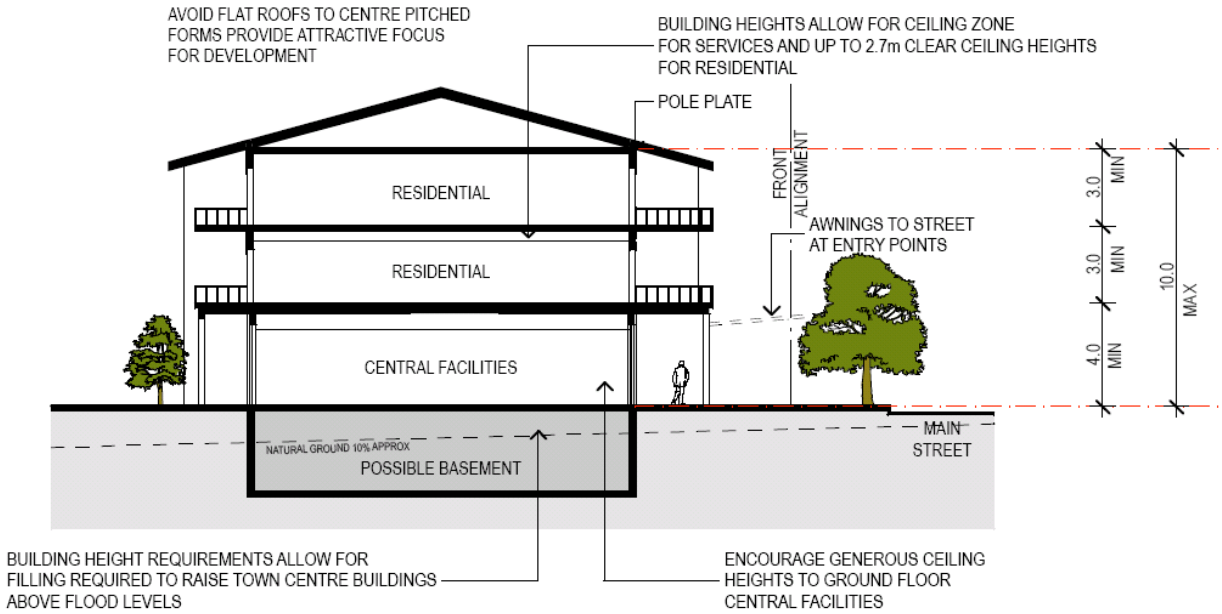


Illustration 1.4 Retirement Community Buildings Height

The components of the central facility and the three storey layout are critical to its function within the retirement community. The facilities will be located on the ground floor for the use of all retirement community residents and their guests. The ground floor location allows easy access for patrons, convenience to the Neighbourhood Centre and public integration along the Main Street and lake edge. Retirement units will be placed on the second and third storeys with views from the balconies and an elevator will assist with access.

The compact form in a single three storey building is central to achieving synergy between design and function. It enables a number of concurrent benefits to be achieved, including: convenience of access along reduced and continuous paths of travel, the use of elevators; clustering of units to promote a sense of belonging; building cost efficiencies; and a price structuring to maintain affordability for the target group.

Building cost efficiencies, lean development margins and affordable pricing structures for buyers are closely linked when constructing these multi-level structures. The market drives the developer to achieve construction efficiencies in a three storey building to cover the expense of:

- vertical transport, e.g. elevators are critical for aged care mobility and access above the ground floor and to the basement;
- basement parking; and
- a central facilities level in the focal building.

The central facilities are likely to include:

- wellbeing centre and consulting rooms;
- reception, administration and sales;
- resident business centre and serviced offices;
- arts and crafts workshop; and
- club facilities including a kitchen and café, indoor/outdoor dining, audiovisual room, bar, dance floor and ablutions.

The central facilities will be the heart of the retirement community serving the building adjacent to the lake and lots to the east, including approximately 170 independent living courtyard lots, ranging in size from 225 m^2.

The retirement community proposal provides a range of housing types and sizes to suit different household needs and preferences (e.g. income, size of household, preference for a guest room or study, physical ability). The mix includes studio units, 1-2-3 bedroom units, courtyard lots and attached dwellings.

The two storey height control for the retirement community will be 7m.

Location and site features- An essential site selection criterion for the housing model is proximity to town centre facilities and public transport stops, specifically to promote accessibility to existing community facilities. The aim is to select sites within 400m of public transport, as well as retail and community services / facilities, accessible along paths with an overall average gradient of no more than 1:14. All of these features are encompassed within the proposed Pacific Pines location.

A pleasant outlook from communal spaces and residential units, particularly for less mobile residents, promotes resident enjoyment and wellbeing. Care is taken to select sites that offer views over attractive open space or panoramic views to generate a visual interest. The pond frontage provides this amenity at Pacific Pines Estate.

Demand

The demand for retirement in the local and regional area is significant. This proposal provides a remarkable choice of retirement housing for Northern New South Wales. The extract below highlights these findings and is sourced from a *Market Overview and Needs Assessment* by Director of Research, Petrac Pty Ltd, dated 27 Jan 2007.

Forecast Retirement Need

The underlying demand for retirement village units is based on forecast population growth of all persons in the catchment area aged 65+. For the purpose of this analysis, the age cohorts 65-74 and 75 years and over have been used.

Currently, these cohorts represent 19% of the catchment population or 20,123 persons. Based on analysis of the latest population projections by age, this group is expected to growth to over 26,500 persons at 23% of the population.

The catchment has been based on analysis of aged migration into the area.

Using available market penetration data, the estimated number of persons in each age cohort that will live in a retirement village can be calculated. These proportions are based on ABS information and are as follows:

- 1.41% of persons aged between 65 and 74; and
- 4.49% of persons aged 75 years and above.

Applied to the corresponding age cohorts, these people represent the local target market for retirement living.

Acknowledging the changing housing culture occurring with a rapidly ageing population, 3 growth scenarios have been used to test sensitivity. These include:

- No Growth – This assumes growth in retirement demand will occur only through population ageing and not as a result of increased market preference for retirement living. (i.e. the above market penetration rates remain constant over the time period).
- Moderate growth – This assumes an increased market preference for retirement living, based on an increased market penetration rate of 1% per annum.
- High growth – This assumes a significant increase in the market preference for retirement living, based on an increased market penetration rate of 3% per annum.

Note that, by international standards, even under a high growth scenario, penetration rates remain relatively low. Compared to the United States for example, the proportions of persons choosing retirement village living as a viable housing option are some 50-60% below the US.

That said, demand for product is still significant. Based on the moderate growth assumption, the local target market is 939 persons in the catchment, which when converted to units using average household sizes, equates to demand for some 751 dwelling units.

Note that the above dwellings requirements are based upon local demand only, and do not include additional demand that would be generated by persons attracted from outside the region. This level varies between regions, based on the individual region's attractiveness as a lifestyle destination. Analysis of migration data indicates that this can equate to an additional 40% in some cases.

Again, in order to test sensitivity, 3 corresponding scenarios have been assumed:

- Under the previously used no growth in market penetration scenario, a conservative 25% has been assumed for additional demand from beyond the catchment.
- Moderate growth – Assumes an additional 30% from beyond the catchment.
- High growth - Assumes an additional 35% from beyond the catchment.

The result illustrates total demand for independent retirement village living of some 1,000 units under the moderate growth assumption.

Based on the existing supply of 738 units in the catchment area, there is a current unmet demand or undersupply of some 239 dwellings units. Given the development of 321 units at Sovereign Gardens over the next 7 years – net dwelling demand is for 79 units in 2011 and 114 in 2016. Note that the total supply figures include some 193 mobile homes at Riverbend.

This undersupply is confirmed by waiting lists of between 2-4 years in the area.

In conclusion, the retirement building height controls have been adjusted as a response to the submissions during exhibition. The design has been rationalised and continues to produce an Integrated Retirement Community and distinctive destination at Pacific Pines Estate to meet a significant demand in the area. The design also remains consistent with the Concept Plan in creating a dense central hub for a vibrant community.

1.4 Ecology

In response to the submissions made by the Department of Environment and Climate Change (DECC) and by Ballina Shire Council, Dr Monica Campbell of Cardno has been engaged to provide a review of the proposed development in relation to ecological issues. Dr Campbell's response is outlined below.

In its formal response dated 2nd May 2008, DECC have advised that they are able to support the proposal provided that the following Additional Statements of Commitment are included.

1. *The proposed development layout is to be redesigned, to the satisfaction of DECC, to protect and buffer all environmentally significant areas including the SEPP 14, threatened species, ecological communities and their habitats.*
2. *The redesign of the proposed development layout, as per Statement of Commitment 1 above, is to incorporate connected open space areas to provide wildlife corridor movement opportunities both regionally and locally.*
3. *Further assessment is to be undertaken of the Sedgeland/Rushland community to determine if it is the Endangered Ecological Community – Freshwater wetlands on coastal floodplains of NSW North Coast, Sydney Basin and South East Corner Bioregions. If this is confirmed, protection of the Freshwater Wetland community should be incorporated into Statement of Commitment 1 above.*
4. *A detailed rehabilitation management plan for the open space areas is to be prepared and approved prior to release of construction certificate.*

While it is acknowledged that DECC's interests are primarily focussed on environmental and ecological issues, the above Statements of Commitments fail to take into account other important factors that are relevant to any determination of the most appropriate form of land use for the site. In this regard, when assessing the merits of the proposal and the measures that have been taken in order to create a balance between the ecological values of the site and its urban development in accordance with Council's strategic intent, it is our submission that DECC should give consideration to the following:

1. It is clear that DECC's suggested Statements of Commitments are principally targeted at ensuring that the proposed development provides appropriate responses to the presence of some native wildlife species and ecological communities that are of formally recognised conservation significance pursuant to the New South Wales *Threatened Species Conservation Act 1995* (*TSC Act*). In this respect it is noted that the underlying purpose of the *TSC Act* is to:
   - conserve biological diversity and promote ecologically sustainable development;
   - prevent the extinction and promote the recovery of threatened species, populations and ecological communities;
   - protect the critical habitat of those species, populations and ecological communities that are endangered;
   - eliminate or manage certain processes that threaten the survival or evolutionary development of threatened species, populations and ecological communities;
   - ensure that the impact of any action affecting threatened species, populations and ecological communities is properly assessed; and
   - encourage the conservation of threatened species, populations and ecological communities through co-operative management.

   Pursuant to the *TSC Act*, 'ecologically sustainable development' requires the effective integration of social, economic and environmental considerations during the decision making process. The current proposal and its affiliated environmental offsets and management strategies are consistent with the driving principles of ecologically sustainable development given that Petrac have made concerted efforts to design a development layout that retains environmentally sensitive areas to the extent practicable without compromising the economic viability of developing the site for urban purposes.

   Petrac have also developed compensatory measures to account for situations where threatened species and their habitat are not able to be retained within the development layout. In contrast, the position articulated by DECC has a disproportionate focus on "environmental" considerations, particularly when one considers the functional nature and condition of threatened species habitat and endangered ecological community remnants that currently exist on the site.

2. Relevant social, economic and environmental planning frameworks for the site locality have all identified that urban development is the most appropriate predominant land use for the project site. In this respect the following points are noted:
   - The project site is zoned 2(b) Village Zone under the *Ballina Local Environmental Plan 1987* (BLEP), with a very small area of land zoned 7(a) Environment Protection – Wetland Zone located on the south-western boundary. (note: The proposal does not involve any urban development in this 7(a) zoned land.)
   - In 2003, a Master Plan was submitted for approval under the provisions of the NSW Government's State Environmental Planning Policy No. 71 – Coastal Protection (SEPP 71) and . The Master Plan was adopted by the State Government in 2006.
   - Three planning approvals already exist for specific urban development works on the site and adjoining land. These include approval for the construction of the sports fields, the water quality control pond and to carry out excavation and filling of the land.

3. The above facts and circumstances reflect the fact that that project site is in a highly degraded state, owing to a history of broad-scale vegetation clearance and livestock grazing. Native wooded vegetation on the site has been reduced to isolated fragments interspersed throughout grazed paddocks and, in most cases, these fragments support substantial levels of weed incursion. Ongoing livestock grazing continues to degrade the groundstorey vegetation within the site and exotic weed species are predominant feature across the landscape. The site does not encompass any areas that could, by any objective measure, be considered critical habitat for any of the threatened species and ecological communities that occur on the site and in the broader site locality.

4. Connectivity values of the site have been limited by the past clearance of native vegetation on the site and adjacent rural land and by urban development to the north, east and south of the site. The site does provide some tenuous fauna movement opportunities to the Ballina Nature Reserve to the west, but the potential for wooded vegetation to provide a functional wildlife corridor has been reduced by the fragmentation of these communities and their separation from the Ballina Nature Reserve by expanses of grazed paddocks and adjoining urban development. The open and exposed nature of the majority of the site's vegetation provides limited movement opportunities for dispersing ground-dwelling fauna, which will be at risk of predation by predatory birds and non-native predators (e.g. cats, dogs and foxes) as they move into cleared paddocks and/or residential areas. It is more likely that the site is utilised by highly mobile fauna species such as birds and bats that can more easily evade predators as they move through the landscape.

5. The isolated fragments of native vegetation that occur within the site by no means constitute a feature that is novel or uncommon in the landscape. Remnants of communities such as littoral rainforest and swamp forest are relatively widespread throughout the Lennox Head locality and many of these representations are currently zoned for Environmental Protection pursuant to the BLEP. The fact that the site's remnants have not been identified for Environmental Protection by Ballina Shire Council reflects their limited ecological values and functions.

In light of the above facts and circumstances, it is considered that the extent of land within which urban development opportunities would be sterilised as a consequence of DECC's recommendations is not reasonably required to ensure that the purposes of the *TSC Act* are achieved. As such, we propose the following alternative Statements of Commitment that have been specifically designed to preserve ecological values and functions in the locality whilst allowing for the orderly development of the site.

1. **A representative and sustainable proportion of the site's degraded threatened species habitats and Endangered Ecological Communities will be preserved and enhanced within the Conservation Zone.**
2. **Where environmentally sensitive areas are not included within the Conservation Zone, appropriate offsets shall be provided in the form of on-site compensatory habitat and off-site reserves.**
3. **Areas included within the Conservation Zone and off-site reserves will be rehabilitated and managed in a manner that re-instates ecological values and functions of degraded vegetation and ensures the long-term viability of threatened species populations and Endangered Ecological Communities in the locality.**
4. **To ensure the integrity of native vegetation communities included in the Conservation Zones is maintained, Conservation Zones will only be addressed by building frontages, access ways and entries. No back boundary fence will abut a Conservation Zone.**
5. **Any vegetation identified as an Endangered Ecological Community on private land will be protected through an Environmental Covenant that will act to prohibit any clearance of this vegetation.**

The extent of the proposed on-site Conservation Zone/Green Space network and adjoining off-site reserves are shown in **Illustration C11** within the Concept Plan drawing set. With reference to this illustration, the notable environmental features of this plan are described as follows:

1. The Concept Plan provides for approximately 24.9 ha of open space, of which approximately 11.8 ha (or 47%) will be retained and protected as a Conservation Zone. Activities permitted within the Conservation Zone will be limited to:
   - rehabilitation and revegetation of significant vegetation and enhancement of threatened species populations;
   - research and education activities;
   - delineated and controlled public access for passive recreational activities only; and
   - stormwater treatment devices.
2. A further 6.3 ha of Green Space has been identified for dual use, namely revegetation of significant vegetation and passive recreation. These areas support thin bands of the Littoral Rainforest Endangered Ecological Community (EEC) that will be retained and enhanced in a manner that provides:
   - protection to threatened flora species recorded within these communities;
   - increased connectivity values between fragments; and
   - passive recreation and educational opportunities for future residents.
3. A 10m buffer is provided along the northern boundary of the site and also encompasses the thin band of Littoral Rainforest vegetation that extends into private property. All vegetation contained within this buffer will be protected by an Environmental Covenant (i.e. a S.88B Instrument) that will form part of the plan and that will be registered at the Land Titles Office. This covenant will state that '*No tree shall be removed or interfered within the area designated by this restriction without the consent of Ballina Shire Council. The proprietor of the land affected shall do all things reasonably necessary to protect the health and well being of trees growing within the designated area by the removal of weeds or other non indigenous species to the area. The consent of Ballina Shire Council shall not be required for this purpose*'.
4. The revised Conservation Zone network encompasses an additional 5.9ha of degraded wetland vegetation, owned by Petrac, that adjoins the Ballina Nature Reserve SEPP 14 Wetland (no. 88). Petrac propose to rehabilitate this land in general accordance with the Ballina Nature Reserve Plan of Management. It is noted that a Specific Management Objective of the Ballina Nature Reserve Plan of Management is to "*encourage Reserve neighbours in conserving adjoining natural areas*"
5. Two adjoining off-site reserves, currently owned by Council, have, in consultation with Council, also been included within the Conservation Zone network. These reserves have a dual function in increasing the linkage value of the entire Conservation Zone network, as well as providing offsets for the loss of habitat within the site. These reserves will provide opportunities to reinstate a range of Endangered Ecological Communities in the locality as well as providing habitat for a number of threatened flora species known to occur within the site.
6. Areas designated as Conservation Zone included within the site have been specifically designed to enhance connectivity to the Ballina Nature Reserve and proposed off-site reserve areas that will function as offsets for the displacement of habitat within the site. The combined effect of these measures will be to promote the:
   - long-term viability of threatened species population that occur within the site locality;
   - the conservation value of degraded freshwater wetlands that occur within the site locality; and
   - functional contribution that vegetation communities within the site make towards movement opportunities for native wildlife throughout the site locality.

In summary, the plan of development proposed for the project site and the associated Statement of Commitments set out herein provide a viable and balanced response to the recognisable social, economic and environmental values of the subject land.

We also acknowledge that DECC's suggested Statements of Commitment have been generated in response to their detailed assessment of the application. The main issues that were raised by DECC in their detailed assessment were:

- impacts on threatened species;
- presence/absence of the Freshwater Wetland on Coastal Floodplains EEC;
- buffering to environmentally sensitive areas;
- fauna movement opportunities; and
- revegetation and rehabilitation or open space areas.

We have reviewed DECC's comments and provide the following response to each of these main issues.

Impacts on threatened species

A number of threatened species have been recorded on the site, the majority of which will be retained and protected as part of the Conservation Zone/Green Space network. However, urban development of the site will necessitate the removal of approximately 6.7 ha of sedgeland/rushland that currently supports populations of two threatened species, namely Hairy joint grass (*Athraxon hispidus*) and Square-stemmed spike rush (*Eleocharis tetraquetra*). Detailed assessment of the impacts on these threatened species is outlined in **Appendix D**.

The discovery of Square-stemmed spike rush on the site is very recent and the implications of this finding will be discussed further on. Details concerning the threatened species that have been recorded on site, the on-site habitat they were found to occur in and the magnitude of disturbance to these on-site habitats, are provided in the **Table 1** below.

Table 1. Threatened species and the extent of disturbance to their habitat recorded within the site.

Scientific name	***Common name***	***Conservation status***	***On-site habitat type***	***Area of habitat on site (ha)***	***Area of habitat to be removed on-site (ha)***	***Percentage of habitat to be retained on-site***
Archidendron hendersonii	White laceflower	NSW V	Littoral rainforest fragments	1.9	0	100
Arthraxon hispidus	Hairy joint grass	NSW V C V	Sedgeland/rushland	8.5	6.7	22
Eleocharis tetraquetra	Square-stemmed spike rush	NSW E	Sedgeland/rushland	8.5	6.7	22
Macadamia tetraphylla	Rough-shelled bush nut	NSW V C V	Littoral rainforest fragments	1.9	0	100
Syzygium hodgkinsonidae	Red lilly pilly	NSW V C V	Littoral rainforest fragments	1.9	0	100

Scientific name	*Common name*	*Conservation status*	*On-site habitat type*	*Area of habitat on site (ha)*	*Area of habitat to be removed on-site (ha)*	*Percentage of habitat to be retained on-site*
Tinospora tinosporoides	Arrow head vine	NSW V C V	Littoral rainforest fragments	1.9	0	100

C V = Commonwealth (Vulnerable) – Environment Protection and Biodiversity Conservation Act 1999
NSW E, NSW V = State (Endangered, Vulnerable) – TSC Act

With regard to the above table, the proposal makes provision for the retention and protection of all the habitat currently occupied by four of the six threatened species recorded on site. More specifically, the threatened species that currently occur within fragments of littoral rainforest within the site will be protected either within areas:

- of open space that have been designated for a combined usage of conservation and passive recreation; or
- included on private land that will be protected by an Environmental Covenant preventing the clearance of this vegetation.

Weight should be given to the retention of these areas when considering the merits of the proposed plan of development.

Hairy joint grass (*Athraxon hispidus*)

Petrac have consistently been open and transparent about the impact of the proposal on Hairy joint grass populations within the site and have developed a number of mitigation measures to contribute to the preservation of Hairy joint grass in the Lennox Head locality. However, DECC has stated that the proposed development will have a significant impact on Hairy joint grass given the reduction in on-site habitat from 8.5 ha to 1.8 ha and the absence of detailed on-ground compensatory targets within the Hairy joint grass Management Strategy prepared by Cardno.

In response, we provide the following material evidence to demonstrate the proposal will not have a significant impact on Hairy joint grass in the Lennox Head locality.

