

Environmental Assessment for -

Part A: Concept Plan
(Residential, Commercial / Tourist Development and
Environmental Works); and

Part B: Project Application
(Stage 1 'Environmental Works')

Lot 1 DP 374315, Lot 4 DP 615261 and
Part Crown Reserves (R82555 and R754444),
Ocean Drive, Lake Cathie

Application No. MP07_0010

Prepared for:
Milland Pty Ltd and Seawide Pty Ltd (the 'Landowners')

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Appendix C – Flora and Fauna

- Flora and Fauna Survey, Peter Parker Environmental Consultants, July 2010
- Parker correspondence, 6 March 2006
- Brennan correspondence, 21 March 2006
- Parker correspondence, 20 June 2007
- Ecological Assessment, Biolink, June 2007
- Flora and Fauna Report, Peter Parker Environmental Consultants Pty Ltd and Dr Peter Brennan, May 2002

Appendix D – Groundwater Study Stormwater Management / Water Cycle Management

- Area 14 Stage 1B Groundwater Study, Amendment No.1, Martens & Associates, July 2010
- Area 14 Stage 1B Groundwater Study, Martens & Associates, July 2007
- Stormwater Quality Management Report, Jelliffe Environmental Pty Ltd, June 2002

Appendix E – Cultural Heritage

- Cultural Heritage Assessment, Jacqueline Collins (Consultant Archaeologist), February 2003
- Correspondence from NSW DEC, October 2008
- Correspondence from Office of the Registrar, Aboriginal Land Rights Act 1983, June 2009
- Correspondence to Aboriginal stakeholders, June 2009
- Correspondence to Mr John Heath of 9 July 2009
- Public Notices (Port Macquarie News, Port Express, Camden Haven Courier, Mid Coast Observer and Hastings Gazette)

Appendix F – Traffic Noise Impact Assessment, July 2010, Heggies Pty Ltd

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- Council Report, 26 May, 2010
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- Correspondence from PMHC, 19 July, 2010

Appendix N – Preliminary Site Investigation, June 2010, King + Campbell

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Authors Statement

Environmental Assessment for

Concept Plan Approval and Project Application Approval

This Environmental Assessment has been prepared under Part 3A of the Environmental Planning and Assessment Act, 1979 in relation to Lot 1 DP 374315, Lot 4 DP 615261 and part Crown Reserves (R82555 and R754444), Ocean Drive, Lake Cathie.

The information contained in the Environmental Assessment has been compiled from site inspection, correspondence and various reports prepared by qualified consultants and are neither deliberately false nor misleading.



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PART A: Concept Plan

This Environmental Assessment for Concept Plan approval is submitted to the Director-General pursuant to Section 75M of the Act which states, in part, the following:

"(2) The application is to:

(a) Outline the scope of the project and any development options, and

(b) Set out any proposal for the staged implementation of the project, and

(c) Contain any other matter required by the Director-General.

A detailed description of the project is not required."

Executive Summary

This Environmental Assessment comprises two (2) concurrent applications;

Part A: Concept Plan for residential, commercial and tourist development and environmental works; and

Part B: Project Application for the 'Stage 1' environmental works associated with the SEPP 26 Littoral Rainforest.

The Concept Plan application is the subject of this Executive Summary. A separate Executive Summary is attached to the Project Application.

This submission follows receipt of the following advice from the Department of Planning:

- The Minister having formed the opinion that the proposal is a Project to which Part 3A of the Act applies (dated 18 January, 2007);
- The Minister authorised submission of a Concept Plan to be lodged pursuant to Section 75M of the Act (dated 19 July, 2007);
- The Director-General's Environmental Assessment Requirements (DGRs) for the environmental assessment of the project for a Concept Plan and a Stage 1 Project Application (received 8 August, 2007);
- The DGRs were subsequently amended and were formally reissued on 22 July, 2009. This submission has been prepared having regard to the amended requirements; and
- Feedback from the Department of Planning with respect to the draft Environmental Assessment.

The Site and Background

The site is known as Lot 4 in DP 615261 (16.38 ha), Lot 1 in DP 374315 (17.04 ha), part Crown Reserve R82555 (230m²) and part Crown Reserve R754444 (5,595m²), Ocean Drive, Lake Cathie. The site has a total combined site area of 34ha. The part of the Crown Reserves to which this application applies is as shown on Exhibit 02 and is limited to the western edge of R754444 and that part of R82555 and R754444 occupied by the proposed pedestrian boardwalk.

Lots 1 and 4 adjoin SEPP 26 Littoral Rainforest No 116 on their eastern boundary. Whilst the majority of the rainforest is located within the crown reserves, approximately 3.18ha of the SEPP 26 Rainforest is contained within Lot 4. The site adjoins residential development or residentially zoned lands on all other boundaries.

Lots 1 and 4 have been identified for future urban development in previous studies undertaken by and on behalf of Port Macquarie Hastings Council (PMHC):

- In October 2001 PMHC adopted the Hastings Urban Growth Strategy (HUGS 2004). This strategy identifies Lot 4 and Lot 1 as part of the Area 14 Urban Investigation Area (UIA);
- In August 2002 the then Planning NSW confirmed that HUGS included that part of Lots 1 and 4 located on the western side of the SEPP 26 Littoral Rainforest including land within 100m of the gazetted SEPP 26 boundary;
- In July 2004 PMHC adopted the Lake Cathie-Bonny Hills Urban Design Master Plan (UDMP);
- In February 2005 King + Campbell on behalf of PMHC prepared a Draft Local Environmental Study (LES), known as the 'Area 14, Stage 1B Draft LES'. This document included a design-based approach to the determination of an appropriate buffer to the SEPP 26 Littoral Rainforest; and
- PMHC have completed the Planning Proposal for the subject properties as the next phase in the implementation of the Lake Cathie Bonny Hills UDMP. The Department of Planning have issued a Gateway Determination (Appendix R) which provides approval for PMHC to publicly exhibit the Planning Proposal. The proposed zones contained in Exhibit 10 of this Application are consistent with PMHC's approved Planning Proposal. PMHC intend to publicly exhibit the Planning Proposal with the Planning Agreement (VPA) currently being negotiated between the landowners and PMHC.

Extensive consultation with Council, State Government stakeholders and the community, including on-site inspections, has been undertaken both throughout the above processes and in relation to the subject project.

The Concept Plan

The purpose of the Concept Plan is to establish a clear vision for development of the site for urban purposes, to ensure integration with the future development of the Area 14 Urban Investigation Area and to ensure the development is sustainable.

The Concept Plan seeks approval for a new residential community which will respond to the environmental constraints of the site. The community will comprise a number of key land use types including a mix of low and medium density residential areas, commercial and tourist development, an integrated open space network, an access network of roads/footpaths/cycle ways and environmental works to ensure the retention and protection of the Littoral Rainforest for future generations.

The total land area of the Concept Plan is 31.71 ha, as defined by the red dash line on Exhibit 02. This area does not include the 2.61ha of SEPP 26 rainforest currently within Lot 4 which is proposed to be rezoned E2 Environmental Conservation and dedicated as public reserve.

The key land use components of the Concept Plan (refer Exhibits 05 and 06) for which the Ministers approval is sought include the following:

- The Environmental Works associated with the SEPP 26 Littoral Rainforest, where all works will be undertaken to satisfy the aims and objectives of SEPP 26.

The environmental works, to be undertaken on part Lots 1 and 4 and part Crown Reserves R82555 and R754444, will occupy approximately 8.59 ha of the subject properties and are proposed to be rezoned from their current rural zoning to E3 Environmental Management.

The Environmental Works will incorporate:

- 6.01 ha of land to include 40m – 60m of revegetation and regeneration works on the western side of the SEPP 26 rainforest, within Lots 1 and 4;

(These revegetation and regeneration works, together with the exclusion fence / hedge, weed management works within the western edge of the rainforest (1.26 ha) and the formalisation of the existing pedestrian track, form the basis of the attached Project Application for the Stage 1 Environmental Works)

and;

- 2.58 ha of land on the western edge of the revegetation / regeneration area and exclusion fence incorporating grassed public open space with scattered trees, pathway / cycleway, stormwater management and groundwater recharge facilities and the public perimeter road.

- The environmental buffer area to Duchess Gully (5,400m²) in the south western corner of Lot 1 is also proposed to be rezoned from rural to E3 Environmental Management. This buffer area will contain regeneration/revegetation works and stormwater quality management facilities.
- The subdivision of Lot 1 and Lot 4 to provide for the following land use concepts:
 - Low density residential areas to occupy approximately 14.76ha of Lots 1 and 4, generating approximately 217 residential lots at a density of 13-14 dwellings/ha;
 - Medium density residential areas to occupy approximately 3.27ha of Lots 1 and 4, which at a density of 25 dwellings/ha will generate approximately 82 medium density dwellings;

- A 'Hill-Top Village', comprising three/four storey part residential, commercial and tourist development to occupy approximately 3ha of Lots 1 and 4. This area also contains the proposed Village Square which occupies a land area of approximately 2,750m² providing an entry statement to the main street of the Hilltop Village. This area is located within the proposed B4 Mixed Use zone and is intended to be dedicated for public uses.

Based on a commercial/tourist floor space at ground level with three storeys of residential/tourist uses above and basement car parking below, yields of approximately 160 residential/tourist apartments and approximately 6,000m² of commercial/residential/tourist uses at the ground floor level in the main street are expected;

- Open Space works (in addition to the Village Square referred to above) which are proposed to be zoned RE1 Public Recreation including:
 - A Pocket Park (990m²) on the western side of the perimeter road providing a public pedestrian link between the Hilltop Village main street and the beach pedestrian access; and
 - A public carpark and associated landscape works (1,780m²) proposed to be located adjacent to the beach pedestrian access.

and;

- An access and circulation network of roads and pedestrian / cycle paths.

The Staging

The site is to be developed in stages. The Project Application at Part B to this submission represents the first stage of the development, being the environmental works associated with establishing and fencing a vegetated buffer to the SEPP 26 Littoral Rainforest and formalisation of the existing beach access track with a pedestrian boardwalk.

Upon completion of the Stage 1 Environmental Works it is proposed to stage the remainder of the development contained in the Concept Plan as indicatively outlined in Exhibit 05B: Indicative Staging Plan and Sections 3.4 and 6.2.3 of this application.

The specific detail of the staging of the subdivision will be the subject of future Project Applications. Exhibit 05B provides indicative details of staging which include:

- Subdivision of the low density residential areas within the Seawide

and Milland properties in a series of stages incorporating the necessary services for each stage;

- Establishment of the perimeter road, cycleway/pathway and other environmental and stormwater management/groundwater recharge works within the proposed E3 Environmental Management zone indicatively in Stages M2, S2 and S5 as shown on Exhibit 05B. The filling works and the environmental/stormwater management works associated with Duchess Gully will be undertaken in Stage M2 as shown on Exhibit 05B;
- The low density residential subdivisions will establish the proposed medium density residential areas as a series of key development sites. The medium density sites will then be developed either in conjunction or following the completion of the subdivision of the low density residential areas;
- The Hilltop Village will be developed either following or in conjunction with the latter stages of the residential areas. The timing of the development of the commercial and tourist use within the Hilltop Village will to some extent also be dependent on the development of other parts of Area 14 which will generate the population to support the non-residential uses.

The identification and carrying out of the first stage of Environmental Works is important to ensure that:

- Immediate protection is provided to the SEPP 26 Rainforest prior to the commencement of the urban development and so be consistent with the aims of SEPP 26;
- An immediate improvement in the existing edge length to vegetation patch width is created;
- The existing casual coastal access track is formalised with a boardwalk, thereby ensuring that future public beach access is not to the detriment of the SEPP 26 Rainforest;
- An opportunity to provide future residents regarding the importance of protecting the SEPP 26 Rainforest; and
- A mechanism is established for the future maintenance of the environmental works.

In addition, given that the site is a component within the overall development of the Area 14 locality, the relationship with the proposed development of the adjoining and nearby lands is also critical. It is therefore proposed to enter into a Voluntary Planning Agreement with PMHC and a Memorandum of Understanding with the adjoining landowners, as described below.

The Voluntary Planning Agreement (VPA)

Formal negotiations are well advanced with PMHC, in accordance with Division 6, Subdivision 2 of the Act and a copy of the Heads of Agreement submitted to PMHC is included at Appendix P. It is proposed that the draft VPA will be publicly exhibited with the Planning Proposal for the subject properties and that will occur either simultaneously with, or soon after, the public exhibition of the EA. It is proposed that the VPA will then be included as an appendix to the Preferred Project Report.

The Draft VPA provides for the following:

- Establishment and Maintenance of Environmental Lands and Open Space

Milland and Seawide have offered to:

- Establish the environmental works and the formalized pedestrian beach access, in accordance with the Stage 1 Project Application as the first stage of the proposed development.
- Establish and embellish other open space areas as part of future stages of the proposed development in accordance with future approved plans of management.
- Maintain the established areas of environmental lands and open space in accordance with the approved management plan for five (5) years.
- Pay contributions at the subdivision certificate stage to fund a further 15 years maintenance of these areas. PMHC have also agreed to seek an alternate funding mechanism for the maintenance of environmental lands (via a levy or rate) in consultation with state government.

- Payment of Contributions

Milland and Seawide have offered to pay the updated roads and open space contributions for Area 14 that are ultimately adopted by PMHC upon completion of their current reviews of those Section 94 Contribution Plans.

- Seek contribution offsets for works associated with open space embellishment, roadwork, water supply and sewerage works that are included in contribution plans.

The Memorandum of Understanding (MOU) with St Vincent's Foundation

We have attached under separate cover a copy of the draft MOU being prepared between the Landowners and the adjoining landowners – St Vincent's Foundation (SVF).

In summary the MOU outlines both parties' intent to cooperate in the planning and development of their properties to achieve an integrated urban precinct.

The draft MOU establishes the principles of cooperation between the parties which fundamentally include providing each other with relevant written consents for submission to Council on the authorities in relation to works on, near or across the landowners' respective boundaries.

The draft MOU also highlights key elements upon which the parties agree to cooperate including:

- Road access from Ocean Drive across SVF land to the Milland and Seawide properties;
- Road access to the SVF eco-tourist land across the Milland property;
- Restoration of the natural flow in Duchess Gully from SVF land across the Milland south-western corner.
- A range servicing/infrastructure issues (water supply, sewerage, drainage roads) along the common boundaries between the parties;
- The connection of sewerage services from the Milland and Seawide properties to the Lake Cathie Bonny Hills Sewerage Treatment Plant (STP) though the SVF land.

The draft MOU sets up the structure for future more detailed landowner agreements as the planning and construction of the two developments proceeds.

The Specialist Studies

The specialist reports attached to this submission are the culmination of ongoing investigations since 2002 with the preparation of the Stage 1B Draft LES in 2006, a peer review process in 2007, further groundwater investigations in 2009 and additional studies to satisfy the amended DGRs in 2009 and 2010.

The inclusion of all previous studies, in addition to the current studies associated with the urban development of the site, is considered relevant to this submission. The studies document a thorough history of the site, including investigations undertaken to date and provide an important and logical understanding of the environmental risk factors relevant to its future urban use.

The original studies attached to the Stage 1B Draft LES identified key environmental risk factors relevant to the future residential use of the site and identified where additional studies were required to be undertaken. These studies, which are attached to this submission, include:

- Flora and Fauna Report, Peter Parker Environmental Consultants

Pty Ltd and Dr Peter Brennan, May 2002 (Appendix C);

- Stormwater Quality Management Report, Jelliffe Environmental Pty Ltd, June, 2002 (Appendix D);
- Bushfire Risk Assessment, Australian Bushfire Protection Planners Pty Ltd, March, 2006; and
- Cultural Heritage Assessment, Jacqueline Collins - Consultant Archaeologist, February, 2003 (Appendix E).

PMHC initiated a peer review of the Stage 1B Draft LES and as a result additional ecological and groundwater investigations were undertaken.

Dr Stephen Phillips of Biolink was appointed to undertake a peer review of the ecological assessments and Dr Daniel Martens of Martens & Associates was appointed to augment the Stormwater Management investigations through detailed groundwater monitoring and modelling. The following reports were prepared as part of this process and are attached to this submission:

- Ecological Assessment, Biolink Pty, June 2007;
- Area 14 Stage 1B Groundwater Study, Martens & Associates, July 2007; and
- Area 14 Stage 1B Groundwater Study, Amendment No.1, Martens and Associates, July 2010.

Concurrently with the above assessments, PMHC also initiated a traffic impact assessment for Area 14 including the subject properties. This report which will be used to inform the Area 14 LEPs, DCP and Contribution Plans is also attached to this submission:

- Area 14 Traffic Impact Study Report, RoadNet Pty Ltd in association with Bitzios Consulting, June 2009. Section 6.5 of the EA draws on the information contained in the Area 14 Traffic Impact Study Report in relation to the subject Concept Plan Application.

In response to the peer reviews, the specific requirements of the amended DGR's and initial feedback from the Department of Planning, a number of additional specialist reports have now been undertaken and are attached to this submission:

- Updated Flora and Fauna Report, Peter Parker Environmental Consultants Pty Ltd, July 2010, (Appendix C);
- Coastal Hazard Study, SMEC Pty Ltd, March 2010 (Appendix G);
- Bushfire Risk Assessment, Australian Bushfire Protection Planners Pty Ltd, March 2010 (Appendix I);
- Traffic Noise Impact Assessment, Heggies Pty Ltd, July, 2010;
- Preliminary Site Investigation (SEPP 55), King + Campbell, June, 2010;
- Preliminary Geotechnical Assessment, Martens & Associates, July 2010; and

- Flood Assessment, Cardno (Qld) Pty Ltd, July 2010.

The Key Issues

The key issues addressed in this submission are identified in the DGRs as reissued by the Department of Planning on 22 July 2009. A table setting out the location of where the issues have been addressed in this submission forms part of this executive summary.

The proposed key land use components comprising the Concept Plan have been established following the determination of:

- Detailed ecological and groundwater investigations to inform the detailed requirements for the environmental buffer to the Littoral Rainforest and in turn determine the development footprint;
- The land use concepts identified and adopted by PMHC in the Area 14 Greater Lake Cathie Bonny Hills Urban Design Master Plan;
- The availability of essential infrastructure to service the future urban area with particular regard to water supply and sewerage services;
- The access and circulation concepts for Area 14 as established by the final Traffic Impact Study, prepared by Roadnet for PMHC; and
- The outcomes of other specialist studies including geotechnical, flooding, site contamination, acoustic, stormwater drainage, bushfire protection and archaeological studies.

The proposed Concept Plan:

- Will ensure the long-term viability of the adjoining SEPP 26 Littoral Rainforest through the establishment of an effective buffer and the implementation of a Vegetation Management Plan to be consistent with the Aims and Objectives of SEPP 26 and ensure its protection and enhancement for future generations in accordance;
- Will protect the existing biodiversity values of Duchess Gully in a coordinated manner with the adjoining landowners;
- Is consistent with the relevant local, regional and state planning policies and legislation;
- Is consistent with the Concept Plan on the adjoining SVF land resulting in an orderly coordinated urban precinct;
- Is compatible with the adjoining future land use pattern;
- Will preserve the character of the unique beach side locality through ensuring retention of important local and regional views;
- Is able to be fully serviced, including the provision of water supply, sewerage services and recycled non-potable water (dual reticulation) services;

- Will enable improved and controlled public access to adjoining Rainbow Beach;
- Will ensure the long term protection of an item of Aboriginal heritage value;
- Will provide a vehicular and pedestrian network which will integrate with Area 14 and the broader Lake Cathie locality; and
- Will create a sustainable residential community within a desirable beachside locality.

The extensive on-going specialist studies have confirmed the suitability of the site for its proposed future urban use. Hazards associated with the development of the site can be managed with minimal environmental impact:

Coastal Processes - With regard to the Coastline Management Manual, SMEC has confirmed that the site will not be at risk nor be subject to reduced foundation capacity within a 100 year planning period;

Contamination - A Stage 1 Preliminary Site Investigation has been undertaken in accordance with SEPP 55. This assessment has confirmed that the site is not potentially contaminated. Moreover the site is not listed on the PMHC contaminated sites register;

Acid Sulfate Soils - An Acid Sulfate Soils Management Plan prepared in accordance with ASSMAC guidelines will accompany the PA/DA for works associated with the Class 4 and 5 lands, should such be required.

Bushfire - Appropriate Asset Protection Zones, consistent with the requirements of Planning for Bushfire Protection 2006, can be provided. In this instance the proposed perimeter roads, and building setbacks will provide an APZ in excess of that required under the legislation.

Geotechnical - Specialist reports have confirmed that the site is suitable for the proposed urban development subject to normal ongoing geotechnical investigations at the construction stage.

Flooding - While it is noted that the site is not designated as flood prone by PMHC, the south-western corner of Lot 1 is subject to occasional inundation from Duchess Gully during local severe storm events. The Cardno Flood Assessment shows that high hazard flood areas are contained within the channel proper of Duchess Gully and that there are no flood hazard areas within the footprint of the proposed development.

Cardno have also assessed the impact of minor filling works in the south-western corner of Lot 1 to achieve recommended future minimum floor level of RL 5.27mAHD. That assessment has concluded that there will be no impact on flood levels within the proposed constructed wetland on the adjoining SVF land, or on the conveyance flows in Duchess Gully within Lot 1. The minor filling works will also provide sufficient freeboard to retain future residential areas above the

calculated Probable Maximum Flood (PMF) levels.

Conclusion

The site has been subject to extensive studies, is identified in the Mid North Coast Regional Strategy for future urban development and is in the process of being rezoned by PMHC for urban development. As a component within the Area 14 UIA, the proposal will assist in helping to meet the region's forecast housing demand for the next 15-20 years.

Importantly, the Concept Plan provides an opportunity to serve the public interest at a local, regional and state level by preserving, protecting and monitoring the adjoining Littoral Rainforest through ecologically sustainable development:

(a) Precautionary Principle

Detailed specialist studies have concluded that there are no environmental constraints to preclude development of the site as set out in this submission. The Concept Plan includes appropriate and effective mitigation measures and management in relation to any potential impact on the adjoining Littoral Rainforest.

(b) Inter-generational Principle

The Concept Plan will provide for a range of urban facilities, including housing, employment opportunities, recreational areas, tourism and conservation measures to meet the needs of both the current and future generations. In particular, the proposal will ensure the long-term protection, regeneration and monitoring of the adjoining Littoral Rainforest for future generations.

(c) Conservation of Biological Diversity and Ecological Integrity

The Concept Plan will contribute to the conservation of the existing natural environment, ensuring protection of the sites biological diversity through the environmental buffer in combination with appropriate groundwater management.

The proposed revegetation works are intended to provide an immediate buffer to potential edge effects on the adjoining Littoral Rainforest thereby making a positive contribution to the conservation of the existing biological diversity and ecological integrity of the site. The proposed revegetation works will also immediately improve the width to edge length ratio and in combination with the incorporation of weed management will provide a measurable improvement to the long term viability of the rainforest in comparison to the existing situation. The Concept Plan also includes appropriate mitigation and management measures to ensure future monitoring of the environment.

(d) Improved Valuation, Pricing and Incentive Mechanisms

The cost of infrastructure and the measures to ensure an appropriate level of environmental performance will be incorporated into the cost of development. Importantly such controls will be established prior to the development of the land for urban purposes. A Voluntary Planning Agreement being entered into with PMHC as part of the rezoning process will provide certainty and funding for the ongoing monitoring and maintenance of the environmental works and lands to achieve environmental goals and the payment of contributions towards the funding of community infrastructure. The final VPA document will form an appendix to the Preferred Project Report.

Given the suitability of the site, the planning context outlined in this submission, the minimal environmental impacts and the public interest served through the development as proposed, it is submitted that the Concept Plan as set out in this submission can be supported by the Minister for Planning.

Table ES1 – Summary of Key Issues from DGRs

Issue	Relevant section of report	Findings
1.1	Justify the proposal with reference to relevant local, regional and state planning strategies. Provide justification for any inconsistencies with these planning strategies. Specifically address the PMHC Area 14 Structure Plan.	<p>Section 4: Statutory Context Section 6.1.1: Local, Regional and State Strategies</p> <p>Section 4 provides a comprehensive summary of all relevant local, state and regional planning policies, strategies and legislation applicable to the development of the site for urban purposes. The Concept Plan proposal was found to demonstrate consistency with the objectives contained therein.</p> <p>Section 6.1.1 provides a summary of consistency with specific key local, regional and state strategies. The key local strategy is the Greater Lake Cathie and Bonny Hills Urban Design Master Plan. The Concept Plan has incorporated all of the land use concepts from this strategy, including the 'Hilltop Village'; the rainforest buffer design and the residential densities. Inconsistencies between the strategy and the Concept Plan are relatively minor and are the result of further detailed site specific investigations. The Concept Plan will support the aims and objectives identified within the UDMP and create a residential community which is both sustainable and respectful of the environmental qualities of the locality.</p>
1.2	Demonstrate consistency with the sustainability criteria set out in the relevant regional strategy (including draft regional strategies).	<p>Section 4: Statutory Context Section 6.1.1: Local, Regional and State Strategies</p> <p>The Mid North Coast Regional Strategy was adopted by the State Government in 2009 and will guide local planning in eight (8) mid north coast local government areas, including the PMHC LGA. The strategy aims to guide sustainable development over the next 25 years and the Concept Plan is consistent with its aims (Section 4.2.12). The site is included as a 'Proposed Future Urban Release Area' within this strategy.</p>
1.3	Ensure that the proposal is consistent with the rezoning process of PMHC. Note: the EA cannot proceed to public exhibition until the draft LEP for the site has been granted a certificate certifying that it may be publicly exhibited under s65 of the Act.	<p>Section 6.1.2: Rezoning Process</p> <p>PMHC has prepared a Planning Proposal to rezone the subject properties (report to Council of 25 August, 2010 included at Appendix Q). The draft LEP and VPA for the site will be placed on exhibition simultaneously with the subject Environmental Assessment. The draft zone plan at Exhibit 10 is consistent with Council's zoning process for the site.</p>

2. Urban Design and Sustainability			
2.1	Consider the integration and compatibility of the proposed land uses (residential, commercial, tourist and open space) across the site with regard to access arrangements, traffic, environmental buffers (e.g. SEPP 26, Asset Protection Zones), density controls and suitability of the land use with surrounding development.	Section 6.2: Urban Design and Sustainability Section 6.2.1: Land Use Integration and Compatibility	<p>The purpose of this Concept Plan is to establish a clear vision for development of the site for urban purposes, to ensure integration with the current and future development of the Area 14 Urban Investigation Area and in so doing, ensure that the development is sustainable. The land use concept included in the Concept Plan will ensure that the future development respects the site's unique environmental qualities and is cost effective in terms of servicing and infrastructure provision.</p> <p>Section 6.2.1 confirms that the proposed land use concepts within the Concept Plan can achieve the benchmarks for sustainable development, including:</p> <ul style="list-style-type: none"> • The protection of the environmental qualities of the site with suitably designed and effective buffers; • The creation of an urban community which will offer an attractive lifestyle for future residents, with easy access to employment areas and recreational facilities; • The coordinated and therefore cost effective provision of services, including the provision of dual reticulation water; • Access to shops, a primary school and sporting fields within walking distance to residential areas; and • New cycle ways and pedestrian pathways which will link with existing paths in the locality.
2.2	Demonstrate the consistency of the proposed subdivision design and layout with the <i>Coastal Design Guidelines for NSW, NSW Coastal Policy 1997</i> and SEPP 71 – Coastal Protection.	Section 6.2.2: Consistency with Coastal Strategies	Section 6.2.2 confirms the consistency of the proposed Concept Plan layout with the goals and principles of the three (3) primary coastal policies.
2.3	Provide details of the proposed staging of the proposal including timeframes.	Section 6.2.3: Staging	Indicative staging for the Concept Plan is set out in Section 6.2.3. The first stage is that associated with the proposed environmental works. The Project Application at Part B to this submission represents this first stage and demonstrates the landowners' commitment to protecting and enhancing the existing Littoral Rainforest for future generations.
2.4	Identify any potential impacts of the proposal on	Section 6.6.4: Bushfire	Crown Reserve R82555 is the crown land for "Public Recreation" fronting Lot 4. The

adjacent crown reserve R82555 including the potential impacts of any works proposed within it.

Appendix I: Bushfire Protection Assessment
 Section 6.6.5: Geotechnical
 Appendix O: Preliminary Geotechnical Assessment
 Section 6.7: Water Cycle Management
 Appendix D: Groundwater Study and Stormwater Management
 Section 6.9: Flora and Fauna
 Appendix C: Flora and Fauna

Concept Plan (and Stage 1 Project Application) includes approximately 230m² of land within this reserve for the purpose of the proposed public access ('boardwalk') through to Rainbow Beach.

Crown Reserve R754444 is the crown land for "Future Public Requirement" fronting Lot 1. The Concept Plan (and Stage 1 Project Application) includes approximately 5,595m² of land within this reserve for the purposes of the proposed boardwalk to Rainbow Beach and weed management.

Both Crown Reserves contain Littoral Rainforest No. 116.

The potential impacts of the proposal on the adjacent Crown Reserves, and therefore the Littoral Rainforest, have been investigated fully within this submission. In summary, these impacts include:

- Potential edge effects, including erosion and weed infestation from public access;
- Potential changes to rainforest species as a result of changes to the ground water table and from stormwater runoff; and
- Potential bushfire within the rainforest as a result of introduced non-rainforest plant species.

The specialist studies accompanying this submission support the management of these potential impacts with a suitably designed buffer which includes the following features:

- Revegetation with rainforest species, weed management and erosion control in accordance with a VMP (Part B);
- Protection of the revegetation area with exclusion fencing;
- Creation of a public road frontage and pathway/cycleway as part of the buffer treatment;
- Provision of biofiltration units, detention basins and groundwater recharge facilities to manage stormwater quality and quantity and maintain the existing groundwater conditions; and
- Limiting pedestrian access through the Crown Reserve (Littoral Rainforest) to a single boardwalk pathway with self closing gate.