1. Ballina Shire Council, with the assistance of monetary contributions from Petrac, recently commissioned an independent consultant to conduct a survey for Hairy joint grass locations within the Lennox Head locality. A map showing the recorded locations of Hairy joint grass populations in the Lennox Head locality during the survey is attached (**Illustration 1.5**) and with reference to this mapping the following are noted:
   - Hairy joint grass populations are generally widespread throughout the Lennox Head locality and are not localised to areas within or immediately adjacent to the site;
   - the widespread nature of Hairy joint grass populations in the Lennox Head locality bolsters the position put forth in the Referral submitted to the Commonwealth Department of Environment and Water Resources that the population on the site does not constitute an 'important population' pursuant to the *EPBC Act*;
   - the approximate area covered by Hairy joint grass populations within areas that have been surveyed is 70 ha[1] and the regional extent of Hairy joint grass populations is likely to be substantially greater given that only a proportion of potentially suitable habitat has been surveyed;

[1] This area has been calculated from the supplied mapping. Any reports associated with the regional survey had not been made available to Petrac during the preparation of this response.

Illustration 1.5 Recorded Locations of Hairy Joint Grass at Lennox Head

- the removal of 6.7 ha as a result of urban development of the site will reduce the currently known extent of Hairy joint grass habitat in the immediate locality by less than 10%, and is likely to have a substantially lower impact on the actual extent of occupied Hairy joint grass habitat in the Lennox Head region;
- the most recent Hairy joint grass population mapping for the Lennox Head locality supports the map of Hairy joint grass locations within the site generated by GeoLINK and submitted with the Concept Plan; and
- the recent survey work carried out on behalf of Council has confirmed the presence of Hairy joint grass populations on adjoining parcels of land, which were previously nominated as having the potential to contribute to an off-site reserve system (refer Cardno 2007).

With regard to the above, there are clearly some variations in the density of Hairy joint grass populations recorded on the site between the 2006/2007 and the 2007/2008 growing season. Such fluctuations are to be expected within populations of annual plants species such as Hairy joint grass. A natural increase in population size would also be expected following favourable growing conditions, such as the extended periods rainfall experienced in the Lennox Head region during the beginning of the Hairy joint grass growing season in late 2007.

2. Petrac are currently negotiating an agreement with Council for the establishment of an off-site reserve to the north-west of the site to compensate for the displacement of Hairy joint grass on the site. At this point in time, the history of this off-site reserve and Petrac's involvement can be summarised as follows:
   - the parcel of land is currently known as Henderson Farm South (i.e. Lot 2 on DP 1070446) and is currently owned by Ballina Shire Council;
   - currently, this land is zoned 1(d) Rural (Urban Investigation) Zone and therefore has some urban development potential;
   - Council originally proposed the construction of sporting fields on the site, but investigations indicated that the slopes were not suitable for this use;
   - Council is currently considering a proposal to rezone the land for urban use (the proposal is made in conjunction with the privately owned land adjoining to the north);
   - as part of this proposal, Council commissioned an ecological assessment of the land that revealed Hairy joint grass occurs on the site and recommended that an area of approximately 6.3 ha of the site be protected by way of Environmental Protection Zoning;
   - Petrac are currently negotiating an agreement with Council, as owner of the land, relating to the 6.3 ha proposed for Environmental Protection zoning;
   - Petrac are proposing to carry out ecological enhancement works on this land with the objective of protecting and enhancing the existing Hairy joint grass habitat and increasing the linkage between this site and the enhancement works proposed for the southern edge of the playing fields site and then on to the Pacific Pines site; and
   - it is envisaged that this off-site reserve will eventually be dedicated to the State Government as an addition to the adjoining Ballina Nature Reserve and, as such, Petrac are committed to maintaining and monitoring the ecological enhancement works conducted within this area for a period of at least four years to ensure the works are self-sustaining prior to dedication of the land to the formal Reserve system.

3. The revised Conservation Zone/Green Space network (refer to **Illustration C11** in the Concept Plan drawing set) provides for 1.8 ha of land within the site that has the potential to provide Hairy joint grass habitat. This area is additional to the 3.2 ha of known Hairy joint grass habitat that will be retained in the eastern extent of the Conservation Zone. The layout of the Conservation Zone network has also been specifically designed to create connectivity between Hairy Joint Grass populations within the site and those located within the proposed off-site reserve to the north-west. As these populations are currently isolated from each other, providing connectivity between them is considered to be vital in order to increase:
   - genetic diversity within and between populations; and
   - the number of individuals in the locality, such that populations are buffered from localised extinction that may result from stochastic events.

4. The Hairy Joint Grass Management Strategy (HJG MS) was developed by Cardno on behalf of Petrac to provide an initial framework for the management of Hairy joint grass populations within and adjacent to the site. DECC have stated the HJG MS fails to provide any specific on-ground targets that enable the evaluation of how the "significant loss" of Hairy joint grass on the site will be compensated. In this regard, the following are noted:
   - there is currently no adopted Recovery Plan to provide a framework for the management of Hairy joint grass and, as such, the HJG MS was developed in the absence of any guiding principles;
   - the HJG MS provides a series of Management Actions that will be undertaken in order to achieve the main objective of the MS (i.e. preservation of Hairy joint grass in the Lennox Head locality);
   - specific on-ground targets will be developed as each Management Action is approached in due course; and
   - as stated in the HJG MS the long-term development and implementation of the MS will involve collaboration between relevant stakeholders (i.e. Ballina Shire Council, DECC, adjoining land holders etc), meaning it is intended to continue consultation with DECC during the implementation of the HJG MS.

   Key features of the HJG MS that should also be taken into account include:
   - it is intended for each Management Action to be conducted in a careful and considered manner that can be published as a formal report to DECC, within a scientific journal or other relevant forum; and
   - population enhancement works included in the HJG MS are designed to minimise the risk of failure by:
     i. comparing the success of *in situ* and *ex situ* techniques;
     ii. conducting translocation trials across stages of the plant life-cycle (i.e. seeds, seedlings, adults); and
     iii. providing a formal monitoring, maintenance and reporting period of at least four years in order to ensure the success of establishing self-sustaining populations.

5. The Ecological Assessment submitted in support of the Concept Plan application contained a Seven-part test for the impact of the proposed development on Hairy joint grass populations within the site. This Seven-part test concluded that the mitigation measures provided within the HJG MS would sufficiently mitigate adverse impacts of the development such that no "significant impacts" on the species would be likely

Given the above facts and circumstances, the proposal will not have a significant impact on Hairy joint grass in the locality as:

- the species is more widely distributed in the area than previously thought;
- the proposed removal of 6.7 ha of Hairy joint grass habitat within the site will result in a reduction of known habitat in the locality of less 10%;
- the proportion of total Hairy joint grass habitat to be removed is likely to be substantially less than 10% given the limited coverage of Hairy joint grass habitat surveys that have been carried out to date;
- an appropriate off-site reserve has been identified and negotiations are in place to secure this land for long-term Hairy joint grass conservation purposes;
- appropriate on-site mitigation measures have been outlined in the HJG MS that will enhance retained populations within the development layout;
- the proposed Conservation Zone/Green Space network will provide connectivity between population within and adjacent to the site that are currently isolated from each other; and
- Petrac have contributed, or propose to contribute through the implementation of the HJG MS, to a number of the Priority Actions identified by DECC for the recovery of Hairy joint grass including:
    - Survey/mapping and habitat assessment – medium priority;
    - Develop and implement site management plans for some of the known populations – medium priority;
    - Research – medium priority;
    - Ex situ collection/propagation – low priority;
    - Community and land holder liaison/awareness and/or education – low priority; and
    - Monitoring – low priority.

Square-stemmed spike rush (*Eleocharis tetraquetra*)

Square-stemmed spike rush was recorded on the site during a detailed floristic assessment of the sedgeland/rushland in the central portion of the site completed on the 14th May 2008. During this survey Square-stemmed spike rush was recorded in relatively low densities (< 5% cover) in the survey quadrats 4, 6 and 7. The location of these quadrats is shown in **Illustration 1.6**. Petrac's stance in regard to recent discovery of this species is to manage the species in manner similar to that proposed for Hairy joint grass. This strategy is considered appropriate given that:

- Hairy joint grass and Square-stemmed spike rush have similar life-cycles where the vegetative part of the plants (i.e. stems or culms) emerge, flower and fruit within one year and then die-off;
- Square-stemmed spike rush was found growing sympatrically with Hairy joint grass and both species are reported to occur in damp situations; and
- Hairy joint grass and Square-stemmed spike rush share a number of Priority Actions identified by DECC as being essential to their recovery.

While it is recognised that Square-stemmed spike rush has an Endangered status pursuant to the TSC Act, experimental work conducted on the species by Bell et al (2000) indicates that plants are relatively resilient to disturbance events and can be translocated and grown in pots with a relatively high survival rate. As such, it can be reasonably deduced that translocation of specimens in the field that will be displaced as a result of the development to areas that will be retained and protected both within and adjacent to the site, should be successful.

A detailed Square-stemmed spike rush Management Strategy will be prepared and submitted to DECC for assessment in due course.

Presence/absence of Freshwater Wetland on Coastal Floodplains

The site supports a degraded sedgelend/rushland associated with a drainage line that traverses the central portion of the site. DECC requested that further investigation into the floristic composition of this community be undertaken in order to establish whether the community classified as the Freshwater Wetlands on Coastal Floodplains (Freshwater Wetlands) EEC. A systematic flora survey was completed on the 14th May 2008 using quadrat based sampling. A total of seven quadrats were surveyed (refer to **Illustration 1.6**) with species richness and cover assessed using the Braun-Blanquet cover abundance method.

Analysis of the data collected revealed that quadrats 4-7 support elements of the Freshwater wetlands on Coastal Floodplains EEC given the following:

1. These quadrats satisfied the following locational descriptors provided in the Scientific Committee's final determination:
   - geomophological - floodplain (periodic or semi-permanent inundation by freshwater)
   - elevation - generally below 20m
   - Bioregional - North Coast Bioregion
   - Local Government Area – Ballina.
2. The species composition of these quadrats satisfied the following floristic descriptors provided in Scientific Committee's final determination:
   - vegetation encompassed by these quadrats can be described as ranging from grassland, sedgeland, and reedland; and
   - the observed floristic composition is comparable to that described for freshwater wetlands that often lack permanent standing water and may be dominated by dense grass cover by species such as *Leersia hexandra* (Swamp Rice-grass).

It is also noted that the threatened species Hairy joint grass and Square-stemmed spike rush were recorded in relatively low abundance (i.e. < 5% cover) within quadrats 4 -7.

The location and extent of vegetation that is considered to support the aforementioned elements of the Freshwater Wetland on Coastal Floodplain EEC based on the analysis of the quadrat data is shown in **Illustration 1.6**. With reference to this plan, the site supports approximately 4.2 ha of Freshwater Wetland EEC, of which approximately 1.4 ha (or 33%) will be retained within the Conservation Zone/Green Space network. When assessing the conservation significance of the Freshwater wetland EEC within the site, consideration must be given to the following:

- these communities are currently in a highly degraded state and exotic species were found to constitute 46% of the species composition;
- visual inspection of aerial photography indicates that similar communities, namely degraded drainage lines and damp depressions in grazed paddocks are widespread throughout the Lennox Head locality;
- the site's degraded wetlands were not recommended to be zoned for Environmental Protection during a review conducted in 2000 into the adequacy and suitability of the zoning provided in the BLEP (refer Lennox Head Structure Plan 2004); and
- the Environmental Protection Zone review also states that sedgelands and rushland habitats are typically well represented in the existing Environmental Protection Zones (refer Lennox Head Structure Plan 2004).

Illustration 1.6 Wetland Survey Plan

Consideration should also be given to low connectivity values of the freshwater wetlands on the site. Gibbons et al (2005) provide a set of objective criteria by which the connectivity value of remnant of native vegetation can be assessed. Using the criteria set out by Gibbons et al (2005), the freshwater wetlands within the site are considered to have nil – low connectivity value given:

- the vegetation is in a reasonably low condition (Gibbons et al [2005] consider grasslands where <50% of the vegetation is native to be in low condition); and
- the wetland vegetation links to surrounding native vegetation (i.e. SEPP 14 wetland to the west of the site) via the maintained grassland associated with the water quality control pond on only one compass quarter.

With regard to the above facts and circumstances, the proposal will result in the clearance of approximately 2.8 ha of degraded wetland vegetation that supports elements of the Freshwater Wetland on Coastal floodplains EEC. However, it is not considered that the proposal will have a significant impact on the long-term viability of this EEC in the Lennox Head region given that:

- the site's communities are in a highly degraded state and have low connectivity values;
- similar representations of this community are relatively widespread throughout the locality and are not exclusive to the site alone;
- the proposal provides the retention of approximately 1.4 ha (or 33%) of this community within the Conservation Zone/Green Space network; and
- extensive revegetation and rehabilitation works will be undertaken within on-site Conservation Zones and areas identified as suitable off-site reserves to re-instate the floristic and structural elements of freshwater wetlands with particular emphasis on the provision of habitat for Hairy joint grass and Square-stemmed spike rush.

More detailed assessment of potential impacts in relation to this EEC is contained within **Appendix D**.

Buffering to environmentally sensitive areas

DECC has suggested that the Concept Plan does not provide adequate buffering to 'environmentally sensitive' areas contained within the site. Furthermore, DECC have advised that a generic buffer of 50m be applied regardless of the condition of the existing vegetation and any objective assessment of what a buffer of this width will do. In this regard, the following are noted:

1. There are no statutory requirements for the establishment of a 50m buffer to "environmentally sensitive" areas nor is there, to our knowledge, any formal DECC policies or guidelines that specifically recommend the establishment of a generic 50m buffer to "environmentally sensitive" areas. DECC's reliance upon the unpublished recommendations originating from a meeting held in 1996 in regard to the Coffs Harbour Local Environment Plan is not considered to form a justifiable basis for the position that DECC is suggesting should be imposed.
2. The benefits of providing standard buffers widths within relevant legislation are recognised, but flexibility must be provided in order to account for site-specific conditions. In this regard, other NSW Government Agencies provide for flexibility when determining buffer widths, by example Boyd et al (2007: 87) state that "*aspects such as scale of development, topographic and climatic conditions, environmental attributes and the nature and sensitivity of uses within the locality will influence the required impact mitigation measures and the separation distances that are considered necessary and appropriate in the circumstances*".

3. The 'Major Project Assessment' report prepared by the Department of Planning in March 2006, indicates that issues associated with buffers was raised by the (then) Department of Environment and Conservation in relation to the SEPP 71 Master Plan, particularly in regard to rainforest vegetation. The report states:

   The Pacific Pines Estate contains significant cultural and ecological values. The Guiding Development Principles and the recommended variations ensure these values are maintained and further enhanced. A detailed review was undertaken by the Department's Ecologist to review the information provided for in the Pacific Pines Master Plan and to review Council's and DEC's concerns regarding the draft Master Plan. The result of this review has been the recommendation of variations to the draft Master Plan to provide protection for areas of high ecological value and to ensure protection to other areas containing significant vegetation.

   The variations recommended by the Department's Ecologist became 'conditions' of the SEPP 71 Master Plan adoption, which indicates acceptance of the buffers proposed.

4. Given that the above was a recent, rigorous, assessment and approval, Petrac adopted this as a starting point for the current Concept Plan and generally built on it. The general condition of on-site vegetation has not substantially changed since March 2006 and therefore it seems logical that what was an acceptable buffer then should still be an acceptable buffer now.
5. A comparison between the buffer areas provided in the SEPP 71 Master Plan and the current concept plan is provided in **Illustration 1.7**. It can clearly be seen on this Plan that the current Concept Plan provides more buffering to areas of significant vegetation than the adopted Master Plan.

With regard to the above, it is again noted that the EECs currently on the site are in a highly degraded state, lack connectivity and owing to their isolated nature are currently subject to a variety of edge effects. As such, the current Concept Plan does provide adequate protection to these fragments of EECs given the areas of the proposed buffers is larger than the vegetation community being retained, as detailed in **Table 2** below.

Table 2. Area of vegetation remnants retained on site and the buffers provided these areas in the current Concept Plan.

Vegetation Community	*Area of Vegetation Remnants (ha)*	*Area of open space/ conservation surrounding vegetation remnants (ha)*	*Ratio of area of remnant area : buffer area*
Littoral Rainforest (southern linear)	1.3	3.1	1:2
Littoral Rainforest (north-eastern linear)	0.5	1.6	1:3
Littoral Rainforest (northern linear)	0.6	N/A	N/A
Swamp Oak Forest	0.3	2.6	1:9

With regard to the above, the buffer areas provided to retained remnants of native vegetation are at least double the size of the existing remnants. It is noted that the thin band of weed infested littoral rainforest extending into the site from the central-northern boundary is not included within a Conservation Zone or Green Space area. However, this vegetation will be protected by an Environmental Covenant (i.e. S.88B Instrument) that will prohibit the clearance of any native vegetation within this community.

Illustration 1.7 Master Plan v. Concept Plan-COMPARISON OF OPEN SPACE & BUFFERS

Given the condition of the existing remnants of EECs within the site, the protection afforded to these areas by the Conservation Zone/Green Space network and environmental covenants is more than adequate. In contrast, the additional areas of land requested by DECC to be dedicated to buffers do not necessarily achieve any real ecological outcome given that:

- the additional area does not increase the connectivity between these fragments of retained vegetation;
- increasing the buffer size within the site does not provide any additional protection from conflicting land uses that exist immediately adjacent to the site and directly adjoin areas of remnant EEC within the site; and
- even with additional buffer areas provided, the remnant EEC's will still effectively be surrounded by urban development.

Fauna Movement Corridors

Illustration 1.8 provides an overlay of the NSW National Parks and Wildlife Service Key Habitats and Corridors in NE NSW mapping. With reference to this illustration, the northern and eastern portions of the site are identified as contributing to a Regional Fauna Corridor that currently encompasses vast tracks of existing residential development and cleared agricultural land. It is unclear what the actual ecological values and functions of this mapped corridor are, given the numerous barriers (i.e. vehicle related mortality, increased exposure to predators and domestic pets) dispersing fauna will encounter as they move through this highly modified landscape. It should also be noted that no part of the site was identified as "Additions to rezoning for Corridor Function" in the Lennox Head Environment Protection Zone Review (refer Lennox Head Structure Plan 2004).

Notwithstanding the above, the proposed development layout does provide for fauna movement opportunities and in particular the following are noted:

- a 10m boundary buffer has been provided along the northern boundary site providing a linkage between the littoral rainforest revegetation area in the north-western corner and retained fragments of EEC in the Conservation Zone network; and
- the Conservation Zone network and Green Space areas provides a valuable linkage between vegetation within the site and the Ballina Nature Reserve to the west.

The Concept Plan provides a reasonable and practical level of connectivity for fauna movement given that fauna species are more likely to use the extensive and contiguous vegetation in the Ballina Nature Reserve than the tenuous links provided by the site's fragmented and isolated native vegetation communities.

Rehabilitation and revegetation

It is intended to rehabilitate and revegetate all areas encompassed by the Conservation Zone network and Green Space areas identified for bush revegetation that incorporate fragments of EECs. The intent for rehabilitation works for each of these areas is provided in **Table 3** below.

Illustration 1.8 Regional Fauna Corridor Plan

Table 3. Rehabilitation objectives for Conservation Zones and Greens Space areas

Retained Area	*Purpose*	*Rehabilitation Intent*
Conservation Zone		
Hairy joint grass habitat (east) (3.2ha)	Conservation of Hairy joint grass and Square-stemmed spike rush populations	• Enhancement of threatened species populations in accordance with approved Management Strategies. • Re-establishment of Freshwater Wetland EEC floristic elements • Interpretive signage to increase public awareness of threatened species in these areas. • Provisions for controlled public access.
Hairy joint grass establishment (brook and south of lake) (1.8ha)	Conservation of Hairy joint grass and Square-stemmed spike rush populations	• Enhancement of threatened species populations in accordance with approved Management Strategies. • Re-establishment of Freshwater Wetland EEC floristic elements • Interpretive signage to increase public awareness of threatened species in these areas. • Provisions for controlled public access.
SEPP 26 revegetation (north-west corner) (0.9ha)	Increase the area of Littoral rainforest in the locality	Re-establishment of the structural and floristic elements of Littoral Rainforest vegetation
SEPP 14 rehabilitation (adjoining Ballina Nature Reserve) (5.9ha)	Restore the integrity of degraded SEPP 14 wetland vegetation	• Remove and manage weed populations. • Encourage natural regeneration of exiting native vegetation. • Provide supplementary planting where natural regeneration is not successful.
Off site Reserve (6.3ha)	Conservation of Hairy joint grass populations. Provide biodiversity based outcomes by restoring a number of EECs.	• Enhancement of threatened species populations in accordance with approved Management Strategies. • Establishment of a mosaic of native vegetation communities in accordance with the Conceptual Rehabilitation Plan.
Green Space		
Bush revegetation/threatened species conservation (6.3ha)	Enhancement of existing EEC vegetation. Protection of existing populations of threatened species	• Weed removal and management. • Enhancement plantings to reinstate floristic elements of each EEC. • Interpretive signage to increase

Retained Area	Purpose	Rehabilitation Intent
		public awareness of threatened species in these areas. • Provisions for controlled public access.

The attached **Conceptual Rehabilitation Plan** (RCP) provides a broad overview of the proposed rehabilitation works for the off-site reserve (i.e. Hendersen farm south). As indicated above, the intent is to maintain and enhance Hairy joint grass populations whilst also increasing biodiversity values of the locality by re-instating other significant vegetation types that would be expected to occur. In this regard, given the topography and existing remnant vegetation, a mosaic of Littoral Rainforest, Freshwater wetland/Hairy joint grass habitat and Swamp Oak forest is proposed to be established within the off-site reserve.

Detailed rehabilitation plans will be prepared in due course. As it is intended for all rehabilitation/revegetation works to create self-sustaining ecosystems, each plan will provide a specific set of performance criteria that must be achieved by each rehabilitation program. To ensure the success of each program Petrac are committed to a performance based monitoring, maintenance and reporting period of at least four years, which is greater than the period stipulated by DECC (i.e. two years). In general, each detailed rehabilitation plan will provide at a minimum:

- a description of the areas in which rehabilitation works are proposed;
- the scheduling and staging of the proposed rehabilitation;
- methods of site rehabilitation (e.g. translocation of existing plants, tubestock planting, direct seeding etc);
- plant species to be utilised (including stock size, quantities etc.) based on suitability to prevailing environmental conditions and local endemism;
- recommended planting densities and patterns;
- specific performance criteria that need to be achieved;
- a detailed maintenance/monitoring program;
- an implementation reporting and review procedure; and
- contingencies for any identified corrective actions.

Conclusion

For the reasons set out in the body of this formal response, it is our assessment that the implications of DECC's Statements of Commitment unnecessarily elevate the ecological significance of native vegetation on the site and in doing so, sterilise a disproportionate amount of land within which urban development could reasonably be undertaken. In contrast, the alternative Statement of Commitments provided herein have been specifically designed to facilitate a balance between the ecological values and functions of the site and it's urban development in accordance with Council's strategic intent. Providing an effective integration between social, economic and environmental considerations is central to the driving principles of 'ecologically sustainable development', the achievement of which is recognised as an underlying purpose of the *TSC Act*.

Conceptual rehabilitation Plan

1.5 Traffic

1.5.1 Hutley Drive

Most of the concern / queries raised in relation to traffic relate to the future construction of Hutley Drive. As outlined in the application documentation, Hutley Drive will provide one of the key access points to the development.

Currently, as shown in the Deposited Plan of the land (**Illustration 1.9**), there is a road reserve passing through the site, from its northern boundary. This reserve was dedicated by the previous owners of the land, as a requirement of previous Council approval, to provide for a future extension of Hutley Drive.

Currently, outside of the Pacific Pines site, only a small part of Hutley Drive has been built, being the section immediately north of Pacific Pines, through the Lennox Meadows Estate.

Council's strategic road network planning proposes that this section will be extended to the north, connecting to the existing roundabout at North Creek Road / Coast Road. That strategic planning also proposes that Hutley Drive be extended southward to join North Creek Road at the intersection of North Creek Road / Skennars Head Road intersection.

Council has engaged its traffic consultants, Cardno Eppell Olsen to provide a detailed assessment of this road network strategy to determine likely timeframes for the delivery of this road infrastructure. The resultant 'Paramics Model' report indicates that the northern extension of Hutley Drive should be constructed by 2011 and that the southern extension of Hutley Drive should be constructed by 2016.

Council has a current Contributions Plan (*Ballina Road Contributions Plan (BRCP) Version 1.0),* adopted under Section 94 of the *Environmental Planning and Assessment Act 1979.* This Plan provides for the Hutlley Drive extension, which is nominated in the Plan as the Skennars Head Link Road.

The traffic study submitted with the Part 3A application was prepared by Ardill Payne & Partners (APP). Broadly, the study estimates the traffic generated by the development proposed in the Concept Plan and assesses the capacity of the existing road network with respect to this future demand. The study concludes that the traffc generated by the existing development will not exceed the capacity of the existing road system. Apart from minor road upgrading, there is therefore no need for the proponents to construct new roads.

The development will, however, generate a requirement for the payment of the appropriate road contributions, in accordance with the Road Contributions Plan, to assist in the future delivery of the Skennars Head Road link.

1.5.2 Traffic Generation

Ballina Shire Council has questioned the estimates provided for the traffic that will be generated by the proposed development. There are no creative assumptions made about traffic generation. Values used for different land uses are provided in Table 3.1 of the Ardill Payne & Partners report (Appendix H of EA documentation).

There are four different sources quoted. The RTA's *Guide to Traffic Generating Development* (1993) recommends adopting generation rates from similar sites where their guidelines do not apply. The generation rates adopted are those closest to the land use and scale of development proposed.

The estimate of traffic generated by the buildings in the commercial area (comprising commercial, community, tavern and childcare uses) is provided in Tables 3.7a (adopted) and 3.7b (RTA) of the Ardill Payne report. Table 3.7a estimates a daily traffic volume from the commercial precinct of 1,496 vpd, whilst Table 3.7b estimates 2,396 vpd.

Illustration 1.9 Deposited Plan 1104071

The impacts of this traffic volume on the three main roads are investigated for both cases. For both cases the three main roads are within their capacity. See table 3.8a and 3.8b reproduced below.

Table 3.8(a) - Total Traffic Loads (Trips/Day) (Adopted Rates)

GRAND TOTAL	*Montwood Drive*	*Stoneyhurst Road*	*Hutley Drive 1*	*Hutley Drive 2*	*TOTAL**
Existing	1,440	46	NA	1,061	2,547
Proposed residential directed traffic	654	603	2,021	2,021	3,278
Estimated External Traffic through Pines to other land uses	40	51	111	111	202
Total Daily Trips	2,134	700	2,132	3,193	6,027

Table 3.8(b) - Total Traffic Loads (Trips/Day) (RTA Rates)

GRAND TOTAL	*Montwood Drive*	*Stoneyhurst Road*	*Hutley Drive 1*	*Hutley Drive 2*	*TOTAL**
Existing	1,694	54	NA	1,249	2,997
Proposed residential directed traffic	747	710	2,355	2,355	3,812
Estimated External Traffic through Pines to other land uses	225	281	619	619	1,125
Total Daily Trips	2,666	1,045	2,974	4,223	7,934

The traffic attracted to the commercial area from outside of the Pines is therefore either 202 or 1,125 vpd. The balance of the traffic generated by the commercial facilities will come from internal traffic movements within the Pines estate. This is as per RTA Guidelines section 3.3.1.

The traffic generated by the playing fields has not been investigated. The fields are not part of the application. Furthermore recreational fields are not usually included in such studies as they create peak traffic loads on weekends that are outside the normal (0830-0930 and 1630-1730) weekday peak time frames. The RTA does not provide figures for playing fields but does provide figures for tennis courts and gymnasiums. The RTA recommends in principle or similar historical land use results to determine traffic generating values.

The existing DA approval for the fields requires the provision for 110 car parking spaces. There are four fields. An in principle analysis has been undertaken based on the following assumptions:

- there are no joint trips (a conservative assumption) – i.e. people do not drop off kids and go shopping at adjacent commercial centre. Of course some users would do this. The effect then, for joint trips, would be to lower the vpd values for the combined case;
- there are 30 users per playing field per hour for a 5 hour sport day;
- car usage is 70%; and
- there are 1.33 users per car.

This analysis provides a weekend traffic generating value of 315 vpd. Assuming a 3:1 split between Hutley and Montwood, this would increase the traffic flows by 236 extra vehicles on Hutley and 79 on Montwood. These values are insignificant and do not affect the recommendations in the APP report.

2 Agency Submissions

2.1 Department of Planning

PART A – Concept Application

2.1.1 Traffic and access

The plans for the concept application do not show Hutley Drive constructed all the way to the southern boundary of the site. It is considered that the proponent should construct Hutley Drive all the way to the southern boundary of their site.

Plans have been amended – see Section 4.

The Engineering Report for Part 3A Concept Plan (Appendix H) states that road 'carriageways vary from 5.8m plus parallel parking to 7m depending on road type'. This is not reflected in the road cross sections. For example, the road cross sections indicate that the park edge and hillside streets are only 5.5 wide with no parallel parking.

One or two sections vary from the description due to their proximity to open space. Generally, however, the carriageway widths are as reported.

The capacity and traffic loads for the nine (9) classes of roads identified in **Illustration C6** is provided in **Table 2.1**. There are four streets which do not comply with the NRLG Guidelines. The non compliance is generally with the road reserve widths provided and in three of the four cases this does not affect road capacity.

Table 2.1 Internal Road Capacities for Proposed Road Heirarchy.

*Road Type**	*Parking Width (m)*	*Trafficable Width (m)*	*Carriage way Width (m)*	*Road Reserve Width (m)*	*Design Traffic Load (vpd)*	*Auspec Classification*	*Road Capacity (VPD*	*Comments*
A	4.2	7	11.2	20	2062	Collector street	3000	Complies
B	4.8	6.4	11.2	25	2132	Collector street	3000	Complies
D	4.2	5.5	9.7	18	1124	Local street	2000	Complies
E	6.4	7	13.4	24.2	692	Local street	2000	Complies
F		7	7	15	395	Local street	2000	Complies
G		7	7	12.5	475	Local street	2000	Road reserve does not comply, but one-side dedicated parkland in lieu of verge

*Road Type**	*Parking Width (m)*	*Trafficable Width (m)*	*Carriage way Width (m)*	*Road Reserve Width (m)*	*Design Traffic Load (vpd)*	*Auspec Classification*	*Road Capacity (VPD*	*Comments*
H		5.5	5.5	13.5	188	Access street	100	Hillside street. Occurs in one location only. Maximum traffic load 188 based on worse case split. Carriageway could be widened to 6.0m if needed
I		5.5	5.5	11	32	Access street	100	Road reserve does not comply, but one-side dedicated parkland in lieu of verge
J		7	7	7	81	Access street	100	Rear lane. Not Auspec minimum road reserve width of 14m. Capacity not limited by reserve width.

* refer to Illustration C6

For roads G and I, the non compliant road reserve is due to the fact that the road abuts parklands. In effect, therefore, the lack of road reserve is taken up by the adjoining parkland. This would not affect road capacity and no change is recommended.

For road reserve J, the non compliant road reserve is caused by the urban design principle to supply rear lanes with road reserves (7m) only marginally greater than the carriageway (6m). The guidelines recommend a 14m minimum reserve. The extra road reserve would normally be required for services and pedestrians. Limited pedestrian use is proposed for the rear lanes whilst services would be kept to a minimum. The narrower road reserve does not affect capacity. No change is recommended.

For road H, a 5.5m carriageway is proposed in a 13.5m reserve. The NRLG Manual recommends a 6m/14m combination. As the traffic load is slightly greater than that recommended for the Access Street classification (188 v 100 vpd), but much less than the 2000 vpd for the next category, and, because the road in question is relatively long, it is recommended that the proposal be increased to a 6m / 14m combination.

*The Engineering Report for Part 3A Concept Plan (Appendix H, p10) states that 'the report assumes that Hutley Drive North is constructed whilst Hutley Drive South is **not** constructed'. As the construction of Hutley Drive North has not yet been approved for construction, the traffic assessment for the current application should not take this road link into consideration. The report should be updated to reflect this.*

Hutley Drive is part of Ballina Council's strategic road plan and is proposed to be built within the timeframe of the Pacific Pines subdivision. If it were not to be built, traffic loads associated with Pacific Pines are within the existing capacity of the local road network, with the exception of the section of Henderson Lane between Stonyhurst Drive and North Creek Road. If Hutley Drive north does not go ahead, this section of Henderson Lane will need to be upgraded, including the intersection with North Creek Road.

Please provide updated comment on the traffic impacts of the development in light of Council's Lennox Head Paramics Model report dated April 2008.

The strategic level assessment provided in Section 3.2.2 of the Engineering Report for the Concept Plan (Appendix H, page 8) concludes that if Henderson Farm and other lands proposed for development in the area are rezoned without the construction of Hutley Drive, the resultant total traffic loads would exceed the

capacity of the existing road network. This conclusion is supported by the Cardno Eppel Olsen Lennox Head Paramics Model Report (2008).

The Paramic Model Report does not consider the implications of Pacific Pines as a 'stand-alone' development (i.e. the scenario that Pacific Pines proceeds, but no further land is rezoned). As such, it is not directly comparable with the assessment undertaken by Ardill Payne and Partners in the Engineering Report for this Concept Plan.

It is noted that the development proposes the provision of bus stops in the neighbourhood centre. Please provide indicative locations of these bus stops and address how these stops will be incorporated into the road cross sections presented in the EA.

The indicative locations of bus stops on the main street are shown in **Illustration C6** and **Illustration C3** of the Concept Plan drawing set. These are positioned to provide patrons with a sense of arrival into the Neighbourhood Centre with views towards the lake whilst ensuring they are dropped in a convenient and safe location.

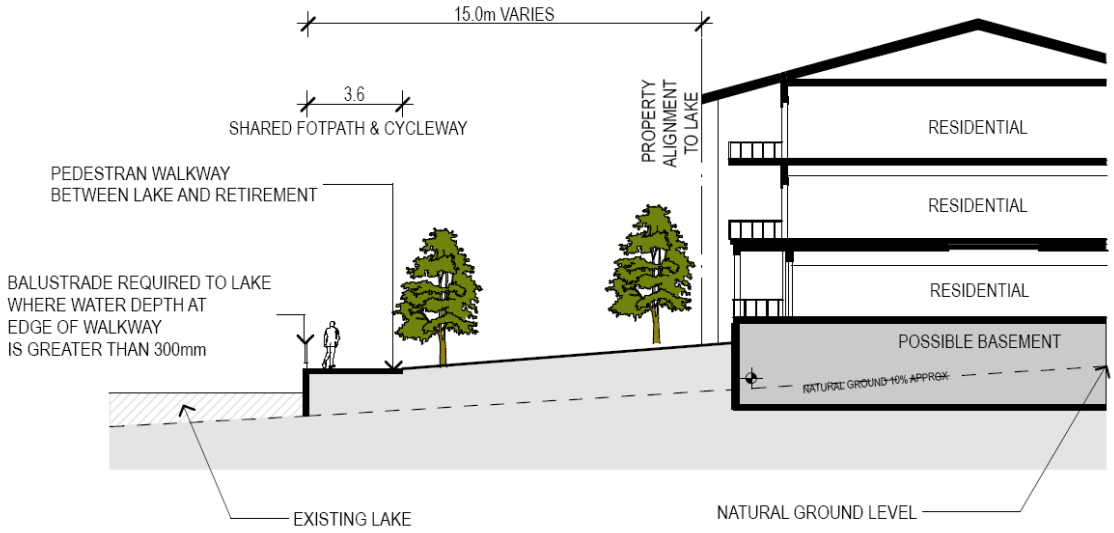
The current main street cross section has footpath widths of 5m and 3.8m which enable widening of the pavement by 0.5m for bus bays in the indicative locations.

2.1.2 Urban Design

Please address any potential privacy and overshadowing impacts from the proposed three storey development throughout the site. Specifically discuss any impacts on proposed public open space areas.

Clarification with respect to public access along the lake is provided in **Illustration 2.1**, which shows two typical cross sections. The indicative layout of buildings in this area is shown **in Illustration C3** of the Concept Plan drawing set. Please note that the Concept Plan design principles support a walkable and integrated layout, with the public access to the lake highlighted in **Illustration C6 Movement Network**.

As shown, three storey building elements are proposed as perimeter form building types. Perimeter form building types generally do not have narrow gaps between buildings that generate narrow shaded areas during winter. When gaps do occur between 3 storey building elements, they are wide and less prone to overshadowing impacts from adjoining buildings. Refer indicative building height sections.



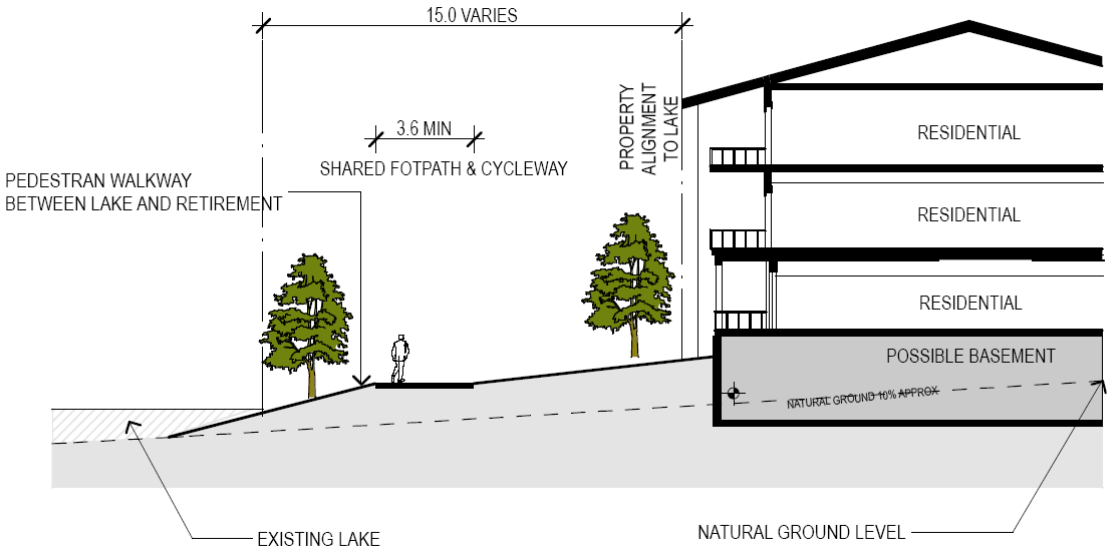


Illustration 2.1 Lake Access Cross-Sections

The Urban Design Report (Appendix E) states that 1200m² of retail floor space is proposed. The area of rear parking proposed can accommodate the expansion of the supermarket to 1700m² and total retail area to 2500m². Please confirm whether the current concept application is seeking approval for the 1200m² area of proposed retail or the future expanded area of 2500m².

The concept application seeks approval for the ultimate expanded area of 3,000m² for the supermarket and specialty shops. The carparking has been designed to accommodate for this expanded area as demand increases in the local area.

The Design Guidelines (appendix F, p41) state that the proposed retirement central facilities include club facilities. Please provide further detail as to what is proposed as part of these club facilities.

The central facilities are likely to include:

- Wellbeing centre and consulting rooms;
- Reception, administration and sales;
- Resident business centre and serviced offices;
- Arts and crafts workshop; and
- Club facilities including a kitchen and café, indoor/outdoor dining, audiovisual room, bar, dance floor and ablutions.

The proposed outdoor area which is part of the community centre extends over the water quality control pond. While it is understood that the proponent intends this area to be publicly accessible, it is important that this area be designed such that it is easily recognisable as a publicly accessible space.

This area is part of the broader public pedestrian network that circumnavigates around the pond and retirement community. It is also the outdoor area for a facility that is clearly public in use. The space can be approached from 4 different directions, including two from the Main Street, all of which are also public spaces.

Street layouts and building locations ensure that wide view corridors are maintained from surrounding precincts, down to the pond. Access ways surrounding the pond are wide and allow for the planting of large shade trees which reinforce the public nature of these spaces. The trees frame the views and enhance human comfort in these locations, making these walkways, boardwalks and decks, enticing areas from which to view the pond.

Illustration 2.1 above and **Illustration C10** within the Concept Plan drawing set demonstrate the interface between buildings and the pond as well as the location of public pedestrian linkages.

Various sketches of the development show the outdoor deck area of the tavern overhanging parts of the water quality control pond. However, the subdivision layout does not indicate that the lot proposed for the tavern stretches over the water quality control pond. In any case, it would not be acceptable for the tavern outdoor area to extend of the water quality control pond. Please address this issue.

The tavern will be designed to be totally within the lot to be created in the Project Application, i.e. it will not include an outdoor area extending over the water.

2.1.3 Flooding

An updated flood study for the Ballina Shire was exhibited in late 2007. Please provide further advice on the flood liability of the site and the potential for the development to impact on flooding in light of this updated report. It is also requested that the development be assessed in light of the provisions of the Draft Ballina Shire Development Control Plan (Amendment No. 5) – Flood Levels recently exhibited by Council as a result of the updated study. Specifically, please confirm the required level of fill on the site and finished floor levels for the types of development proposed. Confirm that flood free egress from the site is available in the Probably Maximum Flood.

Council's 2007 study indicates flood levels at the mouth of the Richmond River to be some 200mm higher than previous levels. For the subject proposal, Ardill Payne and Partners had adopted a 200mm increase in previously required fill levels, although it was considered that the full 200mm increase would be unlikely to 'travel' this far up the catchment.

Council's current minimum fill levels, based on the 2007 report and covered by the subject DCP amendment, are at RL 1.9m for Pacific Pines for a 1 in 100 year flood of between RL 1.6m and RL 1.7m. The PMF for the site is RL 3.2m. The proposed minimum fill level, based on current modelling, is RL 2.3m. Egress from the site is via Hutley Drive, Montwood Drive and Stoneyhurst Road. Residential access to these roads starts at RL 3.35m for Hutley, RL 3.85m for Stoneyhurst and above RL 5m for Montwood. The lower parts of Hutley Drive, around Main St, would be flooded by the PMF. However, this does not affect egress points for the rest of the development as alternative high level routes are available via Montwood and Stoneyhurst.