2.5	Outline the long-term management and maintenance of areas of open space and conservation including ownership and control, management and maintenance funding, public access and bushfire management.	Section 6.6.4: Bushfire Appendix I: Bushfire Protection Assessment Section 3.5: Voluntary Planning Agreement	Section 3.5 sets out the long term management and maintenance for the open space and environmental lands. The landowners have commenced formal negotiations (VPA) with PMHC for the following: <ul style="list-style-type: none"> Establishment of environmental works and beach access as part of the Stage 1 Project Application; Establish other open space areas as part of the future stages; Maintain these lands in accordance with an approved management plan for five (5) years; Pay contributions at the subdivision stage to fund a further 15 years maintenance; and Pay the updated open space Section 94 contributions for Area 14.
2.6	Provide owner's consent for the proposed works on the adjacent crown land.	Owners Consent for Concept Plan is attached to the cover letter. Owners Consent for the Project Application will be provided under separate cover.	
3. Visual Impact			
3.1	Address the visual impact of the proposal in the context of surrounding development and relevant mitigation measures. In particular address impacts on the amenity of the foreshore, overshadowing of public reserves, loss of views from public places and cumulative impacts.	Section 6.3: Visual Impact	<p>The site itself is visually prominent, being elevated above the surrounding landscape and at a place where clear sight lines are available from Ocean Drive. As part of the visual assessment a number of significant public domain view point locations were identified and located by survey. These sites were chosen as they represent the most significant viewpoints containing the site/proposed Concept Plan.</p> <p>The views from Rainbow Beach towards the site (to the west) were considered to be of the highest quality. Survey sections along those sight lines have confirmed that the dune height combined with the height and density of the existing mature vegetation (Littoral Rainforest No. 116) restricts direct views onto the site. As a result the proposed Concept Plan development will have no impact on the existing high view quality from this viewpoint and will be consistent in character with the existing urban landscape of Lake Cathie when viewed from all other viewpoints.</p>

4. Infrastructure Provision			
4.1	Address existing capacity and requirements of the development for sewerage, water, electricity, waste disposal, telecommunications and gas in consultation with relevant agencies. In particular, demonstrate the ability of the sewerage treatment plant at Bonny Hills to accommodate the development.	Section 6.4: Infrastructure Provision Appendix L and M – Area 14 Water Supply and Sewerage Strategies	All infrastructure appropriate for urban development is currently available to service the Concept Plan proposal. In particular, the upgrade of the Bonny Hills Lake Cathie Sewerage Treatment Plan is now completed and the moratorium on new residential development in the locality has been removed. Moreover the construction of the recycled effluent pipeline as part of the Hastings Effluent Management Strategy (HEMS) will be completed by the end of 2010. The completion of this pipeline will ensure the delivery of dual reticulation (potable and non-potable water services) to Area 14. Confirmation of the availability of water supply, sewerage and recycled effluent services from PMHC is contained in Appendices L and M.
4.2	Address and provide the likely scope of any planning agreement and/or development contributions with council/government agencies (including relevant community/state infrastructure contributions).	Section 3.5: Voluntary Planning Agreement Section 3.6: Memorandum of Understanding (MOU)	Section 3.5 and 3.6 set out the scope of the Voluntary Planning Agreement (VPA) between PMHC and the landowners and the Memorandum of Understanding (MOU) between the landowners and SVF (adjoining landowners to the west and south).
5. Traffic and Access			
5.1	Prepare a traffic impact study in accordance with table 2.1 of the RTAs <i>Guide to Traffic Generating Developments</i> .	Appendix H Section 6.5: Traffic and Access	<p>PMHC is currently preparing a Section 94 Developer Contributions Plan to fund all of the intersection and Ocean Drive upgrade works recommended by Roadnet in their Traffic Impact Study. As the Section 94 Developer Contribution Plan has yet to be adopted by Council, the landowner Planning Agreement includes an offer to pay the Section 94 road contribution that is ultimately adopted by Council as a result of this review.</p> <p>The Roadnet Area 14 Traffic Impact Study satisfies the requirements of the RTA's Guide to Traffic Generating Developments by identifying and quantifying traffic volumes expected to be generated by the Concept Plan and providing the required technical appraisal of traffic and safety implications of that additional traffic in Area 14 which includes the Concept Plan. The Roadnet report has then assessed the traffic impacts of the proposed development of Area 14 on existing road networks from safety, functionality, level of service, delivery of infrastructure and road hierarchy perspectives. Finally the Area 14 Traffic Impact Study includes recommendations for major road</p>

			<p>infrastructure upgrades required as a result of the development of Area 14.</p> <p>As outlined above these works will be funded pursuant to a Section 94 Developer Contribution Plan, with the construction of all other internal intersection and roadworks being the responsibility of the individual landowner/developer. All other internal roadworks will be designed in accordance with AUSPEC Design Specifications 2009.</p>
5.2	<p>Address the provision of formal public access to the beach in consideration of the potential impacts on the SEPP 26 Littoral Rainforest and crown reserve R82555. Note: a limited number of controlled accesses should be facilitated by the proposal with consideration given to the provision of beach access for the disabled and emergency vehicles.</p>	<p>Section 6.5.2: Public Access to Beach</p>	<p>The Coastal Hazard Study prepared by SMEC provides general design advice relating to beach access, in accordance with the NSW Coastal Dune Management Manual. An assessment of other areas for additional beach access concluded that public beach access should be restricted to a controlled elevated boardwalk through the Littoral Rainforest (crown reserves R82555 and R754444), in the location of the existing informal track. The control of formal public access to the beach in this manner in combination with the other Stage 1 Environmental Works will manage potential edge effects whilst maintaining an appropriate level of public access to the rainforest and beach.</p> <p>Rainbow Beach is currently a 4 wheel drive access approved beach. Vehicular and pedestrian access to the beach is via an existing driveway off Middle Rock Road, as depicted on the aerial photograph, plans and site photographs accompanying this submission. This existing driveway is suitable for emergency vehicle access onto Rainbow Beach.</p>
6. Hazard Management and Mitigation			
6.1	<p><i>Coastal processes</i></p> <p>Address coastal hazards and the provisions of the coastline management manual. In particular consider impacts associated with wave and wind action, coastal erosion, climate change, sea level rise and more frequent and intense storms.</p>	<p>Section 6.6.1: Coastal Processes Appendix G</p>	<p>Section 6.6.1 provides a summary of the hazard assessment undertaken by SMEC. In relation to the location of the proposed urban development this assessment found that it would not be at risk or subject to reduced foundation capacity within a 100 year planning period. In addition the urban area will not be affected by windborne sediment erosion as the dunes are well stabilised by vegetation.</p>

6.2	<p><i>Contamination</i></p> <p>Identify any contamination on site and appropriate mitigation measures in accordance with the provisions of SEPP 55 – Remediation of Land.</p>	Section 6.6.2: Contamination Appendix N	A Preliminary Site Investigation for Lot 4 DP 615261 and Lot 1 DP 374315, pursuant to the provisions of SEPP No.55 Remediation of Land was carried out. This assessment found nothing that would preclude the use of the site for urban purposes, including more sensitive land uses (e.g. child care centres etc). The site was found to be suitable in its current state for the urban land use concepts included within the Concept Plan.
6.3	<p><i>Acid sulfate soils</i></p> <p>Identify the presence and extent of acid sulfate soils on the site and, where relevant, appropriate mitigation measures. Identify the need for an Acid Sulfate Management Plan (prepared in accordance with ASSMAC guidelines).</p>	Section 6.6.3: Acid Sulfate Soils	PMHC's Acid Sulfate Soils (ASS) mapping has identified Class 4 and Class 5 land along the southern boundary of Lot 1. Concept Plan works that have the potential to be located on the areas affected by ASS are to be limited to protection and enhancement works associated with Duchess Gully. However in the event that the detailed engineering design for this area results in the possible disturbance to the water table, an ASS Management Plan in accordance with ASSMAC Guidelines will be prepared in conjunction with the construction certificate documentation.
6.4	<p><i>Bushfire</i></p> <p>Address the requirements of <i>Planning for Bush Fire Protection 2006</i> (RFS).</p>	Section 6.6.4: Bushfire Appendix I	<p>PMHC's bushfire prone land mapping has identified the Littoral Rainforest as Category 2 bushfire prone vegetation. The vegetation located within the south-western corner of the site (adjacent to Duchess Gully) and the vegetation on the adjoining vacant residential zoned lands to the west is not recorded on this mapping. However given the classification of the rainforest vegetation, the future development of the site will be classed as 'integrated development' under the provisions of Section 91(1) of the Environmental Planning and Assessment Act, 1979.</p> <p>The NSW RFS has confirmed that subject to the revegetation / regeneration area being planted with rainforest species, a 20m wide Asset Protection Zone will be required to the urban development on its western frontage. The perimeter public road and building setback will satisfy this requirement.</p>

6.5	<p><i>Geotechnical</i></p> <p>Provide an assessment of any geotechnical limitations that may occur on the site and if necessary, appropriate design considerations that address these limitations.</p>	Section 6.6.5: Geotechnical Appendix O	<p>A Preliminary Geotechnical Assessment has been conducted in accordance with AS 1796 (1993) and AS 2870 (1996). The assessment divides the site into four zones of risk, with a summary of the slope instability risk, based on Australian Geomechanics (2007) guidelines.</p> <p>This assessment found that the proposed urban development is considered to constitute a very low to low risk to property resulting from geotechnical hazards. The assessment has made a number of recommendations which basically relate to 'good practice' associated with construction for earthworks, footings and foundations and groundwater. The assessment also makes a number of recommendations for further geotechnical investigations which will be required to be undertaken at the PA/DA stage.</p>
6.6	<p><i>Flooding</i></p> <p>Provide an assessment of any flood risk on site (for the full range of floods including events greater than the design flood, up to probable maximum flood; and from coastal inundation, catchment based flooding or a combination of the two) and having consideration of any relevant provisions of the <i>NSW Floodplain Development Manual 2005</i>. The assessment should determine: the flood hazard in the area; address the impact of flooding on the proposed development, address the impact of the development (including filling) on flood behaviour of the site and adjacent lands; and address adequate egress and safety in a flood event.</p> <p>and</p>	Section 6.6.6: Flooding Appendix J	<p>A Flood Assessment has been undertaken by Cardno (Qld) Pty Ltd. The assessment addresses both DGR 6.6 and 6.7 and draws on the flood assessments undertaken on the adjoining SVF site.</p> <p>The Cardno report confirms that while the subject property is not designated as "flood prone", the low lying nature of the south western corner of Lot 1 DP 374315 leads to occasional inundation from local storm events in Duchess Gully.</p> <p>The assessment makes the following recommendations in relation to the urban development of the site:</p> <ul style="list-style-type: none"> • Residential lots shall be filled to a maximum level of RL 5.0mAHD; • Road crossings over flowpaths within the proposed development will be designed to provide 100 year ARI (plus climate change) immunity and comply with PMHC's AUSPEC Design Specifications; • The minimum floor level of any residential dwelling is to be RL 5.27mAHD.
6.7	Assess the potential impacts of sea level rise and an increase in rainfall on the flood regime of the		<p>The flood assessment includes a model re-run assuming a 0.9m sea level rise and catchment model runoff hydrographics incorporating 10%, 20% 30% greater rainfall</p>

	site and adjacent lands with consideration of <i>Practical Consideration of Climate Change – Floodplain Risk Management Guideline</i> (DECC, October 2007).		intensities. Inundation levels of RL 4.74m AHD (20% increase) and RL 4.87m AHD were determined for Duchess Gully in the SW corner of the Milland property (Lot 4). A minimum fill level of RL 4.74m AHD was adopted for the edge roads to allow for climate change impacts, with building lots being filled to provide for floor levels of minimum RL 5.27m AHD.
7. Water Cycle Management			
7.1	Address measures for integrated water cycle management (including stormwater) based on water sensitive urban design principles, which address impacts on the surrounding lands, drainage and water quality controls for the catchment. Consideration should be given to council's preferred water management strategy for the site (Storm Consulting Pty Ltd, 2006). Note: stormwater should not be directed to the SEPP 26 Littoral Rainforest as these ecosystems are sensitive to hydrological changes.	Section 6.7: Water Cycle Management Appendix D	<p>A strategy for water cycle management and sustainable hydrology for the Concept Plan has been prepared and documented for the site. The proposed development will incorporate the principles of Water Sensitive Urban Design into water cycle management. Water supply will be augmented through the use of reclaimed effluent for external and toilet uses and potentially augmented through rainwater harvesting via domestic tanks.</p> <p>The site is divided by a ridgeline which separates stormwater runoff draining to the east from that draining to the west. The eastern side falls naturally towards the SEPP 26 Littoral Rainforest, whilst the western side is divided again with the south-western catchment naturally falling towards Duchess Gully and the north-western catchment naturally falling to the north where it drains to an existing culvert under Ocean Drive and ultimately to Lake Cathie. The issues relating to stormwater management from each of these catchments has been determined and is proposed to be managed through a combination of bioretention and detention facilities.</p> <p>Martens & Associates Pty Ltd, Consulting Engineers (Martens) assessed the impacts of the proposed development on the hydrologic regime of the SEPP 26 Littoral Rainforest, including both surface water and groundwater impacts. Martens have made a number of recommendations (Martens, 2010) to address the concerns listed by the NSW Department of Lands, using both water quality measures, controlled discharge and groundwater recharge. These recommendations have been incorporated into the proposed Stormwater Management Plan for the site. Martens' water cycle strategy is based on replicating the existing surface water and groundwater conditions in the "post-development" phase.</p> <p>In relation to the Littoral Rainforest the assessment noted that it has been and will</p>
7.2	and Assess the impacts of the proposal on surface and groundwater hydrology and quality, particularly Duchess Gully and the SEPP 26 Littoral Rainforest.		

			continue to be dependent on existing runoff and groundwater recharge from the eastern catchments of the subject property. Martens noted that <i>"With consideration to potential impacts of climate change on local hydrogeology, it is likely that groundwater re-charge and surface soil moisture conditions will be considerably reduced from existing conditions over the next 20-100 years. This being the case we see that controlled urban runoff will provide a possible mechanism to supply additional water to the SEPP 26 forest otherwise lost through reduced annual rainfall and increased evaporation."</i>
8. Heritage and Archaeology			
8.1	Identify whether the site has significance to aboriginal cultural heritage and identify appropriate measures to preserve any significance. The assessment must address the information and consultation requirements of the draft <i>Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation</i> (DEC 2005) and <i>Interim Community Consultation Requirements for Applicants</i> (DEC 2004).	Section 6.8: Heritage and Archaeology Appendix E	<p>A Cultural Heritage Assessment has been undertaken to consider Aboriginal cultural heritage as well as non-indigenous cultural heritage. The Assessment was carried out in accordance with the draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DECC July 2005) and the Interim Community Consultation Requirements for Applicants (DEC 2004).</p> <p>In addition the Birpai LALC was contacted at commencement of the assessment and assistance was provided by Senior Sites Officer Lindsay Moran. During the field survey an artefact was recorded (AHIMS 30-6-0162). The artefact lies within an area zoned 7(f1) Environment Protection- Coastal. At the request of Birpai LALC the location of the artefact has not been made public.</p> <p>The assessment makes recommendations regarding both the artefact and Duchess Gully. Whilst Duchess Gully is considered as a location of high archaeological sensitivity, no artefacts were found at this location. The recommendations were developed through discussion with Lindsay Moran as the representative of the Birpai LALC.</p> <p>Additional consultation has since been carried out with Aboriginal stakeholder groups (other than LALC) for the mid north coast area, in addition to the placement of an advertisement in five (5) local newspapers.</p> <p>The stakeholders were advised of the proposed works contained in the Concept Plan and the Stage 1 Project Application, including the provision of fencing to the western side of the vegetated buffer to the rainforest and a low impact boardwalk access through</p>
8.2	Identify any items of non-indigenous heritage significance and, where relevant, provide measures for the conservation of such items.		

			the rainforest to the beach in the location of the existing tracks. The aim of the Concept Plan Application and Project Application is to protect the rainforest from general pedestrian access and in so doing, restrict access to the Aboriginal artefact within the rainforest. In accordance with the wishes of Birpai LALC, the site will not be signposted or identified in any way.
9. Flora and Fauna			
9.1	Identify the potential impacts of the proposed development on the SEPP 26 Littoral Rainforest, particularly with regard to surface and groundwater hydrology and quality, public access to the beach and edge effects. Outline measures for the ongoing management and protection of the SEPP 26 vegetation.	Section 6.9: Flora and Fauna Appendix C Section 6.7: Water Cycle Management Appendix D: Groundwater Study and Stormwater Management Section 3.5: Voluntary Planning Agreement	<p>The potential impacts of the proposal on the Littoral Rainforest have been investigated fully within this submission. In summary, these impacts include:</p> <ul style="list-style-type: none"> • Potential edge effects, including erosion and weed infestation from uncontrolled public access; • Potential changes to rainforest species as a result of changes to the ground water table and from stormwater runoff; and • Potential bushfire within the rainforest as a result of introduced non-rainforest plant species. <p>The specialist studies accompanying this submission support the management of these potential impacts with a suitably designed buffer which includes the following features:</p> <ul style="list-style-type: none"> • Revegetation with rainforest species, weed management and erosion control in accordance with a VMP (Part B); • Protect revegetation area with exclusion fencing; • Create a public road frontage and pathway/cycleway and open space area as part of the buffer treatment; • Provide biofiltration units and detention basins to maintain the groundwater table; and • Limit pedestrian access through the Crown Reserve (Littoral Rainforest) to a single boardwalk pathway with self closing gate. <p>Section 3.5 sets out the long term management and maintenance for the open space and environmental lands. The landowners have commenced formal negotiations (VPA) with PMHC for the following:</p>

			<ul style="list-style-type: none"> • Establishment of environmental works and beach access as part of the Stage 1 Project Application; • Establish other open space areas as part of the future stages; • Maintain these lands in accordance with an approved management plan for five (5) years; • Pay contributions at the subdivision stage to fund a further 15 years maintenance; and • Pay the updated open space Section 94 contributions for Area 14.
9.2	Outline potential impacts on aquatic and terrestrial flora and fauna, endangered ecological communities and their habitats (within the meaning of the <i>Threatened Species Conservation Act 1995</i>) and the <i>Fisheries Management Act 1994</i>). Provide measures for their conservation, where relevant, including consideration of compensatory habitat.	Section 6.9: Flora and Fauna Appendix C	<p>The rough-shelled bush nut (<i>Macadamia tetraphylla</i>) was the only threatened plant recorded which is listed under the Threatened Species Conservation Act 1995 (TSC Act). However, the rough-shelled bush nut was planted as an orchard tree in the vicinity of ruins and is only known in the wild north of the Clarence River. In this context, this species has little ecological value.</p> <p>Littoral Rainforest 116 occurs as a Crown Land frontage to Lot 1 and is located partly within Lot 4. This rainforest is of State significance and is listed as an Endangered Ecological Community under Schedule 3 of the Threatened Species Conservation Act, 1995.</p> <p>Several management initiatives will improve the long-term conservation viability of this rainforest and have been included in the Concept Plan proposal:</p> <ul style="list-style-type: none"> • The provision of a Littoral Rainforest buffer which considers the hydrological requirements of the vegetation (as expressed by Martens); • Improved shape of the Littoral Rainforest by decreasing the edge-to-area ratio. This has been facilitated by plantings along the western boundary; • Incorporate the coast banksia woodland in the south-east corner into the Littoral Rainforest using additional plantings and bush regeneration techniques and emphasise coast banksias in the landscaping of the site. Properly constructed and managed, this corridor will provide feeding resources for the common blossom bat, assist in fauna passage for the more cryptic animal species and provide for greater biodiversity; • Provide a buffer along the water course in the west (Duchess Gully); • Construction of an elevated walkway to the beach along the existing pathway and
9.3	Outline measures for the conservation of any existing wildlife corridor values and/or connective importance of any vegetation on the subject land.		
9.4	Address measures to protect and manage the riparian corridor and adjacent aquatic habitats		

- improve drainage or minimise erosion by rip-rap filters or similar structures; and
- Install protective fencing along the western edge of a planted buffer to the Littoral Rainforest. Fencing will also define the forested edge and limit human intrusion.

The Flora and Fauna report (PPEC, 2010) confirms that the management and protection of the Littoral Rainforest is a major environmental contribution of the Concept Plan proposal.

The flora and fauna survey undertaken by PPEC also confirmed that the following additional vulnerable species may occur at the site or in the vicinity of the site:

- Barred cuckoo-shrike
- Glossy black cockatoo
- Masked owl
- Osprey
- Powerful owl
- Rose-crowned fruit-dove
- Wampoo fruit-dove
- Common bent-wing bat
- Greater broad-nosed bat
- Fishing bat
- Little bent-wing bat
- Common blossom bat
- Grey-headed flying fox

The 7 part tests were undertaken in relation to the rough-shelled bush nut, the White flowered wax plant, the Littoral Rainforest and the species listed above. It was found that in relation to each species the proposed development, being outside the potential conservation areas, is unlikely to have an adverse effect on their life cycle.

The site also contains approximately 85 m of Duchess Gully. A fish survey was undertaken and one (1) native fish species, the striped gudgeon, has been recorded. An assessment pursuant to the Fisheries Management Act 1994 was undertaken (Appendix 5, PPEC, 2010). The assessment found that the direction of treated stormwater to Duchess Gully is likely to be beneficial as at the time of survey the creek featured a

			number of fragmented pools and was not flowing. Improving water flows and fish passage are two key elements in river management.
10. Noise			
10.1	Address potential noise impacts, in particular road traffic noise, for future residents and appropriate mitigation measures.	Section 6.10: Noise Appendix F	<p>A noise impact assessment has been undertaken to identify and recommend ameliorative measures to mitigate any traffic noise impacts on the future residential use. Two (2) scenarios were modelled for the purpose of the assessment:</p> <ul style="list-style-type: none"> • Scenario 2009 – a baseline which assumes 2009 traffic volume information with Stage 1B (the subject site) not constructed; and • Scenario 2029 – assumes 2029 traffic volume information and Stage 1B constructed. <p>The predicted noise levels were then used to recommend mitigation measures and construction standards for the future residential development.</p> <p>The recommended mitigation measures include:</p> <ul style="list-style-type: none"> • The provision of a 2m high noise barrier on Ocean Drive for external noise reduction, as depicted in figure 4 (Heggies, p.20); and • Recommended architectural treatments for dwellings with frontage to Ocean Drive for internal noise reduction, as set out in Tables 11 and 12 (Heggies, p.22). <p>The Heggies report confirms that provided the recommended mitigation measures are implemented, the relevant noise criteria requirements contained in AS 2107:2000 and the ECTRN (Environmental Criteria for Road Traffic Noise, DECCW, May 1999) can be satisfied.</p>
11. Socio-Economic Impacts			
11.1	Provide a social impact assessment for the development. Address the social and economic context of the development (for both the tourist and residential components) in terms of infrastructure	Section 6.11: Socio-economic Impacts	<p>The site, being part of the Area 14 UIA, has been included in previous investigations in relation to social impact. The Lake Cathie Bonny Hills UDMP Master Plan developed by Diecke Richards (Appendix B) carried out a number of investigations relevant to social impact, including:</p>

	<p>requirement, public transport, community services and facilities (including schools and medical services).</p>		<ul style="list-style-type: none"> • Population Growth and Community Needs (being the population characteristics, community facilities, education, childcare, sport and recreation, open space and economic needs of the area); and • Community issues and values. <p>The community consultation process included design workshops which were attended by Council, the Hastings Urban Growth Strategy (HUGS) implementation committee, State Government agencies and the local community.</p> <p>In addition a public meeting, the 'Community Visioning Workshop', was conducted and included representatives from the community, local organisations and the Lake Cathie and Bonny Hills Progress Association.</p> <p>A social impact assessment relevant to the Concept Plan proposal has now also been undertaken. This assessment identified features of the proposal that may have social impacts and the groups that may be affected. This assessment also provides information on strategies to manage and mitigate any impact as a result of the development.</p> <p>The main source of impact was found to be the juxtaposition of maintaining the environment and natural areas with providing urban infrastructure, facilities and services to a level which will be expected by future residents. It is anticipated that future residents will demand a high level of access (roads, cycle ways and pathways) as well as access to all urban infrastructure (water, sewer, stormwater quality/control), within a safe, neighbourhood style residential community. However the residents attracted to the beachside locality will not accept adverse impacts on the natural environmental, including visual intrusions into the natural areas.</p> <p>A number of built form controls at the private / public interface with the rainforest can assist to integrate the incoming residents with the existing residents. The proposed public component to the rainforest buffer will incorporate parking, cycle ways, footpaths and open space immediately adjacent to the rainforest. Whilst this public interface will engender a sense of ownership for the future incoming residents, it will also allow ease of access for the broader existing community. The public pathway and cycleway will link</p>
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			<p>with the existing pathways to the north and proposed pathways to the south and enable improved access for all residents.</p> <p>Managing the environmental concerns of the existing population will also require that adequate information is made available. The existing population will require assurances that the proposal will not adversely affect the natural environment and that the areas of increased density will make a positive contribution for the community generally. The statement of commitments will provide some assurances, however it is also proposed to conduct a public meeting with the local progress associations during the exhibition period to ensure all issues the community may have are adequately addressed.</p> <p>It is the built form of the development that will ensure social integration between the incoming and existing residents. The public places (Village Square, main street, pocket park and beach access) will link with the existing and proposed street network and cycle ways/pathways.</p> <p>Incoming residents should integrate well into the local community as it would be expected that they would utilise the same services, shops and recreation facilities as the existing residents. The benefits of the broader community as a result of the population increase and its positive effect on the provision of services and facilities is considered to be a positive impact for the locality.</p>
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Table ES 2 - Summary of Agency Responses

Agency	Issues / Requirements	Comment
Port Macquarie Hastings Council (17 April, 2007)	<ul style="list-style-type: none"> Acknowledges that the site forms a substantial part of the Area 14 Urban Investigation and is an important part of Councils plans to accommodate projected growth in the LGA. Acknowledges that the preliminary recommendations contained within specialist reports to date suggest that the Littoral Rainforest buffer requirements will vary from the Area 14 Master Plan (which adopted a 100m setback) and that the revised requirements will be included in the Area 14 DCP. Acknowledges that the Area 14 Master Plan provides Councils preferred planning outcome for the site and should be considered in the Part 3A application. In addition, the following Issues should be addressed: <ul style="list-style-type: none"> Protection of EEC's; Compatibility with Councils preferred water management strategy for site (STORM Consulting 	<ul style="list-style-type: none"> Lots 1 and 4 have been identified for future urban development since October, 2001 with the adoption by Council of the Hastings Urban Growth Strategy. This strategy identifies Lot 4 and Lot 1 as part of the Area 14 Urban Investigation Area. The Lake Cathie Bonny Hills Urban Design Master Plan was then adopted by Council in July, 2004. The specialist reports referred to in Council's response are the Martens & Associates and Biolink reports, both of which are attached to this submission. The outcomes of these reports have been used to confirm the buffer treatment as presented in this submission, including 40-60m of revegetation/regeneration works, 2m exclusion fencing with 'spiky' planting and public perimeter road with cycle path and walkway. The provision of this buffer will ensure the long term protection and enhancement of the rainforest for future generations. The key land use concepts included in the adopted Master Plan have been included as part of the Concept Plan proposal. Minor changes in relation to the footprint of the medium density component, for example, have been determined following further site specific investigations. Importantly, the residential yield anticipated with the Master Plan can be achieved. Specialist reports attached to this submission have confirmed that the proposed buffer treatment to the Littoral Rainforest will protect and enhance the rainforest. A strategy for water cycle management and sustainable hydrology for the Concept Plan has been prepared and documented for the site and is

Agency	Issues / Requirements	Comment
	<p>Pty Ltd – 2006);</p> <ul style="list-style-type: none"> ○ The Littoral Rainforest, including; water quality (surface and groundwater); effective buffering to limit edge effects; buffer design, including species composition; satisfactory limited beach access through the rainforest; ongoing monitoring and maintenance of buffers and water quality / quantity control devices; ○ satisfactory arrangements for the long-term ownership and management of the environmental lands and buffers; ○ coordination and funding of infrastructure, including major road intersections, water and sewerage services; ○ the NSW Floodplain Development Manual and effects of proposed fill; and ○ Acid Sulfate Soils 	<p>consistent with the Concept Stormwater Plan prepared by Storm Consulting. The proposed development will incorporate the principles of Water Sensitive Urban Design into water cycle management, and water supply will be augmented through the use of reclaimed effluent and potential rainwater harvesting via domestic tanks. The proposed stormwater management strategy is shown in Exhibit 08A – Stormwater Concept Plan</p> <ul style="list-style-type: none"> • The flora and Fauna specialist reports at Appendix C and the Groundwater Study and Stormwater Management reports at Appendix D confirm that the measures included as part of the Concept Plan for the long term management of the rainforest and buffer areas represent the ‘best practice’ solutions for its ongoing protection and monitoring. In particular edge effects will be minimised, the existing track will be formalised as the pedestrian beach access and water quality/quantity will be suitably controlled. • The Draft VPA with PMHC includes details on the long term management of the environmental buffers, including the maintenance of the established areas of environmental lands in accordance with an approved management plan for five (5) years and the payment of contributions to fund a further 15 years of maintenance. • As part of the draft VPA, the landowner has offered to pay the updated roads and open space contributions for Area 14 that are ultimately adopted by PMHC upon completion of the current reviews of those Section 94 Contribution Plans. Other services are in place with capacity to cater for the proposed development. A draft MOU has been prepared with the adjoining landowner to facilitate the coordination of infrastructure. • The Flood Assessment prepared by Cardno (Appendix J) confirms that minor filling works will have no effect on the future conveyance of flood waters in Duchess Gully; • Concept Plan works that have the potential to be located on the areas affected by ASS (class 4 and 5 only), are to be limited to protection and

Agency	Issues / Requirements	Comment
		enhancement works associated with Duchess Gully. However in the event that the detailed engineering design for this area results in the possible disturbance to the water table, an ASS Management Plan in accordance with ASSMAC Guidelines will be prepared in conjunction with the construction certificate documentation. This requirement is included in the Statement of Commitments.
Department of Natural Resources (12 April, 2007)	<ul style="list-style-type: none"> Acknowledges that the key issues in relation to the Stage 1 Project Application have already been identified, including weed removal, revegetation and fencing works on the western side of the rainforest. The only issue left to explore is the number of access points to the beach. The residential layout may result in additional uncontrolled informal access through rainforest. Emergency vehicle access to beach should also be considered 	<ul style="list-style-type: none"> These key issues are all addressed in detail in the Vegetation Management Plan (VMP) which accompanies the Stage 1 Project Application at Part B to this submission. Detailed investigations in relation to this issue have confirmed that the one (1) existing informal pedestrian track through the rainforest should be retained and formalised. Details of the proposed boardwalk are contained in the Project Application. Exclusion fencing will ensure that additional uncontrolled access points are not created. An additional pedestrian access is to be provided as part of the Concept Plan application on the adjoining property to the south (SVF). Rainbow Beach is currently a 4 wheel drive access approved beach. Vehicular and pedestrian access to the beach is via an existing driveway off Middle Rock Road, as depicted on the aerial photograph, plans and site photographs accompanying this submission. This existing driveway is suitable for emergency vehicle access onto Rainbow Beach.
Department of Lands (13 April, 2007)	<ul style="list-style-type: none"> Need to identify location and status of any Crown Land. 	<ul style="list-style-type: none"> The location of the adjoining Crown Reserves has been depicted on the attached exhibits. Two Crown Reserves adjoin Lots 4 and 1: <ul style="list-style-type: none"> Part Crown Reserve (R82555) being the Crown land for 'Public Recreation' fronting Lot 4. The Concept Plan includes approximately 230m² of this reserve; and

Agency	Issues / Requirements	Comment
	<ul style="list-style-type: none"> Need to identify impacts on current uses, future uses, management and amenity of crown land. The two existing tracks through to Rainbow Beach need to be formalised. Additional tracks would require strong justification. Prior approval of the Department of Lands is required for any works within Crown Land. Any works on the existing pedestrian track must not be carried out without the issue of a license from the DOL prior to commencement of works. Alternatives to the discharge of stormwater onto Crown land needs to be considered, including: <ol style="list-style-type: none"> On-site pollutant retention and removal; and Infiltration and sub-surface discharge. <p>and</p> Stormwater management should include an assessment of the potential impacts on the rainforest. 	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Part Crown Reserve (R754444) being the Crown land for 'Future Public Requirement' fronting Lot 1. The Concept Plan includes approximately 5,595m² of this reserve. Details of measures to mitigate potential impacts on current and future uses and the management of amenity of the crown reserves are contained in Section 6.2.4, Section 6.9 and Appendix C (Flora and Fauna) Section 6.7 and Appendix D (Groundwater and Stormwater Management). Only one of the existing informal tracks through the rainforest adjoins the subject site. The second access point will be addressed as part of the current Part 3A application for the adjoining SVF land. Following detailed investigations, no additional pedestrian access tracks are proposed as part of this submission (refer Section 6.5.1). Department of Lands owners consent for the Concept Plan has already been provided. Owners consent for the Project Application will be provided under separate cover. Noted The site is divided by a ridgeline which separates stormwater runoff draining to the east from that draining to the west (see Exhibit 08A - Stormwater Concept Plan). Existing runoff from the sub-catchments on the eastern side of the ridgeline drain toward the Littoral Rainforest. The management of both stormwater drainage and potential impacts on the existing groundwater regime in these sub-catchments have been addressed in reports prepared by Martens & Associates (Appendix D). The recommendations in these reports have been incorporated in the Concept Plan Application and the Stormwater Concept Plan (Exhibit 08A) and include provisions for management of stormwater using on-site pollutant removal and retention,

Agency	Issues / Requirements	Comment
		infiltration and sub-surface drainage. The Groundwater Study by Martens has specifically assessed the potential impacts on the rainforest from a stormwater/groundwater management perspective.
Department of Environment and Conservation (10 April, 2007)	<ul style="list-style-type: none"> • The key issues the EA should focus on include: <ul style="list-style-type: none"> ○ Potential impacts on threatened species, flora, fauna, EEC's and their habitats. ○ Potential impacts on Aboriginal Cultural Heritage; ○ Potential Greenhouse Gas Emissions. 	<ul style="list-style-type: none"> • The Flora and Fauna investigations included at Appendix C have been ongoing from 2002 to 2010. These specialist reports address any potential impacts on threatened species, flora, fauna, EEC's and their habitats. Section 6.9 of this submission contains a summary of the findings and recommendations of these reports. • A Cultural Heritage Assessment was prepared in February 2003 by Jacqueline Collins (Consultant Archaeologist). A full copy of this report is attached as Appendix E. The Birpai LALC was contacted at commencement of the assessment and assistance was provided by Senior Sites Officer Lindsay Moran. During the field survey an artefact was recorded (AHIMS 30-6-0162). At the request of Birpai LALC the location of the artefact has not been made public. The Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation Requirements for Applicants (DEC 2004) has also been addressed and consultation with key stakeholders has been undertaken (Appendix E). • The purpose of the Concept Plan is to establish a clear vision for development of the site for urban purposes, to ensure integration with the current and future development of the Area 14 Urban Investigation Area and above all, to ensure the development is sustainable. The stated vision and design objectives at Section 3.2 will achieve a sustainable community which will have a positive impact on potential greenhouse gas emissions through

Agency	Issues / Requirements	Comment
	<ul style="list-style-type: none"> • Consultation with sewage authority required to determine if the Lake Cathie Bonny Hills Sewage Treatment System has sufficient capacity. 	<p>the achievement of sustainability benchmarks, including:</p> <ul style="list-style-type: none"> ○ The provision of a centrally located Hilltop Village within walking distance of existing and future residential areas and zoned to encourage a variety of uses to cater for the day to day needs of the local community; ○ The co-ordinated and therefore cost-effective provision of services for the development of Area 14 as a whole; ○ Pedestrian pathways and cycle ways which will link with the existing pathways and bike paths in the locality (ultimately between Lake Cathie and Bonny Hills); ○ The protection of the environmental qualities of the site through the provision of suitably designed buffers, including significant areas of bush regeneration/revegetation; and ○ A residential community which will offer an attractive lifestyle for future residents, with easy access to both employment areas and recreational facilities. <ul style="list-style-type: none"> • The Minister for Local Government officially opened the new \$17.4m augmentation of the Lake Cathie Bonny Hills Sewerage Treatment Plant (STP) on the 27 May, 2010. This facility now has the capacity to cater for all new development in Area 14 as well as further expansion within the existing Lake Cathie Bonny and Hills townships. Correspondence from PMHC confirms there are no infrastructure services impediments to the proposed Concept Plan (refer Appendix M).
NSW Department of Primary Industries (3 April, 2007)	<ul style="list-style-type: none"> • Stormwater Management: <ul style="list-style-type: none"> ○ Particularly the ability of Duchess Gully to 	<ul style="list-style-type: none"> • Section 6.7.3 contains stormwater management details for the sub-catchment that drains to Duchess Gully. The proposed stormwater quality measures will result in a net decrease in nutrient loads. The landowners

Section 1

Introduction

1.1 Real Property Description

The site is known as Lot 4 in DP 615261, Lot 1 in DP 374315 and part Crown Reserves (R82555 and R754444), Ocean Drive, Lake Cathie. The site comprises the following land areas:

- Lot 1 DP 374315 - 17.04ha
- Lot 4 DP 615261 - 16.38ha
- Part Crown Reserve R82555 (230m²), being the Crown land for 'Public Recreation' fronting Lot 4; and
- Part Crown Reserve R754444 (5,595m²), being the Crown land for 'Future Public Requirement' fronting Lot 1

The total land area the subject of this Concept Plan application is 31.71 ha, as shown within the red dash line on Exhibit 02.

1.2 Land Ownership and Project Team

Landowners	
Lot 1 DP 374315	Milland Pty Ltd
Lot 4 DP 615261	Seawide Pty Ltd
Crown Reserves R82555 and R754444	Department of Lands
Project Team:	
Proponent	Milland Pty Ltd and Seawide Pty Ltd c/- King + Campbell Pty Ltd
Planning, Urban & Landscape Design and Overall Co-Ordination	King + Campbell Pty Ltd
Flora and Fauna	Peter Parker Environmental Consultants Pty Ltd (PPEC) (Review by Biolink Pty Ltd & Dr Peter Brennan)
Coastal Processes	SMEC
Road Traffic Noise	Heggies Pty Ltd
Bushfire Risk	Australian Bushfire Protection Planners Pty Ltd (ABPP)
Architectural Concepts	King + Campbell Pty Ltd (K+C)
Water Cycle Management	Martens & Associates/King + Campbell Pty Ltd
Cultural Heritage	Jacqueline Collins
Traffic Impact Study (on behalf of PMHC)	RoadNet in association with Bitzios Consulting
Vegetation Management Plan	Wild Things Native Gardens / King + Campbell Pty Ltd
Preliminary Site Investigation (SEPP 55)	King + Campbell Pty Ltd
Flood Assessment	Cardno (Qld) Pty Ltd

1.3 Project justification and consideration of cumulative impact

The site has been identified for future urban development in a number of previous studies undertaken at the local level by and on behalf of PMHC:

- October 2001 - PMHC adopted the Hastings Urban Growth Strategy (HUGS 2004). This strategy identifies Lot 4 and Lot 1 as Stage 1B of the Area 14 Urban Investigation Area (UIA);
- August 2002 - the then Planning NSW confirmed that HUGS included that part of Lots 1 and 4 located on the western side of the SEPP 26 Littoral Rainforest, including land within 100m of the gazetted SEPP 26 boundary;
- July 2005 – Advice received from the then DIPNR that land uses within 100 metres of the SEPP 26 were able to be considered on the basis of satisfying the objectives of SEPP 26;
- July 2004 - PMHC adopted the Lake Cathie-Bonny Hills Urban Design Master Plan (UDMP);
- February 2006 - King + Campbell lodged a rezoning application with Council for Lots 1 and 4 (Area 14, stage 1B Draft LES). The rezoning application included a design-based approach to the determination of an appropriate buffer to the SEPP 26 Littoral Rainforest; and
- March 2009 - At the regional level, the site was identified in the Mid North Coast Regional Strategy for 'future urban development'.

PMHC has recently prepared a Planning Proposal for the site (Stage 1B of Area 14), in accordance with the provisions of the Greater Lake Cathie Bonny Hills Urban Design Master Plan. The Planning Proposal was reported to PMHC at its meeting of 25 August, 2010. A copy of the report and recommendation is included at Appendix Q. The Department of Planning issued its Gateway Determination on 20 October 2010 by approving the Planning Proposal per public exhibition. A copy of the Gateway Determination is included at Appendix R.

The draft zone plan at Exhibit 10 is consistent with Council's approved Planning Proposal and the provisions of the Greater Lake Cathie Bonny Hills UDMP and the specialist reports attached to this submission.

Additionally a draft DCP for the whole of the Area 14 Urban Investigation Area is currently being prepared by PMHC. The DCP will apply to the land area associated with the subject proposal, the land area of the adjoining St Vincent's Foundation site and to lands on the northern side of Ocean Drive.

It is anticipated that the Area 14 Stage 1B draft LEP/Planning Proposal and the VPA for the subject site will be placed on exhibition simultaneously.

The land use concepts included in the Concept Plan are consistent with local, regional and state planning policies and legislation and with the Concept Plan on the adjoining St Vincent's Foundation (SVF) land. As part of Area 14, the servicing of the Concept Plan will be coordinated with the development of the surrounding properties. Essential Water Supply (trunk mains) and Sewerage Services (upgraded Bonny Hills Sewerage Treatment Plan) are already in place. PMHC have confirmed there are no infrastructure constraints applicable to the proposed Concept Plan (refer Appendix M).

Potential impacts on the Littoral Rainforest have been paramount in the specialist and technical investigations undertaken as part of this submission. These investigations conclude that the key issues identified within the Director Generals Environmental Assessment Requirements can be satisfactorily managed to minimise potential impacts and ensure the ongoing protection and enhancement of the SEPP 26 Rainforest.

In particular, any potential cumulative impacts on the rainforest have been addressed by undertaking the Stage 1 Environmental Works as a first stage to development and implementing an ongoing maintenance regime through the Voluntary Planning Agreement which is currently being negotiated with PMHC and will be publicly exhibited with the Planning Proposal.

The Site Locality and Context Plan at Exhibit 01 illustrate the relationship of the site with the locality

Section 2

Site Analysis and the Existing Natural Environment

2.1 The Site Context

The site is known as Lot 4 in DP 615261 (16.38 ha), Lot 1 in DP 374315 (17.04 ha), part Crown Reserve R82555 (230m²) and part Crown Reserve R754444 (5,595m²), Ocean Drive, Lake Cathie.

While SEPP 26 Littoral Rainforest No 116 forms the eastern boundary of Lot 1, approximately 3.18ha of the rainforest is contained within the boundary of Lot 4. A further 11.24 ha of the site is within 100 metres of the SEPP 26 boundary. The site adjoins residential or residentially zoned areas on all other boundaries.

The site itself is generally located on the southern fringe of the Lake Cathie Township. The site is gently undulating and therefore visible on approach from both the south (Bonny Hills) and north (Lake Cathie), along Ocean Drive. Due to the height and density of the existing Littoral Rainforest and the height of the dunal system, the site is not visible from adjoining Rainbow Beach.

A Site Locality and Context Plan is included at Exhibit 01, a Site Survey is included at Exhibit 02 and an Aerial Photograph is included at Exhibit 03.

2.2 Site Analysis

The site and the physical attributes it exhibits are identified on the Site Analysis plan at Exhibit 04A.

The preparation of this exhibit has relied in part on the specialist studies undertaken in support of the initial Draft Local Environmental Study prepared on behalf of Council in 2005 (the Stage 1B Draft LES) and the recently completed specialist studies and field investigations.

These studies document the existing site conditions and identified the key environmental risk factors relevant to the future residential use of the site.

Exhibit 04A recognises the following natural and man-made features of the site and should be read in conjunction with this section:

- Lot 4 and Lot 1 are currently zoned Rural 1(a1) under the provisions of Hastings LEP 2001;
- The site has an approximate 1,100 metre frontage to Littoral Rainforest No 116 which itself is zoned Environmental Protection 7(f1) – Coastal;

- Approximately 3.18 ha of Littoral Rainforest No 116 is located within the property boundary of Lot 4;
- Apart from the Littoral Rainforest (which forms the eastern boundary of the site), all adjoining land to the north, south and west of the site is zoned Residential 2(a1) under the provisions of Hastings LEP 2001, where the existing adjoining land uses include the following:
 - To the north is the southern extent of Lake Cathie township which includes the recently developed Endeavour Park Estate. Ocean Drive forms the northern boundary to Lot 4 and is the primary traffic route between Port Macquarie, Lake Cathie, Bonny Hills and Laurieton;
 - To the south and west is residentially zoned land held in the ownership of the SVF, which is subject to a Concept Plan Application currently with the Department of Planning. The existing Lake Cathie Bonny Hills Sewerage Treatment Plant is located to the south of this adjoining lot, approximately 450m south of Lot 1;
 - To the east is Littoral Rainforest No 116 which in turn adjoins the coastline incorporating Rainbow Beach and Middle Rock. Middle Rock is a popular surfing location and access to this area is gained through the Littoral Rainforest from Middle Rock Road. The SEPP 26 Littoral Rainforest in the vicinity of Middle Rock car park has undergone work associated with weed management and bush regeneration programmes;



Photo 1: View of site (on left of Ocean Drive), heading south from Lake Cathie on Ocean Drive. Existing mature vegetation within the road reserve screens the majority of the site.



Photo 2: Typical eastern boundary of the Littoral Rainforest where it meets Rainbow Beach.

- The extent of the SEPP 26 Littoral Rainforest is as depicted on site analysis at Exhibit 04A. The rainforest also extends approximately 120 metres south and to the north along the rear of existing residential properties in the existing village of Lake Cathie:
 - The SEPP 26 Littoral Rainforest adjacent to the subject properties is reported by PPEC to be "*... one of the largest Littoral Rainforest remnants in the local area, is relatively weed free and not impacted by cattle grazing or other significant anthropocentric effects. Littoral Rainforest 116 stands out from many other remnants along the NSW coastline in both its size, species diversity, small mammal assemblages and the virtual absence of rubbish dumping this remnant has benefited from litter removal from the site by the landowner over a number of years.*" (PPEC, 2002 p.28);
 - PPEC and Dr Brennan further report that the existing western edge of Littoral Rainforest No 116 "*..... appears stable and the vegetation along the boundary is in good condition with weed invasion being limited to the first few metres.*";
- The subject site is currently vacant with evidence that the site is used to provide direct pedestrian beach access for residents in the surrounding urban areas to the adjoining coastline of Rainbow Beach. This informal access arrangement has resulted in the creation of a defined pathway through the rainforest area;



Photo 3: Existing western extent of pedestrian access path through rainforest.



Photo 4: Existing eastern extent of pedestrian access leading onto Rainbow Beach.



Photo 5: Typical character of pedestrian path within rainforest.

- Four wheel drive vehicular access onto Rainbow Beach is currently available through Crown Reserve R 82555. This access driveway also incorporates a car parking area;



Photo 6: View north from Rainbow Beach towards Middle Rock Point and existing vehicular access point.



Photo 7: Existing vehicular access point onto Rainbow Beach.

- Existing vegetation within the study site includes:
 - Approximately 3.18ha of Littoral Rainforest within Lot 4;
 - Approximately 2.8 ha of existing revegetation areas within Lot 4;
 - Approximately 8,700m² of existing vegetation within Lot 1;
 - The remainder of the subject property is grassed and regularly maintained;



Photo 8: View over Lot 4 from Ocean Drive looking east to the Littoral Rainforest.



Photo 9: View from Ocean Drive of existing gated access point, over Lot 4 towards the ridgeline on Lot 1.

- The existing vegetation on the land within 100 metres of the SEPP 26 rainforest boundary has been mapped by PPEC as follows:
 - Predominantly Grassland – Kangaroo Grass, Paspalum, Kikuyu, low closed sod grassland;
 - Swamp forest revegetation areas dominated by Pink-tipped Bottlebrush established by the owner in compensation for vegetation removed in 1994. The revegetation areas are now well established with a complete canopy in parts of the planting area;
 - A small area of Coast Banksia woodland;
 - A small area of Blackwood, Brown Kurrajong, Bitou Bush and Lantana Simple Notophyll (regrowth) Littoral Rainforest;
 - A very small area of Grey Ironbark, Brushbox Lantana tall open forest;



Photo 10: View east towards site from existing medical centre on Ocean Drive, with existing 'swamp forest' vegetation in foreground, located within the road reserve.

- In relation to the grasslands PPEC has noted in his 2010 flora and fauna report that Parramatta grass and paspalum dominate the upper slopes and kangaroo grass, paspalum and kikuyu is located on the flats. This association was grazed prior to 2002 and has been regularly slashed since this date;
- Compensatory reforestation dominated by pink-tipped bottle brush was recorded in the regeneration area in Lot 4. Management of these plantings adjacent to the SEPP 26 Littoral Rainforest is well advanced with established plantings providing a complete canopy cover in parts of the planting area;
- An existing drainage gully runs along part of the western boundary, leading to Duchess Gully. The site comprises 5 sub-catchments:
 - Two of the catchments, comprising approximately 43% of the site, flow to a creek to the south-west;
 - Two of the catchments, comprising approximately 27% of the developable site, flow through the Littoral Rainforest to the east;
 - The remaining 30% is in a single catchment which flows north to a creek which crosses Ocean Drive;



Photo 11: View west along southern boundary of Lot 1 towards existing vegetation within Duchess Gully.

- PMHC acid sulfate soils mapping has identified class 4 and 5 land along the southern boundary of Lot 1;
- Levels on the site generally range between RL 4 m and RL 24 m AHD;
- The higher elevations on the site enable extensive views of the ocean and surrounding topographical features, including North Brother and Jolly Nose mountains. Conversely, the elevation of the site enables the site to be viewed from the northern and southern approaches along Ocean Drive;



Photo 12: View from common boundary of Lot 4 and Lot 1, looking south towards North Brother Mountain.

- A mature 'Brush Box' tree bearing an oval scar believed to have been produced through the removal of bark for an Aboriginal shield is located within the Littoral Rainforest; and
- The site is partly mapped as bushfire prone and its future development will be classified as 'integrated' under the provision of the EP&A Act, 1979.

2.3 Opportunities and Constraints

The site constraints, site opportunities and development response are set out below and should be read in conjunction with Exhibit 04B.

Site Constraints	Site Opportunities	Development Response
<p>1. The Littoral Rainforest No.116 (SEPP 26), recognising</p> <ul style="list-style-type: none"> the State significance of the rainforest; edge effects, including the existing erosion and weed infestation adjacent to and within the rainforest as a result of uncontrolled pedestrian access from the existing residential community through to Rainbow Beach the potential changes to the rainforest species as a result of changes to the ground water table; the potential effects of bushfire on the rainforest; 	<p>The Concept Plan will provide an opportunity to protect, monitor and preserve the rainforest in its natural state for future generations. This opportunity can be achieved with the provision of a suitably designed buffer which recognises the various environmental demands placed on the rainforest by both natural and man-made forces.</p> <p>The buffer should:</p> <ol style="list-style-type: none"> 1. Retain all existing vegetated areas and provide for natural regeneration; 2. Enable casual surveillance of the rainforest edge and foster a sense of 'ownership' by the local community; 3. Include appropriately designed stormwater facilities which will ensure the maintenance of the groundwater table reduction of nutrient loads; 4. Incorporate appropriate plant species which will minimise the threat of bushfire to the rainforest; 5. Restrict and control public access to designated access points. 	<ol style="list-style-type: none"> 1. Retain existing vegetated areas adjoining the rainforest and protect the area with a 40-60m revegetation area and the provision of a human exclusion fence; 2. Create a public road frontage and pathway / cycleway to the rainforest/regeneration vegetation. 3. Incorporate biofiltration units and detention basins to ensure the maintenance of the groundwater table, in accordance with the detailed requirements of Martens & Associates. 4. Implement a Revegetation Management Plan to ensure Littoral Rainforest species are used to minimize the threat of bushfire to the rainforest. 5. Provide for pedestrian access through the rainforest with the provisions of a boardwalk style path with self closing gate in lieu of the existing informal walking track. Provide public facilities adjacent to the walkway (including car park and pocket park) to compliment public access.
<p>2. The existing visual quality of the coastline, including</p> <ul style="list-style-type: none"> existing views onto the site from Rainbow Beach; and 	<p>Through recognizing the importance of retaining high levels of visual quality, appropriate built form controls can be incorporated at the outset to development of the site.</p> <p>The principles for development in this regard should:</p>	<ol style="list-style-type: none"> 1. Sight lines from Rainbow Beach across the site have been determined by survey. Exhibit 09C confirm that due to the height of the fore dunes and existing mature vegetation four storey development cannot be viewed from Rainbow Beach.

Site Constraints	Site Opportunities	Development Response
<ul style="list-style-type: none"> existing views from the site to surrounding geographic features, including the Pacific Ocean, North Brother Mountain and Jolly Nose Mountain. 	<ol style="list-style-type: none"> Ensure that proposed development cannot be viewed from Rainbow Beach. In particular ensure that the future development of the 'hill-top' village at three/four storeys in height will not compromise the visual quality of the site when viewed from Rainbow Beach. Create development opportunities which will enable the existing views to surrounding geographical features to be retained from public vantage points. 	<ol style="list-style-type: none"> The Concept Plan will enable off site views to be retained through the following development options: <ol style="list-style-type: none"> Locate collector road from Ocean Drive on prominent ridgeline create a landscaped arrival focus point ('Village Square') at the intersection of the collector road with the Hilltop Village precinct street alignments to retain view to the east (ocean).
<ol style="list-style-type: none"> Aboriginal heritage, including <ul style="list-style-type: none"> The existing scarred tree within the Crown reserve 	<p>The Concept Plan will enable the ongoing protection of the identified object at the undisclosed location (at the request of the LALC), through restricting public access through the rainforest.</p>	<p>The following built form controls will ensure this opportunity is realized:</p> <ol style="list-style-type: none"> Create a 'human exclusion' fence adjacent to the rainforest buffer Restrict public access through the rainforest to the designated elevated board walk.
<ol style="list-style-type: none"> Potential acid sulfate soils. PMHC acid sulfate soils mapping has identified class 4 and 5 land along the southern boundary of Lot 1 	<p>The Concept Plan will include a restriction on development in this location to recognise the low risk of acid sulfate release if the water table is lowered.</p>	<ol style="list-style-type: none"> Ensure controls are imposed on spear point bores in the Class 5 lands. Prepare an Acid Sulfate Management Plan in accordance with ASSMAC guidelines if development is to lower water table by 1 metre.
<ol style="list-style-type: none"> Potential bushfire. 	<p>The Concept Plan will enable protection of both the existing rainforest and the proposed residential community from the threat of bushfire.</p>	<ol style="list-style-type: none"> Create an APZ as part of the buffer treatment to the rainforest: incorporate a perimeter road with adjacent cycleway/footpath The perimeter road and building line setback provides the required APZ to future dwellings. This area in conjunction with the proposed

Site Constraints	Site Opportunities	Development Response
		open space area also provides an APZ to the revegetation area and Littoral Rainforest.
6. Potential road traffic noise from Ocean Drive	Implement acoustic / landscape treatment to Ocean Road frontage.	Provide a 2m high acoustic barrier along part of the Ocean Drive frontage (as indicated in the acoustic report prepared by Heggies, as the rear boundary fence treatment for residential lots which back onto Ocean Drive.
7. Coastal erosion, including <ul style="list-style-type: none"> Zone of wave impact and reduced foundation capacity (SMEC) 	Implement revegetation measures in the short term and ensure urban development is located outside the predicted zone of wave impact and reduced foundation capacity, having regard to the present, 50 year and 100 year scenarios.	<p>1. The Project Application for Stage 1 Environmental Works will establish a 40-60m vegetated rainforest buffer to the SEPP 26 rainforest as the first stage of development.</p> <p>2. All proposed urban development to be located well clear of the areas predicted to potentially be affected by reduced foundation capacity within a 100 year planning period.</p>
8. Stormwater runoff, including: <p>(a) To the east (towards the Littoral Rainforest)</p> <p>(b) To the north (Ocean Drive; and</p> <p>(c) To the south-west (Duchess Gully)</p>	Implement 'best-practice' stormwater and groundwater management measures.	<p>Provide the following site specific facilities:</p> <p>(a) Three biofiltration/detention/groundwater recharge facilities adjacent to the Littoral Rainforest to ensure management of stormwater quality and quantity and the maintenance of the existing groundwater table conditions, in accordance with the detailed requirements of Martens & Associates.</p> <p>(b) One stormwater detention basin, with biofiltration facilities, to detain and treat existing stormwater flows to the north.</p> <p>(c) One stormwater biofiltration facility adjacent to Duchess Gully to manage stormwater quality such that there is a net decrease in nutrient loads. Coordinate stormwater detention with adjoining SVF property.</p>

Site Constraints	Site Opportunities	Development Response
<p>9. Potential flooding, including</p> <ul style="list-style-type: none"> Local inundation from Duchess Gully during storm events; the effects of climate change and sea level rise. 	<p>Coordination of Flood Assessments on subject and adjoining SVF property.</p> <p>Ensure that development of the site provides flood free access for subject and adjoining properties during PMF conditions.</p>	<p>1. Minor filling works in SW corner of Lot 1 to ensure minimum flood level of RL 5.24m AHD.</p> <p>2. Review of SVF Flood Assessment to determine that there is no impact on the predicted flood levels from proposed minor filling works.</p> <p>3. Ensure proposed filling works take into account predicted climate change sea level rise of 0.9m by 2100 and increase in rainfall intensity by 20%.</p>
-	<p>Provide for a sustainable residential community:</p> <ul style="list-style-type: none"> Provide diverse housing choice in an area of high quality and amenity; Provide opportunities for employment and tourist uses. Improve public access to foreshore and existing and proposed urban areas. Provide quality open space areas. 	<p>1. Provide medium density residential areas adjacent to the Hilltop Village and adjacent to open space / areas of high visual quality through appropriate zoning.</p> <p>2. Incorporate Hilltop Village into Concept Plan to create a local commercial/tourist residential precinct in an area of high amenity.</p> <p>3. Link to the existing formed pathway in Ocean Drive and proposed pedestrian/cycleway networks on adjoining properties through the creation of new cycleways and pathways in accordance with the coordination plan for the locality; and</p> <p>Provide a formalised public access path through the rainforest to Rainbow Beach along existing pedestrian tracks.</p> <p>4. Open space areas to be provided in the form of foreshore reserves, local pocket park and Village Square.</p>

2.4 Development Options

The preferred development option for the site has been determined having regard to:

- The state significance of Littoral Rainforest No. 116;
- The integration with the planned development of the Area 14 Urban Investigation Area;
- The existing visual and aesthetic qualities of the site and locality; and
- The natural hazards associated with the site.

Therefore the development footprint has been determined through understanding the site constraints, recognizing the site opportunities and developing options to best manage the constraints and opportunities, as set out in Section 2.3.

The primary built form outcomes as a result of these considerations include:

- The extent and makeup of the vegetated buffer to the rainforest;
- The provision of a public perimeter road and cycleway/pathway as part of the buffer treatment;
- The location of the main collector road from Ocean Drive;
- The location of the Hilltop Village and Village Square; and
- The location, size and number of the stormwater treatment facilities.

With the determination of the above, consideration was then given to the following:

- The overall footprint of the Hilltop Village;
- The location and footprint of the medium density residential components;
- The location of road linkages to adjoining proposed residential areas;
- The location and orientation of the internal access roads, pedestrian and cycleway networks; and
- The provision and integration of the open space network.

The Hilltop Village

The Hilltop Village is to be located on the east-west ridgeline taking advantage of its striking hilltop location as identified in the Greater Lake Cathie Bonny Hills Urban Design Master Plan (UDMP).

The structure of the Hilltop Village containing a small main street and Village Square ensures that existing views to the ocean will be available from the public domain.

The Hilltop Village mixed use zone extends to the coastal perimeter road thereby activating this important area of public open space and providing a direct pedestrian linkage to the designated boardwalk access point leading through the rainforest to Rainbow Beach.

The need to ensure the Hilltop Village is centred on an activated main street and high quality public domain areas is satisfied by focussing the mixed use areas around the Hilltop main street. Street entrance level amenity is maximised by the proposed rear lane basement and rear car parks and providing an opportunity for servicing of the village from the rear lanes.

The Medium Density Residential Footprint

The Medium Density Residential Footprint in the Concept Plan has been determined taking into account:

- the Greater Lake Cathie Bonny Hills UDMP (refer Appendix B);
- the outcomes of the Social Impact Assessment (refer Section 6.11); and
- the proposed residential tourist land uses on the adjoining southern property.

These factors have resulted in the footprint of Medium Density Residential, as shown on Exhibit 05A, with the following characteristics:

- Highest density within the Hilltop Village with building heights of 3-4 in B4 Mixed Use Zone. The residential components of the B4 zone will be a mixture of permanent and tourist residential apartment accommodation with service lane access to basement car parks;
- Medium density areas immediately north and south of the Hilltop Village taking advantage of the immediate access to facilities within the main street;
- A southern medium density area located adjacent to environmental buffer areas on the subject property and proposed residential tourist uses on the adjoining SVF property, as well as proximity to the southern beach access on the SVF property; and
- A northern medium density area located adjacent to public drainage reserve areas (which will present as a landscaped area) and environmental buffer areas. The northern and southern medium density areas have been selected to reflect the anticipated high amenity in those positions.

The proposed Medium Density Residential footprint was determined as a compromise between the current situation in surrounding residential areas where 80.6% of residences are single attached dwellings and the UDMP which proposed a larger footprint of medium density residential. The Concept Plan will maintain the overall desired outcome of the UDMP, being the Hilltop Village surrounded by medium density residential, in addition to providing for a housing choice breakdown that

partly recognises the existing character of surrounding residential areas.