Local flooding controls the flood levels on the site up to a 1 in 100 year event and fill levels are based on these local events.

The Engineering Report for Part 3A Concept Plan (Appendix H, p41) states that "The increased height … will require inclusion of some walls in floodways'. Please provide further information with regard to the proposed walls and assess the impact of these walls on the ongoing functioning of the floodway.

Floodway batters are designed so that retaining walls can be used to maintain the sectional area required for conveyance. Walls will therefore enhance the function of floodways. Engineering detail will be provided with applications for Construction Certificates.

2.1.4 Ecology

It is noted that the Stormwater Concept Plan (Illustration C7) requires the construction of two weirs within the area being retained for Hairy Joint Grass habitat. Please provide further details as to how these weirs may change the hydrology of this area and any resultant impacts on the ongoing viability of the Hairy Joint Grass population.

The hydrology of this area will not change significantly. The change will involve increased short term flood depths upstream of the weirs and slightly increased flood flow velocities over the weirs in some storm events. The weirs will only function during storm events, causing water to be stored at a greater depth

than is currently the case. Water flow velocities remain largely unchanged because weirs have low flow bypasses to mimic existing stream flow outside of storm events.

During flood events, the detention effects provide the same peak flow discharges as the existing situation at slightly increased velocities. Overall, therefore, the impact on the Hairy Joint Grass is that there will be a greater depth of water in the area during a storm event.

It is not envisaged that an increase in the depth of water during a storm event will have an adverse impact on Hairy Joint Grass populations, given the species is typically found in environments that are subject to periods of inundation, i.e. wetlands, swamps and springs. However, a pattern is emerging that the species prefers environments that are subject to brief periods of inundation only and as such, an adverse impact on the species survival would be expected if periods of inundation were extended beyond its natural range of tolerance. As stated above, the detention effects of the weirs will provide the same peak flow discharges as the existing situation. It should also be noted that the Hairy Joint Grass populations within the site appeared to have thrived following periods of inundation resulting from the extended periods of high rainfall experienced in the Lennox Head region in late 2007- early 2008.

The proposal would result in the removal of 73% of Hairy Joint Grass habitat on the site. Does the 2.1 hectares of habitat to be retained include that area to the west of the WQCP (identified on Illustration 8.2 of the EA) as this is not an area where HJG has been found to date. Is it reasonable to expect that HJG would survive in this area if translocated or seeded in this area?

The proposal currently provides approximately 1.8 ha of on-site compensatory Hairy Joint Grass habitat around the brook and existing lake (refer **Illustration C11** within the Concept Plan drawing set). This area is additional to the 3.2 ha of known Hairy Joint Grass habitat included in the eastern portion of the Conservation Zone network. While it is not anticipated that the entire area will be suitable for the translocation and/or seeding of Hairy Joint Grass, there will certainly be opportunities to establish the species in areas that provide suitable habitat (i.e. moist situations). It should be noted that at present the species occurs in areas of the site that around the 7.5m contour or below and are in close proximity of a drainage line, creek or spring. Given the proposed 1.8ha of compensatory habitat is located below the 5m contour and is associated, at least in part, with the brook and drainage lines associated with the existing lake, it is reasonable to expect that Hairy Joint Grass populations will be able to establish in these areas. It is also recognised that the current management regime of regular slashing may need to be changed in order to facilitate the survival of Hairy Joint Grass in this area.

There is little detail regarding the proposed 'Short term enhancement area'. It is understood that this area is owned by Council. Have Council agreed to enhancement works being undertaken on this land?

Petrac and Ballina Shire Council are currently finalising a land owner agreement that will facilitate the short term rehabilitation strategy for Henderson Farm South. A copy of the agreement will be provided to the Department as soon as it is available.

The rehabilitation proposals are clarified and detailed in **Section 1.4** of this report.

2.1.5 Mosquito Impact

The Mosquito Impact Assessment (Appendix L) states that 'The proposed extension of Hutley Drive alignment between the Nature Reserve and Water Quality Improvement Pond increases mosquito buffering'. Please confirm that the mosquito impact assessment does not rely on the construction of the road as this is not part of the existing proposal.

The principal factor contributing to the effectiveness of mosquito buffering is the separation distance and nature of potential mosquito harbourage between source (of mosquito breeding/harbourage) and receptor (residential allotments and occupied venues/facilities). The separations between source (the Ballina Nature Reserve) and nearest receptor locations for this proposal are (approximately):

- 40m to the proposed tavern building
- 110m to proposed retail shops with office accommodation on 1st floor and residential on 2nd floor.
- 170m to proposed community centre building
- 190-200m to proposed child care centre
- 200m to residential house allotments.

The Pacific Pines Mosquito Impact Assessment identified the mosquito species *Verrallina funerea* as posing greatest risk associated with the nearest margin of the Ballina Nature Reserve. This species is reluctant to disperse far across open ground. In studies conducted by Mosquito Consulting Services Pty Ltd on the adjoining Henderson Farm property in 2005, the dispersal of several mosquito species across open ground from a forest margin, including *Ve funerea*, were characterised. This study is relevant to Pacific Pines as it was a good field analogy to the Ballina Nature Reserve – Pacific Pines context.

From that study, the mean *Ve funerea* numbers (and standard deviation: σ) by distance of 0m; 25m; 50m and 100m across open ground away from the edge of forest harbourage were 22.3 (σ = 17.7); 5.8 (σ = 3.4); 3.4 (σ =2.5) and 2.2 (σ = 1.4) respectively. Statistical analysis using paired t-test comparing increasing distance were:

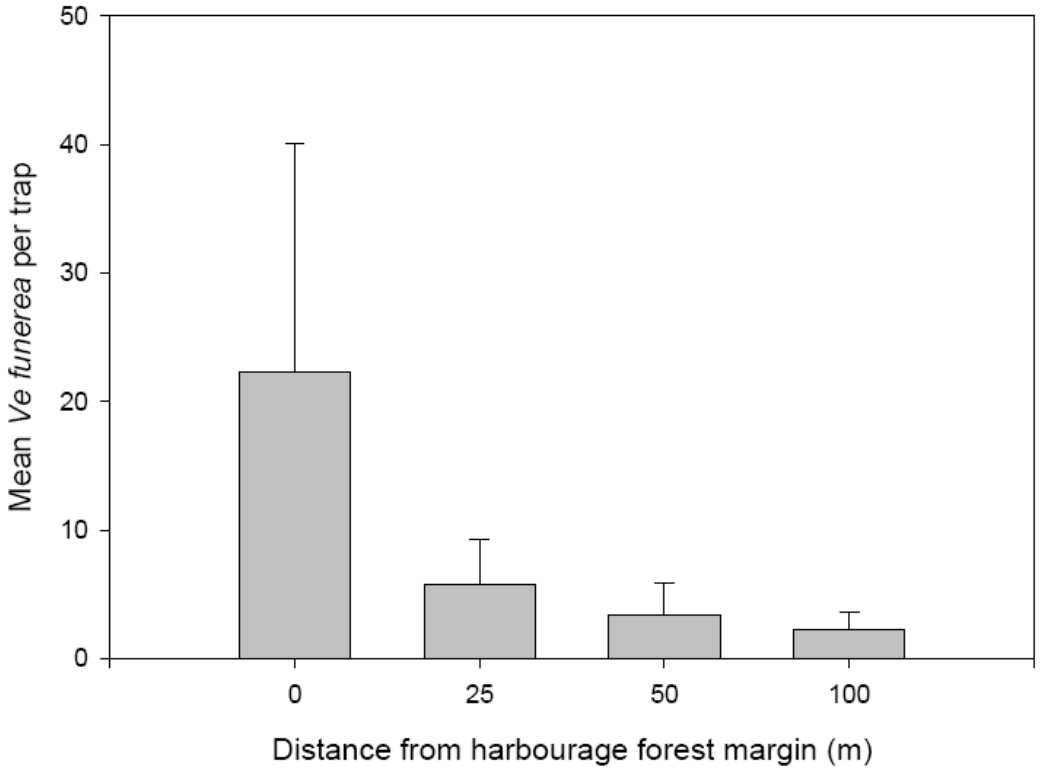
- 0m to 25m result P = 0.01 showing a statistically significant difference with a 74% reduction.
- 25m to 50m result P = 0.003 showing a statistically significant difference with a further 10% reduction.
- 50m to 100m result P = 0.46 showing not a statistical significant difference.

Graph 1 shows the relationship between *Ve funerea* over the distances measured.

Graph 1

Ve funerea dispersal from harbourage forest edge

Dec 2005



From that study (Henderson Land 2005 – unpublished) it may be concluded that over the 40m separation between the margin of the Ballina Nature Reserve with associated *Ve funerea* harbourage, and the nearest receptor location (the proposed Pacific Pines Tavern) that between 74% and 84% attenuation of exposure to this species would be expected.

The possibility of inclusion of the previously mentioned roadway was considered by the author as simply a bonus as it would ensure maintenance of some of the clear space necessary to the effectiveness of mosquito buffers. Absence of the roadway will not inhibit attenuation but will require that clear open space is maintained with regular mowing of grass.

The report also states that there should be a minimum depth of 500mm in the watercourse ponds. Is it proposed to adopt this recommendation for the proposed watercourse through the private open space associated with the retirement village? If so, what, if any, implications are there for public safety?

Water depths in the watercourse ponds will vary from 50 to 500 mm depending on watercourse section. The 'new' watercourse (or brook) follows (in part) the alignment and stream section of the existing watercourse, which has an average stream flow depth towards the bottom of its reach of 500mm. The natural stream is very narrow at this point, being only 1500mm across at its widest. Dense landscaping will be used in the areas where the channel is deepest to prevent direct public access to the stream.

Not all recommendations from the Mosquito Impact Assessment have been included in the Statement of Commitments.

The Statement of Commitments has been updated to include all recommendations of the Mosquito Impact Assessment report (see attached).

2.1.6 Bushfire

The Bushfire Assessment (Appendix M) states that a number of the proposed roads are not compliant with Planning for Bushfire Protection 2006. While the assessment notes that these roads are a long way from the bushfire hazard areas in the completed development, further discussion should be provided as to whether these roads will be necessary for bushfire access in earlier states of construction (i.e. before completion of the whole development). Further, the rural Fire Service should be consulted to confirm whether they are satisfied with the non-compliant roads within the development.

The only roads that are not compliant with section 4.1.3(1) of PBP 2006 are minor roads, internal to the subdivision. These roads will be constructed in later stages of the development, following construction of the perimeter road, Hutley Drive, which does meet the requirements of section 4.1.3(1) of PBP 2006, being 8.8 m wide.

It is not immediately clear where the Asset Protection Zones (APZs) are required. Please provide a figure showing the APZs that will be provided across the site.

APZs for Stage 1 are shown in **Illustration 2.2**. APZs for the full subdivision of the property are shown in **Illustration 2.3**.

2.1.7 Noise

The Environmental Noise Impact Assessment (Appendix N) states that 'Alfresco dining be located in an area screened to surrounding residential properties, or be limited to daytime use'. How realistic is the implementation of this recommendation, particularly in regard to use of the terrace for the tavern?

An application for the development of the tavern 'super lot' will be made subsequent to the Concept Approval. Clearly, noise issues will be a consideration in the assessment of this application, which will need to demonstrate, both by building layout and design and by enforceable management arrangements, that noise will not be a problem for residents of the area. Given the location of the lot, this will be achievable.

Illustration 2.2 Stage 1 Asset Protection Zones

Illustration 2.3 APZ's for Subdivision

While it is understood from the Environmental Noise Impact Assessment that the traffic numbers on Stoneyhurst Drive are too small to model noise impacts, the EA should provide some commentary on the potential impacts of the development traffic on the residences along this street.

An updated noise report has been provided by the Carter Rytenskild Group (CRG) – see **Appendix E**. Predicted noise levels for Stonyhurst Drive are now included in **Table 6** of that report.

2.1.8 Stormwater

The Stormwater Concept Plan (Illustration P4) does not show any treatment options for stormwater flowing from Catchment 3. All stormwater leaving the site should be appropriately treated.

The subject catchment will have primary and secondary treatment via swales and bio retention. The overall stormwater treatment measures will reduce the pollutant loads from the site as a whole via treatment through the existing pond. It is not a requirement to treat every catchment, provided the overall pre-development loads are reduced. Council's requirement is to achieve '*no net increase in pollutant load*'. This is achieved by reducing pollutant loads in some catchments more than in others.

The Engineering Report for Part 3A concept Plan (Appendix H) and the Statement of Commitments state that ongoing water quality monitoring will be undertaken. Please indicate how long monitoring is proposed to be undertaken for.

Council's minimum requirement is for this monitoring to be undertaken until 2010.

2.1.9 Open Space

The EA provides estimates for the area of open space to be provided by the development. However, portions of these open space areas are remnant vegetation and the proposal includes additional revegetation works around these areas of littoral rainforest. This will render some areas of open space unusable. Please provide updated estimates of the areas of usable open space to be provided across the site.

Illustration C11 of the Concept Plan drawing set shows the alternate uses proposed for all green space proposed within the site.

2.1.10 Aboriginal heritage

The Cultural Heritage Assessment (Appendix J) relies largely on results of previous field studies of the site. Please provide further details of the results of these earlier field surveys including the provision of the report completed in 2003.

A full copy of the 2003 heritage report is contained in **Appendix F**. Further comment on Cultural Heritage matters are provided below, in **Section 2.3.6**, in response to comments from the Department of Environment and Climate Change.

PART B – Project Application

2.1.11 Subdivision

The superlot for the proposed community centre extends over the water quality control pond. This lot should be wholly contained outside of this water body.

Illustration P2 has been amended to remove any encroachment of this super-lot (see **Section 4**).

Please provide more detailed plans for the proposed subdivision which is the subject of the project application, including plans of all proposed services to the lots.

Servicing plans to support the updated subdivision plan are provided in **Appendix G**.

Please provide long sections for the roads to be constructed as part of the Stage 1 subdivision.

Road long sections are provided in **Appendix H**.

2.1.12 Landscaping and Open Space

Park 2 is proposed to be constructed as part of project application. This park is only 7.5m wide and does not appear to provide usable open space for the future residents of the subdivision. Further no landscaping is proposed for this park. The landscape plan indicates that the park incorporates a pedestrian/cyclepath. Please provide further information on the proposed paths in Parks 2 and 3 including their dimensions and configuration.

Parks 2 and 3 provide pedestrian links through the southern part of the development. Park 2 is 8 metres in width. Park 3 is 19 metres in width. Landscape treatments will be quite simple and will include a central pathway, turf and an avenue of shade trees. Adjacent properties will be encouraged to face the park and provide passive surveillance of these spaces.

It is unclear from the Stage 1 Landscape Plan (Illustration P3) why the landscaping of the proposed private open space adjacent to the retirement village is not included. All this work should be included in the State 1 Landscape Plan.

This is not included because the earthworks to be undertaken for Stage 1 do not extend to the whole of the retirement super-lot.

The Stage 1 Landscape Plan also notes that much of the Stage 1 landscaping is proposed to be bonded as part of the development of a superlot. Please indicate which superlot development all of the landscaping works would be bonded to.

The Stage 1 landscape works will ideally be carried out in conjunction with the development of the individual superlots. It is therefore suggested that amount of the bond appropriate for the Stage 1 works be divided and applied to the future development of the superlots.

2.1.13 Earthworks

Some of the earthworks proposed are within areas of Hairy Joint Grass. The EA states that these works are dependent on the result of the current investigations on Hairy Joint Grass. Please provide the results of the further investigations and define exactly which earthworks are being proposed as part of the current application.

The open space areas have been design to maintain existing ground levels in the Hairy Joint Grass areas. Therefore the species will not be impacted within these conservation areas.

It remains unclear from the EA whether earthworks are proposed to be undertaken in accordance with existing DAs. Where work is proposed to be undertaken in accordance with existing DAs, please provide copies of all relevant consents. For works that you are seeking approval for as part of this application, please provide further details of proposed works and their potential impacts. It is noted that many of the earthworks that are marked as requiring approval are outside the project application boundary indicated on Illustration P5.

The application seeks approval for earthworks as described in the engineering reports. In part, these works are the same as those previously approved, however, the application does not seek to rely on these previous approvals. The impacts of the earthworks are discussed in the engineering reports and the EA documentation and clarifies herein.

2.1.14 Stormwater

Please confirm whether the works to the watercourse to the west of Hutley Drive will be undertaken in accordance with an existing development consent or whether approval is being sought as part of the current application. If it is to be undertaken in accordance with an existing DA, please provide a copy of the consent. If approval is sought as part of this application, please provide further details of the proposed works.

The works in this watercourse will be completed in accordance with Development Consent 428/1113. A full copy of that approval is contained in **Appendix I.**

2.1.15 Ecology

The erosion and Sediment Control Plan (Illustration P7) indicates that a watercourse will be diverted while the earthworks are conducted. Please address whether the diversion of this watercourse is likely to impact on Hairy Joint Grass habitat.

It is anticipated that the extent of the proposed earthworks will necessitate some minor incursions on the existing alignment of the small creek line that traverses the lower-lying portions of the site. The impacts of this on Hairy Joint Grass habitat are considered to be minimal given that the proposed earthworks will only result in some minor adjustments to the flow path of the creek and will not significantly change the existing hydrology. In any event, the proposed earthworks will ideally be conducted during the drier winter months, which are not active part of the Hairy Joint Grass life-cycle (i.e. adult plants die off over winter). As such, any diversion of the creek line during this dormant phase of the Hairy Joint Grass lifecycle is considered to represent a low-level risk to the survival of the species.

2.1.16 Development Staging

The project application proposes construction in two stages – 1A and 1B. What is the proposed timing for the start of the stages? Will Stage 1B be commenced long after Stage 1A? The EA states that Petrac would like to link construction of the neighbourhood centre and retirement community with construction of the Stage 1 subdivision. Will subdivision of Stage 1B wait until approvals have been gained for these buildings?

As shown in the updated P2 Stage 1 Subdivision Plan, it is now proposed to construct Stag1 in three sub-stages. Stage 1A constitutes the residential lots located towards the south of the site, which will be accessed via an extension of the existing road system (i.e. Montwood Drive). Stage 1B involves an extension of Montwood Drive and the construction of Main Street and also includes the creation of the various superlots. Stage 1C involves the construction of Hutley Drive, from the Main Street intersection to the northern property boundary.

It is proposed that Stage 1A will be constructed first, shortly followed by Stage 1B and 1C.

The purpose of this staging is to create construction contracts of a manageable size plus facilitate sequenced plan sealing of the lots.

2.2 Department of Education and Training

Issues

Department is monitoring significant development proposals in the region to identify the future need for additional educational facilities relating to population growth. No specific preferred sites have been identified, but the Department has identified that there is likely to be a future need for new primary schools and possibly an additional secondary school in the Ballina Local Government Area. No work has been done in relation to potential locations for these schools.

The Department notes, however, that there will not be a requirement for a new school to be located within the Pacific Pines site.

Response

No response required.

2.3 Department of Environment and Conservation

2.3.1 Buffers

Issue

The DECC believes that the current proposal does not provide for adequate protection and buffering to all environmentally significant areas, including the SEPP 14, threatened species, ecological communities and their habitats.

Response

Illustration 1.7 provides a plan overlaying the current conservation / open space proposals onto the approved SEPP 71 Master Plan layout. It shows that the buffers now proposed are generally large than were approved in 2006. [Note: lake and sportsfields subject to separate existing approvals].

The 'Major Project Assessment' report prepared by the Department of Planning in March 2006 indicates that issues associated with buffers were raised by the (then) Department of Environment and Conservation in relation to the SEPP 71 Master Plan, particularly in regard to rainforest vegetation. The report states:

> *The Pacific Pines Estate contains significant cultural and ecological values. The Guiding Development Principles and the recommended variations ensure these values are maintained and further enhanced. A detailed review was undertaken by the Department's Ecologist to review the information provided for in the Pacific Pines Master Plan and to review Council's and DEC's concerns regarding the draft Master Plan. The result of this review has been the recommendation of variations to the draft Master Plan to provide protection for areas of high ecological value and to ensure protection to other areas containing significant vegetation.*

The areas relating to the variations recommended by the Department's Ecologist are shown in **Illustration 2.4**, with the Master Plan approval contained in **Appendix J**. The Instrument of Adoption issued by the Minister included the following in relation to buffers:

> *The management of the endangered ecological communities located on the site are to be undertaken in accordance with the points listed below and in accordance with the attached map "Impact on Development on Vegetation"* (reproduced in Illustration 2.2) *as amended by the Department of Planning:*
>
> *(a) Site 1 – To ensure the remnant is adequately protected from indirect impacts as a result of the residential development, it is recommended that appropriate buffers be established. Residential development is to be setback 50 metres from the boundary of the Hensersons Lane Road reserve and for the SEPP 26 remnant a setback of 100m from the boundary of SEPP 26. It is also recommended a road way be located between residential development and this buffer area to address any future bush fire issues. If a road is not provided then an additional 5m setback would be required.*
>
> *(b) Sites 2 & 3 – Residential development is to be setback 10 metres from the vegetation located within the road reserve. Protection of the three Morton Bay Figs is to be made via the provision of private covenants.*
>
> *(c) Residential development is to be setback 10m from the remaining cleared areas along the road reserve to ensure revegetation can occur.*
>
> *(d) The protection of the Ecologically Endangered Community at Site 4 is to be protected by covenants over the land.*

Clearly, the Department's Ecologist was happy with the buffers as generally proposed and happy with the use of private covenants to control the protection of various buffer areas.