The Internal Access Roads

The Internal Access Roads will provide access to the low density and medium density residential areas.

Options for the location of the internal road system were essentially governed by the pre-determined location of the main collector road from Ocean Drive, the position of the Hilltop Village and the proposed perimeter road as part of the buffer treatment to the rainforest. To maximize solar access for future dwellings and view lines towards the ocean and the public open space adjacent to the rainforest, east-west access roads are considered desirable.

The Open Space Network

The Greater Lake Cathie Bonny Hills UDMP included the concept for a 'hilltop' park to adjoin the commercial precinct and to create a key focal point on the ridge on the primary access point from Ocean Drive. Further consideration has been given to the design of this key focal point, taking into account the location of the collector road, Hilltop Village main street and the type of building development anticipated in the mixed use village area. The preferred form for the public domain entry focal point is a Village Square at the top of the main street. Additional public open space in the form of a pocket park is provided at the eastern end of the main street. The Village Square will enable retention of hinterland views and the pocket park will incorporate pedestrian pathways to provide an effective link between the beach access point and the commercial precinct.

Section 3

The Concept Plan Proposal

3.1 Overview

The purpose of the Concept Plan is to establish a clear vision for development of the site for urban purposes, to ensure integration with the current and future development of the Area 14 Urban Investigation Area and to ensure the development is sustainable.

The Concept Plan proposal seeks approval for a new residential community which will respond to the environmental constraints of the site. The community will comprise a number of key land use concepts including a mix of low and medium density residential areas, commercial and tourist development, an integrated open space network and environmental works to ensure the retention and protection of the Littoral Rainforest for future generations.

The total land area of the Concept Plan is 31.71ha, as defined by the red dash line on Exhibit 02. This area does not include the 2.61ha of SEPP 26 rainforest currently within Lot 4 which is proposed to be rezoned E2 Environmental Conservation and dedicated as public reserve.

The key land use components of the Concept Plan (refer Exhibits 05 and 06) for which the Ministers approval is sought include the following:

- The Environmental Works associated with the SEPP 26 Littoral Rainforest, where all works will be undertaken to satisfy the aims and objectives of SEPP 26.

The environmental works, to be undertaken on part Lots 1 and 4 and part Crown Reserves R82555 and R754444, will occupy approximately 8.59 ha of the subject properties and are proposed to be rezoned from their current rural zoning to E3 Environmental Management.

The Environmental Works will incorporate:

- 6.01 ha of land to include 40m – 60m of revegetation and regeneration works on the western side of the SEPP 26 rainforest, within Lots 1 and 4;

(These revegetation and regeneration works, together with the exclusion fence / hedge, weed management works within the western edge of the rainforest (1.26 ha) and the formalisation of the existing pedestrian track, form the basis of the attached Project Application for the Stage 1 Environmental Works)

and;

- 2.58 ha of land on the western edge of the revegetation /

regeneration area and exclusion fence incorporating grassed public open space with scattered trees, pathway / cycleway, stormwater management and groundwater recharge facilities and the public perimeter road.

- The environmental buffer area to Duchess Gully (5,400m²) in the south western corner of Lot 1 is also proposed to be rezoned from rural to E3 Environmental Management. This buffer area will contain regeneration/revegetation works and stormwater quality management facilities.
- The subdivision of Lot 1 and Lot 4 to provide for the following land use concepts:
 - Low density residential areas to occupy approximately 14.76ha of Lots 1 and 4, generating approximately 217 residential lots at a density of 13-14 dwellings/ha;
 - Medium density residential areas to occupy approximately 3.27ha of Lots 1 and 4, which at a density of 25 dwellings/ha will generate approximately 82 medium density dwellings;
 - A 'Hill-Top Village', comprising three/four storey part residential, commercial and tourist development to occupy approximately 3ha of Lots 1 and 4. This area also contains the proposed Village Square which occupies a land area of approximately 2,750m² providing an entry statement to the main street of the Hilltop Village. This area is located within the proposed B4 Mixed Use zone and is intended to be dedicated for public uses.

Based on a commercial/tourist floor space at ground level with three storeys of residential/tourist uses above and basement car parking below, yields of approximately 160 residential/tourist apartments and approximately 6,000m² of commercial/residential/tourist uses at the ground floor level in the main street are expected;

- Open Space works (in addition to the Village Square referred to above) which are proposed to be zoned RE1 Public Recreation including:
 - A Pocket Park (990m²) on the western side of the perimeter road providing a public pedestrian link between the Hilltop Village main street and the beach pedestrian access; and
 - A public carpark and associated landscape works (1,780m²) proposed to be located adjacent to the beach pedestrian access.

and;

- An access and circulation network of roads and pedestrian / cycle paths.

3.2 Vision and Design Objectives

Vision

The Concept Plan will create a sustainable residential community which will integrate with the future development of the Area 14 locality. All development will respect the unique environmental and visual qualities of the site and aim to ensure that the long term viability of the SEPP 26 Littoral Rainforest is protected and enhanced for future generations.

The Concept Plan will respect the wishes of the local community, as identified in the Area 14 workshop process, through promoting a strong village atmosphere where environmental issues are valued. The Concept Plan will acknowledge that people who choose to reside in this location have been attracted by its unique environmental and scenic qualities.

Design Objectives

The successful development of the site can be measured against the following design objectives:

- To ensure the long-term viability of the adjoining SEPP 26 Littoral Rainforest through the establishment of an effective buffer and the implementation of a Vegetation Management Plan to be consistent with the Aims and Objectives of SEPP 26 and ensure its protection and enhancement for future generations in accordance;
- To protect the existing biodiversity values of Duchess Gully in a coordinated manner with the adjoining landowners;
- To ensure consistency with the relevant local, regional and state planning policies and legislation;
- To ensure compatibility with the Concept Plan on the adjoining SVF land resulting in an orderly coordinated urban precinct;
- To ensure compatibility with the adjoining future land use pattern;
- To preserve the character of the unique beach side locality through ensuring retention of important local and regional views;
- To provide appropriate services to the community, including the provision of water supply, sewerage services and recycled non-potable water (dual reticulation) services;
- To provide for improved and controlled public access to adjoining Rainbow Beach;
- To ensure the long term protection of an item of Aboriginal heritage value;
- To provide a vehicular and pedestrian network which will integrate with Area 14 and the broader Lake Cathie locality; and
- To create a sustainable residential community within a desirable beachside locality.

3.3 Precinct Details

The Environmental Buffer and the Rainforest

Approximately 7.27 ha of the site will be established as an environmental buffer for the SEPP 26 Littoral Rainforest, being the land area associated with the Stage 1 Project Application at Part B.

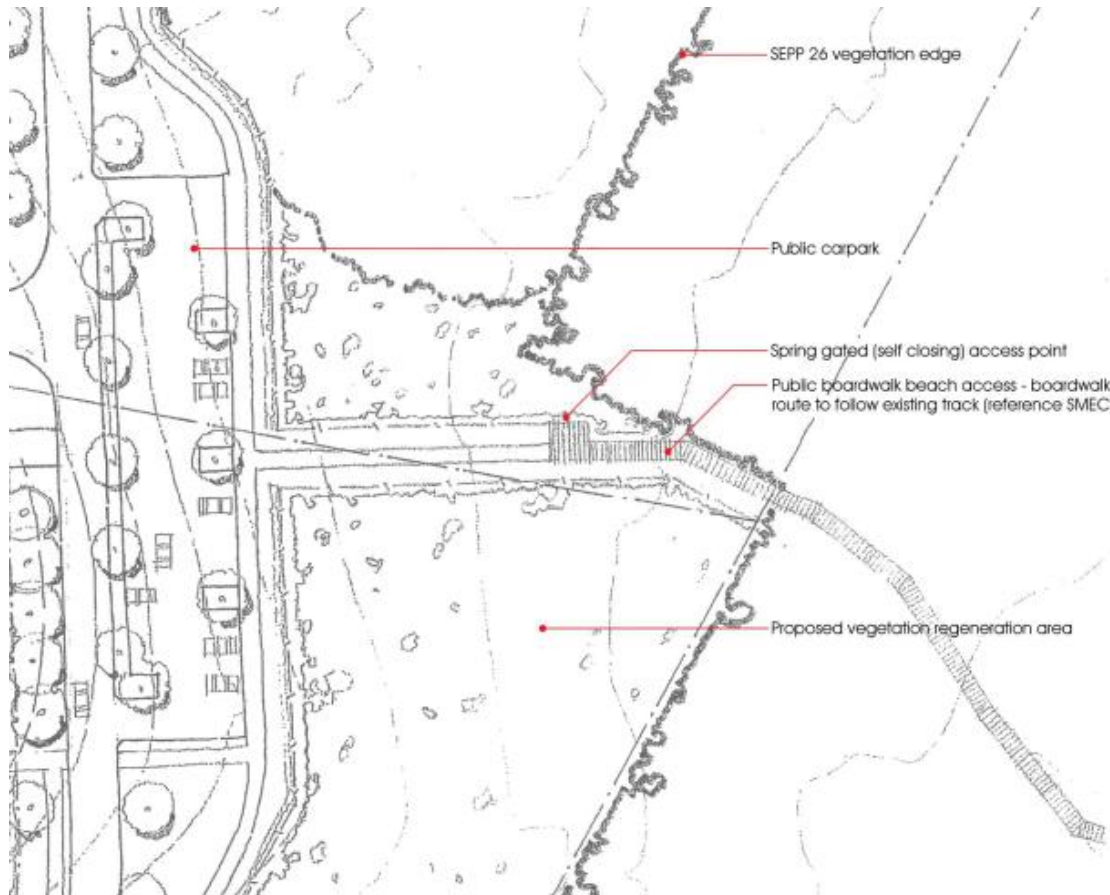
The environmental works within this buffer will be undertaken on Lots 1 and 4 and part Crown Reserves R82555 and R754444 and will be undertaken to satisfy the aims and objectives of SEPP 26.

The environmental protection buffer will incorporate the retention and regeneration of all existing native vegetation on the western side of the rainforest and include weed removal, both within the regeneration areas and within the 'edges', as required, of the rainforest.

The 40-60m wide vegetated component of the buffer will incorporate detention/biofiltration basins and will be protected by a combination 2m high fence and 'spiky' hedge planting. The buffer width will then continue to incorporate an open space area with scattered rainforest trees and incorporating a cycleway/pathway and a perimeter road incorporating car parking areas. It is intended that this public component of the buffer will enable casual surveillance by the future local residents to further reduce edge effects on the rainforest caused by human intrusion, rubbish dumping etc and engender a sense of ownership.

The environmental works will also include a 'boardwalk' pedestrian access to formalise the existing track through to Rainbow Beach. The indicative sketch below provides details of this public access concept.

Sketch 1 details the interface of the public space, which includes a car park area, with the rainforest. A spring gated (self closing) access point will enable public access through to Rainbow Beach via a boardwalk-style pathway. The combination 2m high fencing and 'spiky' hedge planting will ensure that general access through the rainforest to the beach is restricted to the boardwalk.



Sketch 1: The interface between the public space and the rainforest.

The Hilltop Village

The Hilltop Village is positioned on the east-west ridgeline of the site. The location on this ridgeline will ensure that future development provides for the retention of views to the ocean. In addition, its central location on the site will enable future residents to walk to the village and be less reliant on cars for their daily needs. Whilst the buildings are not included as part of this Concept Plan application, it is anticipated that their height (14.5m) will enable ground floor commercial and tourist uses with upper level residential/tourist accommodation uses.

Sketch 2 below provides support for the concepts included as part of this Concept Plan application. These concepts will provide the basis for a future Project Application for the Hilltop Village:

- Main Street (indicative width 25-26m) with rear service lane (6m).

The intent of this concept is that the whole of the Main Street will be given over to pedestrians and parallel parking to encourage the activation of the street front. A rear service lane will allow provision of basement and rear parking thereby ensuring no driveways within the Main Street. The Hilltop Village will continue to the public interface with the perimeter road adjoining the rainforest buffer area. With an active street frontage to the Main Street, residents and

visitors will be encouraged to walk to the designated access point (boardwalk), leading through the rainforest to Rainbow Beach.

- Main Street Landscaping

The removal of driveways from the Main Street also maximises opportunities for established street tree planting, with seasonal shade and colour. The scale of the established tree planting will complement the building facades and encourage 'spill-out' for cafe style uses.

- Village Square

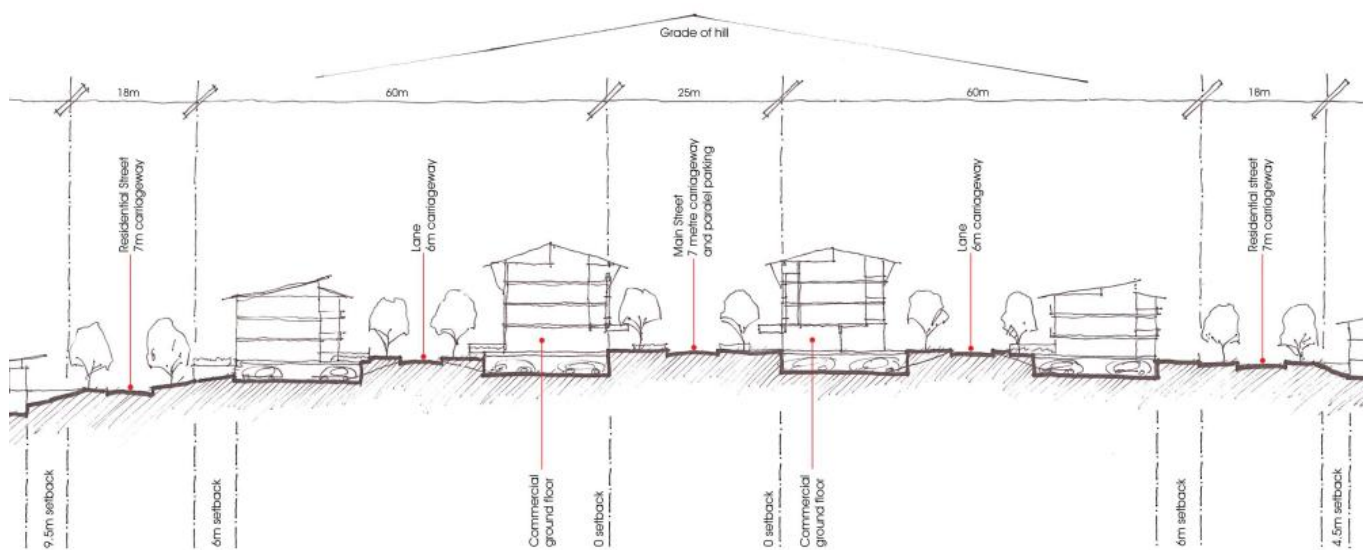
The Village Square will contain the following components:

- Vehicle/pedestrian share zone entry statement;
- Landscaped public domain areas located in a prominent position on the hilltop taking advantage of extensive ocean and hinterland views;
- Potential for integration/activation between the public domain Village Square and ground floor commercial and tourist use at the entry to the Hilltop Village main street.

- Service Lanes

In addition to supporting the function of the Main Street, the rear service lane will serve a dual purpose of supporting the adjoining medium density residential area.

The topography of the site together with the street orientation will allow the laneway itself to become a quality space for future residents whilst providing a good separation to the ground floor commercial uses on the Main Street. It is intended that the scale of the laneway will provide a functional and attractive streetscape for the transition to the proposed medium and low density residential zones.



Sketch 2: The Hilltop Village concepts, including Main Street with service lanes.

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- Main Street Architectural Concepts

Whilst the Main Street buildings are not included in this Concept Plan application, it is anticipated that the internal road layout will support the general architectural concepts included in sketch 3 and 4 below:

- The facade treatment should embrace the principles of coastal architecture through the provision of broad eaves with a tri-partied composition of base, middle and top. The 'base' zone will provide for an activated street frontage and the 'top' zone will incorporate a light weight roof structure within which the 4th floor will be located. The generous eaves will provide light and shade to the main street buildings.



Main Street Building Character

Sketch 3: Indicative Main Street architectural concept.



Sketch 4: Indicative Main Street architectural concept.

The Medium Density Residential Areas

The location of the proposed medium density residential areas will coincide with the location of greater amenity, including visual and facilities.

Three locations within the site satisfy this criteria; immediately adjacent to the Hilltop Village, adjacent to the open space network associated with the northern detention basin, pathway network and environmental buffer and adjacent to the proposed eco-tourist site on the adjoining southern property which will also includes a pedestrian access to Rainbow Beach.

It is anticipated that the medium density area adjacent to the Hilltop Village will incorporate two storey townhouses and up to three storey residential flat buildings. This scale of development will complement the scale of development anticipated within the Hilltop Village. The laneway between the two styles of development will allow future residents to permeate through to the Main Street.

The medium density precincts to the north and south of the site will likely include townhouse style or integrated housing. These areas will have a high aesthetic and visual quality, being in close proximity to the rainforest interface and open space network. The overall yield of the medium density areas is anticipated to be approximately 25 dwellings per hectare.

The Low Density Residential Areas

The low density residential areas will occupy areas of lower elevations. It is anticipated that the proposed mix of housing styles will cater for a broad demographic, as can currently be found in the Lake Cathie and Bonny Hills locality. Lot size in these precincts is proposed to be generally 450-500m² with an overall density of approximately 13 dwellings per hectare. A number of large lots within these precincts will also be suitable as development sites for small scale integrated housing projects to help increase overall residential densities.

The proposed street alignments will allow a visual connection with the rainforest edge and the lots will be orientated north-south providing for solar access.

The Open Space Network

The open space network will provide for a range of functions to support both the local and broader community of Area 14.

- The Village Square is positioned on the ridgeline and will provide a sense of arrival for vehicles on the main connector road from Ocean Drive. The Village Square will at the western end of the Main Street incorporate a vehicle/pedestrian share zone that will effectively slow traffic as it enters the Main Street and allow the enjoyment of hinterland and ocean views consistent with the intent of the Lake Cathie Bonny Hills UDMP. This concept is shown in sketch 5 below.

- The pocket park at the eastern end of the main street will provide a strong physical and visual link with the public facilities at the rainforest edge. In particular, pedestrians utilising the Main Street will be drawn through the park towards the beach access point.
- The open space area included as part of the public buffer component to the rainforest will incorporate a grassed area with scattered trees and a formal pedestrian / cycleway. This open space area serves a number of urban amenity purposes as well as playing an important role in minimising human intrusion edge effects on the rainforest by allowing casual surveillance of the rainforest edge.
- The public open space buffer to Duchess Gully also has a dual purpose. The buffer will incorporate a biofiltration basin to effectively treat stormwater runoff and it will link with the proposed open space network currently under consideration by the Department of Planning on the adjoining property (SVF). This vegetated buffer provides an important extension to the fauna linkages on this adjoining site.



Sketch 5: The Village Square.

Circulation, Access and Transport

The concept road network included as part of this submission has been developed having regard to a number of pre-determined features and focal points, including the requirement for a perimeter road as part of the public component to the buffer treatment to the rainforest, the identification of a primary intersection on the corner of Ocean Drive and Abel Tasman Street, the east-west 'main' road for the proposed 'Hilltop Village' and the location of the adjoining development to the west (the SVF's Part 3A proposal).

The proposed secondary road layout will provide effective connections to these pre-determined features. Upon entry to the site from Ocean Drive, arrival at the main commercial centre will be identified through distinctive street planting within the Village Square. The primary pedestrian access point will then be distinguished with the location of the pocket park adjacent to the beach access point.

Cycle ways and pedestrian paths will be on the perimeter road in accordance with the coordination plan at Appendix K.

3.4 Staging

The Concept Plan is proposed to be developed in stages. Exhibit 05 – Indicative Staging Plan provides indicative details of the staging of the proposed development which in broad terms will be undertaken in the following sequence:

- Environmental Works;
- Low Density Residential / Environmental Works;
- Medium Density Residential / Environmental Works; and
- Hilltop Village / Open Space Works.

The table below provides further detail of the indicative stages, as shown on Exhibit 05B. It should be noted that the staging details are indicative only and will be subject to more detailed consideration as part of subsequent Project Applications and to some extent are subject to the rate of development on other properties in Area 14 and market forces and trends.

Indicative Stage	Description/Comments
PA1	Work included in Stage 1 Project Application – Environmental Works associated with establishing and fencing a vegetated buffer to the SEPP 26 Littoral Rainforest and formalisation of the existing beach access track with a pedestrian boardwalk.
S2	Works include perimeter road and cycleway/pathway and completion of part of environmental buffer to SEPP 26 Rainforest (ie between exclusion fence and perimeter road) within the Seawide property, low density residential and associated services (water supply, sewerage, stormwater drainage, electricity, telecommunications), road link to Milland property.
M2	Works include perimeter road and cycleway/pathway and completion of environmental buffer to SEPP 26 Rainforest (ie between exclusion fences and perimeter road) within the Milland property,

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Indicative Stage	Description/Comments
	environmental buffer works to Duchess Gully, low density residential and associated services (water supply, sewerage, stormwater drainage, electricity, telecommunications).
S3	Low density residential and associated services within Seawide property.
M3	Low density residential and associated services within Milland property.
S4	Low density residential and associated services within Seawide property.
M4	Low density residential and associated services within Milland property.
S5	Works including perimeter road and cycleway/pathway and completion of environmental buffer to SEPP 26 Rainforest (ie between exclusion fence and perimeter road) within the Seawide property and associated medium density residential areas.
M5	Low density residential and southern connection to St Vincent's Foundation Land.
S6	Medium density residential area.
M6	Low density residential and associated services.
S7	Medium density residential area north of Hilltop Village.
M7	Medium density residential area adjacent to southern boundary.
S8	Hilltop Village area within Seawide property.
M8	Medium density residential area south of Hilltop Village.
M9	Eastern end of Hilltop Village within Milland property, pocket park and medium density residential area to the north of Hilltop Village.
M10	Remainder of Hilltop Village within Milland property.

(Notes:

1. S2-S8 – refer to Indicative Stages of development within the Seawide property.
2. M2-M10 – refer to Indicative Stages of development within the Milland property.
3. Indicative Stages indicated possible footprint works within each stage. The release of individual lots within each Indicative Stage will be reliant on the market at the time, but it is expected that in the order of 10-20 lots will be included in each release.
4. The development of the Hilltop Village is expected to be undertaken in a number of sub-stages, which will be the subject of future project or development applications. The timing of the development of the Hilltop Village will also, to some extent, be dependent on development in other parts of Area 14 to provide the critical population mass to ensure tourist and commercial developments are viable.)

3.5 Voluntary Planning Agreement

Formal negotiations have commenced with PMHC, in accordance with Division 6, Subdivision 2 of the Act and a copy of the Heads of Agreement submitted to PMHC included in Appendix P. It is proposed that the draft VPA will be publicly exhibited with the draft LEP for the subject properties and that will occur either simultaneously with or soon after the public exhibition of the EA. It is proposed that the landowner signed VPA will then be included as part of the Preferred Project Report.

The Draft VPA provides for the following:

- Establishment and Maintenance of Environmental Lands and Open Space

Milland and Seawide have offered to:

- Establish the environmental works and the formalized pedestrian beach access, in accordance with the Stage 1 Project Application as the first stage of the proposed development.
- Establish and embellish other open space areas as part of future stages of the proposed development.
- Maintain the established areas of environmental lands and open space in accordance with an approved management plan for five (5) years.
- Pay contributions at the subdivision certificate stage to fund a further 15 years maintenance of these areas. PMHC have also agreed to seek an alternate funding mechanism for the maintenance of environmental lands (via a levy or rate) in consultation with state government.

- Payment of Contributions

Milland and Seawide have offered to pay the updated roads and open space contributions for Area 14 that are ultimately adopted by PMHC upon completion of their current reviews of those Section 94 Contribution Plans.

- Seek contribution offsets for works associated with open space embellishment, roadwork, water supply and sewerage works that are included in contribution plans.

3.6 Memorandum of Understanding (MOU) with St Vincent's Foundation

We have attached under separate cover a copy of the draft MOU being prepared between the Landowners and the adjoining landowners – SVF.

In summary the MOU outlines both parties' intent to cooperate in the planning and development of their properties to achieve an integrated urban precinct.

The draft MOU establishes the principles of cooperation between the parties which fundamentally include providing each other with relevant written consents for submission to Council on the authorities in relation to works on, near or across the landowners' respective boundaries.

The draft MOU also highlights key elements upon which the parties agree to cooperate including:

- Road access from Ocean Drive across SVF land to the Milland and Seawide properties;
- Road access to the SVF eco-tourist land across the Milland property;
- Restoration of the natural flow in Duchess Gully from SVF land across the Milland south-western corner.
- A range servicing/infrastructure issues (water supply, sewerage, drainage roads) along the common boundaries between the parties;
- The connection of sewerage services from the Milland and Seawide properties to the Lake Cathie Bonny Hills Sewerage Treatment Plant (STP) through the SVF land.

The draft MOU sets up the structure for future more detailed landowner agreements as the planning and construction of the two developments proceeds.

Section 4

Statutory Context

This legislation review has been undertaken in relation to both the Part A: Concept Plan Application and the Part B: Project Application.

4.1 Commonwealth Legislation

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act 1999 provides for the protection and management of nationally and internationally important flora, fauna, ecological communities and heritage places, known as matters of national environmental significance .

There are currently seven (7) matters of national environmental significance to which the Act applies, including:

- World heritage sites;
- National heritage places;
- Wetlands of international importance (the RAMSAR wetlands);
- Nationally threatened species and ecological communities;
- Migratory species;
- Nuclear actions; and
- Commonwealth Marine Areas.

The Act is relevant where a proposal has the potential to have a *significant impact* on a matter of national environmental significance.

The EPBC Act has listed the "Littoral Rainforest and Coastal Vine Thickets of Eastern Australia" as 'Critically Endangered' and therefore assessment of the level of impact of the proposed development is required under this Act.

The definition of *significant impact* under the Act includes:

"...an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the intensity, value and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts".

The retention and protection of the existing rainforest for future generations has been the primary object in the development of the site. Accordingly, all specialist reports prepared in support of the initial LES through to this EA submission have focussed on achieving this objective. It is therefore submitted that the development contained in the Concept Plan will have minimal impact on the Littoral Rainforest and

lead to its long term protection and enhancement through the following development principles, as identified by the specialist consultants:

1. The establishment of a vegetated buffer to improve the width to edge ratio and in association with adjoining public open space areas and perimeter road, to separate private and public land uses;
2. The provision of a designated public boardwalk along an existing pedestrian track, ensuring beachgoers are restricted to the designated pathway (PPEC Appendix C, SMEC Appendix G);
3. Ensuring the maintenance of the existing groundwater regime and stormwater management measures to mitigate potential impacts from changes to stormwater quantity or quality regimes (Martens Appendix D);
4. Implementation of the VMP as Stage 1 of the development to enhance the rainforest by removing existing weeds and planting/regenerating endemic rainforest species, decreasing the edge to area ratio and reducing the potential edge effects (Wild Things Native Gardens, PPEC, K+C); and
5. Implementation of a stormwater quality/quantity management plan (Martens Appendix D).

Details in relation to each of the above are included in this submission. The impact on the rainforest as a result of development of the site is proposed to be an improved and protected rainforest for future generations. Development of the site as set out in the submission will also enable the practical implementation of development controls, ensuring the long term viability of the rainforest for future generations.

In accordance with the Department of the Environment, Water, Heritage and the Arts' 'Significant Impact Guidelines 1.1', the following assessment of impact has been undertaken:

"An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

Consideration	Comment
- <i>reduce the extent of an ecological community</i>	The subject application does not reduce the extent of an ecological community and propose significant revegetation/regeneration/rehabilitation works. These works create a substantial improvement in the current edge to width ratio thereby reducing potential impacts from edge effects.
- <i>fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines</i>	No existing ecological community will be subject to fragmentation – existing edge effects will be reduced by proposed environmental works and the creation of the vegetated buffer.

Consideration	Comment
- adversely affect habitat critical to the survival of an ecological community	PPEC conclude that there will be no adverse impacts on identified ecological communities.
- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	Martens & Associates groundwater study includes recommendations to ensure that existing groundwater regime is maintained.
- cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora and fauna harvesting	No changes to species composition of ecological communities. Existing species composition will be reinforced through the implementation of the Vegetation Management Plan.
- cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: * assisting invasive species, that are harmful to the listed ecological community, to become established, or * causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or	The Vegetation Management Plan will ensure that potential invasive species are removed and maintenance regime will ensure this improved condition is retained.
- interfere with the recovery of an ecological community.	The proposal does not interfere with the recovery of an ecological community.

In support of the proposed management of the Littoral Rainforest edge, PPEC has advised the following:

"The management and protection of the Littoral Rainforest is a major environmental contribution of this proposal. Currently there is little management and the grassland is slashed up to the Littoral Rainforest edge. This management will be replaced by buffer planting and weed control. The existing degraded access will be replaced by an elevated boardwalk and a bushland regeneration team will be engaged to manage weeds within the Littoral Rainforest."

In relation to the other matters for consideration under the Act, the following is noted:

- There are no World heritage properties (as listed under the World Heritage Convention identified on-site;
- There are no Ramsar Wetlands identified on-site;

- No nationally listed migratory species as listed under the EPBC Act and identified on the Department of Environment, Water, Heritage and the Arts website were recorded during the conducted flora and fauna survey by Parker;
- There are no National Heritage places identified on-site;
- No nuclear actions are proposed as a part of this application;
- No action is proposed as a part of this application to occur within the Commonwealth Marine Area

4.2 State Legislation and Policy

4.2.1 Environmental Planning & Assessment Act 1979

The *Environmental Planning & Assessment Act 1979* (the Act) and the *Environmental Planning & Assessment Regulations 2000* set out the procedures for carrying out Major Projects.

On the 18 January, 2007 the Minister formed the opinion that the proposal is a Project to which Part 3A of the Act applies. The Minister for Planning is the consent authority for the project.

This Environmental Assessment considers the likely impacts of the proposal on the environment and has been prepared in accordance with Clause 75M of the Act.

The proposal will be permissible upon gazettal of the Draft LEP and is consistent with all applicable environmental planning instruments. A copy of the Draft Zone Plan is included at Exhibit 10 to this submission.