Given that this was a recent, rigorous assessment and approval, we had adopted this as a starting point for the current concept plan and generally built on it. The vegetation has not substantially changed since Mach 2006 and therefore it seems logical that what was an acceptable buffer then should still be an acceptable buffer now.

The premise of buffers is to protect native bushland. The native vegetation on site at Pacific Pines is surrounded by exotic grassland. There is no scientific reason to buffer native vegetation with exotic grassland. Boyd *et al* (2007: 88) state that "*landscape and ecological buffers refer to the use of existing vegetation to help reduce the impacts from development. They are mostly used to protect a sensitive environment by maintaining or enhancing existing habitat and wildlife corridors.*" The Endangered Ecological Communities (EECs) present are currently edge-affected and highly degraded. The integrity of the EECs are already somewhat compromised by their isolation. This will have reduced the genetic exchange, dispersal and migration of resident species. The small size of the remnants contributes to the generally low regional significance.

The buffers, perimeters and areas of vegetation as proposed within the part 3A application are:

Vegetation Community	Area of Vegetation Remnants (m^2)	Area of open space/ conservation surrounding vegetation remnants (m^2)	Perimeter (m)	Edge:Area
Littoral Rainforest (southern linear)	12,532	30,651	1,550	1:8
Littoral Rainforest (north-eastern linear)	5,305	16,035	477	1:11
Littoral Rainforest (northern linear)	5,903	N/A	1,030	1:6
Swamp Oak Forest	3,210	25,958	505	1:6
Fig and Tuckeroo	1,964	7,719	247	1:8
Fig and Guoia	2,338	8,739	232	1:10

The existing littoral rainforest is restricted to linear strips along fencelines. The buffers proposed are larger than the remnants of littoral rainforest themselves:

- the conservation zone surrounding the Littoral Rainforest (southern linear) is 2.4 times the size of the remnant;
- the conservation zone surrounding the Littoral Rainforest (north-eastern linear) is 3 times the size of the remnant;
- the conservation zone surrounding the Swamp Oak Forest is 8 times the size of the remnant;
- the conservation zone surrounding the Fig and Tuckeroo is 4 times the size of the remnant; and
- the conservation zone surrounding the Fig and Guioa is 4 times the size of the remnant.

We also question the relevance of a buffer distance applied in the Coffs Harbour LEP to other areas of the state. A standard buffer distance cannot be applied for all interface situations. Boyd *et al* (2007: 87) state that "*aspects such as scale of development, topographic and climatic conditions, environmental attributes and the nature and sensitivity of uses within the locality will influence the required impact mitigation measures and the separation distances that are considered necessary and appropriate in the circumstances".*

Illustration 2.4 Approved SEPP 71 Buffers

The buffers suggested are restricted to within the development site. There is no scientific reason for buffering a remnant of littoral rainforest growing along a property boundary when there is no buffer to the residential development existing immediately outside the site.

The only buffer that is required within legislation is the 100 m buffer to the SEPP 26 littoral rainforest which was incorporated into the design of the subdivision.

B., Boyd, Fletcher, S., Learmonth, R. and Whitehead, R. (2007). *Living and Working in Rural Areas: A handbook for managing land use conflict issues on the NSW North Coast,* Centre for Coastal Agricultural Landscapes *in partnership with* Northern Rivers Catchment Management Authority

2.3.2 Hairy Joint Grass

Issues

'*The DECC has also been informed that there is a high potential that there is more occurrence of the Hairy Joint Grass on the property than has been portrayed in the supplied mapping*'.

The DECC considers that the current development proposal will significantly impact upon the Hairy Joint Grass population. They have suggested that further detail is required to support the proposed Hairy Joint Grass Management Strategy before they could accept that this strategy adequately mitigates for on-site impacts.

Response

See detailed response in **Section 1.4**.

2.3.3 Wildlife Corridors

It is noted that the Environmental Assessment has not addressed the issue of wildlife corridors and connectivity for the site. The site forms part of the Lennox Regional Fauna Corridor.

Response

See detailed response in **Section 1.4**.

2.3.4 Sedgeland / Rushland

Issue

The DECC has suggested that further assessment be undertaken to determine whether this vegetation community constitutes the Endangered Ecological Community – *Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions*.

Response

See detailed response in **Section 1.4**.

2.3.5 Revegetation / Rehabilitation Plan

Issue

The DECC has suggested that a revegetation and rehabilitation plan be developed and implemented. Attachment 1 of their submission suggested that this should be prepared and approved prior to the issue of a construction certificate, so that it is not required as part of the current documentation.

Response

The Statement of Commitments for the Concept Plan has been updated to include a commitment to the preparation of such a plan (see attached). See detailed response in **Section 1.4**.

2.3.6 Aboriginal Cultural Heritage

Issue

The current documentation refers to results and recommendations from a 2003 ACH field assessment of the area. The 2003 report has not been provided.

Response

The 2003 report was prepared to support an application for a SEPP 71 Master Plan. The report is now attached as **Appendix F**.

Issue

Correspondence from Jali LALC indicates the presence of two locations within the site of cultural significance worth protecting, yet the EA report indicates that there are no sites of cultural heritage within the site. Clarification is required.

Response

Everick Heritage Consultants has clarified in their report that no items of *archaeological* significance exist within the site. Two areas of cultural significance were identified by the Land Council representatives in 2003, a strip of natural forest (albeit regrowth) and a natural spring. These sites are to be conserved as part of the open space / conservation area network within the development.

The areas will not be subject to any modification without the consent of the Traditional Owners. These areas will be:

- fenced off by a temporary fence during any construction on nearby land to prevent inadvertent damage by work vehicles; and
- 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 National Parks and Wildlife Act 1974 (NSW) to harm Aboriginal Cultural Heritage.

Issue

The DECC suggest that the Statement of Commitments should include the adoption of a protocol relating to the discovery of any materials or items of Aboriginal origin that might occur during construction / excavation works.

Response

The Statements of Commitments have been updated to include a commitment to the preparation and adoption of such a protocol (see attached).

Issue

The DECC recommends that the proponent develop an Aboriginal Cultural Education program for the induction of personnel and contractors involved in the construction of the site.

Response

The Statements of Commitments have been updated to include a commitment to the preparation of such a program (see attached).

Issue

The DECC have requested evidence to support the claim that the local Aboriginal community previously advised that further field inspection was not warranted based on the results of the 2003 field assessment.

Response

The onsite meeting on 29 June 2007 was attended by Jali LALC Heritage Officer Mr. Marcus Ferguson and Everick Heritage Consultants, Dr. Richard Robins and Adrian Piper. During this meeting, discussions were held over the nature of past surveys and the limited change to the surface conditions of the site. Therefore, as per the DECC guidelines, as there was no change to the previous conditions, which had been inspected twice by the Jali LALC, a third inspection was viewed as unnecessary.

It was agreed by Mr Ferguson that another survey was not warranted. Everick do not have this in writing from Mr Ferguson. Nor did they record the conversation. However, support for this proposition is evident in the response of the Land Council to the Everick report. Everick provided the Land Council with a copy of their report for their additional comment, as is their practise with all reports. The Land Council responded in writing that they agreed with Everick's findings (Appendix A of Everick 2008 Report). At no stage did they raise concerns that the site should be surveyed again.

We draw your attention to the surveys conducted in 2003 (Piper 2003: 27). An Inspection was conducted on 21 January 2003 by A Piper and the Jali LALC Sites Officer Arthur Ferguson. No neither archaeological nor cultural heritage places were identified. Shortly thereafter the Jali LALC Executive underwent substantial changes, and the previous Heritage Committee/Executive were unable to respond to the report.

On 16 July 2003 A Piper and the new Jali representatives, Troy Anderson and Robert Brown, inspected the proposed development area again. No archaeological sites were found. The Jali representatives nominated some areas of potential archaeological sensitivity. They were not recommended for sub surface investigation but recommended for monitoring by Jali representatives. Two natural places identified as culturally significant, an area of regrowth veg containing macadamia tree/s and lawyer vine and a possible fresh water spring. These were included within open space/green areas.

Everick are strongly of the view that the thorough surveying of the land previously provided sufficient justification not to survey the land a third time with Mr Ferguson, a suggestion with which Mr Ferguson agreed.

As the DECC will be aware, the Land Council has in place a system whereby reports are tabled to members at general meetings. The Land Council will then pass resolutions as to what recommendations or comments they wish to make. Everick provided their report to the Land Council, and after a period of some 2 months the Land Council responded. They raised no issues that were not dealt with according to their requests.

Although Everick placed advertisements seeking the input of interested Aboriginal persons and conducted a mail-out to known interested parties, the Land Council was the only respondent.

2.4 Department of Primary Industries

2.4.1 Ross Lane link road

The DPI is concerned that the proposed development does not make provision for a future collector road from Hutley Drive to the west, through the adjacent Henderson Farm site and eventually joining to Ross Lane. Their concern is that, if the current proposal does not provide for this road link, there may be future pressure for that link to be located southward of the sportsfields, directly adjacent to the SEPP 14 wetland.

Response

The Ross Lane link road was previously a longer term 'idea' of Ballina Shire Council. It was never formally adopted as part of Council's Strategic Road network planning, and more recent discussions with Council indicate that it is no longer part of their road network thinking. As such, a single, local collector road link is

required from Hutley Drive to the boundary of the adjoining land (Henderson Farm). The dedication of a road reserve for this purpose forms part of the Stage 1 Project Application, and it is located north of the playing fields specifically to avoid any future impacts on the SEPP 14 wetland.

2.4.2 Cumulative Impacts

Issue

The DPI suggests that the proponent should undertake an assessment of the cumulative impacts of all development proposals in the North Creek precinct, including those previously approved. The concern relates to potential impacts on the aquatic ecology of North Creek and / or the Ballina Nature Reserve and the DPI suggests that a lack of cumulative assessment is evident by the 'locking in' of the Hutley Drive southern extension adjacent to the Ballina Nature Reserve.

Response

The road reserve for the southern extension of Hutley Drive was dedicated to Council by the previous land owner as a requirement of development consent for an earlier stage of the Estate. It was dedicated in the location stipulated by Council.

The current application does not propose any work (or any alteration) to this road reserve southward of the location of the existing sewer pump station (i.e. where the existing road reserve is adjacent to the Nature Reserve).

We understand that Council is currently working toward more detailed planning of the southward expansion of Hutley Drive, and would expect that appropriate environmental assessment will be undertaken as part of the delivery of that infrastructure.

That assessment is not the responsibility of Pacific Pines.

In relation to other potential impacts on North Creek and / or the Nature Reserve, Ballina Council previously approved an Environmental Impact Statement relating to the existing Water Quality Control Pond. This pond, which has subsequently been constructed in accordance with the approval given, was designed with capacity to capture and treat all stormwater associated with the developed Pacific Pines Estate, as was Council's requirement.

The engineering report submitted with the current application demonstrates that the existing pond will effectively address any impacts associated with stormwater from the Pacific Pines site.

Other potential development sites in the North Creek precinct that are located outside of the catchment of this pond will also need to demonstrate to Council and to the DPI that their development will not result in impacts on the Nature reserve or the North Creek aquatic ecology.

2.5 NSW Rural Fire Service

Issue

The RFS have suggested the following as 'conditions' of approval:

> *A fire management plan is to be prepared that addresses the following requirements:*
>
> *a) contact person / department and details; and*
>
> *b) schedule and description of works for the continued maintenance of proposed open space areas, public reserves, proposed 'super lots' and proposed residual lots. A suitable management regime is required in perpetuity or until development occurs which removes the hazard within the relevant allotment.*

Water, electricity and gas are to comply with section 4.1.3 of Planning for Bushfire Protection 2006

Public road access shall comply with section 4.1.3(1) of Planning for Bushfire protection 2006. In this regard the following design standards for public roads are to be incorporated into the development:

a) road(s) shall be two-wheel drive, all weather roads.

b) Urban perimeter roads are two-way, with a carriageway 8 metres minimum kerb to kerb.

c) The perimeter road is linked to the internal road system at an interval of no greater than 500 metres.

Response

Public roads proposed for the development will comply with points a) to c) above (i.e. section 4.1.3(1) of Planning for Bushfire Protection 2006). All roads will be two-wheel drive, and will be sealed. Urban perimeter roads are two-way. Hutley Drive, the main urban perimeter road, will have a carriageway width of 8.8 m. Main Street, which could be considered as an urban perimeter road, will have a pavement width of 7 m plus 2.1 m wide shoulders. As these shoulders will incorporate street trees, the shoulders will include restricted parking bays and designated passing bays. The passing bays will be designed to allow the movement of fire trucks. The design of the perimeter road incorporates links to the internal road system with intervals no greater than 500 m.

2.6 RTA

The RTA's original response indicated that there was insufficient information to enable their assessment of the application. Since that time, we have provided the RTA with clarification of details and further information regarding traffic generation and intersection capacity. That information is included in this report in **Section 1.5**, with the intersection analysis contains in **Appendix K**.

We have not yet received a response from the RTA in relation to the additional information provided to them.

2.7 Ballina Shire Council

2.7.1 Concept Plan Comments

2.7.1.1 General Comments

Recommendation:

- *It is recommended that any Concept Plan approval issued by the Department of Planning clearly indicate that the approval of the proposed subdivision layout, including allotment typologies, is subject to the provision of detailed information and assessment at the Project Application stage.*

It is the purpose of a Concept Approval to consent to concepts and principles, with further detail to be approved by way of subsequent applications.

- *It is submitted that a number of the issues raised by Council, and not adequately addressed in GeoLINK's response, should be required to be addressed as part of the subject application, prior to determination.*

The issues referred to relate to Council previous comments regarding the *adequacy* of the application, wherein Council raised a number of merit issues. These merit issues are addressed in this report, as is the accepted procedure.

2.7.1.2 Community Facilities

Recommendation:

- *That the applicant be requested to provide additional information in relation to the proposed community facilities as detailed in Council's submission dated 31 January 2008. At the absolute minimum it is requested that information be provided to demonstrate that adequate land area is proposed to cater for the proposed building and associated car parking. Information regarding the car parking rate applied and number of car parking spaces required is requested.*

The development of the community facilities will be subject to a separate development application. The current Project Plan merely seeks approval for the creation of a lot with an area of approximately 1,650m^2. Given that the requirement is for a building of approximately 300m^2, the site is clearly big enough for both building and associated car parking.

2.7.1.3 Height

Recommendations:

- *That the proposed height limit of three storeys and 15 metres be rejected. That the height of development be restricted to the current provisions of Ballina Local Environmental Plan 1988.*

A submission addressing the proposed building height controls is set out in **Section 1.3** of this report.

- *That any Project Application for areas where encroachment over 8.4 metres is proposed be accompanied by appropriate design guidelines detailing the circumstances in which encroachment will be permitted and the acceptable extent of encroachment.*

The Design Guidelines submitted with the current application address this issue (see **Section 4** for details of proposed amendments to these Guidelines). Subsequent development applications will need to demonstrate consistency with these guidelines. Updated Design Guidelines, containing all changes provided herein, are in **Appendix L.**

2.7.1.4 Setbacks

Recommendations:

- *That any Concept Plan approval issued by the Department of Planning clearly indicate that the approval does not include the approval of the Design Guidelines which will be assessed in detail at the Project Application stage for each of the precincts.*

The Design Guidelines must be approved with the Concept Plan, as they will form the controls by which future applications will be assessed.

- *That the applicant be requested to provide additional information to support the proposed setbacks. In particular, further detail should be provided regarding the rationale for the proposed setbacks from street frontages which is less than Council's general standard for Lennox Head of 6 metres at ground level.*

Setbacks proposed to streets are graduated from the Neighbourhood Centre out to the larger allotments on the edge of the development. Generally, buildings that are closer to the Neighbourhood Centre have smaller setbacks than dwellings further away. The larger allotments on the edge of the development have greater setback requirements for the front and rear than the Lennox standard calls for currently. The setbacks for the allotments between these and the Neighbourhood Centre vary depending on the dwelling type and density. The one exception to this is the dwellings along the ridgeline where significant tree planting is proposed in significantly wider verges. Here the setback has been relaxed to enable enough verge for the establishment of significant trees.

- *That the applicant be requested to amend the proposed setback provisions to reflect the stepping back of the first floor of buildings in accordance with Council's recent adoption of the principle of a building envelope control. Alternatively, the applicant is requested to provide further information to justify the proposed first floor setbacks.*

Stepping back the upper level of two storey residential buildings is necessary only where there is a need to mitigate the impacts of a change in scale between an existing single storey building and a new neighbouring two storey building. On this site, two storey buildings are allowed on all parts of the site (as they are currently for the entire Lennox Head area). There are only a couple of instances where proposed two storey buildings abut existing single storey buildings outside the subject site. On these sites the stepping back can be conditioned if necessary.

Stepping back at upper levels discourages upper levels decks that overlook the street as they often need to be more expensive tanked decks over lower level spaces. This development does not wish to discourage upper level decks overlooking streets as they provide passive surveillance of streets.

Stepping back upper levels of dwellings creates a streetscape of single storey elements at the leading edge of each building. This results in a relatively un-articulated streetscape. This development proposes controls that will provide interesting and articulated streetscapes with a variety of heights at the leading edge of each building.

- *That the applicant be requested to amend the Design Guidelines by relocating private open space from within the front boundary setbacks. In the event that the applicant can demonstrate that this is not able to be reasonably achieved, design guidelines should be provided for the fencing of these nominated areas of private open space.*

Private open space has, in all cases, been provided on the north side of dwellings. It therefore only occurs within the front setback where lots are orientated with streets to the north. Fencing guidelines are provided within the landscape component of the Design Guidelines to address these cases.

2.7.1.5 Littoral Rainforest Vegetation

Recommendation:

- *All areas of littoral rainforest are to be buffered from all residential development and be incorporated into the open space reserve system. The subject vegetation communities are to be rehabilitated for a minimum period of 5 years prior to the land been dedicated to Council. The Part 3A application is to be revised to achieve this outcome.*

This issue is addressed above in **Section 1.4**.

2.7.1.6 Freshwater Wetlands

Recommendation:

- *The proposed stormwater system and all associated urban infrastructure should be located away and buffered from the Freshwater Wetland habitats located on Lot 234. The Part 3A should be redesigned to meet these objectives.*

This issue is addressed in **Section 1.4**.

2.7.1.7 Arthaxon hispidus (Hairy Joint Grass)

Recommendation:

- *The current Part 3A application should be redesigned to adequately retain and buffer the HJG population growing on the property.*

This issue is addressed in **Section 1.4**.

2.7.1.8 Overall Impact of the Development on threatened species and EEC's

Recommendation:

- *The applicant is required to demonstrate how they have complied with the abovementioned Director General's requirement.*

This issue is addressed in **Section 1.4**.

2.7.1.9 Mosquito Impact

Recommendations:

- *The mosquito management report should be re-issued, and should incorporate the abovementioned issues*
- *Council considers it a matter of importance that the Mosquito Report is peer reviewed by an independent consultant medical entomologist or agency to determine its sufficiency and whether the conclusions drawn are sufficient to meet the objectives of the Council's DCP Chapter 11 – Mosquito Management.*
- *There is some knowledge of the Lennox Head mosquito situation with the Department of Health, Arbovirus and Vector Monitoring Program at Westmead Hospital Sydney with whom Council has worked for some 15 years. It is Council's recommendation that review of the work of the Mosquito Consultant may be undertaken by the Director of the abovementioned department, Dr Richard Russell (Tel) 98457279.*
- *Confirmation should also be provided by the consultant engineer that the watercourse engineering specifications recommended in the report are accommodated in the design.*

Recommendations (dot points) 2 and 3 above indicate that the Pacific Pines Mosquito Impact Assessment should be peer reviewed by Dr Richard Russell, Professor and Director - Department of Medical Entomology, University of Sydney (Westmead Hospital). Council has previously raised concerns regarding Mosquito Impact Assessments provided within Ballina Shire, covering similar issues as again raised within the Pacific Pines mosquito report. Two Mosquito Impact Assessments provided by Mosquito Consulting Services Pty Ltd were peer reviewed by Dr Russell, in April 2004 in relation to developments for Greenwood Grove Estate Pty Ltd (DA 2004/605) and Sea Capital Pty Ltd (Ballina).

Ballina Shire Council's comments regarding the Pacific Pines Mosquito Impact Assessment, that have relevance to Dr Russell's abovementioned peer review, are extracted below. Responses reproduced from Dr Russell's 2004 review are reproduced below with additional comments by Mosquito Consulting Services Pty Ltd. The relevance of Dr Russell's 2004 remarks to Council's 2008 comments will become self evident.

2.1 BSC comment *concern is expressed that the investigation was relatively brief and undertaken in winter when peak mosquito activity occurs between February and March*.

2.1.1 Response from Dr Russell 2004 (below) is extracted verbatim (per times new roman font) from his expanded discussion on general limitations and objectives of Mosquito Impact Assessments and specific discussion on timing of studies.