The proposal satisfies the objects of the Act in the following manner:

Objectives of Act	Comment
(a) To encourage: (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,	The site has a history of disturbance and apart from the Littoral Rainforest compensatory plantings and vegetation associated with Duchess Gully, contains no vegetation of ecological value The site has been identified by PMHC as an 'urban investigation area' and the proposed development will cater for the localities anticipated growth rate and required housing stock.
(ii) the promotion and co-ordination of the orderly and economic use and development of land,	The site will be developed in stages with the Stage 1 Environmental Works undertaken as the initial stage to ensure the primary objective regarding the rainforest is achieved. The Concept Plan development will be coordinated with adjoining urban development proposals.
(iii) the protection, provision and co-ordination of communication and utility services,	Communication and infrastructure services shall be provided throughout the residential subdivision. The submitted Draft EA outlines the infrastructure to be provided as a part of the

Objectives of Act	Comment
	subdivision. Correspondence from PMHC (Appendices L and M) confirms the availability of infrastructure services.
(iv) the provision of land for public purposes,	That part of the Littoral Rainforest contained within Lot 4, together with the buffer area and other open space areas shown on Exhibit 05A, are to be dedicated to Council for public open space purposes. A VPA will be prepared in relation to the establishment and management of environmental lands, public infrastructure and public open space.
(v) the provision and co-ordination of community services and facilities, and	<p>The existing Busways route from Port Macquarie to Laurieton will continue to service the locality from Ocean Drive. Council has yet to confirm future bus routes. It is anticipated that the western perimeter road will form part of the future bus route servicing the subject and adjoining properties.</p> <p>A cycleway has been included in the Master Plan which will link with both the existing cycleway/pathway to the north to Lake Cathie and the proposed cycle paths within the adjoining Part 3A proposals. A copy of the Coordination Plan for the Bonny Hills and Lake Cathie Area Coastal Walking and Cycle Tracks is included at Appendix K.</p> <p>The site also includes a 'Hilltop Village' providing a range of local community and commercial facilities and is in close proximity to the proposed town centre for 'Area 14' within the adjoining SVF property.</p>
(vi) the protection of the environment, including the protection and conservation of native animals and	<p>The Flora and Fauna assessment was undertaken and independently reviewed and the resultant recommendations to fulfil the stated legislative obligations. The report includes the results of a seven-part-test, SEPP 44 assessment, consideration of the EPB&C Act 1999, a habitat evaluation, consideration of any endangered populations and ecological communities and their habitats. All assessments undertaken in relation to flora and fauna are included at Appendix C of this submission.</p> <p>The development incorporates a design based (best practice) buffer to the Littoral Rainforest.</p>
(vii) ecologically sustainable development, and	The proposal promotes the principles of ecologically sustainable development (ESD) including the conservation and protection of the sites flora and fauna and scenic attractions. The site is not identified by the Department of Planning (DoP) in their Farmland Mapping Project as agricultural lands. The Mid North Coast Regional Strategy identifies the site as a 'proposed future urban release area'.
(viii) the provision and maintenance of affordable housing, and	The proposed concept plan provides the framework for the development of a variety of dwelling types to accommodate the anticipated growth rate of the Port Macquarie Hastings LGA. The proposed low density allotments will accommodate the single detached dwellings which are most prevalent in the Lake Cathie /

Objectives of Act	Comment
	<p>Bonny Hills locality (see section 6.11 for the community profile of Lake Cathie and Bonny Hills).</p> <p>The proposed medium density residential area will provide for housing choice where this is currently limited. The Hilltop Village will also provide additional opportunities for medium density housing.</p>
(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and	King + Campbell Pty Ltd, on behalf of the landowner, has commenced negotiations with PMHC on a VPA to deal with the establishment and maintenance of environmental lands and the payment of developer contributions for roads and open space infrastructure.
(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.	<p>The provisions and requirements of the Part 3A development process provided under the EP&A Act satisfy the requirements for public involvement and public participation.</p> <p>In addition extensive consultation has been undertaken throughout the investigative process associated with this submission.</p>

4.2.2 Native Vegetation Act 2003

This Act sets the legislative framework for protecting land, rivers and wildlife and is based on voluntary planning agreements between landholders and Catchment Management Authorities. The Act applies to rural zoned lands and will therefore not apply to the residential areas upon gazettal of the DLEP.

PMHC are currently completing the Planning Proposal, draft LEP and DCP for the Area 14 UIA. A copy of the proposed zone plan for the site is included as Exhibit 10.

4.2.3 Threatened Species Conservation Act 1995

This Act provides for the protection of native plants and animals identified as threatened in New South Wales. The Act also provides for the listing and protection of 'endangered populations' and 'endangered ecological communities'.

The Seven (7) part test of significance, required by Section 5A of the *EP&A Act*, as amended by the *Threatened Species Conservation Legislation Amendments Act 2002*, is applicable to listed species, populations and communities listed under the *Threatened Species Conservation Act 1995*, when they are recorded during surveys, or where potential habitat occurs.

PPEC undertook a statutory ecological assessment of the site and found one (1) threatened plant which is listed under the TSC Act. The PPEC report notes the following in relation to this plant:

"The rough-shelled bush nut, Macadamia tetraphylla, was the only threatened plant recorded which is listed under the Threatened Species Conservation Act 1995 (TSA). However, the rough-shelled bush nut was planted as an orchard tree in the vicinity of ruins located approximately 150m west of the Littoral Rainforest and is only known in the wild north of the Clarence River (Harden 2002). In this context, this species has little ecological value."

Appendix 4 of the PPEC 2010 report contains Assessment of Significance (7 part test) for a range of fauna species and Appendix 5 contains Assessments for fish and invertebrates. The results of those assessments confirm that the Concept Plan will not place a local population of any of the listed species at the risk of extinction.

4.2.4 SEPP (Major Development) 2005

On 18th January, 2007 the Minister formed the opinion that the subject proposal was a Project to which Part 3A of the Act applied, pursuant to the provisions of SEPP (Major Projects) 2005.

On 1st July, 2009, amendments to SEPP (Major Projects) 2005 came into effect with the gazettal of SEPP (Major Projects) Amendment (Joint Regional Planning Panels).

Clause 6 of the amended SEPP (now known as SEPP (Major Development) 2005) identifies development that in the opinion of the Minister is a development to which Part 3A of Act applies. In relation to the subject site, the future subdivision of residentially zoned land located in the Coastal Zone into more than 100 lots will still be a development to which Part 3A of the Act applies and the Minister's approval will be required.

4.2.5 SEPP No.26 –Littoral Rainforests

Aim and Relevant Clauses:

The site directly adjoins and includes Littoral Rainforest No 116. The aim of this SEPP is:

" to provide a mechanism for the consideration of applications for development that is likely to damage or destroy Littoral Rainforest areas with a view to preservation of those areas in their natural state."

Relevant clauses of the policy include:

- Clause 4(1)(a) relates to land within the Littoral Rainforest boundary and Clause 4(1)(b) confirms that the Policy applies to non-residential land within 100 metres of the Littoral Rainforest boundary.
- Clause 6 confirms that any development within the Littoral Rainforest is designated development and Clause 6A clarifies the

relationship of State Significant Development to the Policy.

- Clauses 7(1), (2) and (3) confirm that Council consent and the Directors' concurrence are required for any Development Application on land to which the Policy applies.
- Clause 7(6) states that Council's consent shall not be granted to a development or land use unless it is satisfied there is no place outside the area to which this Policy applies on which the development might suitably be located or occur.
- Clause 8(1) outlines the matters for consideration for concurrence, as follows.
 - any representation by or on behalf of the Director of National parks and Wildlife about the likely impact of the proposal on the environment:
 - the objectives and major goals for A National Conservation Strategy for Australia published by the Australian Government Publishing Service, Canberra, in 1984; and
 - if the carrying out of the proposal and the use (if any) thereafter of the land concerned for the purpose for which it will be used may cause destruction or disturbance of the natural environment, the public interest (if any) in the carrying out of the proposal in relation to the public interest in the preservation of Littoral Rainforest in its natural state.
- Clause 8(2) provides detail with respect to the public interest in relation to proposals as follows:
 - A proposal may be in the public interest for the purposes of subclause (1) notwithstanding that it benefits persons (by means including financial or other advantage) who are not public authorities or benefits those persons exclusively.

The Concept Plan Buffer Design

Advice was received from the (then) Department of Infrastructure, Planning & Natural Resources (by letter dated 12 July, 2005) that development within 100m of the SEPP 26 boundary required approval by the Director General and Council and that the land uses may be negotiated provided they meet the objectives of SEPP 26.

The proposed Concept Plan and the land uses within 100m of the Littoral Rainforest have been designed to meet the objectives of the SEPP by seeking to:

- Preserve the Littoral Rainforest in its natural state; and
- Establish a suitably designed environmental buffer and ongoing management regime to enhance both the existing condition of the Littoral Rainforest and its long term preservation.

The environmental buffer has been designed based on the outcomes of analysis undertaken by PPEC and Dr Brennan (Appendix C) with respect to existing and potential effect on the rainforest as a result of

urban development on the site.

PPEC and Brennan considered human intrusion to be likely the *"greatest threat to Littoral Rainforests between the beach and residential development ... through the clearing of pathways ... and the extension of yards that directly abut the rainforest"* (PPEC, July 2010, p53).

Parker and Brennan made specific recommendations with respect to the design of the buffer to protect the Littoral Rainforest including:

- A minimum 10 metre wide planted vegetated buffer to improve edge to width ratios and provide protection from urban lights. The vegetated buffer should consist of Littoral Rainforest species to ensure bushfire risk is not increased. (The Concept Plan includes a minimum 40m wide vegetated buffer using endemic rainforest species);
- Weed management works and management of existing adjoining pasture areas to ensure long grass does not present a threat to the existing rainforest;
- 1.5m protective fencing along the edge of the buffer planting to minimise human and domestic animal intrusion (the Concept Plan includes a 2m high protective fence);
- A low thick spiky hedge abutting the protective fence to further reduce human intrusion;
- A cleared public area including features such as a perimeter road and grassed areas;
- Educational signage warning against the dumping of rubbish and garden waste;
- Houses to face the buffer area to provide surveillance;
- Street lights directed away from the rainforest;
- Elevated and fenced walkway to replace the existing track;
- Stormwater management system to maintain the existing water table under the rainforest and prevent increased runoff during and after construction;
- Rip-rap features in the existing gully adjoining the track to improve drainage and minimise erosion (PPEC, July 2010, pp53-55).

All of the above recommendations have been incorporated into the Concept Plan and Stage 1 Project Application. The width of vegetated buffer has been increased to 40-60m to further improve the edge to width ratio of the patch. The buffer design was further assessed by Brennan (March 2006 – Appendix C) and Parker (2006 – Appendix C) to meet the objectives of SEPP 26 and provide a very high level of protection from all likely threats to the Littoral Rainforest.

Peer Review of Buffer Design

PMHC undertook a review of the environmental buffer through the following reports:

- Area 14 Stage 1B Ecological Assessment, Biolink, July 2007 – Appendix C; and
- Area 14 Stage 1 B Groundwater Study, Martens & Associates, July 2007 and Amendment 1 July 2010 – Appendix D.

The Biolink review made the following recommendations with respect to the buffer to the rainforest:

- A mean 10 metre reduction in the vegetated component of the buffer to maximise groundwater options;
- "Rifling" at 1.0m contours within the vegetated and open space areas of the buffer;
- Staggered positioning of the proposed deep groundwater infiltration trenches, possibly locating a stormwater reservoir within the buffer area to provide for potential direct feed into groundwater infiltration trenches;
- Support for the formalisation of the existing track by use of an elevated boardwalk with consideration of a second access track to the south;
- Support for the 2m high fence along the western edge of the vegetated buffer (Biolink, 2007, pp18-19).

It should be noted that some of the groundwater related recommendations of Biolink reflected the initial recommendations of Martens July 2007 report (Appendix D) which were to some extent superseded by the Martens July 2010 report which included the following recommendations/conclusion:

- On the basis of an average 40m planted distance (in the buffer) there was unlikely to be significant impacts on the groundwater conditions below the SEPP rainforest;
- Controlled urban run off will provide a possible mechanism to supply the additional water to the SEPP 26 forest through groundwater recharge to counter potential impacts of climate change on local hydrogeology.
- Stormwater discharge control structures to be fitted with exchangeable orifice to allow for adjustment of flow rates to the recharge pits.
- Deep stormwater infiltration pits constructed within or to the west of the planted buffer zone;
- Surcharges from biofiltration units to be evenly distributed by rifling of the vegetated buffer area;
- Undertake revegetation program as soon as possible;
- Careful management of excavations elsewhere on the site to minimise impacts on groundwater flows;
- OSD structures including domestic rainforest tanks to ensure that post development flow rates approximate as close as possible pre-development flow rates;

- Ongoing monitoring and geotechnical investigations during the detail design phase of the groundwater recharge pits.

Findings

The Biolink review and the Groundwater Studies undertaken by Martens & Associates have confirmed the proposed environmental buffer will protect and enhance the Littoral Rainforest in its existing natural state and thereby satisfy the aims of SEPP 26.

The proposed management measures to be included in the VPA with PMHC ensure the ongoing maintenance of the rainforest buffer area for the next 20 years providing further certainty to the ongoing preservation and enhancement of the SEPP 26 rainforest to that which exists in its current state.

4.2.6 SEPP No.71 – Coastal Protection

State Environmental Planning Policy No 71 applies to land the whole or any part of which is within the coastal zone and aims to further the Government's coastal.

The policy sets a number of aims for development within the coastal zone and these aims are consistent with the goals established by the NSW Coastal Policy. Clause 8 sets out matters for consideration by the consent authority. The following comments are made having regard to clause 8:

Clause 8	Comment
(a) The aims of this Policy set out in clause 2.	The proposal satisfies the aims of this policy through the following:
(b) Existing public access to and along the coastal foreshore for pedestrians or persons with a disability. and (c) Opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability	Currently there is no legal public access through the site to the coast line. An informal walking track located on the prolongation of the common boundary between Lot 1 and Lot 4 through the Littoral Rainforest to Rainbow Beach, is as shown on Exhibit 02 of this report and has resulted in limited weed invasion. Improved public access will be provided by a public perimeter road and open space network and a suitably controlled pedestrian access way through the rainforest to Rainbow Beach. The provision of appropriate public access will ensure both the protection of the sensitive coastal area and enjoyment by the public of the unique natural resource of the Littoral Rainforest.
(d) The suitability of the development given its type, location and design and its relationship with the surrounding area	The need to establish additional housing and infrastructure within Area 14 has been identified by the adoption of HUGS and the Greater Lake Cathie/ Bonny Hills Urban Development Master Plan. Appropriate and detailed studies have been undertaken to ensure that the proposed development of the study site can be achieved whilst affording the protection and preservation to the adjoining Littoral Rainforest and coastal environment.

Clause 8	Comment
<p>(e) Any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing or loss of views.</p> <p>and</p> <p>(f) The scenic qualities of the NSW coast, and means to protect and improve those qualities.</p>	<p>The local topography, together with the aspect of the study site, will ensure that overshadowing of the coastal foreshore will not occur. The development of the study area will not result in loss of views for any existing development. However, the views from the study site to surrounding geographical features, including Big Brother and Jolly Nose will be encouraged.</p> <p>Additionally, views to the site from the beach area are obscured by the density, height and topographical landforms of the Littoral Rainforest.</p> <p>The developed area of the study area will undergo change in accordance with the design controls of the Greater Lake Cathie / Bonny Hills UDMP which recognises the unique topography and highlight the existing views available from the site.</p>
<p>(g) Measures to conserve animals and plants, and their habitats.</p> <p>and</p> <p>(h) Measures to conserve fish and marine vegetation and their habitats.</p> <p>and</p> <p>(i) Existing wildlife corridors and the impact of development on these corridors</p>	<p>The conservation of the existing flora and fauna will be achieved through a combination of preservation, regeneration, restriction and protection.</p> <p>Firstly, the existing Littoral Rainforest will be conserved in its entirety. Secondly, revegetation will be carried out within the proposed buffer zone. Thirdly, subject to the establishment of a Planning Agreement, weed removal and rainforest regeneration works are proposed along the western edge of the Littoral Rainforest. Finally, public access will be restricted within the rainforest area and the proposed buffer design will incorporate appropriate protection measures.</p> <p>Through restricting public access and protecting the Littoral Rainforest area the conservation of plants, animals and habitat will be achieved. Future development as proposed by this submission will occur on the cleared areas of the site, i.e. on areas a minimum of 70 m from the rainforest edge, which has been determined to have little conservation value.</p> <p>Measures to mitigate potential impacts on aquatic habitats include stormwater quality biofiltration facilities, riparian revegetation and improved environmental flows (from the adjoining SVF property) in Duchess Gully.</p>
<p>(j) The likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards</p>	<p>A Coastal Hazard Study has been undertaken by SMEC (Appendix G). The study confirms there will be no impact on the proposed development as a result of coastal hazards.</p>
<p>(k) Measure to reduce the potential for conflict between land based and water based coastal activities</p>	<p>Conflict between land based and water based activities is not envisaged as a result of the proposed development. Through establishing the environmental buffer as the first stage of the development and protecting and regulating access to the Littoral Rainforest and therefore access to the adjoining beach area, suitable separation will be maintained.</p>
<p>(l) Measures to protect the cultural places, values, customs beliefs and traditional knowledge of Aboriginals.</p> <p>and</p>	<p>The Cultural Heritage Assessment carried out by Jacqueline Collins (consultant archaeologist) has confirmed the presence of a scarred tree with a high level of Aboriginal heritage value and scientific interest. As this tree is situated within the Littoral Rainforest area its protection and preservation is assured.</p>

Clause 8	Comment
(n) The conservation and preservation of items of heritage, archaeological or historic significance	At the request of the LALC, the location of this tree will not be made public. The proposed boardwalk will not provide access to the tree.
(m) Likely impacts of development on the water quality coastal water bodies	The proposal includes concept stormwater designs to ensure the quality of stormwater generated from the site will be improved in comparison to existing conditions. The Groundwater Study by Martens & Associates (Appendix D) includes recommendations to mitigate the potential impacts on the existing groundwater regime to ensure current groundwater conditions are maintained.
(o) Only in cases in which a Council prepares a draft local environmental plan that applies to land to which this Policy applies, the means to encourage compact towns and cities	<p>HUGS and the Greater Lake Cathie and Bonny Hills UDMP were developed on the basis of ensuring compact towns. The UDMP included identification of three alternative future growth strategies. The preferred strategy is that of a new village which provides higher order needs for the new and existing two settlements. Deicke Richards provides the following reasons for preferring this model:</p> <ul style="list-style-type: none"> • Lake Cathie and Bonny Hills are separated, there is enough land that is well integrated and connected to the overall urban structure of Area 14 to accommodate new discrete neighbourhoods or villages between them; • There are environmental corridors restricting the area of expansion around Lake Cathie and Bonny Hills; • Larger portions of the site are in single ownerships. This allows appropriate areas of land for large scale uses; supermarkets, community facilities, schools, regional sporting facilities to be incorporated and their inter-relationships will readily be achieved; • The land is undulating and elevated facilitating high quality urban design outcomes; • The existing settlements will have less pressure and need for major redevelopment allowing them to easily retain their existing character; • Street systems can be designed to accommodate a variety of lot sizes and housing types (Deicke Richards, 2003 p15).
<p>(p) Only in cases in which a development application in relation to proposed development is determined</p> <p>(i) The cumulative impacts of the proposed development on the environment, and</p> <p>(ii) Measures to ensure that water and energy usage by the proposed development is efficient</p>	Not relevant

4.2.7 SEPP No.44 – Koala Habitat Protection

State Environmental Planning Policy No 44 – Koala Habitat Protection applies to the site. An assessment of potential koala habitat was undertaken, pursuant to this policy, by Peter Parker, Environmental

Consultants Pty Ltd, dated May 2002.

No koala food trees were recorded and it was therefore concluded that potential koala habitat does not occur on the site.

4.2.8 SEPP No.55 – Remediation of Land

King and Campbell Pty Ltd have carried out a Preliminary Site Investigation (PSI) for Lot 4 DP 615261 and Lot 1 DP 374315, pursuant to the provisions of SEPP No.55 Remediation of Land. A full copy of this investigation is included at Appendix N. The investigation includes a review of the site history using Council and government records and aerial photographs, together with a site inspection and interviews with current and previous owners and occupiers.

The PSI identified that the past use of the site as a small general farm is unlikely to have caused contamination of land that would render the land unsuitable for future urban uses. Enquiries with PMHC confirm that the site is not listed as a potentially contaminated site and it is not listed on their contaminated sites register.

The PSI concluded that the land is suitable in its current state for its future urban use as included in the Part 3A Concept Plan application.

4.2.9 SEPP No.65 - Design Quality of Residential Flat Development

SEPP No.65 was introduced to improve the design of residential flat development. Whilst this submission does not include buildings, the concept for the Hilltop Village and surrounding medium density areas will ultimately be developed through subsequent Development Applications that will include residential flat buildings. These future Development Applications for each residential flat building will need to comply with the ten (10) design quality principles set out in SEPP 65.

The Concept Plan road layout associated with the Hilltop Village and medium density areas has been designed to support the design principles embodied in the SEPP. As shown on Exhibit 07 the main street road reserve is proposed to be of a width to allow solar access to ground floor spaces and privacy between the buildings on either side of the main street. Generous footpath widths have been provided to allow opportunities for ground floor activation within the main street. Rear lane car park access will potentially provide further opportunities to improve ground floor amenity within the village and also additional separation to the residential flat buildings in the adjacent medium density areas.

The conceptual sketches included in Exhibit 07 of this application show that the facade treatment will embrace the principles of coastal architecture through the provision of broad eaves with a tri-partied composition of base, middle and top. The 'base' zone will provide for an activated street frontage and the 'top' zone will incorporate a light weight roof structure within which the 4th floor will be located.

4.2.10 NSW Coastal Policy 1997

The New South Wales Coastal Policy is the Government's policy for the co-ordinated planning and management of the NSW coastline and can be considered the primary document from which all other legislation applicable to this study has been developed.

The overriding vision for the policy is the ecological sustainability of the NSW coast. Therefore the policy is goal oriented and based on the principles of ecologically sustainable development (ESD). To express this vision, nine (9) goals have been developed, each with its own objectives and strategic actions.

Under the Coastal Policy the study site, being situated within 1km on the landward side of high tide, falls within the 'littoral coastal sub-zone'. Therefore in accordance with the policy the relevant strategic actions will primarily be in relation to, but not limited to, shoreline recession, climate change and coastal processes.

The nine goals embodied in the Coastal Policy are particularly relevant to the subject proposal. Through incorporating the findings of the specialist studies, the proposal demonstrates consistency with these goals.

Goal	Comment
1. Protecting, rehabilitating and improving the natural environment of the coastal zone;	Specific studies have been undertaken as part of this investigation to address flora, fauna and water quality particularly in relation to the SEPP No 26 - Littoral Rainforest. The intended outcome in relation to these issues is to ensure the health and vitality of the existing natural environment in the public interest. Littoral Rainforest No 116 is the primary consideration in relation to any development of the study site and the establishment of the fenced vegetated buffer and formalisation of the existing track as the first stage of development is proposed to improve, protect and rehabilitate the existing coastal zone environment.
2. Recognising and accommodating the natural processes of the coastal zone;	The natural processes of the coastal zone have been considered in the preparation of this submission, including the effects of climate change and flooding. Specialist studies have confirmed that these natural processes can be suitably managed will not detrimentally affect the development of the site. SMEC's Coastal Hazard Study confirms there will be no impact on the proposed development as a result of the coastal hazards.
3. Protecting and enhancing the aesthetic qualities of the coastal zone;	<p>A visual impact assessment has been undertaken which included the preparation of sight cross-sections from the beach to the site. These investigations have confirmed that whilst the site is highly visible from surrounding existing urban areas, the existing urban character can absorb the proposed view change without causing a significant change in visual character.</p> <p>The assessment also found that the existing density, scale and height of the rainforest ensure that the site is not visible from the adjoining coastline of Rainbow Beach.</p> <p>Therefore the development shall not have a detrimental impact on the aesthetic or scenic qualities of the Coastal zone. The proposal is also consistent with the North Coast Design Guidelines.</p>

Goal	Comment
4. Protecting and conserving the cultural heritage of the coastal zone;	Aboriginal cultural and heritage values have been considered and addressed as a part of this proposal. Protection of the identified artefact will be assured with the provision of the buffer treatment which will restrict public access to a designated walkway through the rainforest.
5. Providing for ecologically sustainable development and use of resources;	The proposal promotes the principles of ecologically sustainable development (ESD) including the conservation, protection and improvement of the site's flora and fauna attributes for future generations. The site is identified by the Department of Planning (DoP) in their Mid North Coast Regional Strategy which nominates the site as 'future urban release area'. The Concept Plan supports the establishment of a compact village as a sustainable form of urban development as envisaged in the Lake Cathie Bonny Hills (UDMP).
6. Providing for ecologically sustainable human settlement in the coastal zone;	The development of a compact urban settlement on the study site has been envisaged by both HUGS and the Greater Lake Cathie and Bonny Hills UDMP. Development is proposed which will enable a wider range of housing and lifestyle choices within a contained and well planned urban setting. All development will ensure minimal impact on the adjoining SEPP 26 Littoral Rainforest and ensure the viability of this natural asset for future generations.
7. Providing for appropriate public access and use;	It is intended that the buffer zone adjoining the Littoral Rainforest will be dedicated to Council for environmental management open space purposes. Appropriate pedestrian access can then be provided through the forest enabling enjoyment of this natural resource by the public. Suitable safeguards will be employed to ensure no detrimental impact on the rainforest.
8. Providing information to enable effective management of the coastal zone; and,	Appropriate information for prospective purchasers of land adjoining the buffer to the Littoral Rainforest will be available. The Development Principles set out the basis of this information.
9. Providing for integrated planning and management of the coastal zone.	Through satisfying these nine (9) goals and therefore their respective objectives and strategic actions, appropriate development for the study site can be realised. The protection and preservation of Littoral Rainforest No 116 is a primary objective of this study and the recommendations of the consultants (Parker, Brennan, Jelliffe and Martens) form the basis for the buffer design as proposed in this study.

4.2.11 North Coast Regional Environmental Plan

The North Coast Regional Environmental Plan applies to the PMHC Local Government Area and the aims of this policy must be considered in relation to the preparation of an LEP.

The aims of this policy are:

"(a) to develop regional policies that protect the natural environment, encourage an efficient and attractive built environment and guide development into a productive yet environmentally sound future,

(b) to consolidate and amend various existing policies applying to the region, make them more appropriate to regional needs and place them in an overall context of regional policy,

(c) to provide a basis for the co-ordination of activities related to growth in the region and encourage optimum economic and social benefit to the local community and visitors to the region, and

(d) to initiate a regional planning process that will serve as a framework for identifying priorities for further investigation to be carried out by the Department and other agencies."

Comment

The above aims generally embody the nine goals established by the Coastal Policy, all of which have been addressed in Section 2.1 of this report.

The NSW Government have adopted the Mid North Coast Regional Strategy (2009) which nominated the site as a future urban release area.

Council have adopted the Hastings Urban Growth Strategy (2001) and the Greater Lake Cathie and Bonny Hills Urban Design Master Plan (2004) which identified the site as one of a number of locations that were considered appropriate for residential development.

The subject site is located within the desired future residential areas identified by both HUGS and the Greater Lake Cathie /Bonny Hills UDMP. It is located on the southern urban fringe of the existing village of Lake Cathie and in close proximity to all required services.

4.2.12 Mid North Coast Regional Strategy (MNCRS)

This strategy will guide local planning in eight Mid North Coast local government areas including the PMHC LGA. The Strategy identifies the subject properties as Future Urban Release Area and aims to guide sustainable development of the Mid North Coast over the next 25 years. The following aims outlined within this document include:

Aim	Comment
Protect high value environments, including significant coastal lakes, estuaries, aquifers, threatened species, vegetation communities and habitat corridors by ensuring that new urban development avoids these important areas and their catchments.	The protection and enhancement of the Littoral Rainforest for future generations is the key objective of the subject application. Specialist reports, including ecological assessment groundwater investigations, to ensure minimal impact on the threatened species, vegetation communities and catchments associated with the rainforest. These investigations have confirmed that the proposal will protect and enhance these high value environments.
Cater for a minimum housing demand of 59,600 new dwellings by 2031 to accommodate the forecast	The proposed development will cater for additional residential development within an area identified by the

Aim	Comment
population increase of 94,000 and any anticipated growth beyond this figure arising from increased development pressures in the Region.	MNCRS, HUGS and the Lake Cathie/Bonny Hills UDMP as being a suitable location to accommodate some of the population growth predicted for the region.
Ensure that new housing meets the needs of smaller households and an ageing population by encouraging a shift in dwelling mix and type so that 60 percent of new housing is the traditional detached style and 40 percent is of multi unit style.	The proposed development will include an appropriate mix of low density, medium density and commercial / tourist uses in the Hilltop Village in accordance with the Greater Lake Cathie and Bonny Hills Urban Design Master Plan and the MNCRS. The indicative split between single detached dwellings and the multi unit housing is approximately 50/50.
Ensure an adequate supply of land exists to support economic growth and the capacity for an additional 48,500 jobs in the Region by protecting existing commercial and employment areas and securing sufficient land to support new employment opportunities.	New employment opportunities will be available with the development of the proposed Hilltop Village and tourist zones. The residential areas of the subject and adjoining properties within Area 14 will also have access to employment opportunities within the proposed village centre on SVF land and the industrial precinct on the corner of Ocean Drive Houston Mitchell Drive.
Encourage the growth and redevelopment of the Region's four major regional centres and six major towns as a means of protecting sensitive coastal and natural environments and strengthening the economic and administrative functions of these centres as well as meeting increased density projections.	The Area 14 locality within which the site is located has been identified for future urban growth since the adoption of the Hastings Urban Growth Strategy in 2001. Area 14 is also recognised in the MNCRS as one of the major investigation areas within which growth will occur in the PMHC Local Government Area. This strategic plan has promoted the development of a 'village' between Lake Cathie and Bonny Hills, whilst maintaining and protecting its unique environmental features. The subject application is the culmination of detailed investigation which has each confirmed that the site can be developed, in accordance with the strategic documents, as set out in this submission.
Protect the coast and the character of coastal villages by limiting growth to the agreed growth areas of towns and villages leaving greenbelts between settlements.	The site is located within an agreed 'growth area' as identified by HUGS, the Lake Cathie/Bonny Hills UDMP and the MNCRS.
Direct new rural residential development to areas close to existing settlements away from the coast.	Not applicable.
Only consider additional development sites outside of growth areas if they can satisfy the Sustainability Criteria.	Not applicable.
Designate a Coastal Area east of the proposed final alignment of the Pacific Highway from which application of the Sustainability Criteria will be excluded (noting that approximately 70 per cent of the future dwelling capacity identified within growth areas is already within the Coastal Area).	Not applicable.

Aim	Comment
Limit development in places constrained by coastal processes, flooding, wetlands, important primary industry land and landscapes of high scenic and conservation value.	Detailed investigations of the site with regard to all site constraints have been undertaken. These studies all confirm that development of the site as described in this submission is appropriate.
Protect the cultural and Aboriginal heritage values and visual character of rural and coastal towns and villages and surrounding landscapes.	The LALC have confirmed that the retention of the 'scarred' tree at an undisclosed and unmarked location within the Littoral Rainforest is their preferred solution. The visual analysis carried out as part of this application has also confirmed that the important view lines (from Rainbow Beach) are able to be retained and that the existing urban character of the area will absorb the future changes to occur within Area 14. Further, retention of the existing sight lines from the site to important local geographic features (coastal line and North Brother) can be retained with appropriate orientation of streets and buildings.
Where development or rezoning increases the need for State Infrastructure, the Minister for Planning may require a contribution to the infrastructure having regard to the NSW Government State Infrastructure Strategy and equity considerations.	Appropriate infrastructure is available and a draft Voluntary Planning Agreement has been prepared to ensure such is provided in a timely manner. No State Infrastructure requirements have been identified to date.

4.2.13 Coastal Design Guidelines 2003

The Coastal Design Guidelines embody a number of principles to ensure that future development on the NSW coastline is sensitive to its unique natural and urban settings. In preparing a draft LEP Councils are required to include provisions that give effect to and are consistent with the Guidelines. Port Macquarie is recognized as a coastal city within these guidelines, whilst the locality of Lake Cathie within which the site is located, is a village or hamlet.

The Coastal Design Guidelines establishes five principles which are applied to help achieve the desired future character for the coastal settlement. The following demonstrates the consistency of the Concept Plan with these principles:

Principle	Comment
1. Defining the footprint and boundary of the settlement	<p>1. The Concept Plan includes:</p> <ul style="list-style-type: none"> • a continuous foreshore reserve (as part of the open space treatment within the buffer to the rainforest) for the full frontage of the residential community; • appropriate setback distances to protect natural areas; • perimeter road to define the extent of the urban footprint; • appropriate street layout and orientation to protect the existing vistas of important visual quality. <p>2. The design criteria of the Concept Plan:</p> <ul style="list-style-type: none"> • has responded to the environmental constraints of the site; • will maintain the water quality of downstream environments and the groundwater

Principle	Comment
	<p>regime in catchments draining to the rainforest;</p> <ul style="list-style-type: none"> • will retain all existing vegetation; • will provide infrastructure for a Hilltop Village at an appropriate scale to complement the existing and future development of the Area 14 UIA; • includes a main street with an active street frontage to cater for the daily needs of the future local community; • provides for a hierarchy of streets to engender a sense of neighbourhood. <p>3. The proposed subdivision pattern and zone layout will encourage higher density developments adjacent to the Hilltop Village and areas of open space/public access adjoining the coastline, thereby ensuring an efficient use of land for sustainable living.</p>
2. Connecting open space	<p>The Concept Plan achieves the following design objectives of the Coastal Guidelines:</p> <p>1. Open space areas are provided in association with environmental buffer areas and incorporate the retention of all existing vegetation.</p> <p>2. A continuous open space buffer which has been designed to engender 'ownership' by the future residents extends for the full length of the eastern boundary (adjoining the rainforest and Rainbow Beach). This area of open space links to coastal public areas on adjoining properties.</p> <p>3. Appropriate setbacks in relation to flooding and bushfire are provided;</p> <p>4. The open space network includes a range of facilities with their own function, including:</p> <ul style="list-style-type: none"> • the Village Square – providing a sense of arrival and maintaining the extensive hinterland views; • the pocket park – providing a visual connection between the main road and the public pedestrian entry point through to Rainbow Beach; • the 'buffer' open space, providing clearly defined walking and cycling tracks to connect with the existing infrastructure in the locality within the village of Lake Cathie to the north and open space within the SVF property to the south. This open space area also allows casual surveillance of the rainforest edge thereby aiding the monitoring processes. <p>5. The item of aboriginal heritage will remain protected within the rainforest, consistent with a request by the LALC.</p> <p>6. Biofiltration basins and detention basins have been incorporated into the open space network.</p> <p>7. The open space network incorporates edge roads with pedestrian networks.</p> <p>8. The pedestrian and cycle network will connect with the existing network within the Lake Cathie residential area and with the future network as shown on the 'Coordination Plan for Coastal Walkway and Cycle Trails' at Appendix K.</p> <p>9. The subject Concept Plan is a component of the overall development of 'Area 14'. The adjoining SVF development (for which a Part 3A application is currently with the Department) includes the provision of regional playing fields and a generous open space network. It is intended that the subject application, which includes public open space adjoining the rainforest/Rainbow Beach and a pocket style park, will integrate with the surrounding development and provide complimentary open space provision.</p> <p>10. The proposed Village Square and pocket park have been positioned to complement the Hilltop Village and to provide a direct link to the open space network and Rainbow Beach access point.</p>

Principle	Comment
	<p>11. The proposed landscape treatment adjacent to the rainforest (within the public space); will incorporate the use of appropriate complementary species. The proposed pocket park and Village Square will include a formal landscape treatment which will complement the urban locality within which they are located.</p>
3. Protecting the natural edges	<p>The Concept Plan achieves the following design objectives of the Coastal Guidelines:</p> <ol style="list-style-type: none"> 1. The natural edge of the SEPP 26 rainforest is to be protected by establishing a 40-60m vegetated and fenced buffer on the first stage of the Concept Plan development. The function of the public open space area/buffer area adjoining the rainforest/beach is multi-functional, providing for conservation and passive open space. 2. The public component of the buffer treatment which includes the passive open space will be maintained in public ownership. 3. All existing vegetated areas will be retained with the buffer area to the rainforest and the existing track to Rainbow Beach will be formalised with a boardwalk. 4. Walkways and cycle ways have been incorporated into the design of the open space network. However due to the dune height within the Littoral Rainforest wheelchair access as part of the pedestrian boardwalk is unable to be provided. However an existing vehicular access point is currently available to Rainbow Beach from the Middle Rock car park. 5. A substantial setback/buffer area is provided to the foreshore areas associated within Rainbow Beach. 6. A perimeter edge road is provided to the foreshore and incorporates pedestrian pathways with a direct link onto Rainbow Beach. The proposed street alignment (east-west) will also allow retention of hinterland and ocean views. 7. The treatment of the edge road includes parallel parking and a designated off road parking area adjacent to the beach pedestrian access. 8. The proposed off road parking area has been positioned such that it cannot be directly viewed from the Main Street (Hilltop Village). 9. The proposed human exclusion fence will ensure the protection of all vegetation within and adjacent to the rainforest. 10. The natural edge to Duchess Gully has been protected by proposed riparian revegetation and stormwater biofiltration and management facilities.
4. Reinforcing the street pattern	<p>The Concept Plan subdivision pattern satisfies the following street pattern framework established by the Coastal Design Guidelines:</p> <ol style="list-style-type: none"> 1. Main access road – a main collector road links the site to Ocean Drive and provides the main entry into the residential community. The position of this collector road has been established by the Traffic Impact Assessment prepared by Roadnet to inform the Area 14 LEP process currently being undertaken by PMHC. To ensure access to the site and cooperation on a range of infrastructure issues, a Memorandum of Understanding has been signed by the owners of the subject and adjoining properties. 2. Main Street – The Hilltop Village is centrally located on the site, being the prominent ridgeline and includes a main street with an active street frontage. The Main Street extends from the Village Square (arrival point) to the rainforest/beach interface.

Principle	Comment
	<p>3. Edge streets – The public component of the rainforest buffer and Duchess Gully buffer incorporate edge streets which have the dual purpose providing an Asset Protection Zone for bushfire management.</p> <p>4. Residential streets – the location and layout of the internal residential streets will not encourage through traffic but rather will cater for the access requirements of the local community.</p> <p>5. Laneways – the proposed service laneways associated with the Hilltop Village and adjoining medium density housing area are an important design element for the future of the Main Street, allowing activation and pedestrianisation.</p> <p>6. Pedestrian pathways – a pedestrian network is to be provided, allowing important linkages to the rainforest interface and boardwalk access through to Rainbow Beach and public open space areas in adjoining properties to the north and south.</p>
5. Appropriate buildings in coastal context	<p>The purpose of this Concept Plan is to establish guidelines for the desired future character of the residential community. Notwithstanding that the actual buildings are not part of this application, the design principles embodied in the subdivision concept layout will establish a clear vision for the new residential community.</p> <p>Therefore this Concept Plan application satisfies the principles in relation to the appropriate coastal buildings in the following manner:</p> <p>1. The location, use, scale and height of new buildings has been carefully considered against the principles of maintaining the visual quality of the coastline.</p> <p>2. Buildings within the Hilltop Village will address and activate the street frontage as a result of street layouts which incorporate rear lane access.</p> <p>3. The centrally located Hilltop Village and pedestrian links to the foreshore will ensure less dependence on cars as a result of centrally located local services and facilities.</p> <p>4. Views from public places including the Village Square and the Main Street will ensure retention of hinterland and ocean views from future public spaces. In addition local street orientation will allow the retention of important vistas to the rainforest interface.</p> <p>5. The proposed zoning will ensure building heights complement the existing topography, maintaining consistent height, bulk and scale with the local streets and local context.</p> <p>6. East-west local streets with north-south residential allotments will ensure appropriate solar access.</p> <p>7. All residential lots will have access to the internal footpath and cycle ways, allowing ease of connection to the overall coordination plan for Area 14.</p>

4.3 Local Legislation, Strategies and Policy

4.3.1 Hastings Local Environmental Plan 2001

The following clauses within the Hastings Local Environmental Plan 2001 are applicable to the proposal:

Clause	Comment
Cl.9 Zoning of land and zone table	<p>The site is currently zoned part Rural 1(a1) and part Environmental Protection 7(f1) 'coastal', where the 7(f1) zoning generally applies to the area containing the Littoral Rainforest.</p> <p>Generally the urban concepts included in the Concept Plan are not permissible within the 1(a1) zoning. However roads, car parks and stormwater works are permissible in both the 7(f1) and 1(a1) zones.</p> <p>PMHC is currently in the process of preparing a Draft LEP for Stage 1B of Area 14 within which the site is located. Under the draft plan the site will be zoned part B4 Mixed Use, part R3 Medium Density Residential, part R1 General Residential, part RE1 Public Recreation, part E3 Environmental Management and part E2 Environmental Conservation. These proposed zones are consistent with the adopted Area 14 Urban Design Master Plan and the land use concepts included in the Concept Plan. Therefore upon gazettal of the Area 14 Draft LEP, the land use concepts included in this Concept Plan will be permissible. The Planning Proposal for Area 14 Stage 1B LEP has been recently forwarded to the Department of Planning.</p>
Cl.13 Availability of Essential Services	<p>Water supply and sewerage services are available to the subject site. Written confirmation from PMHC is contained in Appendices L and M. Access to the proposed intersection at Abel Tasman Drive and Ocean Drive will be through the adjoining SVF property as outlined in the Lake Cathie Bonny Hills UDMP. An MOU has been prepared between the landowners to coordinate road access and other infrastructure issues.</p> <p>A Voluntary Planning Agreement is being prepared with PMHC to deal with the establishment and long term management of environmental and open space lands proposed to be dedicated to Council as well as the payment of developer contributions for roads and open space infrastructure.</p>
Cl.15 Subdivision in zones 1(a1)....	<p>This clause sets out the numerical requirements for the subdivision within this zone. A minimum area of 40ha currently applies to the land within the 1(a1) zone. The proposed residential lots comply with the minimum lot sizes applicable in their proposed future zones.</p>
Cl.14 (Subdivision) General	<p>This general clause requires the consent of Council for subdivision of land. The rezoning of the site as outlined above will need to be completed prior to development consent being issued pursuant to this Clause. In this instance the provisions of SEPP (Major Development) 2005 also apply and subdivision for residential purposes of land that is not within the metropolitan coastal zone into more than 100 lots is identified as a project to which Part 3A of the Act applies.</p>
Cl.17 Lot sizes in zone 2(a1)	<p>This clause sets out the numerical requirements for residential subdivisions. The residential land use concepts included in the Concept Plan envisages a range of lots sizes, from a minimum 450m² all of which would be permissible under the zonings proposed in the Area 14 Stage 1B draft LEP.</p>
Cl.20 Tree	<p>The Concept Plan will require removal of a few scattered 'paddock' trees. The TPO provides</p>

Preservation	exemption when the tree removal is in accordance with a development consent.
Cl.25 Flood Liable Land	<p>The Cardno Flood Assessment confirms there is no part of the site that is designated as flood liable. However the SW corner of Lot 1 is subject to occasional inundation from Duchess Gully during severe local storm events.</p> <p>Minor filling works are proposed to provide suitable freeboard between future residential development and local runoff flood levels. Cardno conclude that the proposed fill will have no effect on the conveyance at this location and will not increase local runoff flood levels.</p>
Cl.26 Acid Sulfate Soils	Councils ASS mapping has identified class 4 and 5 land along the southern boundary of Lot 1 as indicated on Exhibit 04A. This area is associated with the 1:100 year flood event. Given that no development will be carried out in this area, other than its protection and enhancement, issues in relation to the presence of Acid Sulfate Soils are not anticipated.

4.3.2 Draft Port Macquarie-Hastings Local Environmental Plan 2010

Port Macquarie-Hastings Council (PMHC) has prepared a draft Local Environmental Plan (LEP) for the Port Macquarie-Hastings Local Government Area in response to the State Government's requirements for a consolidated LEP which conforms to the Standard Instrument (Local Environmental Plans) Order 2006. The draft plan was publicly exhibited for six weeks until 7 May 2010.

Under the draft plan the site is proposed to be zoned part RU1 Primary Production and part E2 Environmental Conservation, this being the standard 'direct translation' approach taken by Council for the majority of the draft plan.

Concurrently with the preparation of the Standard Instrument LEP, PMHC has prepared a Planning Proposal for Stage 1B of Area 14 within which the site is located. The Planning Proposal was reported to Council at its meeting of 25 August, 2010. A copy of the report and adopted recommendation are included at Appendix Q.

Under the draft Stage 1B LEP the site is proposed to be zoned part B4 Mixed Use, part R3 Medium Density Residential, part R1 General Residential, part RE1 Public Recreation, part E3 Environmental Management and part E2 Environmental Conservation. These proposed zones are consistent with the adopted Area 14 Urban Design Master Plan and the land use concepts included in the Concept Plan. Therefore upon gazettal of the Area 14 Draft LEP, the land use concepts included in this Concept Plan will be permissible. Moreover, the permitted and prohibited development under each of these zones will be consistent with the Standard Instrument Order (Local Environmental Plans) 2006 and the Draft Port Macquarie-Hastings Local Environmental Plan 2010.

The following table provides a summary of the proposed zones:

Proposed Zone	Comment
R1 General Residential	This general residential zone will apply to areas of low density residential use. The zone will provide for a variety of housing styles appropriate for the seaside location and also enable facilities and services suitable for a residential area.
R3 Medium Density	This zone will permit a range of medium density housing styles in close proximity to both the Hilltop Village and areas of high amenity including adjacent to open space and beach access points.
B4 Mixed Use	The mixed use zone is considered appropriate for the Hilltop Village. This zoning will not only permit a range of retail / commercial uses which will support the daily needs of the residential community, it will also permit residential uses within in the village itself, ensuring a lively village centre.
RE1 Public Recreation	This zone will apply to the proposed pocket park and adjacent public car park area. The zone will clearly identify the public link through the rainforest to the beach.
E2 Environmental Conservation	The E2 zone will apply to the Littoral Rainforest (within the boundaries of Lot 4) and the riparian corridor associated with Duchess Gully. The zone will ensure their protection and management and prevent development which may cause adverse effects on their ecological value. It is noted that the Draft Port Macquarie-Hastings Local Environmental Plan 2010 has also identified this zone for the Littoral Rainforest within Lot 4.
E3 Environmental Management	The proposed E3 zone will support the primary E2 zone through identifying the public component of the buffer design for the Littoral Rainforest. This zone will clearly identify the proponents intention to appropriately manage the ecological values of the rainforest.

4.3.3 Hastings Development Control Plans

DCP	Comment
Port Macquarie - Hastings DCP 2006	This DCP is essentially a consolidating instrument to reference the development control provisions that can apply to development within the PMHC LGA.
DCP No 9 – 1999 Residential and Tourist Accommodations	<p>This DCP commenced in December 1989 and applies to residential style development within the LGA, other than single dwelling houses.</p> <p>The plan sets out built form standards in relation to the height, bulk, scale and general amenity provisions. As a Draft DCP is currently being prepared for development within Area 14 it is anticipated that these standards will not be relevant to the future residential development of the subject site.</p>
DCP No 17 – Subdivision Code	This DCP come into effect in 1990 and as such the numerical standards were superseded when Hastings LEP 2001 was gazetted. As with the above it is anticipated that the standards and controls found in this DCP will not be relevant to the future residential development of the subject site with the adoption of the Area 14 DCP.

DCP No 36 – Exempt and Complying Development	This DCP came into effect in May 2003 and identifies exempt and complying development for the purpose of clause 8 of Hastings LEP 2001.
DCP No 38 – Dwelling Houses and Ancillary Development	This DCP came into effect in January 2000 and sets out Council's general requirements in relation to dwellings and ancillary development.
DCP No 41 – Building Construction and Site Management	DCP No. 41 came into effect in December 2008 and sets out Council's general construction and site management requirements in relation to development.
DCP No 48 – Energy Efficient Water Wise Residential Buildings	DCP No. 40 came into effect in December 2002. The plan aims to promote residential dwellings which are sustainable and generally do not impact on the local environment.

4.3.4 Hastings Urban Growth Strategy (HUGS) 2001

HUGS 2001 was adopted by Hastings Council on 30 October 2000, with revisions adopted 28 May 2001. The strategy was agreed to by the Director-General of the Department of Urban Affairs and Planning (now Department of Planning) on 30 August 2001.

The purpose of HUGS 2001 is:

- 1. To provide a mechanism for community input into the vision of the future urban development for the Hastings Council Area, and subsequently communicate to the local community the outline of expected future urban development in the Hastings Area, and how this development will occur and be serviced.*
- 2. To provide an integrated framework for Council decisions relating to planning and services for the future urban development of the Hastings Council Area.*
- 3. To guide other public authorities in planning for the provision of services to this area.*
- 4. To satisfy the requirements of the State Government, for a comprehensive Urban Land Release Strategy prior to any significant residential urban land releases.*

The strategy is therefore a guide for decisions to be made through to around 2016 and to provide for population growth to 2021.

The subject site excluding the area of Littoral Rainforest contained within Lot 4 is included as an Urban Investigation Area (UIA) within Area 14.

4.3.5 Greater Lake Cathie and Bonny Hills Urban Design Master Plan

The Greater Lake Cathie and Bonny Hills UDMP was adopted by Hastings Council in July 2004.

The purpose of the document is to provide a draft urban design master plan comprising an overall integrated land use movement plan. The master plan includes:

- Land use zones for the urban investigation areas that integrate with existing urban areas,
- Development staging for the current urban reserves and future stage one releases, access links with possible future urban releases in the balance of the UIA's,
- Management of hazards and conservation of land with environmental values.

This document recognises the importance of Littoral Rainforest No 116 and introduces the land use concepts and densities for the subject site. The plan did not however determine detailed zone boundaries for the site.

The UDMP provides for a generic 100 metre buffer to the Littoral Rainforest, including a perimeter public road at its landward edge. The buffer treatment ultimately developed by PPEC and Dr Brennan and Wild Things Native Gardens (and included in this submission) is a merit based approach which will ensure that future development of land within 100 metres of the Rainforest is consistent with the aims and objectives of SEPP 26. This proposed buffer treatment includes a 40-60m wide vegetated and fenced buffer established as the first stage of works on the site, formalisation of the existing beach access track with a boardwalk, groundwater/stormwater drainage management measures, public open space and a public perimeter road on the landward edge of the rainforest. PMHC have through the work of Biolink (ecological) and Martens & Associates (groundwater/stormwater) undertaken a peer review of the proposed buffer to the SEPP 26 rainforest and the recommendations from those reviews have been incorporated into the Concept Plan.

In relation to the proposed land use concepts and densities to the remainder of the site, the UDMP (Map 5, page 29) has identified a 'Hilltop Village' concept with 'Village Square' to be positioned on an east-west road on the main central ridgeline. The subdivision concept plan accompanying this submission has embraced this concept, with a three/four storey "Hilltop Village" concept included on the plans. The Hilltop Village includes a Village Square public open space focal point and a public 'pocket park' which will extend to the proposed public access path which will lead through the rainforest to Rainbow Beach.

The UDMP also proposes a mix of medium density residential adjacent to the Hilltop Village (two/three storeys) and lower density residential development towards the northern and southern areas of the site. Whilst the proposed subdivision concept plan includes provision for medium density residential areas adjacent to the Hilltop Village, the

footprint has been reduced to allow medium density areas at the southern and northern extents of the site. These two areas are considered appropriate for medium density residential on the basis that they adjoin the open space network and are in close proximity to the beach access points. In addition, the area to the south will adjoin a future tourist land use on the adjoining site.

In relation to the Village Square on the ridgeline, it is now proposed to create a distinctive landscaped entrance / arrival point as a village square public space. This replaces the pocket park proposed in the UDMP which has been relocated to the adjacent public open space at the landward side of the rainforest. The proposed pocket park will incorporate appropriate footpaths to provide a direct pedestrian link and focal point leading from the commercial area to the gated boardwalk through to Rainbow Beach.

Finally, the UDMP establishes the requirement for various infrastructure which will be needed to accommodate the population growth as set out by HUGS 2001.

4.3.6 Social Impact Assessment Policy

PMHC adopted their Social Impact Assessment policy in February 2009. The policy was developed to provide guidance to the community and applicants on how to carry out a Social Impact Assessment, with its purpose being to predict the impact of development or land use changes. Development requiring the preparation of an SIA includes the formulation of Master Plans and rezoning proposals. A SIA is not specifically required for a subdivision if such has been foreshadowed as part of a Council DCP, Master Plan or land use strategy.

The site, being part of the Area 14 UIA, has been included in previous investigations in relation to social impact. The subject site will represent a relatively small scale residential development within a much broader scale urban community comprising the area from Lake Cathie to Bonny Hills which will ultimately house approximately 10,000 people.

The Lake Cathie Bonny Hills UDMP Master Plan developed by Diecke Richards (Appendix B) carried out the following investigations relevant to social impact:

- Population Growth and Community Needs (being the population characteristics, community facilities, education, childcare, sport and recreation, open space and economic needs of the area); and
- Community issues and values.

The issue of social impact has been addressed as part of this submission (Section 6.11).

Section 5

Consultation

5.1 Timeline of Strategic Actions, Key Events (reports) and Consultation

DATE	EVENT	OUTCOME
2001	Hastings Urban Growth Strategy (HUGS) adopted by PMHC	Lot 1 and Lot 4 included as part of Area 14 Urban Investigation Area (UIA)
29 March, 2002	Letter from the NSW National Parks and Wildlife Service to PMHC	Details the matters to be addressed in an environmental study to accompany a rezoning application for Lot 1 and Lot 4
18 April, 2002	Letter from the Department of Land and Water Conservation to PMHC	Details the matters to be addressed in an environmental study to accompany a rezoning application for Lot 1 and Lot 4
6 May, 2002	Letter from the Coastal Council to PMHC	Details the matters to be addressed in an environmental study to accompany a rezoning application for Lot 1 and Lot 4
10 May, 2002	Letter from the Department of Urban Affairs and Planning to PMHC	Confirmation that an environmental study for the rezoning of Lot 1 and Lot 4 will be required
May, 2002	Flora and fauna survey carried out by Peter Parker Environmental Consultants Pty Ltd, and Dr Peter Brennan	<p>PPEC and Dr Brennan advised that the design of an appropriate buffer to the rainforest requires not only the determination of an appropriate width, but also the determination of what features (e.g. plantings or fencing) should be incorporated into the buffer.</p> <p>The report established both an appropriate buffer width (based on best practice) and the individual features to be included in the buffer</p>
June, 2002	Stormwater Quality Management Report prepared by Jelliffe Environmental Pty Ltd	This report established stormwater quality objectives, made recommendations regarding stormwater management and addressed the management of potential changes to the site hydrology and hydrogeology
26 June, 2002	Initial on site inspection and meeting attended by: <ul style="list-style-type: none"> - Hastings Council Councillors and staff; - Members of the HUGS Implementation Advisory Committee; - Planning NSW (now Department of Planning); - DLWC (now Department of Natural Resources); - Coastal Council (now Department of Planning); and - Members of consultant team for the draft LES. 	
26 August, 2002	Letter from Planning NSW to PMHC	Confirmation that land within 100 metres of the SEPP 26 Littoral Rainforest could be included within the

DATE	EVENT	OUTCOME
		Area 14 Urban Investigation Area
February, 2003	Cultural Heritage Assessment carried out by Jacqueline Collins (Consultant Archaeologist)	The assessment recorded the following results: 1. A mature 'Brush Box' tree bearing an oval scar believed to have been produced through the removal of bark for an Aboriginal shield. This tree has a high level of Aboriginal heritage value and scientific significance and should therefore be preserved in its current rainforest context, with no human access. The tree is located within the Littoral Rainforest, within the boundary of Lot 4. 2. Although no cultural materials were detected along Duchess Gully, past work on adjoining land indicates that the creek bank is archaeologically sensitive and may contain concealed evidence of Aboriginal occupation. 3. No archaeological sites or areas of potential archaeological deposits were identified over the remainder of the site nor are there particular Aboriginal concerns.
13 February, 2004	Correspondence between Council and the Department of Planning	Queries in relation to the possible acquisition of the buffer to the SEPP 26 Littoral Rainforest
16 March, 2004	Meeting with Department of Planning officers, Don Geering (Manager Integrated Policy) and Craig Munnings (Senior Policy Advisor Cabinet/Legislation for the Office of Minister Assisting the Minister for Infrastructure and Planning)	Discussions in relation to an acceptable merit based solution to the proposed treatment of the buffer to the eastern edge of the SEPP 26 Littoral Rainforest
July, 2004	Lake Cathie-Bonny Hills Urban Design Master Plan (UDMP) adopted by PMHC	The purpose of this document was to provide a draft urban design master plan comprising an overall integrated land use movement plan. The master plan includes: 1. Land use zones for the urban investigation areas that integrate with existing urban areas, 2. Development staging for the current urban reserves and future stage one releases, access links with possible future urban releases in the balance of the UIA's, 3. Management of hazards and conservation of land with environmental values. The document recognises the importance of Littoral Rainforest No 116 and introduces the land use concepts and densities for the UIA, including a Coastal Hilltop Village on the subject site. Additionally, the UDMP establishes the requirement for various infrastructure which will be needed to accommodate the population growth as set out by HUGS 2001.
July, 2004 –	Consultation and meetings between the	Discussions in relation to the proposed buffer

DATE	EVENT	OUTCOME
April, 2005	proponent and PMHC	treatment, the possible acquisition of the buffer area by Council, the preparation of the Area 14 DCP, urban design issues with respect to the proposed hilltop village and stormwater quality management issues
February, 2005	King + Campbell, on behalf of the owners of Lot 1 and Lot 4, lodge the 'Area 14, Stage 1B Draft LES' with PMHC	Hastings Council agreed to King + Campbell preparing and co-ordinating the Local Environmental Study (LES) for Lot 1 and Lot 4. It was agreed that as the SEPP No 26 Littoral Rainforest and the treatment of its edge was a particularly important issue to Stage 1B only, a more detailed consideration of that area was appropriate. Council undertook to review the draft LES, including a third party review, prior to its completion.
4 May, 2005	Correspondence between the proponent and the Department of Infrastructure Planning and Natural Resources	Seeking confirmation that a merit-based SEPP 26 buffer design based on scientific analysis was acceptable
12 July, 2005	Correspondence from DIPNR to King + Campbell	Confirmation received that land uses within 100 metres of the SEPP 26 boundary may be negotiated provided the proposed uses meet the objectives of SEPP 26
October, 2005	Meeting between the proponent and the Department of Planning's North Coast Regional Office	Issues discussed at meeting included the proposed buffer design, scientific analysis and proposed weed management/ bush regeneration measures on the eastern side of the SEPP 26 rainforest
9 December, 2005	Correspondence from the NSW Rural Fire Service in relation to the required APZ to the SEPP 26 Littoral Rainforest and revegetation areas.	The NSW Rural Fire Service advised, in part, the following: <i>"Based on the documentation provided, drawing number EX04 Revision A and a recent inspection of the site, it is advised that the existing vegetation to the east is identified as Littoral Rainforest. Planning for Bushfire Protection 2001 identifies this vegetation as Group 3 therefore requiring a 20m APZ. At the meeting it also identified that revegetation is proposed adjacent to this vegetation. This revegetation will be consistent with the existing vegetation and therefore maintaining the Littoral Rainforest classification."</i>
March, 2006	Bushfire Protection Assessment prepared by Australian Bushfire Protection Planners Pty Ltd	
6 March, 2006	Correspondence to proponent from Peter Parker	Letter confirms the following: <ul style="list-style-type: none"> - riparian vegetation within the south-west corner of the site has been retained; - the proposed buffer exceeds the recommended width within the initial flora and fauna report; - regeneration work on the eastern side of the rainforest will further enrich biodiversity; and - the proposed revegetation species are consistent

DATE	EVENT	OUTCOME
		with that recommended by the report.
21 March, 2006	Correspondence to proponent from Brennan Consulting	Letter confirms the following: - the proposed land uses within 100m of the rainforest meet the objectives of SEPP 26 and the buffer is well designed and will offer a high level of protection; and - three/four storey buildings located 70m from the edge will not create an eddy effect or increase salt deposition
11 May, 2006	Site inspection and stakeholders' meeting attended by Department of Planning (Head Office and Regional office), PMHC Officers, Consultants for PMHC and proponents	Meeting held to review King + Campbell Draft LES and to consider the way forward.
14 November 2006	Meeting between the Department of Planning's Don Geering and Jim Clark, PMHC representatives and the proponent	Discussions in relation to the proposed buffer design, Stage 1 Environmental Works, the use of a Planning Agreement and to arrange a stakeholders' meeting (Planning Focus Meeting).
13 December, 2006	Planning Focus Meeting at the Department of Planning's Bridge Street office, with the following in attendance: - Mr Don Geering, Acting Manager Integrated Policy; - Mr Jim Clark, Department of Planning, North Coast Office; - Dr Daniel Martens of Martens and Associates; - Dr Stephen Phillips, ecologist; - Mr Luke Nicholls, PMHC Director of Development and Environment and Mr Peter Cameron, PMHC Area 14 coordinator; - Mr Peter Parker, Ecologist; - Dr Lindsay Taylor and Mr James Lonsdale of Lindsay Taylor Lawyers; - Mr Anthony Thorne and Mr Andrew Campbell of King + Campbell; and - Mr Graham Cunning, Seawide Pty Ltd.	The following was agreed to in principle: 1. The Local Environmental Study (LES) to be completed by Council; 2. Subject to confirmation of the applicability of Part 3A, King + Campbell are to prepare a Concept Application providing appropriate details of future development; 3. A Planning Agreement is to be prepared by Lindsay Taylor Lawyers in relation to works to be undertaken at the rezoning stage; 4. Lindsay Taylor Lawyers were to document the legal process associated with the preparation of the above documentation; and 5. The LES, Concept Plan and Planning Agreement are to be publicly exhibited concurrently and subsequently adopted simultaneously.
10 January, 2007	Correspondence from the proponent to the Department of Planning	Seeking the Ministers opinion that the proposed development is a Major Project to which Part 3A of the Act applies.
18 January, 2007	Correspondence to the proponent from the Department of Planning	The Minister has formed the opinion that the proposal is a Project to which Part 3A of the Act applies
19 February,	Submission of the Preliminary Environmental	The purpose of the submission was to:
SURVEYING ARCHITECTURE PLANNING CIVIL ENGINEERING URBAN DESIGN		