Expanded discussion:

The provision of a MIA for a residential or industrial development can involve a range of considerations that will be dependent on various circumstances associated with the region, the locality, the site itself, the nature of the development and the desire to protect the health and well-being of various associated communities. However, there are limitations imposed by circumstances of site and process that can dictate the nature and progress of the assessment and, consequently, the quality and value of the final report. The minimum acceptable assessment should involve the acquisition of background information on the mosquitoes of the area and data on their relative abundance, information on mosquito-borne disease in the region, and an

inspection of the plans and specifications for the development, with a view to forming an expert opinion as to whether the communities associated with the development are likely to be affected by mosquitoes emanating from internal habitats extant or created on the site or dispersing into the site from external habitats.

Whether mosquito surveys for MIAs should be undertaken only during peak activity season (January to April)?

The most acceptable process is where data on current mosquito fauna and relative species abundance are gathered anew, because historical data may be no longer relevant and may indicate either a greater or lesser threat than actually exists. Ideally, these data should be acquired at the time of expected peak activity of the major pest and vector species but this is not always possible, given the timing of development submissions to authorities.

An experienced mosquito consultant/biologist should be able to broadly determine, and often pinpoint, likely larval habitats of *Oc. vigilax* from ground surveys conducted out of season when such times are dictated by the terms of the consulting brief/contract. This is not to say that all mosquito consultants would not wish to be able to undertake their MIAs during the periods of peak activity of the major pest/vector species, but in many instances the principal's timetable does not allow for such delays. When deadlines for submission of mosquito assessments do not allow for peak season investigations, the only alternative is to undertake such ground inspections and access historical tide, rainfall, temperature and mosquito data where available, or to otherwise extrapolate from personal experience. This is obviously a suboptimal approach but is often the only option available when the consultant has no opportunity to wait for peak season activity.

Clearly the MCS consultant's low level records of *Oc. vigilax* at the Greenwood Grove site do not represent the populations extant at peak season nor their capacity to disperse and affect areas well removed from their saline habitats. However, the consultant has clearly and consistently declared this issue as a concern, and has correctly advised that it is one that affects the locality as a whole and not the development site alone. To have undertaken the assessment in peak season would have provided more accurate and profound data, but these data would likely not result in any alteration of the assessment conclusions and recommendations. I noted that for the first MIA (for Lot DP 665 132, Ballina, undertaken in September 2003, the Sea Capital Pty Ltd site), follow-up surveys were conducted in the peak season (January 2004) but these did not result in any significant reworking of the conclusions.

Certainly, one reason for requiring peak season activity surveys on the site would be to obtain base-line data that could be used to defend or prosecute claims that the development was contributing to mosquito productivity in the locality, but this is an argument primarily concerning freshwater species such as *Cx. annulirostris* and *Oc. procax* that may be associated with retained or detained water on the site, and perhaps *Ve. funerea* when its brackish habitats are extended by stormwater runoff, but it is not relevant to *Oc. vigilax* that would be originating from off-site habitats.

I cannot agree with the criticism from the BSC consultant that the inability to assess peak season activity of the major pest species such as *Oc. vigilax* during the cooler months (because of low temperatures and low tidal amplitudes) is a critical flaw in the MIAs. The pest impact of *Oc. vigilax* in the BSC region is well known, and the seasonal activity and relative abundance of the species are documented; however, the actual numbers vary from year to year and from site to site within the locality.

One controversial issue with such investigations and the resultant MIAs is the usefulness of quantitative data collected at the time of a survey compared with historical data at that site or one nearby, or at other sites further removed in the locality. Any survey is unlikely to collect fully comprehensive data on the range and relative abundance of local species, and the data collected on any one or a few closely timed occasions cannot be used as a descriptor for the typical (or atypical) circumstances.

While this argues for the value of a long-term monitoring program that can give some idea of the seasonal fluctuations of one or more local species, there will be annual variations in such patterns within and between species that are not consistent overall, because of the various habitat and environmental influences on the different species. Also, while the quantitative data may thus be not definitive, qualitative data can be used to inform productively about a site. However, it is most unwise to assume such site data can 'reliably' be used for another site in the same locality. It is with this in mind that I tend to agree with the MCS consultant that quantitative comparisons between his data and the BSC data are undesirable, and I would argue further that even had he used EVS traps at the development site the data obtained might not have been even similar to that from the nearby BSC site.

So, where does this leave the value of mosquito monitoring? In my view, there is some quantitative value in long-term monitoring at a set site but comparisons between sites are often inappropriate, as there are too many temporal and spatial variables for quantitative resolution. Mosquito surveys for development sites should be undertaken to provide an overview of the species present and their abundance in a general sense. Both results will be dependent on season, and preceding and prevailing circumstances, and must be interpreted with an eye to any local long-term data that might assist in providing an expert assessment of likely future situations from season to season and from year to year given the surrounding environment and likely changes in the local mosquito situation that can be attributed to the development. There may be mosquito concerns that must be addressed during the construction process as well as in the on-going management of the site features and facilities.

Further in the document, Dr Russell 2004 states:

Conclusions

Although BSC, though its mosquito consultant, is unhappy about some technical aspects of the MSC approach to producing MIAs, much of this relates to a difference of opinion as to what is required for the optimal process. I believe it would be difficult for BSC to justify a requirement for all future MIAs to include peak season population sampling with EVS traps, without hindering the timely processing of development applications and without establishing objective pest indices.

In my opinion, because of certain complications associated with commissioning of MIAs and monitoring of target mosquito populations, as detailed above, the approach of MSC has not been unreasonable and many MIAs elsewhere are necessarily undertaken in like manner. Although the value of what BSC might consider a controversial approach is dependent on the experience of the particular mosquito consultant, and the saltmarsh mosquito *Oc. vigilax* will nonetheless continue to be a seasonal pest issue for people in the Ballina locality, the MIAs in question do appear to provide an appropriate assessment.

2.2.2 Mosquito Consulting Services Pty Ltd Response

The Pacific Pines Mosquito Impact Assessment was undertaken utilising the same methodology as those peer reviewed by Dr Russell in 2004. Since then, Mosquito Consulting Services has undertaken impact assessments at a number of nearby sites relevant to understanding mosquito activity around Pacific Pines. Locations including Dr Stewarts land, Henderson land and Skennars Ridge share similar mosquito exposure associations through adjoining the Ballina Nature Reserve and/or other similar coastal wetlands within Ballina Shire. Since 2002, Mosquito Consulting Services Pty Ltd has sampled adult mosquitoes and undertaken larval habitat surveys from more than 15 locations widely dispersed across Ballina Shire's coastal zones and totalling more than 330 trap-nights of collections from various times of year. The MCS Entomologist's experience within Ballina Shire has provided a significant database and understanding of mosquito activity within the area that benefits Mosquito Impact Assessments produced by it.

2.2 Ballina Shire Council other Comments

2.2.1 BSC Comment *As well as points previously raised by Council's planners concerning facilities and residential units as distinct from "residential allotments" located within 200 meters of potential mosquito breeding sites*

2.2.1.1 Mosquito Consulting Services Pty Ltd Response

Please see response to Department of Planning above that provides results and conclusion from a mosquito dispersal study that includes the identified risk species *Verrallina funerea* associated with adjoining land.

2.2.2 BSC Comment *Reference to "active" control activity (1.2) is irrelevant because a feasibility study into mounting a control program with any chance of success was ruled out as beyond the resources of Council and is unlikely to occur in the foreseeable future.*

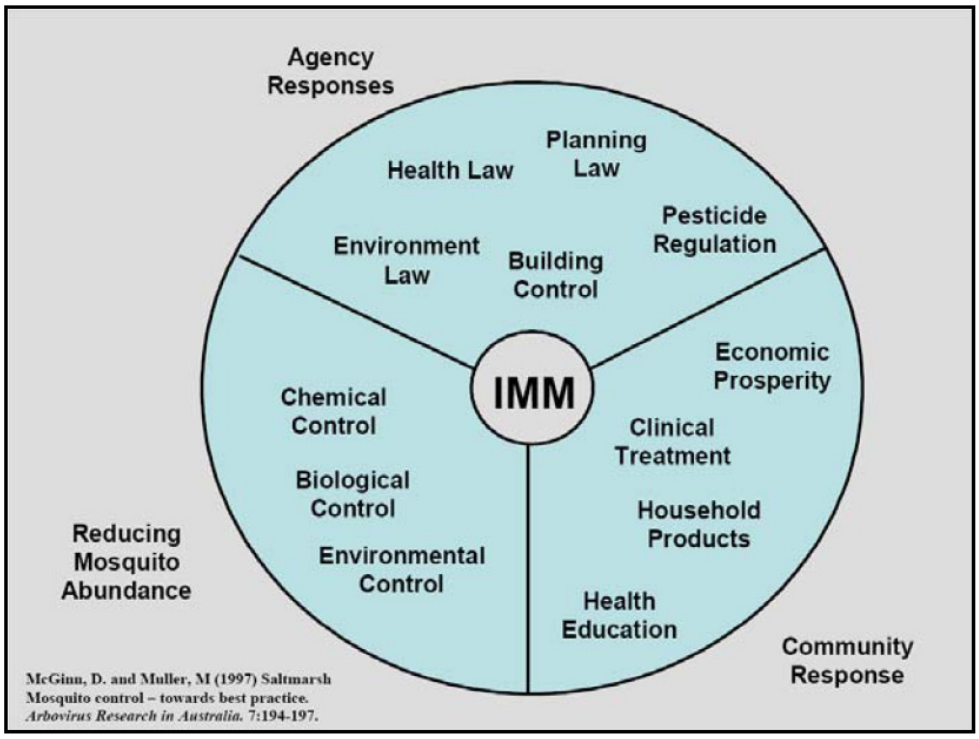
2.2.2.1 Mosquito Consulting Services Pty Ltd Response

The Pacific Pines Mosquito Impact Assessment provides general advice on Integrated Mosquito Management. This is an acknowledge method and process of selecting mosquito control techniques to best reduced risk for a given operational context. Figure 1 is one conceptual representation of Integrated Mosquito Management.

The design philosophy for mosquito management for Pacific Pines was stated to be primarily passive. This is achieved through appropriate urban design and provision of buffer separations to attenuate dispersal of risk mosquito species that would respond to such measures (e.g. for *Verrallina funerea*) and appropriate design of constructed watercourses. The minimum reliance of active control refers to use of applied devices such as shielding on street lighting and use of insect screeding in dwellings that will require ongoing maintenance.

Council's reference to its feasibility study for a BSC based mosquito control program appears to be a misinterpretation as it has no connection whatsoever with any proposed measures for mosquito management within Pacific Pines.

Figure 1. Conceptual Integrated Mosquito Management (McGinn and Muller 1997)



2.2.3 BSC Comment *Prohibition of artificial lighting to the playing fields would severely restrict use of these assets, that are in short supply at Lennox Head.*

2.2.3.1 Mosquito Consulting Services Pty Ltd Response

Reference to restricting artificial lighting was removed in the final version of the Pacific Pines Mosquito Impact Assessment. Such prohibiti0on is not a recommendation of Mosquito Consulting Services.

2.2.4 BSC Comment *Suggestions are made about "monitoring" of mosquito production from the constructed wetlands, but there is no suggestion is made as to who will do so. Council will not have the resources to do so.*

2.2.4.1 Mosquito Consulting Services Pty Ltd Response

Monitoring of measures recommended to minimise mosquito risk should be considered a matter of best practice. Performance of monitoring could be made a condition of approval as the proponent and approval authority see fit.

2.2.4 BSC Comment *The report recommends a 20m clear space between the revegetated creek of the sportsfields and the commercial precinct. This buffer corresponds to the roads reserve. Clarification is sought as to the migratory patterns of mosquitoes within public areas.*

2.2.4.1 Mosquito Consulting Services Pty Ltd Response

No recommendation as described by Council appears in the Pacific Pines Mosquito Impact Assessment. Can Council please provide a reference for this comment?

2.2.5 BSC Comment *The mosquito report only addresses the creek and "wetland" the creek flows through the proposed retirement home, and is not addressed.*

2.2.5.1 Mosquito Consulting Services Pty Ltd Response

The Pacific Pines Mosquito Impact Assessment, Section 6.4 Risk Management Recommendations (6th dot point) addresses constructed watercourses within the development anywhere they are used, including the "retirement home" per BSC's comments. The recommendation specifies constructed watercourses should be designed in compliance with the Constructed Wetland Manual Volume 1, Chapter 13 (and duly referenced for ease of discovery). The Manual was published in 1998 by the New South Wales Department of Land and Water Conservation. The first author of Chapter 13 is Dr Richard Russell.

Concluding Remarks

Several of the issues and comments raised by Council were the subject of a previous peer review by Dr Richard Russell. That peer review provided generally favourable comment on the mosquito impact assessment methodology utilised by Mosquito Consulting Services in 2004 and should give comfort to Council that assessments similarly provided by MCS were sound. The identical methodology was used for the Pacific Pines Mosquito Impact Assessment but also with the benefit of significantly further experience gained by the MCS Entomologist in Ballina Shire since then and applied to this study. Indeed each new Mosquito Impact Assessment benefits from those preceding it. It is considered that further peer review by Dr Russell would not provide any additional benefits in this case.

The Pacific Pines Mosquito Impact Assessment does not need to be re-issued other than for the correct final version of 2007 that addresses sports field lighting.

2.7.1.10 Plant Species Selection

Recommendations:

- *A suitable substitute species for Melia azedarach is required, and the landscaping details of the EA should be updated to reflect this.*

Melia azedarach has been removed from the plant schedule and replaced with *Brachychiton acerifolius* (Illawara Flame Tree).

- *Ensure that Specimen Trees are provided with adequate space around the root zone to ensure they do not impact on houses or roads*

The three specimen tree species nominated have been specifically chosen for their size and scale to complement the development. Adequate space will be allowed to accommodate above and below ground growth. This information will be included in the planting plans lodged as part of subsequent applications.

2.7.1.11 Civil Services Analysis – Site Layout

North Western Open Space

Recommendation:

- *As the fields are to be further filled and are currently higher than the design weirs of the wetland, it is recommended that a design fill Works as Executed set of plans are prepared showing the fill levels for the playing fields and their corresponding flood immunity.*

The playing fields are not part of this application having been approved under DA 2004/1113. Preliminary construction details have been discussed with Council over the past 6 months, prior to the anticipated lodgement of Construction Certificate drawings in June 2008.

North-western Corner and Hutley Drive

Recommendation:

- *That the access and egress from this sector are afforded suitable evacuation routes through a secondary exit.*

The access point referred to is at the same level as intersection with Hutley Drive (RL 3.35m) and is therefore above the PMF level for the site, which is RL 3.2m. The access will therefore will provide the same level of flood access and egress as this major collector. No modifications to layout therefore proposed nor required.

Western Pond (existing)

Recommendation:

- *That a set of design plans is to be provided for the pond showing 5yr ARI flood immunity for the public areas around the pond.*
- *That a set of design plans for the pond demonstrating that pond/wetland flushing does not occur for all local storm events and localised flooding.*
- *That a set of hydraulic plans showing compliance with the hydraulic capacity of all channels feeding to and from the pond being able to satisfactorily contain all flows up to the 100yr ARI local flood event.*
- *That a detailed maintenance plan for the wetland is to be produced clearly identifying the performance of the pond, inlet structures, outlet structures, control points, inspection/cleanout requirements, and all associate maintenance measures and approvals for the safe operation of the pond/wetland and receiving body (SEPP 14 wetland) .*

Contrary to Council comment, the pond is performing to specification and design intent. A maintenance issue has arisen concerning a blocked bypass pipe, which will be rectified once Council has decided on its preferred repair solution.

The pond was approved following a lengthy EIS and its function is controlled by a number of strict consent conditions, including ongoing maintenance, and monitoring and reporting of water quality and effects on downstream flora and fauna. Reports which address the consent condition monitoring requirements have been sent to Council's environmental officer on:

Issue A – 31 January 2005	Issue B – 17 February 2005
Issue C – 21 March 2005	Issue D – 20 April 2005
Issue E – 24 June 2005	Issue F – 22 July 2005
Issue G – 30 August 2005	Issue H – 28 September 2005
Issue A (OP – Operational Phase) – 20 Jan 2006	Issue B (OP) – 8 May 2006
Issue C (OP) – 25 July 2006	Issue D (OP) – 25 November 2006
Issue E (OP) – 13 June 2007	Issue F (OP) – 15 January 2008

Council has never responded to these reports with concern about the ongoing performance of the pond.

Flood modelling of the pond was undertaken by WBM, who are also Council's consultants for flooding. Local flood effects govern the pond's flood levels for the 1:100 year event. The pond is overtopped to approximately RL 2.1 in this event. Normal operating level is at RL 1.0m. Water levels vary depending on rainfall events between these two levels. Minimum surrounding habitable ground level is RL 2.3m.

The treatment behaviour of the pond was modelled by Gilbert and Sutherland, who have been Council's water quality and stormwater consultants for many years (Gilbert and Sutherland prepared Council's DCP 13 for Stormwater Management). The results of Gilbert and Sutherland's model are provided in Table 9.4 of Section 9 in Ardill Payne & Partners' Concept Plan Engineering Report (Appendix H of EA Documentation).

The pond has been constructed in accordance with Council's approved Construction Certificate drawings, under Council supervision and signed off by Council's engineers. The pond has been 'on maintenance' at the landowner's expense since 1 September 2005.

Neighbourhood Centre

Recommendation:

- *A revision of the proposed precinct needs to be undertaken such that it does not transpose a Gold Coast Varsity Lakes model within our Shire ignoring the socioeconomic demographic of the area. Further detail is contained within the planning section later in this report.*

Council appears to have misinterpreted the proposal for this neighbourhood centre. Their comments appear to be based on an assumption of far greater floor space than is suggested.

The development of the neighbourhood centre will be subject of a subsequent application. Notwithstanding this, the Design Guidelines clearly outline controls for a small mixed-use centre. The only similarity it will share with Varsity Lakes is that both centres will involve retail uses at ground level, with commercial and residential uses above. Clearly, Varsity Lakes is a much larger scale than is proposed at Pacific Pines and is therefore not suggested as a useful comparison.

North-east Residential

Recommendation:

- *That the applicant be requested to remove the lanes from the design completely or upgrade the lanes to an access street with 3.5m verges on each side.*

The rear lanes form a key part of the urban design of the central section of the site. Rear lanes such as these are a widely used contemporary urban design solution, allowing vehicle access to the rear of lots, opening street frontages of dwellings for a more pedestrian-scale environment.

Lanes are a key feature of the existing Lennox Village and operate well, with the only concerns being where they are the only frontage of a lot. That situation is not proposed at Pacific Pines, and we strongly believe that the provision of lanes provides significant urban design and functional benefits.

Interestingly, on page 4, Council comments that "*the setbacks proposed for the neighbourhood centre and lanes are considered acceptable...".* This would seem to indicate an acceptance of the lanes.

South Eastern

Recommendation:

- *Additional check is required to determine if the length meets the relevant local standards and RTA's recommendations.*

The proposed cul de sac will service approximately 5 lots. Its alignment is restricted by environmental constraints. Its grade is 13%. Council's maximum grade for this level of road is 16%. The proposal therefore complies with Council's standards in this regard.

Southern Open Space

Recommendation:

- *This area is to be listed as a drainage reserve with full rights to Council or the area be listed as private open space with all infrastructure owned, operated and maintained by the property owner.*

It is intended that this area will be private open space, with a dual use for drainage. Appropriate easements will be established over the land to allow Council to maintain any public infrastructure. Full details will be determined as part of a subsequent application for the development of this land.

Central Component

Recommendation:

- *This section be raised to a suitable level of flood immunity for both the global event and the local 100yr ARI event.*

Minimum fill levels for flooding are specified in Council's floodplain policy. This policy dates back to 1997 and specifies minimum fill levels of RL 1.8m AHD. Council is currently updating this policy, with the latest information (2007) specifying a fill level of RL 1.9m at Pacific Pines. Council's policy is based on shire-wide flood impacts. Local flood studies by WBM and APP indicate that a minimum fill level of RL 2.3m should be adopted. This has been included in the design and referred to in the Flood Assessment in Section 8 of Ardill Payne & Partners' Concept Plan Engineering Report (Appendix H of EA Documentation).

Retirement Community

Recommendation:

- *Deletion of all car court lots.*
- *A comprehensive mosquito management plan is to be submitted for the retirement super lot that includes mosquito management, breeding patterns, sources of control, sources of mitigation and complaint management for the retirement super lot.*

The car court lots have been deleted (see amendments in **Section 4**). A detailed mosquito assessment / management plan will be submitted with the subsequent development application for the development of the retirement community.

2.7.1.12 Pedestrian Linkages

Recommendations:

- *Clarify which areas are to be boardwalks, concrete footpaths, grassed strips, pedestrian footbridges etc.*
- *Provide explanation as to how this pedestrian network links to the master pedestrian network of the area.*
- *Remove all pedestrian paths within private open space.*
- *Provide a maintenance and management plan.*
- *Identify which areas are flood affected and the extent of inundation.*

Pedestrian linkages are shown in **Illustration C6** within the Concept Plan drawing set. Given that we are seeking Concept Plan approval, further detail will be provided within subsequent applications. Where pedestrian pathways pass through 'private' land, appropriate easements will be provided. The treatment of the paths will be appropriate to the circumstances; e.g. where a pathway is proposed within a drainage area, it might be in the form of a boardwalk with appropriate flood immunity.

The pathways will connect to external paths, where theses external facilities exist.