DATE	EVENT	OUTCOME
2007	Assessment to the Department of Planning.	<ol style="list-style-type: none"> 1. Provide an outline of the proposal and a Preliminary Environmental Assessment; 2. Seek the Minister's authorisation to lodge a concept plan for the proposed development; and 3. Seek separate Director-General's Environmental Assessment Requirements (DGEARs) for: <ol style="list-style-type: none"> a. The Concept Plan Application; and b. The Stage 1 Project Application for the first Stage of the Proposed Environmental Works.
9 March, 2007	Meeting between proponents and Department of Lands (Mr Craig Barnes and Mr Bob Birse) to provide a briefing with respect to the proposal and to formally request owners consent with respect to the Crown Reserve (R 210059 and R82555)	<p>The Department was briefed on the proposal and provided with a full copy of the documentation (Preliminary Environmental Assessment).</p> <p>Owners consent was then received on 8 May, 2007 (see below)</p>
22 March, 2007	Meeting between proponent and the Departments' Part 3A assessment team (Ms H Warton, Ms A Carpenter and Ms P Tomkins)	It was agreed that a further Planning Focus Meeting would be held on the 9 May, 2007
8 May, 2007	Correspondence from the Department of Lands to the proponent	<p>Owners consent granted for the inclusion of the following works on the Crown lands as part of the Part 3A application:</p> <ol style="list-style-type: none"> 1. construction of a low impact boardwalk or similar pedestrian access along the existing track to the beach; and 2. weed removal/rehabilitation works along the eastern edge of the SEPP 26 Littoral Rainforest as part of the continuation of works undertaken adjacent to the Middle Rock car park.
8 May, 2007	Martens and Associates Pty Ltd completion of report (second draft) on the water management requirements for Lot 1 and Lot 4, prepared for PMHC	
May, 2007	Biolink Ecological Consultants completion of draft report, prepared for PMHC	
9 May, 2007	Concept Plan meeting attended by King + Campbell, Lindsay Taylor Lawyers, PMHC (Mr P Cameron), Department of Planning (Ms H Warton, Ms P Tomkins and Ms A Carpenter), Mr P Nelson	Discussion of format of proposal and relationship between Concept Plan Application, Rezoning Application and Planning Agreement
June, 2007	Biolink Ecological Consultants completion of final report, prepared for PMHC	
20 June, 2007	Correspondence to proponent from Peter Parker Environmental Consultants	Letter confirms that vegetation within the riparian corridor (south-west corner) can best be described as

DATE	EVENT	OUTCOME
		"Riparian rainforest" and that this area should be protected and enrichment planting undertaken.
29 June, 2007	Department of Lands provides advice to the proponent in relation to the gazettal of new reserve numbers for the adjoining Crown land fronting Lot 1	The Crown land fronting Lot 1 DP 374315 is now known as R754444 (previously R1011448)
July, 2007	Martens and Associates Pty Ltd completion of final report on the water management requirements for Lot 1 and Lot 4, prepared for PMHC	
18 July, 2007	Correspondence to proponent from PMHC	Final reports have now been completed by Martens and Associates and Biolink Ecological Consultants. Both studies confirm that there are unlikely to be significant impacts on groundwater conditions below the SEPP 26 rainforest, based on the provision of a revegetated buffer of an average width of 30 metres adjacent to the existing SEPP 26 Littoral Rainforest.
19 July, 2007	Correspondence to proponent from the Department of Planning	The Minister authorises submission of a Concept Plan to be lodged pursuant to Section 75M of the Act
8 August, 2007	Correspondence to proponent from the Department of Planning	The Director General's Environmental Assessment Requirements for the environmental assessment of the project for a Concept Plan and Stage 1 Project Application
25 October, 2007	Meeting between proponent and Council (Mr P Cameron and Ms V Penfold)	Purpose of meeting was to discuss the final reports from Martens and Biolink and decide on an appropriate way forward for the Part 3A application.
13 November, 2007	Workshop meeting regarding the proposed planning for coastal working tracks and off road cycle tracks in the Bonny Hills and Lake Cathie area, attended by: - Bonny Hills Progress Association, - Lake Cathie Progress Association, - PMHC, - Rob Oakeshott MP, - Landcare groups, - Bonny Hills Mountain Cycling Group, - National Parks, - SVF representatives, - King + Campbell on behalf of Milland Pty Ltd and Seawide Pty Ltd	In relation to subject proposal support expressed for inclusion of coastal walk in Concept Plan and inclusion of revegetation works in Stage 1. Commitment to further consultation at the draft EA Stage.
15 November, 2007	Correspondence from proponent to PMHC	Letter to formally request that Council commence the preparation of a voluntary planning agreement in relation to the proposed environmental works which are included in the Part 3A Concept application.
15 November, 2007	Meeting between proponent and Council (Mr P Cameron and Ms V Penfold)	Issues discussed included the VPA process, outcomes from the Martens groundwater investigations, the DCP process and proposed provisions.

DATE	EVENT	OUTCOME
27 November, 2007	Correspondence to the proponent from PMHC	Confirmed that VPA process will be considered as part of Councils preparation of the LES, LEP and DCP. The letter also confirmed that Martens and Associates were to be engaged by Council to prepare more detailed DCP provisions (groundwater) and that these provisions will inform the K+C Part 3A submission.
February, 2008 – October, 2008	Fee quotations sought from a number of specialist consultancies to address the Key Issues within the DGR's	Negotiations ongoing during this time to ensure all aspects of DGR's will be addressed
8 February, 2008	Correspondence from proponent to the Department of Planning in relation to the exhibition of the Draft Mid North Coast Regional Strategy and Lot 1 and Lot 4	Submission sought an amendment to the Draft Map 7 to be consistent with the footprint of the proposed indicative structure plan include in the Part 3A submission. It was also confirmed that PMHC's LES, and Draft LEP included an identical footprint to that in the Part 3A submission.
11 February, 2008	Email correspondence from the Regional Director, North Coast Department of Planning to the proponent	The issues raised in our submission of 8 February, 2008 will be taken into consideration in the development of the final strategy.
10 April, 2008	Telephone conversation between proponent and the Department of Planning (Ms P Tomkins), seeking confirmation in relation to some issues identified within the DGR's	Ms Tomkins confirmed the following: 1. VPA's - Concept only - comment required on whether contributions will be made via s94 contributions or VPA. If VPA then details of timing and what it covers will be required. If VPA's discussed with Council then need to know their/our intentions etc and how far the negotiations have gone. 2. Traffic - can only assess as information on other developments becomes available. 3. Flooding - If not an issue then explain why or show why it is minor. The Department included this on the DGR's as we flagged it as an issue in our preliminary application. The detail we go into on each impact should be commensurate with the actual level of impact - therefore if minor don't go into a lot of impact. 4. Authorities - Beneficial to talk to each authority prior to lodging to ensure if fundamental problems exist. 5. Community Consultation - Make community aware – or if consultation has occurred elsewhere with the Area 14 Structure Plan include the details. If our proposal is consistent with Area 14 Structure Plan then community is already aware - this is the level of information needed.

DATE	EVENT	OUTCOME
20 May, 2008	Completion of the proposed 'Co-ordination plan for Bonny Hills and Lake Cathie Coastal Walking and cycle tracks' (by Luke & Co)	Attached at Appendix K
28 October, 2008	Correspondence from proponent to Planning and Aboriginal Heritage – North East Environment Protection & Regulation Group (DECC)	Advice sought in relation to known Aboriginal Stakeholder Groups in the mid north coast area
30 October, 2008	Correspondence to proponent from the Acting Manager Planning and Aboriginal Heritage – North East Environment Protection & Regulation Group (DECC)	The names and addresses provided of the known Aboriginal Stakeholder Groups in the mid north coast area (other than the LALC's)
25 February, 2009	Correspondence to proponent from PMHC regarding Martens and Associates Pty Ltd	Council confirmed that Martens and Associates had been engaged by Council to clarify recommendations from their report dated July, 2007 and to undertake further pre and post development modelling and prepare a conceptual stormwater design and recommendations for DCP provisions for the catchments adjacent to the Littoral Rainforest.
14 May, 2009	Meeting between proponent and adjoining landowners (SVF)	Issues common to both current Part 3A applications discussed, including, regarding Coastal Hazard Study, access, flooding, rainforest and services discussed
June, 2009	Correspondence from proponent to various local aboriginal stakeholder groups / individuals	Consultation carried out in accordance with the 'Interim Community Consultation Requirements for Applicants', (DEC, 2004) and the draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DEC, 2005)
June, 2009	Public Notices in relation to Aboriginal Site placed in three local newspapers	Consultation carried out in accordance with the 'Interim Community Consultation Requirements for Applicants', (DEC, 2004) and the draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DEC, 2005)
24 June, 2009	Draft report by SMEC in relation to coastal hazard assessment completed	The development is located well landward of the coastal hazard zones within a 100 year planning horizon.
3 July, 2009	Site inspection undertaken by proponent for the purposes of the visual assessment	<p>The primary purpose of the inspection was;</p> <ul style="list-style-type: none"> - to determine viewpoint assessment points; - to locate by survey the viewpoint locations; - to survey sight lines from Rainbow Beach onto the site; and - to take photographs of the view lines from each viewpoint. <p>The viewpoint locations were determined on the basis of being a primary public location which may be detrimentally impacted, by way of visual amenity, as a result of the proposal.</p>

DATE	EVENT	OUTCOME
9 July, 2009	Workshop meeting at PMHC, attended by proponent, landowners, PMHC staff and Daniel Martens of Martens and Associates	Martens and SMEC draft reports were tabled and discussed.
16 July, 2009	Correspondence from proponent to Department of Planning	Request for 'renewal' of DGR's
24 June, 2009	Draft Report by SMEC completed, in accordance with the DGR's - section 6.1 (coastal hazards) and section 5.2 (public access to beach)	The report documented the technical studies undertaken for the proposed development, addressed the hazards and provisions of the NSW Government Coastline Management Manual.
22 July, 2009	Correspondence to proponent from the Department of Planning	Amended Director Generals Environmental Assessment Requirements for the environmental assessment of the project for a Concept Plan and Stage 1 Project Application provided
30 July, 2009	Noise loggers placed at two locations on Ocean Drive by Heggies Pty Ltd	Noise loggers in place from 30 July to 7 August, 2009
11 August, 2009	Advice to proponent from SMEC in relation to amended DGR's	SMEC confirm that their report addresses the matters raised in the amended DGR's
11 September, 2009	Correspondence to proponent from the Department of the Environment, Water, Heritage and the Arts	Request for advice in relation to the proponents intentions of referring the Part 3A submission to DEWHA
March 2010	Receipt of Final Ecological, Traffic Noise, Bushfire and Coastal Hazard Assessments for inclusion in draft EA	Compilation of Draft EA
	Informal submission of Draft EA to DOP for initial feedback	Compilation of amended Draft EA for submission to DoP
April 2010	Receipt of comments from the DOP	
May 2010	Meeting with Ms Joanna Bakopanos (DOP) in relation to the above	
June, 2010	Preparation of Preliminary Site Investigation pursuant to SEPP 55	
June, 2010 – July 2010	Preparation of Vegetation Management Plan by Wild Things Native Gardens and King + Campbell	
July, 2010	Receipt of final Traffic Noise Impact Assessment, Heggies	
July, 2010	Receipt of Preliminary Geotechnical Assessment, Martens Consulting Engineers	
July, 2010	Receipt of final Flora and Fauna Report, Peter Parker Environmental Consultants	
July, 2010	Receipt of final Area 14 Groundwater Study, Martens Consulting Engineers	
July, 2010	Receipt of Final Flood Assessment by Cardno (Qld) Pty Ltd	
SURVEYING ARCHITECTURE PLANNING CIVIL ENGINEERING URBAN DESIGN		

DATE	EVENT	OUTCOME
October - November, 2010	Meeting with DOP and receipt of comments	Compilation of amended EA for formal Test of Adequacy submission to the DOP

In addition to the above, meetings have been held with PMHC and SVF representatives on a 6-8 week basis over the past two years to deal with Area 14 wide issues, including traffic, servicing, urban design, all of which will ultimately be incorporated in an Area 14 DCP.

5.2 Proposed Community Consultation

Community consultation in relation to the future development of the Area 14 locality has been ongoing since the early 2000's. The Lake Cathie Bonny Hills UDMP Master Plan which was developed by Diecke Richards was formally adopted by Council in 2004 following extensive community consultation with key stakeholders and interest groups.

This community consultation process included design workshops which were attended by Council, the Hastings Urban Growth Strategy (HUGS) implementation committee, State Government agencies and the local community. A public meeting, the 'Community Visioning Workshop', was also conducted and included representatives from the community, local organisations and the Lake Cathie and Bonny Hills Progress Association.

The community workshops discussed the following issues relevant to Area 14 generally:

- Movement – street network, public transport, pedestrian / cycle access, built form interfaces;
- Environment and heritage – fauna / flora, bushfire, Aboriginal archaeology, visual assessment, built form interfaces;
- Infrastructure – water, sewerage, soils, geotechnical, landslip, hydrology, drainage, flooding,
- Community and cultural needs – community facilities; education; retail, employment, cultural.

The formal exhibition period associated with the subject Concept Plan and Stage 1 Project Applications will enable the continuation of this public involvement. Not only will this exhibition period provide an update with regard to the overall development of the Area 14 locality, but it will provide information in relation to the specific concepts included in this application.

In conjunction with the formal exhibition period and in consultation with the Department of Planning it is proposed to conduct a public meeting with the local progress associations during the exhibition period to provide an opportunity for further community input. This undertaking is included in the Statement of Commitments.

Section 6

Environmental Assessment

6.1 Strategic Planning

Section 4 to this submission has provided a summary of the statutory context applicable to development of the site and an assessment against the relevant controls contained within the legislation. The proposal was found to demonstrate consistency with these local, regional and state strategies and the draft zone plan developed for the site at Exhibit 10 will ensure that all future development satisfies the aims and objectives of these strategies.

6.1.1 Local, Regional and State Strategies

Further to that provided at Section 4, the following table provides a discussion and summary of consistency with the key local, regional and state strategies and the sustainability criteria contained therein:

Legislation	Comment
<p><u>Local Strategy:</u></p> <p>Greater Lake Cathie and Bonny Hills Urban Design Master Plan</p>	<p>This local strategic strategy was adopted by PMHC in July 2004 specifically in relation to the 'Area 14' locality within which the site is situated. Generally the land use concepts ('Hilltop Village', rainforest buffer and housing densities) outlined in the strategy has been incorporated within the Concept Plan.</p> <p>Appendix B includes 'Map 2' from the Master Plan document (the adopted plan), together with a transparent overlay of Exhibit 05A – 'Subdivision Concept Plan'. The following discussion has regard to these plans:</p> <p><u>Environmental Buffer:</u></p> <p>Master Plan – The Master Plan includes a generic 100m buffer to the rainforest, within which a 'collector' perimeter road is located.</p> <p>Concept Plan - The width of the environmental buffer to the rainforest has been determined following detailed investigations by specialist consultants. The result is a site specific design-based buffer incorporating a vegetated buffer approximately 40 – 60m in width established as the first stage of the site. The width and make up of the buffer is supported by all specialist reports attached to this submission.</p> <p>The buffer will incorporate the retention and enhancement of all existing native vegetation on the western side of the rainforest and include weed removal, both within the regeneration areas and on the fringes of the rainforest itself. The vegetated buffer will be protected by a combination 2m high fence and 'spiky' hedge planting. The fencing has been designed to incorporate the proposed boardwalk access to the beach, formalising the existing beach access track.</p> <p>In addition, public lands including open space with perimeter road, groundwater recharge and stormwater quality biofiltration facilities, a cycleway, pedestrian</p>

Legislation	Comment
	<p>pathways and designated car parking areas will form part of the overall buffer treatment. The location of this perimeter road within the buffer was identified by the Master Plan.</p> <p>The buffer will also incorporate a 'boardwalk' pedestrian path which will formalise existing track through to Rainbow Beach. Built form development will be located on the western side of the perimeter road.</p> <p><u>Low and Medium Density Residential Areas</u></p> <p>Master Plan – A large footprint of medium density housing is located directly adjacent to the Hilltop Village, with low density residential areas located to the north and south of the site.</p> <p>Concept Plan - The low density residential areas will occupy areas of lower elevations directly to the north and south of the Hilltop Village / medium density area, this being generally consistent with the UDMP.</p> <p>However further investigation of the locality, including the existing residential development patterns and the site has resulted in the reduction of the large medium density footprint. Instead, the medium density areas have been positioned to areas of high aesthetic and scenic quality. The site provides for two areas which can satisfy these criteria:</p> <ul style="list-style-type: none"> - adjacent to the stormwater infiltration/detention basin and associated open space, at the northern extent of the site; and - adjacent to the southern boundary of the site which will adjoin a future eco-tourism development on the adjoining lot to the south. This area is also adjacent to a proposed controlled beach access point within the adjoining tourist site. <p>The proposed mix of housing styles will cater for a broad demographic, as can currently be found in the Lake Cathie and Bonny Hills locality and as envisaged in the UDMP.</p> <p><u>Commercial/Residential/Tourist</u></p> <p>Master Plan – Centrally located on the highest east-west ridgeline.</p> <p>Concept Plan - This submission supports the location of this commercial area and has identified a 'commercial' zone on the ridge top. It is anticipated that the height of buildings within this precinct (maximum of 14.5m) will enable ground floor commercial and tourist/residential uses, with upper level residential uses. Given the existing retail hierarchy in Lake Cathie and the proposed location of a Town Centre on the adjoining lands, the footprint of the Hilltop Village has been reduced such that it relates to the main road.</p> <p><u>Open Space</u></p> <p>Master Plan - The UDMP included the concept for a 'hilltop' park to adjoin the commercial precinct and to create a key focal point on the ridge on the primary access point from Ocean Drive.</p> <p>Concept Plan - As part of this submission further consideration has been given to the most appropriate land use pattern. Based on the surrounding land uses (Hilltop Village, main street, collector road) the proposed Village Square is considered to be a more appropriate form of public open space than the hilltop</p>

Legislation	Comment
	<p>park. Additional public open space has been provided in the form of a pocket park linking the eastern end of the Hilltop Village main street with the boardwalk beach access.</p> <p>The Village Square will create a landscaped focal point on the ridge line and enable the retention of district views, consistent with the UDMP.</p> <p>The pocket park will incorporate pedestrian pathways to provide an effective link, both physically and visually, between the beach access point and the Hilltop Village.</p> <p><u>Circulation, Access and Transport</u></p> <p>Master Plan – The UDMP identifies the location of the main collector roads; onto the site from the Abel Tasman Drive and Ocean Drive intersection and through the Hilltop Village. The local roads are identified as being within the buffer to the rainforest, along the western boundary adjacent to Duchess Gully and as a 'shared' road with the development site to the south.</p> <p>Concept Plan - The proposed road network is consistent with the UDMP, with the provision of a perimeter road as part of the buffer treatment to the rainforest, the location of the main collector road onto the site from Ocean Drive, the east-west 'main' road for the proposed 'Hilltop Village', the north-south road adjacent to the western boundary / Duchess Gully and the 'shared' road on the southern boundary.</p> <p>Upon entry to the site from Ocean Drive, arrival at the Hilltop Village main street will be identified through distinctive street planting within the Village Square. The primary pedestrian access point will then be distinguished with the location of the pocket park adjacent to the beach access point.</p> <p>Roadnet's Area 14 Traffic Impact Study has recommended traffic lights be installed at the intersection with Ocean Drive providing a long term solution to facilitate orderly, circulation of traffic and pedestrian movements.</p>
<p><u>Regional Strategy:</u></p> <p>Mid North Coast Regional Strategy</p> <p>NSW Coastal Policy 1997</p> <p>Coastal Design Guidelines 2003</p>	<p>This strategy was adopted by the Department of Planning in March 2009. The proposed Concept Plan is consistent with this strategy and will facilitate its implementation. The site is included as a 'Proposed Future Urban Release Area' and will provide additional residential dwellings to help meet the projected 18,300 dwellings required in the Hastings/Macleay Valley sub region to accommodate population growth. The proposed Concept Plan is consistent with the aims of the strategy, as detailed at Section 4.2.11.</p> <p>This policy sets out the State Government's goals and vision for the planning and management of the NSW Coastline. The nine (9) goals established by the policy are based on the principles of ecologically sustainable development. The subject proposal has demonstrated consistency with the goals embodied in the Coastal Policy through successfully managing the natural coastal processes, protecting and conserving the identified flora/fauna, scenic and heritage qualities of the site for future generations and by providing for human settlement with appropriate access and management arrangements.</p> <p>The Coastal Design Guidelines embody a number of principles to ensure coast development is sensitive to the unique natural and urban settings of the NSW coastline. The Concept Plan has been reviewed against the five principles</p>

Legislation	Comment
	<p>established by these guidelines (see Section 4.2.12). The urban and environmental concepts included in the Concept Plan satisfies all five principles through:</p> <ul style="list-style-type: none"> • Defining the footprint to the residential settlement; • Connecting areas of open space, both within the boundaries of the concept plan and externally with adjoining existing and future development; • Ensuring the protection of natural edges through appropriate buffer design; • Establishing a hierarchy of local streets to support the proposed urban land uses; and • Establishing design principles with street layout to ensure appropriate buildings for the coastal context
<p><u>State Strategy:</u></p> <p>SEPP No. 26 – Littoral Rainforest</p>	<p>The preservation, conservation and enhancement of Littoral Rainforest no. 116 are the primary consideration of any development of the site. Accordingly all specialist consultants have undertaken their investigations in keeping with the aim of this policy as a primary consideration. Land within the rainforest and land within 100m of the rainforest has been considered in the investigations.</p> <p>The potential edge effects to the rainforest as a result of future residential development has been considered and a 'best practice' approach involving scientific analysis has been developed for the proposed 'buffer' design. The proposed buffer design, which incorporates features developed by PPEC, Dr Brennan, Wild Things Native Gardens (Bush Regenerators), Jelliffe Environmental and Martens & Associates, facilitates the protection and enhancement of the rainforest for future generations, in accordance with the aim of this policy.</p>

6.1.2 Council Rezoning Process

The site is currently zoned part Rural 1(a1) and part Environmental Protection 7(f1) 'coastal' under the provision of HLEP 2001. PMHC has completed a Planning Proposal as the next phase in the implementation for Stage 1B of Area 14 of the Greater Lake Cathie Bonny Hills Urban Design Master Plan. The Planning Proposal was reported to PMHC at its meeting of 25 August, 2010. A copy of the report and recommendation is included at Appendix Q. The Department of Planning have issued a Gateway Determination on 20 October 2010, which provides approval for PMHC to publicly exhibit the Planning Proposal. A copy of the Gateway Determination is included at Appendix R.

The proposed zones in Exhibit 10 of this application are consistent with PMHC's approved Planning Proposal.

PMHC intend to publicly exhibit the Planning Proposal with the Planning Agreement (VPA) currently being negotiated between the landowners and PMHC.

Additionally a draft DCP for the whole of the Area 14 Urban Investigation Area is currently being prepared by PMHC. The DCP will apply to the land area associated with the subject proposal, the land area of the adjoining St Vincent's Foundation site and to lands on the northern side of Ocean Drive.

6.2 Urban Design and Sustainability

As set out at Section 3 the purpose of this Concept Plan is to establish a clear vision for development of the site for urban purposes, to ensure integration with the current and future development of the Area 14 Urban Investigation Area and in so doing, ensure that the development is sustainable.

The suitability of the locality for urban purposes has already been established at a strategic level with the adoption by PMHC in 2001 of the Hastings Urban Growth Strategy, followed thereafter in 2004 with the adoption of the Lake Cathie Bonny Hills Urban Design Master Plan within which the site is identified as part of the Area 14 Urban Investigation Area.

PMHC have prepared a Planning Proposal/draft LEP for the site as Stage 1B of the Area 14 UIA. The Department of Planning issued its Gateway Determination on 20 October 2010 approving its public exhibition.

PMHC is also currently preparing a DCP for the Area 14 UIA including the subject properties, the adjoining St Vincent's Foundation property and the properties on the opposite side of Ocean Drive within the UIA.

This application for Concept Plan approval will ensure that future development respects the site's unique environmental qualities, is cost-effective and will ensure the attainment of the following vision for the site:

To create a sustainable residential community which will integrate with the future development of the Area 14 locality. All development will respect the unique environmental and visual qualities of the site and aim to ensure that the long term viability of the SEPP 26 Littoral Rainforest is protected and enhanced for future generations.

The Concept Plan will respect the wishes of the local community, as identified in the Area 14 workshop process, through promoting a strong village atmosphere where environmental issues are valued. The Concept Plan will acknowledge that people who choose to reside in this location have been attracted by its unique environmental and scenic qualities.

6.2.1 Land use integration and compatibility

The proposed land use concepts included in the Concept Plan will ensure that the future resident population benefit from the sustainable development of the site. In summary these benchmarks for sustainability include the following:

1. The provision of services and infrastructure (sewer, water supply) will be coordinated with the overall development of Area 14 and therefore cost effective. In addition, dual reticulated water will be available for all new residential development;
2. Access to shops, a primary school and sporting fields will be within walking distance to their place of residence;
3. Pedestrian pathways and bike trails will link with the existing pathways and bike paths in the locality;
4. The environmental qualities of the site will be protected with the provision of suitably designed buffers established as the first stage of the site; and
5. The site will offer an attractive lifestyle for future residents, with easy access to employment areas and recreational facilities.

The following provides details of the above:

6.2.1.1 Services and infrastructure

Water

In early 2010 PMHC received funding to undertake major water supply augmentation works to effectively link the Area 14 Urban Investigation Area to the existing reservoir at Bonny View Drive.

Appendix L includes correspondence from PMHC confirming that the existing system has 400 Equivalent Tenements capacity in the vicinity of the subject site. The correspondence also confirms that the works which are proposed to be completed by June 2011 will cater for all future development within Area 14 in terms of potable water supply.

Sewerage / water reuse

The Minister for Local Government officially opened the new \$17.4m augmentation of the Lake Cathie Bonny Hills Sewerage Treatment Plant (STP) on the 27 May, 2010. This facility now has the capacity to cater for all new development in Area 14 as well as further expansion within the existing Lake Cathie Bonny and Hills townships.

PMHC initially embarked on the major upgrade of the STP to specifically cater for the expected ultimate population of the Area 14 UIA and the Lake Cathie Bonny Hills townships.

The augmentation also provided for the following:

- Biological nutrient removal processes and additional chemical dosing;
- Increased bio-solids handling areas;
- An increase in capacity of the membrane tertiary facility.

Appendix M contains a copy of the report to the PMHC meeting held on 26 May 2010 which confirmed:

- The upgrade of the Bonny Hills Lake Cathie Sewerage Treatment Plant (STP) is complete;
- The construction of the recycle effluent pipeline as part of the Hastings Effluent Management Strategy (HEMS) will be completed by the end of 2010. The completion of this pipeline will ensure the delivery of dual reticulation (potable and non-potable water services) to Area 14 including the subject properties;
- The moratorium on new residential development in Lake Cathie/Bonny Hills (including the subject properties) was removed.

The MOU being prepared with the adjoining landowner, SVF includes provision for the sharing of the cost of the required connection to the new STP on an equivalent tenement (ET) basis between the landowners.

Appendix M also contains a plan showing the indicative sewerage strategy for the subject properties.

With the completed augmentation of this facility, PMHC at its meeting of 26 May, 2010 resolved to remove the moratorium on new development in the Lake Cathie Bonny Hills locality and to rescind their policy titled, *"Lake Cathie/Bonny Hills Moratorium on New Residential Development"*.

Appendix M also contains written confirmation from PMHC that *"... there are no infrastructure services impediments to the Part 3A Concept Plan or Project Applications proposed by Milland Pty Ltd and Seawide Pty Ltd."*

6.2.1.2 Land use zones

The location of the proposed medium density residential areas will coincide with the location of the Hilltop Village, being a key focal point of the urban environment. This area also coincides with the higher elevations thus ensuring view retention to the key natural features of the locality, including North Brother Mountain, Jolly Nose Mountain and the Pacific Ocean. In addition, its central location on the site will enable future residents to walk to the village and be less reliant on cars for their daily needs.

The Village Square will create a key focal point on the ridge at the primary access point from Ocean Drive and announce your arrival at the Hilltop Village. The pocket park, located in close proximity to the boardwalk beach entry, will incorporate pedestrian pathways to provide an effective link, both physically and visually, between the beach access

point and the main street of the Hilltop Village.

The Hilltop Village extends to the public interface with the rainforest buffer area. With an active street frontage as part of the Hilltop Village, residents and visitors will be encouraged to walk to the designated access point (boardwalk), leading through the rainforest to Rainbow Beach.

Medium density is located adjacent to the Hilltop Village. As the Hilltop Village will incorporate residential development on the upper levels, this will provide a consistent style of development with adjoining residential flat or townhouse development as part of the medium density provision. Additional medium density areas have been provided adjacent to the northern and southern boundaries, on land in close proximity to open space areas and access points to Rainbow Beach, providing high aesthetic and scenic qualities.

The low density residential areas will occupy areas of lower elevations directly to the north and south of the Hilltop Village and medium density areas. These residential areas are also in close proximity to the Hilltop Village, ensuring that the future residents will be able to walk to their local facilities.

6.2.1.3 Access / circulation

The layout of the internal road system was governed by the pre-determined location of the main collector road from Ocean Drive, the location of the Hilltop Village and the perimeter road as part of the public component to the rainforest buffer treatment. To maximize view lines towards the ocean and the public open space adjacent to the rainforest, east-west access roads are considered desirable. This also has the added benefit of providing north-south oriented residential lots.