2.7.1.13 Service Vehicles

Recommendation:

- *Service vehicles are prohibited from utilising the lanes identified as Road Type "J".*
- *Clarification as to how service vehicles are to service the CBD is requested.*

These are matters of operational detail that will be addressed in subsequent subdivision applications.

2.7.1.14 Bus Routes

Recommendation:

- *Bus Pick up/set down points are to be identified or described prior to determination.*

The Concept Plan shows general bus routes. Bus stops are now shown on the Project Plan illustration (see **Section 4).** For remaining stages, the location of bus stops will be shown in the application documentation prepared for individual applications.

2.7.1.15 Road Network

Recommendation:

- *The road network is to be amended corresponding to the below table's road hierarchy requirements.*

As a general comment, we do not accept the need for wider roads within this development, as they will encourage higher traffic speeds, requiring traffic calming to be provided in the future. The design intentionally provides for low speed roads, controlling speed through design of the road geometry rather than by using bumps or blisters.

The Pacific Pines proposal generally falls within the road reserve, carriageway and verge requirements specified by Northern Rivers Local Government Guidelines, as set out in the table provided with Council's comments. There are some discrepancies, most notably on carriageway widths in Main St and Hutley Drive, where the urban design intent is to reduce local speeds by narrowing road widths.

In these cases, verge widths are greater than those recommended in the Guidelines due to footpath and landscaping design.

A comparison of the NRLG Guidelines and the proposal is provided below for ease of reference. The NRLG values are extracted from Table D.1.5 of that publication.

Road Type	***Example****	***Road Reserve (m)***		***Carriage Way (m)***		***Verge (m)***	
		NRLGG	***Proposal***	***NRLGG***	***Proposal***	***NRLGG***	***Proposal***
Access St	Residential St Type F	14	15	6	7	3.0	3.8-4.2
Local St	Local Connector Type D or Type F	15-17	15-18	7-9	7-9.7*	3.5	3.8-4.2
Minor Collector	Montwood Dr or Main St Type A	18	20	11	9.1	3.5	3.8-5.0
Major Collector	Hutley Drive Type B	20	25	13	11.2	3.5	Up to 5.4

* Carriageway width includes carparking which is actually excluded from through traffic due to landscaping.

** Examples extracted from typical street sections in Appendix G of the EA Documentation.

- *It is strongly recommended that all lanes are deleted from the design and the surrounding lots merged with a common rear boundary or the lanes are widened to comprise an access street in accordance with the Northern Rivers Design Manuals Standard Drawings with a 3.5m verge on each side. Note, that this verge area is not to include any swales. The swale width is additional to the verge width.*

As indicated previously, we would resist the deletion of lanes. We believe they have been proven to function well and to be a positive component of contemporary urban design.

- *Hutley drive is to be upgraded or have monetary contributions paid under section 94 for the catchment as the connection to the coast road (MR545) is required to be in place by 2016.*

Petrac have always understood that Section 94 monetary contributions would be payable for the upgrading of Hutley Drive.

- *Stoneyhurst drive is to be upgraded for its full length to correspond to its design standard as referenced in the table below.*

The table attached to Council's comments suggest that Stoneyhurst should be a 'minor collector', with a width of 13.5m. Council has received a detailed local traffic report from its consultants Cardno (*Lennox Head Paramics Model* – April 2008), which indicates that Stoneyhurst Drive should be upgraded from an Access Place to an Access Street. The difference is not critical in any case, as the Cardno report indicates a maximum road width of 15m for both an Access Place and an Access Street.

The internal development within Pacific Pines will not be connected to Stoneyhurst Drive until proposed Stage 3, and so the issue of upgrading of this road will be dealt with in more detail in a subsequent development application.

- *It is recommended to regrade the road network to comply with the Northern Rivers Design Manual.*

See comments above.

2.7.1.16 Traffic

General comment :

Contrary to Council's comments on traffic, we do not believe that the Ardill Payne & Partners' study is flawed. Council appears to have assumed that a 60,000 sq. metre commercial development is proposed, rather than the 1200 – 3,000 sq. metres nominated. This appears to be a significant basis for Council's concern that the traffic study is based on high density 'Gold Coast-style' development, which is contrary to the whole character statement proposed for the development.

Recommendations:

- *The traffic report needs to be revised showing the true rat-run effect of the catchment, projected growth rates, intersection analysis and levels of service for each of the stages and also the traffic generation projected 10 years after the final site is constructed.*

Ardill Payne & Partner's Traffic Study (Concept Engineering Report) assumes that Hutley Drive is connected to the northern link within Council's current time frame, as per Council's Development Servicing Plan for the area and the Cardno Eppel Olsen Paramics Model report (i.e. by 2011). The traffic study also, however, investigates the option for this northern connection not being made.

In that case, the traffic load along Silkwood increases from its current 1061 vpd to 3193 vpd. Silkwood has a road hierarchy rating of minor collector, which provides for 3000 vpd. The spare capacity available will cater to stage 10, whilst the construction of Stoneyhurst Drive would be staged to restrict through traffic until Hutley North is constructed. Upgrades to the Stoneyhurst / Henderson Lane and Henderson Lane / North Creek Road intersections were investigated at the EBD stage of the project and have been requested by the RTA as part of its review. Proposed intersection upgrades are attached as **Appendix K**. Final details would be dependant on actual timing of Hutley Drive construction.

- *There needs to be an accurate comparative analysis conducted of a true representative site (varsity lakes) showing the true trip generation and parking demands that this development would impose on the shire.*

The traffic report uses traffic generation based on the RTA's Guide to Traffic Generating Developments and on real traffic counts undertaken on Montwood Drive. Varsity Lakes is not a representative example, as it has a vastly different scale to Pacific Pines.

More detail on the traffic generation assessments used for this proposal is outlined in **Section 1.5.2** of this report.

- *Accurate trip generation for the sportsfields is also to be included in the traffic analysis and parking assessment.*

See **Section 1.5.2**. Analysis indicates that the traffic generated by the sportsfields will be insignificant in terms of the road capacity analysis undertaken.

- *A detailed explanation of how parking in the CBD is handled. as it is evident from any of the plans that parking for the tavern/childhood centre/community hall has not been considered or shown as a designated area. Parking rates are also to be shown in this with designated parking areas or a comprehensive description of how the parking should be assessed against when considering development applications.*

Development of the neighbourhood centre, and the various uses within it, will be subject to subsequent development applications. The information provided in the current application is indicative only. It is understood that approval of all subsequent applications will rely (in part) on a demonstration that adequate parking can be provide on-site.

- *A further intersection analysis is required on North Creek road with Hendersons Lane and Montwood Drive and the intersection of Stoneyhurst and Hendersons Lane to ascertain suitable levels of service both now and in the future as a result of this development.*

Proposed intersection upgrades are attached as **Appendix K**.

2.7.1.17 Noise

Recommendation:

- *The noise report be revised reflecting the corrected results of the traffic study.*
- *Noise consideration is also applied to the surrounding streets. i.e. Stoneyhurst drive.*
- *The noise report infers significant noise generation from the site. Why if it is a small local shopping complex?*
- *Why consider the erection of noise walls in a residential area?? There should be no requirement for noise walls in a residential area for a small community precinct.*

A revised noise report is contains in **Appendix E**. This revised report addresses the comments above. Please note that noise walls are not recommended for this site.

2.7.1.18 Planning

Recommendation:

- *That a 3m setback from the boundary be established to facilitate future alfresco dining and pedestrian safety.*

Zero setbacks for commercial areas are a normal response throughout NSW and Australia. To address alfresco dining, the proposal shows 5m wide footpaths for the Main Street. Interesting, on the fourth page of Council comments, it is stated "*the setbacks proposed for the neighbourhood centre and lanes are considered acceptable."*

- *That the building line be of a uniform profile and not staggered.*

As above.

- *A revision of the CBD model more in keeping with a rural coastal recreational lifestyle and not a commercial transport city office lifestyle.*

The author of this comment has not understood the design intent of the neighbourhood centre. It will not be anything like the scale of the Varsity Lakes example quoted.

The neighbourhood centre is designed to provide a reasonably dense, walkable, urban hub to this new community. A revision as suggested would simply lead to continued vehicle dependence and would severely impact on the potential economic feasibility of any commercial or retail development at the site.

- *A revision of the CBD model in keeping with the hierarchical order of this development such as not to detract business from Ballina's CBD.*

The neighbourhood centre as proposed will not attract patronage away from the Ballina CBD. It will provide walkable, local services and facilities only.

- *A revision of the Community needs demographic is to be undertaken representative of our shire and not extrapolated to reflect the parent model that this application is based on.*

The Needs Analysis is clearly based on local demographic data.

- *A revision of the retail strategy is to be undertaken ensuring that the businesses, professions and practices are suitable for this type of small regional local shop.*

The details of future retail and commercial uses will be subject to a subsequent development application.

- *Is the community hall identified as part of the needs analysis and will the Hall be seeking offset Contributions? Council will not consider offsetting contributions.*

Council's Contributions Plan notes a requirement for the provision of a Community Hall at the Pacific Pines site. The proposal provides for the construction and dedication of that hall, as required by the Plan. The Contribution Plan clearly requires either the physical provision of the infrastructure, or the payment of monetary contributions. It does not, and reasonably could not, require both.

- *Finished Floor level is to be 500mm above the greater of the 1:100yr local flood event or the 1:100yr global flood event. It is recommended that all local roads be afforded flood immunity for a 1:10yr local catchment storm.*

Based on current flood and stormwater modelling of the site, we will provide floor levels at minimum RL 2.6m. Exact details will be provided prior to CC for stage 1a. Council require RL 2.4m.

2.7.1.19 Stormwater

Recommendation:

- *Undertake a hydraulic analysis of the pond in Kell Mather (DA 1997/175) to ensure that by routing water from this site still complies with the storage capacity and runoff generation parameters from this site. If necessary, flows will need to be retarded on this site prior to release in the DA's pond.*

The detention pod referred to is on another property and was subject of a separate DA process. Discharge from the basin / pond enters into the drain / watercourse located to the west of Hutley Drive Road Reserve. Development Consent 2004/1113 has approved the hydraulic and landscape upgrade of this watercourse. In approving that DA, Council was obviously satisfied that the overall system will operate appropriately. Nothing in the current application will change that.

- *Water quality from catchment 3 remains untreated prior to discharge from the site. All water leaving the site is to be mitigated to existing pollutant generation levels or comply with current industry best practice.*

Flows from Catchment 3 are to be treated by silt baskets in road systems and then subsequently by secondary treatment in catchment 2. Modelling of the overall effect of the treatment systems shows a dramatic reduction in pollutant load. Although it is not proposed, it would be permissible to discharge untreated stormwater from some sub-catchments, as the net effect is still a reduction in pollutant load.

- *Reinstatement of the water treatment area for Catchment 2 as identified in Gilbert and Sutherlands report. There was supposed to be a pond constructed within the sportsfields. As the sportsfields are nearly constructed and undergoing final grading, it would be difficult to retrofit this pond now. It is recommended that the pond be placed such that it treats and detains water as identified within the Gilbert and Sutherland report for Gilberts Catchment B.*

The subject catchment will have primary and secondary treatment via swales and bio retention. The overall stormwater treatment measures will reduce the pollutant loads from the site as a whole via treatment through the existing pond. It is not a requirement to treat every catchment, provided the overall pre-development loads are reduced. Council's requirement is to achieve '*no net increase in pollutant load*'. This is achieved by reducing pollutant loads in some catchments more than in others.

- *Clarification is required on the relocation of an existing sediment pond. Where is it intended to be relocated to?*

The existing sediment pond to be relocated is currently sited on the north-west corner of the environmental lake. The sediment pond and connection to existing floodway are to be moved eastward to provide clearance for the future development of proposed tavern in this location.

- *Catchment 3 shall be treated before leaving the site, prior to it re-entering the site.*

Catchment 3 is quite steep and not suited to conventional engineered or passive treatment systems. It does not need to be treated as the net overall effect of reducing the net pollutant load has been achieved by reductions in other catchments. However, primary treatment via silt baskets in stormwater inlet pits is provided. Secondary treatment is provided via treatment as it returns into the site via catchment 2

- *A comprehensive analysis of safe water application and comparative water chemical composition is to be undertaken to establish a set of application guidelines.*

Comprehensive water quality results have been provided to Council from the Lake and its surrounds since January 2005. Refer previous advice on delivery of water quality results. Discharge of recycled water as irrigation water will be required to meet government regulations.

- *The conduit linking the WQCP is to be such designed that it is drawing water from the suitable thermocline of the pond and does not impact on the hydraulic performance of the surrounding stormwater network for both the major and minor storms.*

Recycled water extracted from the Lake will be managed so that the Lake continues to perform within its normal range of operating water levels.

- *Preliminary sizing of the additional detention ponds for the site are to be provided with approximate footprints and general storage volumes of each pond.*

The WBM study for additional detention ponds upstream of the Lake required approximately 18,000 cubic metres of detention capacity. The capacity of the ponds shown on the plans in the Part 3A Application exceeds 25,000 cubic metres and is under review by WBM and APP. The area required for the detention ponds will change little from what is shown. Fill heights around the ponds will be varied once detailed stormwater design is complete.

2.7.1.20 Flooding

Recommendation:

- *A detailed flood analysis for the site is prepared and submitted for this layout showing the following:*
  - *Road immunity for 10yr ARI*
  - *Design fill level of 100yr ARI local storm event.*
  - *Required floor levels.*
  - *Public open space recreation areas 5yr ARI*
- *A clear flow path through the lower levels of the site (including CBD) is to be established for nuisance and global flooding. Currently the site is acting as flood storage even in the CBD.*
- *The bridge is to be suitably designed for a design life of 100years in accordance with AS5100.1 and is to be placed above the greater of the 1:100yr ARI local catchment flooding or Q100 global event. All design considerations are to be undertaken in accordance with AS5100, AS 1428, AS 1742, AS/NZS 3661, BCA and AASHTO for the provision of vehicular access and pedestrian access.*
- *Additionally a hydrologic analysis is to be undertaken ensuring a no worsening effect upstream of the crossings as a result of afflux or transition losses within the channel If a valid comprehensive empirical engineering case is proposed for a lesser immunity level suitable design amendments and calculations are to occur with the provision that the design deviation does not provide a worsening effect of drainage within the re-aligned channel. The channel is also to be designed and modelled to satisfactorily contain and convey all storm and flood events up to and including the Q100 event.*

Flood studies have been completed. Results based on 'regional' analysis indicate a 1:100 year flood level of around RL 1.6-1.7m, whilst local study recommends RL 2.15m. Minimum fill level to be RL 1.9m as per Council's DCP. Current APP advice is to increase this to RL 2.3m.

Roads are all above 1:100 year event. Habitable floor levels to be either 300mm or 500mm above 1:100 year flood event.

Flow paths provided as per Figure 9.1 of the Ardill Payne report (Appendix H of the EA documentation).

Bridges will be designed in accordance with relevant Australian Standards

2.7.1.21 Wetlands

Recommendation:

- *Redesign the sediment ponds to maintain appropriate settling velocities.*
- *Validate the wetland treatment microphyte and littoral zoning proportion in accordance with the Wetland Design Manual.*
- *No consent for a development application be awarded until sufficient remediation works rectify the performance of the pond to its intended purpose.*
- *In accordance with the Gilbert report, the wetland is to have a high flow bypass for all flows greater than the Q2 event. This needs to be addressed.*

The wetlands referred to are the constructed Water Quality Control Pond (WQCP) or Environmental Lake. The Lake is performing to specification, has been constructed in accordance with Council's approved plans and been operational since late 2005. The Lake is not proposed to be constructed under this application and approval is therefore not requested. The proponent will continue to work with Council in accordance with the conditions of the Lake's consent and provide training to Council's staff in its operation and maintenance.

2.7.1.22 Services

Recommendation:

- *The applicant is to propose the locations of major water and sewer infrastructure on the Concept Plan in addition to suitable sizing of the components.*

Water Supply:

Council has previously advised that there is capacity in the existing system for the early stages of Pacific Pines as proposed in the current 3A Application and that Council will only provide the additional reservoir described in its Development Servicing Plan when the demand is there. Council Engineers are still assessing when the additional reservoir will be built by Council. The proponent will continue to pay Developer Contributions for supply of water, which currently includes headworks charges. The proponent will construct all water supply infrastructure within its boundaries not covered by existing Development Servicing Plans.

Sewer Capacity:

Council has in place sewerage augmentation programs to account for the increased load from zoned developable land in Lennox Head. These programs are funded by various sources including Developer contributions. The proponent will continue to pay contributions. The proponent will construct all sewerage infrastructure within its boundaries not covered by existing Development Servicing Plans. Council upgraded the Lennox Head STP plant in the last three years as part of the augmentation program.

2.7.1.23 Earthworks

Recommendation:

- *That an application be lodged with supplementary plans and evidence in accordance with the above.*
- *Clarify the discrepancy between how much is being mined, how much is required to be filled and where the difference is to be obtained. This is also pertinent to the Stage One Application.*
- *Clarification on the extent and treatment on ASS and contaminated soils is required through mapping and a report as the supplied information provides conflicting advice. This report is to be peer reviewed and mapped for surety.*
- *A detailed filling plan (accurate and to scale) showing design contours, fill depths and existing levels and compliance with the 1% flood contour for local catchment storm events.*

- *A comprehensive geotechnical report demonstrating the suitability and viability of the various building options and opportunities for the entire site is to be provided. This geotechnical report is to cover soil profile, soil parameters/coefficients/plasticity etc sufficient for detailed structural design to base building designs and retaining wall designs on.*

Existing and proposed contours are supplied in Figures 4.3 and 4.4 of the Project Plan Engineering Report (Appendix I of the EA documentation). The combined cut and fill volumes on site are currently estimated at 150,000 cubic metres. Final volumes will be determined after all investigations and designs completed. Further major earthworks around the site, shown in Figure 5.2 of the APP report, do not have approval, and are mainly in cut. These additional works will contribute some of the balance of required fill whilst additional sources exist across the site, e.g. from conventional surpluses from roadworks. Some additional material may need to be imported. Conventional earthworks procedures in accordance with construction management plans provided.

Development consent 1999/428 provided approval for filling. Copies of this approval, and the associated approved Construction Certificate plans, are contained in **Appendix M**.

Levels where PASS are reported are found in Gilbert and Sutherland's EMP report. PASS was only encountered below existing ground levels. There is an error in the earthworks section of the Project Plan Engineering Report at section 5.2. The last paragraph should read:

> *These soils will be generally between 1 and 1.5 metres below ground level <u>before</u> filling.*

Currently it states "after filling"

Site contamination investigation, results and recommendations are reported in section 6 of the Concept Plan Engineering Report (Appendix H of the EA documentation).

The geotechnical report in the APP document does not propose any particular type of housing for steeper slopes. It states:

> *The APP report also recommends that where housing is proposed within areas where slopes exceed 25%, additional geotechnical investigation and advice be sought on slope stability and design criteria for individual houses.*
>
> *These areas (slopes > 25%) are shown on the geotechnical reports site plan and are contained in the backyard of very large blocks which have alternative building sites to those on the >25% slope component of the block.*

The report's observation that conventional housing may be used in lots containing class II lands is based on the size of the lots created in the steeper areas. Flatter portions of land are attached to the lots in steep areas. Hence conventional housing could be built on lots with steep land within them because these lots also have flatter portions.

2.7.2 Project Application Comments

2.7.2.1 Construction Phase Notes

<u>Recommendation:</u>

- *The noise report must be amended to address the construction phase of the project including the machinery on site and the movement of vehicles through the surrounding residential areas during the construction phase prior to determination*.

Construction stage noise impacts are now addressed in the updated Noise Report contained in **Appendix E**.

2.7.2.2 Environmental Management Plan

Recommendation:

- *An amended project specific environmental management plan should be developed and submitted prior to determination.*

A Construction Management Plan is provided in section 5 of Project Plan Engineering Report (Appendix I of the EA documentation). Further references to controls are made in Water Cycle Management sections.

2.7.2.3 Sediment and Erosion

Recommendation:

- *A site specific detailed water and soil management plan complying with the requirements of NSW Managing Urban Stormwater – soils and construction guidelines should be submitted prior to determination.*

Site specific noise, environmental management, sediment and erosion control plans are provided in the Project Plan Engineering Report (Appendix I of the EA documentation). Refer to sections 4 and 5 therein.

2.7.2.4 Dewatering

Recommendation:

- *A detailed dewatering and groundwater management plan should be developed and submitted prior to determination otherwise prior to issue of construction certificate.*

We are not aware of any need for dewatering. However, details for construction will be determined at Construction certificate stage.

2.7.2.5 Pedestrian Access

Recommendation:

- *Further clarification could be provided as to the pedestrian links proposed for Stage 1, this is not immediately clear from Illustrations. If not already provided for, provide for the pedestrian access from existing residences to the playing fields, as part of Stage 1A.*

Pedestrian links are clearly shown in **Illustration C6** in the Concept Plan drawing set. Some pedestrian links shown are to be constructed at later stages. However, in the interim, pedestrian links will be available to the playing fields by way of the road network to be constructed within Stage 1.

2.7.2.6 Water Supply

Recommendation:

- *The developer not to burden Council's system until the developer constructs the reservoir.*

The supply of water to the site, including construction of reservoirs, is Council's responsibility under its Section 68 and Development Servicing Plans. Council has adopted a DSP to build an additional reservoir for Lennox Head. The proponents intend to pay its contributions to these plans so that Council can build the reservoirs, and other infrastructure it has previously undertaken to build. Water supply to stage 1 will be achieved by construction of a 200mm main between Hutley Drive and Montwood Drive and connection to same.

2.7.2.7 Stormwater

Recommendation:

- *Review the data once the stormwater Concept Plan issues have been addressed.*
- *provide a catchment plan*
- *correct the model*
- *provide validation for all claims*
- *update HEC-Ras for the DA.*

The revised layout has been remodelled in DRAINS to determine preliminary fill levels, detention basin volumes and waterway areas for the revised layout. The revised stormwater model is provided as the appendix 1 to the Project Plan Engineering Report (Appendix I of the EA documentation).

The stormwater details requested by Council have been provided in that report, except for the definition of the nine sub-catchments and indicative performance of major stormwater infrastructure. **Illustration 2.5** shows the sub-catchment plan for the whole of the development, and **Illustration 2.6** provides sections through 'the brook' channel, describing the performance of this channel immediately upstream of the lake.

Detention pond sizes are shown in the stormwater analysis appended to Ardill Payne & Partners' Project Plan Engineering Report (Appendix I of the EA documentation). Final stormwater infrastructure details will be designed as part of the Construction certificate stage for Stage 1 of the development and as part of the subsequent approval process for the remainder of the development.

2.8 "Other" Comments

- *Further detail is required on the offsite reserve system, including:*
  - *clarification as to whether the extent of the offsite reserve system has been defined;*
  - *the approximate size of the area that will be set aside for the offsite reserve system;*
  - *the quality of habitat on the offsite reserve system including whether the site supports a sufficient amount of habitat for the Hairy Joint Grass; and*
  - *clarification of figure 8.3 in regards to whether this is the finalised proposed offsite reserve system.*
- *Further detail is required in regards to the development and implementation of the Restoration Concept Plan for the offsite reserve system, the Construction Environmental management Plan, the Open Space Management Plan and the Vegetation Management Plan. If these plans have been completed, they should be included in the final Environmental Assessment Report. If they have not been completed, we would appreciate advice as to when they are likely to be forwarded to the Department of Planning.*
- *Further detail is also required on the provision of monetary contributions for translocation, research, surveying and mapping of Hairy Joint Grass. Has the proponent committed to providing financial contribution towards achieving these mitigation measures? If so, how much is this contribution and how effective is it likely to be in achieving the objectives of the mitigation measures?*
- *The environmental assessment report should provide a brief description of the environmental record of the proponent.*

See detailed response in **Section 1.4**.

Illustration 2.5 Concept Catchment Areas

Illustration 2.6 Stormwater Concept Plan

Petrac recently provided a monetary contribution of $4,500 to assist Ballina Shire Council in commissioning an independent consultant to conduct a regional survey for Hairy Joint Grass. This survey has been completed, and as such Petrac have effectively contributed to a medium level Priority Action identified by DECC as being important to the recovery of the species, namely Survey and Habitat Assessment. This survey has provided important information in relation to the distribution and abundance of Hairy Joint Grass populations in the Lennox Head locality, which will provide a useful tool for the assessment of the impact of current and future development applications on the long-term viability of the species.

Petrac are also committed to providing further contributions, over a minimum four -year period, to fund and monitor the works proposed in the Hairy Joint Grass Management Strategy (HJG MS). The recent survey has revealed that as anticipated, Hairy Joint Grass populations are relatively widespread throughout the locality. Mapping the location of populations also provides a better understanding of the environmental conditions that favour the species survival. As indicated in the HJG MS, gaining this information in the first instance is essential to the success of proposed translocation programs and enhancement works. As such, the success of the proposed mitigation measures has therefore been increased though the conduct of the recent survey and the essential habitat information that can be gleaned from this information. In addition, all translocation and population enhancement works will be performance based and monitored over a period of at least four years. In conjunction with the monetary support provided by Petrac, these factors are considered to ensure high degree of success in achieving the main objective of the proposed mitigation measures in contributing to the long-term viability of Hairy Joint Grass in the region.

Petrac are a major corporate member of the Australian Green Development Forum and have a track record of adopting a balance between urban design and conserving the natural environmental values of a site. By example, the Noosa North Shore Eco-Tourism Portal was designed to assist with the protection of Noosa North Shore's natural attributes, its character and its open space roles by:

a) absorbing some of the impacts that would otherwise place pressure on the Great Sandy National Park and other fragile areas of wilderness on Noosa's North Shore;
b) providing a nodal point for visitor accommodation and services;
c) contributing to be better opportunities for interpretation and education of visitors; and
d) protecting the ecological values and processes of the site.

These objectives were achieved through the development of the Noosa North Shore Eco-Tourism Portal Development Code that ensured development of the site. The Code:

- adopts best practice environmental management techniques; and
- is integrated with the site's landform and landscape, respecting and responding to its location and setting.

In 2006, Petrac was awarded the "Sunshine Coast Regional Council Environmental Award for Visitor Quality and Conservation" for the Noosa North Shore Development.

In addition it is worth noting that Petrac's Development Manager for this project is a board director of the Australian Green Development Forum.

3

Submissions from the Public

3.1 Summary of Issues

The Department of Planning has provided a summary of the issues raised in the submissions received to the public exhibition of the application. These are addressed below.

3.1.1 Traffic and Access

General

- *The proposed development will create traffic that will lead to the capacity of surrounding streets being exceeded.*

The traffic study indicates that this is not the case. Further detail is provided in **Section 1.5** of this report.

- *Additional traffic on Montwood Drive will be a danger for children living in the area.*

As highlighted above, the development will not generate traffic in excess of the capacity of this road.

- *The traffic report does not consider the traffic that will travel to and from the sports fields.*

This matter is addressed in **Section 2.7.1.16**.

Hutley Drive Extension

- *The proposed development should not be approved unless Hutley Drive is extended both to the north and the south. The existing road network would not be able to handle traffic generated from the development as well as traffic entering the development to access retail areas.*

The traffic report has assessed the traffic generation associated with the proposed development and concludes that it will not exceed the current capacity of the road system. Notwithstanding this, Council has an existing roads strategy, including a Contributions Plan, for the upgrade of that network. The developer will pay contributions as required by that plan. Further detail is outlined at Section **1.5**.

- *The road hierarchy proposed is not satisfactory as it seeks to avoid the southward extension of Hutley Drive.*

As above.

- *No additional traffic should be placed on Stoneyhurst Drive or Montwood Drive until Hutley Drive is completed.*

As above.

- *The extension of Hutley Drive behind properties in Lilli Pilli Place will result in no buffer between existing properties and the road, disrupting views, privacy and fauna.*

This is not a matter associated with the subject application. Council will need to consider these matters in implementing its strategic roads plan.

- *If Hutley Drive is not extended, North Creek Road will bear all the traffic from the development.*

As above.

- *Hutley Drive should be left alone.*

This is contrary to the submissions above. Hutley Drive has always been planned as a part of Council's strategic road strategy and will be upgraded in the future.

Site Access

- *Access from the site to Stoneyhurst Drive is not properly addressed.*

This matter is addressed at **Section 2.7.1.16**.

- *The main access for the development must be via a road designed to handle this volume of traffic.*

This is the same issue addressed above under the heading General.

- *The development should provide additional exits from the development for traffic.*

Given the existing surrounding road network, and constraints associated with slope, there are no additional access points that are feasible.

Traffic Management

- *The speed limit on Hutley Drive should be 50km/h*

This is not a matter under the control of the proponent.

- *The configuration of Montwood Drive would not accommodate the additional traffic created by the development. Extensive traffic management measures would be required for any additional traffic on Montwood Drive as it has a steep bend.*

This is the same issue addressed above under the heading General.

- *Road widths are not adequate i.e. the extension of Fox Valley Way is too narrow therefore there will not be room for 2 way traffic flow and on-street parking.*

This is addressed in **Section 2.7.1.15**. All roads are of an adequate width for their function and provide for two-way traffic flow.

Road Traffic Noise

- *The amount of traffic along Hutley Drive will increase and create road noise problems.*

This matter is addressed in the Noise Report submitted with the application. It should be noted that Hutley Drive was always planned to be a Major Collector road in Council's strategic road planning. Traffic on this road will increase, and road noise will increase above the existing scenario, but in accordance with the intended use and capacity of that road.

3.2.12 Strategic Planning

- *The developer should not propose a development that has a population above what was approved in the 2006 master plan.*

Council's strategic planning for the area has never sought to apply a population cap for the site. While the estimated population is slightly higher than what was estimated in the 2006 Master Plan, it is still below the population initially estimated for the site with the original rezoning of the land.

3.1.3 Proposed Land Uses

Retirement Village

- *The site is not suitable for retirement living as it is serviced by one public school, one dentist and one medical centre.*

The development of the retirement community will include the provision of a range of appropriate services for residents.

- *The retirement village is too big for the needs of Lennox Head.*

The retirement community is proposed in a rapidly aging community, and in an area where there are no existing services in the local area. There is a clear need for services of this type and scale.

Tavern

- *The tavern is not supported as it will disturb the existing pleasant and quiet residential areas. If the tavern goes ahead there should not be any gambling machines.*

The construction of a tavern will be subject to a separate application, which will assess a range of social and amenity issues.

- *The tavern would produce unwanted noise that would ricochet around the valley.*

As above.

Community Centre

- *The community centre should be expanded to include an air conditioned meeting hall, kitchen and eating areas.*

The design and construction of the community centre will be subject to a separate application.

3.2.4 Urban Design

Height

- *The proposed 3 storey development will remove the village atmosphere of Lennox head. It is not in character with the rest of Lennox Head. The development should be limited to 2 storeys.*
- *The justification put forward in the EA for 3 storey development is not sufficient to approve the increased height.*
- *If an increase in height limit is approved on this site it will create a precedent.*
- *The proposed 3 storey development is in contravention of the Ballina LEP and the Lennox Head Strategic Plan.*

The issue of height is addressed in **Section 1.3** of this report.

Density

- *The proposed medium density housing will clutter the environment.*

Increased density is an appropriate response to housing local population growth without the continued need for sprawl.

- *The proposed higher density town house style development is not appropriate for the location.*

This is an opinion we do not share. Increased density within a walkable distance to the neighbourhood centre will reduce car dependency and add to the overall environmental benefits of the proposal.

Size and Scale

- *The scale of the development is too big and will create urban sprawl.*

Development of this scale has been planned for the site since 1989.

- *The proposal is too large. It will result in a concrete jungle with little green space.*

The amount of green space is greater than both the original plan and the 2006 SEPP 71 Master Plan (see **Illustration 1.7**). **Illustration 1.1** provides a clear picture of the completed development and highlights the large areas of open space.

- *The scale of the neighbourhood centre is out of balance with the rest of Ballina Shire.*

This issue is addressed in **Section 1.3**.

Reflectivity

- *The proposed development will result in the sun being reflected off roofs for surrounding development. Reflection must be minimised.*

There are no buildings proposed as part of this application. Subsequent applications are required to construct buildings, and reflectivity will be an issue examined in these applications.

Affordable Housing

- *How much of the proposed development will be low cost housing?*

Future applications will be required for houses within the site. However, one of the aims of providing shop-top dwellings in the neighbourhood centre is to allow for a mix of housing costs.

Retirement Housing

- *Ground floor buildings should be constructed for elderly people.*

A variety of housing options will be proposed for retirement. Where these include dwellings above ground floor, lifts will be provided.

- *Development within the retirement village areas should be limited to provide adequate open space areas.*

The retirement community will be subject of a separate application. Private open space will be provided, some with a conservation purpose and some with a passive use.

3.2.5 Visual

- *The proposal will result in a loss of views. In particular, the 3 storey development, including the retirement village, will block views of the lake for surrounding development.*

This matter is addressed in **Section 1.3**.

3.2.6 Stormwater and Flooding

- *The area around the lake is subject to flooding during heavy rain. It is unsuitable for dense development and should be left for public recreation.*
- *Development around the lake should allow for frequent water level changes as stormwater runs off the site. Vegetation planted around the lake must remain viable to maintain water quality. Public access may damage this vegetation.*

This matter is addressed in **Section 2.7.1.20**. Public access around the lake will be planned and designed to avoid areas of lakeside vegetation.

3.2.7 Public Access

- *The application shows development right up to the lake shore. All residential development should be set back from the lake to allow public access.*
- *The development proposed should not encroach on the lake.*

Public access is provided around the lake. See **Illustration 2.1** and **Illustration C3**.

3.2.8 Infrastructure

- *Lennox Head does not have sufficient infrastructure for the proposed high-medium density housing. The water and sewerage systems will not be able to cope with the development.*
- *Infrastructure should be in place prior to developing the first stage of the development.*

Services and infrastructure are either in place and adequate, or there are servicing plans and associated Contributions Plans in place such that they will be provided.

- *The s94 contributions to be paid are considerably less than those paid by other subdivisions in the area. A planning agreement should be completed and publicly exhibited prior to approval of the proposal. Contributions of at least $30,000 per lot must be sought and the community consulted on the best use of these funds.*

Ballina Shire Council has appropriate Contributions Plans in pace, and this development will pay contributions in accordance with those plans, in the same way as any other development in the Shire.

3.2.9 Community Facilities

- *The EA should state when construction of the sports fields will be completed.*

The construction of the sports fields is subject to a separate approval. Petrac have given the community an undertaking that they will complete this construction at the soonest possible opportunity.

- *The conditions of any approval should require that community facilities are provided sooner rather than later.*

This is a matter for the Department to consider.

3.2.10 Ecology

- *The proposed development will result in detrimental impacts on flora and fauna, including the loss of 73% of Hairy Joint Grass on the site. This is unacceptable.*
- *There appears to be road access proposed to Karalauren Court which would result in acceptable impacts on the frogs that live in this area and the wildlife, such as tawny frog moths that feed on them.*

Ecological issues are addressed in **Section 1.4**.

3.2.11 Mosquito Management

- *The development is located next to mosquito breeding grounds resulting in mosquitoes being a nuisance in summer.*

The mosquito assessment report concludes that this will not be a significant problem. This issue is further addressed in **Section 2.1.5** of this report.

3.2.12 Construction Impacts

- *The proposal will result in noise and dust pollution caused by heavy machinery.*

Construction will be carried out in accordance with all relevant local and state controls.

4 Project Amendments

4.1 Building Height

Key amendments have been made in response to the submission raised regarding height. These are:

- a reduction on the area for which three storeys is proposed;
- redefinition of the proposed height controls to be consistent with the definition of height as set out in the *Ballina Local Environmental Plan 1987*; and
- a reduction in the maximum height set by those controls to be applied to the three and two storey components of the development.

As detailed below, the revised design contains 70 per cent less area proposed for three storey buildings. These remaining elements are vital for the Concept Plan and for the creation of a distinctive destination and a vibrant community. The design also remains consistent with our design objectives to create a community heart for North Creek Valley.

4.1.1 Reduced Three Storey Areas

Illustration C9 has now been amended (see attached Concept Plan drawing set). As shown, the area has been reduced in both the neighbourhood centre and the retirement community.

Within the neighbourhood centre, a 70 per cent reduction in area of the three storey design is being proposed, following further design and function analysis of the Main Street. This revision aligns the three storey buildings into the dense Neighbourhood Centre hub only. Importantly, the buildings adjacent to the lake, i.e. community centre and tavern, have been reduced to two storeys. This reinforces the integration of the Main Street and the lake for everyday use by the community for recreation and socialising.

Previously, the medium density residential areas immediately north and east of the neighbourhood centre were proposed for three storey development, as were the super lots proposed for child care, community centre and medium density on Main Street north of the retirement community. All of these areas are now nominated for two storey development only.

For the retirement community, the three storey areas have been fine-tuned to more closely reflect the buildings envisaged for the area and to reduce the extent of three storey elements immediately adjacent to the public open space around the lake.

4.1.2 Reduced Height Controls

The amended **Illustration C9** also now shows both a redefinition and a reduction in the proposed height control for both the three storey and two storey elements.

Previously, the control for the three storey element was set at 15m. This was based on a measurement of 'height' from natural ground level to the highest point of the building. This height definition has now been amended to accord with the height control outlined within the Ballina LEP, which defines height as '*in relation to a building the topmost floor of which has a ceiling, means the distance measured vertically from any point on the ceiling of the topmost floor of the building to the ground level immediately below that point*'.

Based on this amended definition, the 15m control would have translated to a measurement of 11m for the neighbourhood centre, and 10.5m for the retirement community precinct. Due to concerns regarding height, design has been reviewed to the lowest level that is considered appropriate to provide internal amenity for these future buildings.

We do not believe that there is considerable scope for reduction. As shown in **Illustrations 1.3** and **1.4**, appropriate space needs to be provided between lower floors and ceilings to provide internal amenity. Space is also required between floors for services etc.

There has been, however, a slight reduction, such that the three storey control relating in the neighbourhood centre has been reduced to 10.5m. The three storey control for the retirement control is now set at 10m. The difference between the neighbourhood centre and the retirement is associated with the proposed commercial use of the second storey in the neighbourhood centre.

Illustration C9 also shows an amendment to the proposed two storey control, to 7m, also redefined to be consistent with the definition of height as set out in the Ballina LEP.

4.2 Ecology

The response to ecological submission is detailed in **Section 1.4**. As outlined, the key amendment involves the introduction of additional off-set rehabilitation works proposed for the part of the site west of the Hutley Drive road reserve, immediately adjacent to the Ballina Nature Reserve.

The intention is for this part of the land, following successful establishment of the rehabilitation, to be dedicated to the State Government as an extension to the Ballina Nature Reserve.

In addition to this, details with respect to rehabilitation proposals for the proposed off-site enhancement areas has been strengthened, as has the conservation function of the open space / corridor areas, as shown in **Illustration C11**.

4.3 Other Amendments

4.3.1 Hutley Drive

At the suggestion of the Department of Planning, the plans have been amended to show the construction of Hutley Drive to the southern boundary of Lot 234 (see **Illustration P1**). This section of Hutley Drive, from the intersection with Main Street to adjacent to the existing sewer pumping station, is already dedicated as road reserve and will be constructed in conjunction with the future development of the proposed tavern site.

4.3.2 Stage 1 Subdivision Plan

An updated **Illustration P2** is included in the attached drawing set. The changes to this plan include:

- provision for the dedication of a road reserve from Hutley Drive to the western boundary of the site, to provide for a future connection road to Henderson Farm, adjoining to the west;
- nomination of bus routes and associated bus bays;
- revision of the superlot proposed for the community centre such that it does not encroach onto the water of the environmental lake.

4.3.3 Indicative Retirement Community

An updated **Illustration C4 Indicative Retirement Community** plan is provided in the attached drawing set. The previously proposed 'carcourt' lots have been deleted from this plan in response to concerns expressed by Council.

4.3.4 Urban Design Guidelines

In response to a range of issues, notably building height, the Urban Design Guidelines have been updated and strengthened. The amended guidelines are contained in **Appendix L**.

5 Environmental Assessment

5.1 Introduction

The amendments proposed in this report have been devised to address the submissions raised following exhibition of the Environmental Assessment Report. Overall, it is clear that they will result in improvements in the project and minimise environmental impacts associated with it.

5.2 Height Adjustments

An overall assessment of the impacts associated with the three storey proposals is outlined in the Environmental Assessment Report. Given that the areas proposed to contain three storey elements are located at the lowest part of the site, and that they are adjacent to open space, it was concluded that the visual, overshadowing and overlooking impacts associated with the height would be minimal.

In relation to the neighbourhood centre, the amendments proposed herein reduce the area proposed for three storeys by some 70 per cent. This will obviously further minimise these impacts. In particular, the removal of three storey proposals at the northern and eastern edges of the neighbourhood centre, combined with the removal of three storey proposals for the adjoining residential and community sites, will allow for increased views of the environmental lake from residential areas proposed on the higher slopes within the site.

The reduction of overall height controls for the three storey components, from 15m to 10.5m for the neighbourhood centre and 10m for the retirement community, will also assist in this regard.

5.3 Ecological Additions

The additional off-site rehabilitation areas, together with the strengthening of the onsite conservation and rehabilitation proposals, will provide overall additional ecological outcomes. This is assessed in further detail in Section 1.4 of this report, where Dr Monica Campbell of Cardno describes and assesses the current proposals. As outlined therein, it is the conclusion of Dr Campbell that the development as proposed will not have significant impacts on threatened species, ecologically endangered communities or other areas of environmental significance.

Dr Campbell also concludes that the combination of on-site works and off-site offsets will result in strong ecological and biodiversity outcomes, that far outweigh impacts on current degraded, low value habitats.

5.4 Other Amendments

The range of additional minor amendments described above will not lead to any additional environmental impacts. Generally, the amendments provide clarification or further information regarding matters of detail, all of which will be further assessed, either during detailed design associated with Construction Certificate applications for Stage 1, or within the development consent process that will follow approval of the Concept Plan.

A

Concept Plan Drawing Set

B

Project Plan Drawing Set

C

Statement of Commitments

D

Threatened Species Assessment

E

Updated Noise Report

F

2003 Cultural Heritage Report

G

Stage 1 Servicing Plans

H

Stage 1 Road Long Sections

Development Consent 428/1113

J

SEPP 71 Master Plan

K

Intersection Analysis

L

Urban Design Guidelines

M

Development Consent 1999/428