Upon entry to the site from Ocean Drive, arrival at the main commercial centre will be identified through the public open space and distinctive street planting within the Village Square. The other primary pedestrian access point will then be distinguished with the location of the pocket park adjacent to the beach access point.

Cycle ways and pedestrian paths will be within the open space adjacent to the perimeter road in accordance with the coordination plan at Appendix K.

6.2.1.4 Environmental buffers

Approximately 7.27 ha of the site will be set aside for environmental protection buffers. The buffer will incorporate the retention and enhancement of all existing native vegetation on the western side of the rainforest and include weed removal, both within the regeneration areas and on the fringes of the rainforest itself.

The 40-60m wide vegetated buffer will be protected by a combination 2m high fence and 'spiky' hedge planting. The environmental buffer also includes an area of open space containing scattered trees, pathway/cycleway, carparking area, stormwater

biofiltration/groundwater recharge facilities and a perimeter public road. The establishment of the environmental buffer as the first stage of works on the site will also incorporate a boardwalk pedestrian path to formalise the existing track though to Rainbow Beach. Built form development will then be located on the western side of the public perimeter road.

The small frontage to Duchess Gully in the SW corner of the site will be buffered by areas of revegetation and stormwater biofiltration facilities adjacent to a public perimeter road.

6.2.1.5 Lifestyle

The land use concepts and built form environment of the Concept Plan will offer a desirable residential lifestyle location for future residents. The profile of incoming residents developed at Section 6.11 to this submission has established the following characteristics as being representative of the incoming residents.

- The site will be seen as desirable by both families and active, younger retirees, where the proximity to employment areas is important (15 minute drive to Port Macquarie, 10 minute drive to Laurieton and 10 minute drive to the Pacific Highway);
- The site will provide an attractive lifestyle choice where convenience to urban facilities and services is as important as convenience to recreation facilities. The site is in close proximity to shops, community services, medical centres, schools, sporting fields, beaches and outdoor recreation facilities, both existing and proposed as part of the Area 14 development ;
- The environment will be valued and residing within a community with likeminded residents who also value the environment will be an attraction;
- Living within a safe community where children can walk to local facilities and primary schools will be desirable;
- Car ownership will be high however access to school bus services, particularly to secondary schools, will be important;
- Retaining natural features and areas of open space will be important, together with retaining sight lines to these natural features as this will provide an assurance that the area is not overdeveloped;
- Retaining aspects of the natural environment and access to these natural areas will be considered as important as access to all urban infrastructure;
- Community values will be important, including ensuring the local community develop a sense of ownership over the environmental features of the locality.

6.2.2 Consistency with Coastal Strategies

Section 4 to this submission has provided a summary of the statutory context applicable to development of the site and Section 6.1.1 provides a summary of consistency with the key local, regional and state strategies and the sustainability criteria contained therein.

The following summary demonstrates the consistency of the proposed subdivision design and layout with the key coastal strategies applicable to the site:

SEPP No.71 – Coastal Protection	
Clause 8	Comment
(a) The aims of this Policy set out in clause 2.	The proposal satisfies the aims of this policy through the following:
(b) Existing public access to and along the coastal foreshore for pedestrians or persons with a disability. and (c) Opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability	Currently there is no legal public access through the site to the coast line. An informal walking track located on the prolongation of the common boundary between Lot 1 and Lot 4 through the Littoral Rainforest to Rainbow Beach, is as shown on Exhibit 02 of this report and has resulted in limited weed invasion. Improved public access will be provided by a public perimeter road and open space network and a suitably controlled pedestrian access way through the rainforest to Rainbow Beach. The provision of appropriate public access will ensure both the protection of the sensitive coastal area and enjoyment by the public of the unique natural resource of the Littoral Rainforest.
(d) The suitability of the development given its type, location and design and its relationship with the surrounding area	The need to establish additional housing and infrastructure within Area 14 has been identified by the adoption of HUGS and the Greater Lake Cathie/ Bonny Hills Urban Development Master Plan. Appropriate and detailed studies have been undertaken to ensure that the proposed development of the study site can be achieved whilst affording the protection and preservation to the adjoining Littoral Rainforest and coastal environment.
(e) Any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing or loss of views. and (f) The scenic qualities of the NSW coast, and means to protect and improve those qualities.	The local topography, together with the aspect of the study site, will ensure that overshadowing of the coastal foreshore will not occur. The development of the study area will not result in loss of views for any existing development. However, the views from the study site to surrounding geographical features, including Big Brother and Jolly Nose will be encouraged. Additionally, views to the site from the beach area are obscured by the density, height and topographical landforms of the Littoral Rainforest. The developed area of the study area will undergo change in accordance with the design controls of the Greater Lake Cathie / Bonny Hills UDMP which recognises the unique topography and highlight the existing views available from the site.
(g) Measures to conserve animals and plants, and	The conservation of the existing flora and fauna will be achieved through a combination of preservation, regeneration, restriction and protection.

SEPP No.71 – Coastal Protection	
Clause 8	Comment
<p>their habitats.</p> <p>and</p> <p>(h) Measures to conserve fish and marine vegetation and their habitats.</p> <p>and</p> <p>(i) Existing wildlife corridors and the impact of development on these corridors</p>	<p>Firstly, the existing Littoral Rainforest will be conserved in its entirety. Secondly, revegetation will be carried out within the proposed buffer zone. Thirdly, subject to the establishment of a Planning Agreement, weed removal and rainforest regeneration works are proposed along the western edge of the Littoral Rainforest. Finally, public access will be restricted within the rainforest area and the proposed buffer design will incorporate appropriate protection measures.</p> <p>Through restricting public access and protecting the Littoral Rainforest area the conservation of plants, animals and habitat will be achieved. Future development as proposed by this submission will occur on the cleared areas of the site, i.e. on areas a minimum of 70 m from the rainforest edge.</p> <p>Measures to mitigate potential impacts on aquatic habitats include stormwater quality biofiltration facilities, riparian revegetation and improved environmental flows in Duchess Gully.</p> <p>The existing wildlife corridors formed by the SEPP 26 rainforest and to a less extent Duchess Gully will be enhanced by the development through the improvement of the width to edge length ratio achieved via the proposed revegetation works. The quality of the vegetation within the existing corridors will be improved by the proposed weed and vegetation management works.</p> <p>The other significant natural environmental feature of the site is the SEPP 26 Littoral Rainforest.</p> <p>The protection and enhancement of the existing littoral rainforest is a fundamental component of the Concept Plan. The Stage 1 Environmental Works which are proposed to be undertaken prior to any residential development will include eradication of existing weeds, ongoing weed management, establishment of a 40-60 metre vegetated buffer, a 2m exclusion fence to minimise impacts of human intrusion and domestic pets and the formalisation of the existing track with a pedestrian boardwalk through the littoral rainforest to the beach.</p> <p>These works will ensure the retention and enhancement of this significant feature of the natural environment for existing and incoming residents which also proving legal public areas to the coastal foreshore.</p> <p>The site adjoins Rainbow Beach which is another very important feature of the natural environment. The Stage 1 Environmental Works include the establishment of legal public access to the beach and help establish pedestrian links to the other beach accesses at Middle Rock and on the St Vincents Foundation property to the south.</p> <p>The visual impact assessment undertaken in association with the Concept Plan has determined that the three/four storey buildings proposed in the Hilltop Village main street will not be visible from the beach or Middle Rock. The retention of the largely natural visual environment on the adjoining beach is an important aspect of mitigating potential impacts on the natural environment.</p>
<p>(j) The likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards</p>	<p>A Coastal Hazard Study has been undertaken by SMEC (Appendix G). The study confirms there will be no impact on the proposed development as a result of coastal hazards.</p> <p>Likewise the implementation of the Stage 1 Environmental Works as the first stage of development combined with the proposed stormwater/groundwater management measures will minimise potential impacts of the development on coastal processes and hazards.</p>

SEPP No.71 – Coastal Protection	
Clause 8	Comment
(k) Measure to reduce the potential for conflict between land based and water based coastal activities	Conflict between land based and water based activities is not envisaged as a result of the proposed development. Through protecting and regulating access to the Littoral Rainforest and therefore access to the adjoining beach area, suitable separation will be maintained.
(l) Measures to protect the cultural places, values, customs beliefs and traditional knowledge of Aboriginals. and (n) The conservation and preservation of items of heritage, archaeological or historic significance	The Cultural Heritage Assessment carried out by Jacqueline Collins (consultant archaeologist) has confirmed the presence of a scarred tree with a high level of Aboriginal heritage value and scientific interest. As this tree is situated within the Littoral Rainforest area its protection and preservation is assured. At the request of the LALC, the location of this tree will not be made public. The proposed boardwalk will not provide access to the tree.
(m) Likely impacts of development on the water quality coastal water bodies	The proposal includes concept stormwater designs to ensure the quality of stormwater generated from the site will be improved in comparison to existing conditions. The Groundwater Study by Martens & Associates (Appendix D) includes recommendations to mitigate the potential impacts on the existing groundwater regime.
(o) Only in cases in which a Council prepares a draft local environmental plan that applies to land to which this Policy applies, the means to encourage compact towns and cities	HUGS and the Greater Lake Cathie and Bonny Hills UDMP were developed on the basis of ensuring compact towns. The UDMP included identification of three alternative future growth strategies. The preferred strategy is that of a new village which provides higher order needs for the new and existing two settlements. Deicke Richards provides the following reasons for preferring this model: <ul style="list-style-type: none"> • Lake Cathie and Bonny Hills are separated, there is enough land that is well integrated and connected to the overall urban structure of Area 14 to accommodate new discrete neighbourhoods or villages between them; • There are environmental corridors restricting the area of expansion around Lake Cathie and Bonny Hills; • Larger portions of the site are in single ownerships. This allows appropriate areas of land for large scale uses; supermarkets, community facilities, schools, regional sporting facilities to be incorporated and their inter-relationships will readily be achieved; • The land is undulating and elevated facilitating high quality urban design outcomes; • The existing settlements will have less pressure and need for major redevelopment allowing them to easily retain their existing character; • Street systems can be designed to accommodate a variety of lot sizes and housing types (Deicke Richards, 2003 p15).
(p) Only in cases in which a development application in relation to proposed development is determined (iii) The cumulative impacts of the proposed	Not relevant

SEPP No.71 – Coastal Protection	
Clause 8	Comment
development on the environment, and (iv) Measures to ensure that water and energy usage by the proposed development is efficient	

NSW Coastal Policy 1997	
Goal	Comment
1. Protecting, rehabilitating and improving the natural environment of the coastal zone;	Specific studies have been undertaken as part of this investigation to address flora, fauna and water quality in relation to the SEPP No 26 - Littoral Rainforest. The desired outcome in relation to these issues is to ensure the health and vitality of the existing natural environment in the public interest. Littoral Rainforest No 116 is the primary consideration in relation to any development of the study site. The goal will be achieved by implementing Stage 1 Environmental Works as the final stage of the development.
2. Recognising and accommodating the natural processes of the coastal zone;	The natural processes of the coastal zone have been considered in the preparation of this submission, including the effects of climate change and flooding. Specialist studies have confirmed that these natural processes can be suitably managed will not detrimentally affect the development of the site. SMEC's Coastal Hazard Study confirms there will be no impact on the proposed development as a result of the coastal hazards.
3. Protecting and enhancing the aesthetic qualities of the coastal zone;	<p>A visual impact assessment has been undertaken which included the preparation of sight cross-sections from the beach to the site. These investigations have confirmed that whilst the site is highly visible from surrounding existing urban areas, the existing urban character can absorb the proposed view change without causing a significant change in visual character.</p> <p>The assessment also found that the existing density, scale and height of the rainforest ensure that the site is not visible from the adjoining coastline of Rainbow Beach.</p> <p>Therefore the development shall not have a detrimental impact on the aesthetic or scenic qualities of the Coastal zone. The proposal is also consistent with the North Coast Design Guidelines.</p>
4. Protecting and conserving the cultural heritage of the coastal zone;	Aboriginal cultural and heritage values have been considered and addressed as a part of this proposal. Protection of the identified artefact will be assured with the provision of the buffer treatment which will restrict public access to a designated walkway through the rainforest.
5. Providing for ecologically sustainable development and use of resources;	The proposal promotes the principles of ecologically sustainable development (ESD) including the conservation and protection of the site's flora and fauna and scenic attributes for future generations. The site is identified by the Department of Planning (DoP) in their Mid North Coast Regional Strategy identifies the site as 'future urban release area.
6. Providing for	The development of a compact urban settlement on the study site has been envisaged

NSW Coastal Policy 1997	
Goal	Comment
ecologically sustainable human settlement in the coastal zone;	by both HUGS and the Greater Lake Cathie and Bonny Hills UDMP. Development is proposed which will enable a wider range of housing and lifestyle choices within a contained and well planned urban setting. All development will ensure minimal impact on the adjoining SEPP 26 Littoral Rainforest and ensure the viability of this natural asset for future generations.
7. Providing for appropriate public access and use;	It is intended that the buffer zone adjoining the Littoral Rainforest will be dedicated to Council for environmental management open space purposes. Appropriate pedestrian access can then be provided through the forest enabling enjoyment of this natural resource by the public. Suitable safeguards will be employed to ensure no detrimental impact on the rainforest.
8. Providing information to enable effective management of the coastal zone; and,	Appropriate information for prospective purchasers of land adjoining the buffer to the Littoral Rainforest will be available. The Development Principles set out the basis of this information.
9. Providing for integrated planning and management of the coastal zone.	Through satisfying these nine (9) goals and therefore their respective objectives and strategic actions, appropriate development for the study site can be realised. The protection and preservation of Littoral Rainforest No 116 is a primary objective of this study and the recommendations of the consultants (Parker, Brennan, Jelliffe and Martens) form the basis for the buffer design as proposed in this study.

Coastal Design Guidelines 2003	
Principle	Comment
1. Defining the footprint and boundary of the settlement	<p>1. The Concept Plan includes:</p> <ul style="list-style-type: none"> a continuous foreshore reserve (as part of the open space treatment within the buffer to the rainforest) for the full frontage of the residential community; appropriate setback distances to protect natural areas; appropriate street layout and orientation to protect the existing vistas of important visual quality. <p>2. The design criteria of the Concept Plan:</p> <ul style="list-style-type: none"> has responded to the environmental constraints of the site; will maintain the existing water quality and groundwater regimes of downstream environments; will retain all existing vegetation; will provide infrastructure for a Hilltop Village at an appropriate scale to complement the existing and future development of the Area 14 UIA; includes a main street with an active street frontage to cater for the daily needs of the future local community; provides for a hierarchy of streets to engender a sense of neighbourhood. <p>3. The proposed subdivision pattern and zone layout will encourage higher density developments adjacent to the Hilltop Village and areas of open space/public access to the adjoining beach areas, thereby ensuring an efficient use of land for sustainable living.</p>
2. Connecting open space	The Concept Plan achieves the following design objectives of the Coastal Guidelines:

Coastal Design Guidelines 2003	
Principle	Comment
	<p>1. Open space areas are provided in association with buffer areas and incorporate the retention of all existing vegetation.</p> <p>2. A continuous open space buffer which has been designed to engender ownership by the future residents extends for the full length of the eastern boundary (adjoining the rainforest and Rainbow Beach). This area of open space links to coastal public areas on adjoining northern and southern properties.</p> <p>3. Appropriate setbacks in relation to flooding and bushfire are provided;</p> <p>4. The open space network includes a range of facilities with their own function, including:</p> <ul style="list-style-type: none"> the Village Square – providing a sense of arrival and maintaining the extensive hinterland views; the pocket park – providing a visual connection between the Hilltop Village main street and the proposed public pedestrian access through to Rainbow Beach; the 'buffer' open space, providing clearly defined walking and cycling tracks to connect with the existing infrastructure in the locality. This open space area also allows casual surveillance of the rainforest edge thereby aiding the monitoring processes. <p>5. The item of aboriginal heritage will remain protected within the rainforest, consistent with a request by the LALC.</p> <p>6. Biofiltration basins, detention basins and groundwater recharge facilities have been incorporated into the open space network.</p> <p>7. The open space network incorporates perimeter roads with pedestrian networks.</p> <p>8. The pedestrian and cycle network will connect with the existing network within the Lake Cathie residential area and with the future network as shown on the 'Coordination Plan for Coastal Walkway and Cycle Trails' at Appendix K.</p> <p>9. The subject Concept Plan is a component of the overall development of Area 14. The adjoining St Vincents Foundation property (for which a Part 3A application is currently with the Department) includes the provision of regional playing fields and a generous open space network. It is intended that the subject application, which includes public open space adjoining the rainforest/Rainbow Beach and a pocket style park, will integrate with the surrounding development and provide complementary open space provision.</p> <p>10. The proposed Village Square and pocket park have been positioned to complement the Hilltop Village and to provide a direct link to the open space network and Rainbow Beach access point.</p> <p>11. The proposed landscape treatment adjacent to the rainforest (within the open space); will incorporate the use of appropriate complementary species. The proposed pocket park and town green will include a formal landscape treatment which will complement the urban locality within which they are located.</p>
3. Protecting the natural edges	<p>The Concept Plan achieves the following design objectives of the Coastal Guidelines:</p> <p>1. The natural edge to the SEPP 26 rainforest is to be protected by implementing the Stage 1 Environmental Works as the first stage of development. The resultant improvements in the width to edge ratios and weed management works will provide immediate protection to the existing natural edges.</p>

Coastal Design Guidelines 2003	
Principle	Comment
	<p>2. The function of the public open space area adjoining the rainforest/beach is multi-functional, providing for conservation and passive open space.</p> <p>3. The public component of the buffer treatment which includes the passive open space will be maintained in public ownership.</p> <p>4. All existing vegetated areas will be retained with the buffer area to the rainforest and a public access point through to Rainbow Beach will be provided.</p> <p>5. Walkways and cycle ways have been incorporated into the design of the open space network. However due to the dune height within the Littoral Rainforest wheelchair access as part of the pedestrian boardwalk is unable to be provided. However an existing vehicular access point is currently available to Rainbow Beach adjacent to the Middle Rock car park.</p> <p>6. A substantial setback/buffer area is provided to the foreshore areas associated within Rainbow Beach.</p> <p>7. A perimeter edge road is provided to the foreshore and incorporates pedestrian pathways with a direct link onto Rainbow Beach. The proposed street alignment (east-west) will also allow retention of hinterland and ocean views.</p> <p>8. The treatment of the edge road includes parallel parking and a designated off road parking area adjacent to the beach pedestrian access.</p> <p>9. The proposed off road parking area has been positioned such that it cannot be directly viewed from the Main Street (Hilltop Village).</p> <p>10. The proposed human exclusion fence will ensure the protection of all vegetation within and adjacent to the rainforest through limiting the potential for human intrusion and domestic animal edge effect impacts.</p> <p>11. The natural edge to Duchess Gully has been protected by proposed riparian revegetation and stormwater biofiltration facilities.</p>
4. Reinforcing the street pattern	<p>The Concept Plan subdivision pattern satisfies the following street pattern framework established by the Coastal Design Guidelines:</p> <p>1. Main access road – a main collector road links the site to Ocean Drive and provides the main entry into the residential community. The position of this collector road has been established by the Traffic Impact Assessment prepared by Roadnet to inform the Area 14 LEP and DCP process currently being undertaken by PMHC. To ensure access to the site and cooperation on a range of infrastructure issues, a Memorandum of Understanding has been signed by the owner of the subject and adjoining properties.</p> <p>2. Main Street – The Hilltop Village is centrally located on the site, being the prominent ridgeline and includes a main street with an active street frontage. The Main Street extends from the Village Square (arrival point) to the rainforest/beach interface.</p> <p>3. Edge streets – The public component of the rainforest buffer and Duchess Gully buffer incorporate edge streets which have the dual purpose providing an Asset Protection Zone for bushfire management.</p> <p>4. Residential streets – the location and layout of the internal residential streets will not encourage through traffic but rather will cater for the access requirements of the local community.</p>
SURVEYING ARCHITECTURE PLANNING CIVIL ENGINEERING URBAN DESIGN	

Coastal Design Guidelines 2003	
Principle	Comment
	<p>5. Laneways – the proposed service laneways associated with the Hilltop Village and adjoining medium density housing area are an important design element for the future of the Main Street, allowing activation and pedestrianisation.</p> <p>6. Pedestrian pathways – a pedestrian network is to be provided, allowing important linkages to the rainforest interface and boardwalk access through to Rainbow Beach.</p>
5. Appropriate buildings in coastal context	<p>The purpose of this Concept Plan is to establish guidelines for the desired future character of the residential community. Notwithstanding that the actual buildings are not part of this application; the design principles embodied in the subdivision concept layout will establish a clear vision for the new residential community.</p> <p>Therefore this Concept Plan application satisfies the principles in relation to the appropriate coastal buildings in the following manner:</p> <ol style="list-style-type: none"> 1. The location, use, scale and height of new buildings has been carefully considered against the principles of maintaining the visual quality of the coastline. 2. Buildings within the Hilltop Village will address and activate the street frontage as a result of street layouts which incorporate rear lane access. 3. The centrally located Hilltop Village and pedestrian links to the foreshore will ensure less dependence on cars as a result of centrally located local services and facilities. 4. Views from public places including the Village Square and the Main Street will ensure retention of hinterland and ocean views from future public spaces. In addition local street orientation will allow the retention of important vistas to the rainforest interface. 5. The proposed zoning will ensure building heights complement the existing topography, maintaining consistent height, bulk and scale with the local streets and local context. 6. East-west local streets with north-south residential allotments will ensure appropriate solar access. 7. All residential lots will have access to the internal footpath and cycle ways, allowing ease of connection to the overall coordination plan for Area 14.

6.2.3 Staging

The Concept Plan is proposed to be developed in stages. Exhibit 05 – Indicative Staging Plan provides indicative details of the staging of the proposed development which in broad terms will be undertaken in the following sequence:

- Environmental Works;
- Low Density Residential / Environmental Works;
- Medium Density Residential / Environmental Works; and
- Hilltop Village / Open Space Works.

The table below provides further detail of the indicative stages, as shown on Exhibit 05B. It should be noted that the staging details are

indicative only and will be subject to more detailed consideration as part of subsequent Project Applications and to some extent are subject to the rate of development on other properties in Area 14 and market forces and trends.

Indicative Stage	Description/Comments
PA1	Work included in Stage 1 Project Application – Environmental Works associated with establishing and fencing a vegetated buffer to the SEPP 26 Littoral Rainforest and formalisation of the existing beach access track with a pedestrian boardwalk.
S2	Works include perimeter road and cycleway/pathway and completion of part of environmental buffer to SEPP 26 Rainforest (ie between exclusion fence and perimeter road) within the Seawide property, low density residential and associated services (water supply, sewerage, stormwater drainage, electricity, telecommunications), road link to Milland property.
M2	Works include perimeter road and cycleway/pathway and completion of environmental buffer to SEPP 26 Rainforest (ie between exclusion fences and perimeter road) within the Milland property, environmental buffer works to Duchess Gully, low density residential and associated services (water supply, sewerage, stormwater drainage, electricity, telecommunications).
S3	Low density residential and associated services within Seawide property.
M3	Low density residential and associated services within Milland property.
S4	Low density residential and associated services within Seawide property.
M4	Low density residential and associated services within Milland property.
S5	Works including perimeter road and cycleway/pathway and completion of environmental buffer to SEPP 26 Rainforest (ie between exclusion fence and perimeter road) within the Seawide property and associated medium density residential areas.
M5	Low density residential and southern connection to St Vincent's Foundation Land.
S6	Medium density residential area.
M6	Low density residential and associated services.
S7	Medium density residential area north of Hilltop Village.
M7	Medium density residential area adjacent to southern boundary.
S8	Hilltop Village area within Seawide property.
M8	Medium density residential area south of Hilltop Village.
M9	Eastern end of Hilltop Village within Milland property, pocket park and medium density residential area to the north of Hilltop Village.
M10	Remainder of Hilltop Village within Milland property.

(Notes:

1. S2-S8 – refer to Indicative Stages of development within the Seawide property.
2. M2-M10 – refer to Indicative Stages of development within the Milland property.
3. Indicative Stages indicated possible footprint works within each stage. The release of individual lots within each Indicative Stage will be reliant on the market at the time, but it is expected that in the order of 10-20 lots will be included in each release.
4. The development of the Hilltop Village is expected to be undertaken in a number of sub-stages, which will be the subject of future project or development applications. The timing of the development of the Hilltop Village will also, to some extent, be dependent on development in other parts of Area 14 to provide the critical population mass to ensure tourist and commercial developments are viable.)

6.3 Visual Impact

The plans, photographs and sight lines / views at Exhibit 09A to D should be read in conjunction with this section.

6.3.1 Assessment Methodology

On 3 July 2009, a site inspection was undertaken by King + Campbell Pty Ltd, with the primary purpose being;

- to determine viewpoint assessment points;
- to locate by survey the viewpoint locations;
- to survey sight lines from Rainbow Beach onto the site; and
- to take photographs of the view lines from each viewpoint locations.

The viewpoint locations were determined on the basis of being a primary public location which may be detrimentally impacted, by way of visual amenity, as a result of the proposal.

The assessment of each viewpoint included;

- an analysis of the view type and context –why the view is relevant, as well as defining the current view/visual character;
- the visual absorption capacity –a determination based on the existing view type and context to absorb the development without creating a significant change in visual character;
- the view quality –the existing aesthetic qualities of the view; and
- the significance, if any, of the impact – this takes into consideration such matters as the nature of the landscape, the topography, the

distance between the viewpoint location and the development, as well as both the type of view currently experienced and the likely future view as a result of development in accordance with the Area 14 UDMP.

6.3.1.1 Existing Landscape Character of Locality - Overview

The site is situated between the two existing small coastal towns of Lake Cathie and Bonnie Hills, on the NSW Mid North Coast. It is physically constrained by the Littoral Rainforest and Pacific Ocean to the east, Ocean Drive and existing residential development to the north and proposed future residential development (current Part 3A applications in accordance with the Area 14 UDMP) to the west and south. Existing major landscape features of the locality are the Littoral Rainforest, the ocean and the beach / headlands.

As the site is located within the new village proposed to be created within Area 14, the landscape character of the locality will undergo extensive changes as each stage of urban development is undertaken. However the dominant natural feature of the locality, the existing Littoral Rainforest, will remain constant and protection of this feature in its natural state is one of the primary objectives of the subject proposal.

As illustrated by the aerial photograph at Exhibit 03, the majority of the site (excluding the Littoral Rainforest and revegetation areas), is currently cleared of vegetation and gently undulating. The Littoral Rainforest forms the eastern boundary of the study area and is partially contained within Lot 4 (3.18 ha). In addition to its ecological value, this vegetation provides a strong visual buffer between the coastline (public space) and existing and potential development of the study site. The Littoral Rainforest is therefore the strongest visual element of the study area.

The site itself is visually prominent, being elevated above the surrounding landscape and at a place where clear sight lines are available from Ocean Drive, being the only vehicular access between Lake Cathie and Bonnie Hills.

As the Site Context Plan at Exhibit 01 and Area 14 Master Plan at Appendix B show the subject site will be located within a broader scale urban community, comprising the area from Lake Cathie to Bonnie Hills, which will ultimately house approximately 10,000 people.

Council are currently working on various Local Environmental Studies for parts of Area 14 (for the rural zoned land) and two Part 3A (Major Projects) Applications have been lodged with the Department of Planning (DoP) for the residentially zoned land. The subject application is the third Part 3A application. The Site Context Plan at Exhibit 01 provides a visual summary of current Part 3A Applications for urban development within "Area 14", including;

1. Rainbow Beach Concept Plan (MP 06-0085). This application was lodged with the DoP in November, 2006, for a residential subdivision for between 780 to 930 lots. In addition the plan includes development for the purposes of two school sites, playing

fields and open-space, business and retail sectors and an eco-tourist site.

2. Open space corridor and constructed wetland (MP07-0001). This application proposes an open space network of 84.7ha, with a wetland area of 13ha.
3. Residential Commercial and Tourist Development (MP 07-0010, being the subject submission). The preliminary environmental assessment was lodged with the DoP in February 2007. The plan includes provision for low and medium density residential development, commercial and tourist development and open space.

6.3.1.2 Identification of View Points

The following locations are considered to represent significant view points of the site from the public domain, as shown on the photo location plan at Exhibit 09A:

View A – View from Ocean Drive on approach to the site from the north. Ocean Drive deviates at the site towards the west; therefore the site will 'close' the view when proceeding south from Lake Cathie / Port Macquarie. North Brother Mountain can be seen on the horizon;

View B - View from the medical centre entry on Ocean Drive to the site. The medical centre is a new development in the locality and the entry and exit driveway is directly opposite the site on Ocean Drive.

View C – View from the headland at Bonny Hills on Ocean Drive north to the site. This view north from Ocean Drive provides extensive coastline views incorporating the subject site.

View D - View from North Brother lookout north-east to the site. Extensive views of entire coastline are available from the public viewing platform at this well known and well visited lookout location.

Views E, F, G, and H - Views from various beach locations west to the site. Rainbow Beach directly adjoins the site and the rainforest on its eastern boundary and represents a significant public viewing location.

In addition to the above, the extensive view from the site itself to the surrounding geographical features is considered significant (View I). Retention of these views through appropriate street design and layout is considered an opportunity in the development of the site.

View I at Exhibit 09D shows the existing panoramic view from the site to the east (Pacific Ocean), south (North Brother Mountain) and south-west (Jolly Nose Mountain).

6.3.1.3 Identification of Impact

The following table provides a summary of visual assessment from the 5 locations (Views A to H) which have been chosen as representing the most significant viewpoints containing the site / proposed development.

View Point	Existing Character	Visual Absorption Capacity	View Quality	Impact
A	Location of this viewpoint on Ocean Drive is residential. The existing vacant and cleared site provides a 'rural' view (as does all of the Area 14 UIA generally), as the viewer proceeds south and leaves the existing residential area of Lake Cathie.	<p>The proposed development is residential in character and will be consistent in scale, context and appearance with the existing residential areas of Lake Cathie. The site is elevated such that all built form will be readily accessible. Whilst the view will alter from that associated with a large vacant allotment, the locality can absorb this view change given its existing residential character. Moreover, the existing view of North Brother on the horizon will remain unchanged.</p> <p>Exhibit 09B (sheet 1) provides a 'before' and 'after' photo which supports the above. Whilst the potential building envelope shown in this photo represents contiguous buildings and includes the height of roof, the actual development envelope will incorporate various roof forms, setbacks to roads and buildings and site / street landscaping, all of which will combine to 'soften' this image.</p>	<p>The existing view of vacant rural land (the site) is not considered to be of a high view quality.</p> <p>The existing view of North Brother on the horizon is considered to be a high view quality and warrants protection from this public viewpoint.</p>	Minimal impact
B	The medical centre is a new development in the locality and the entry and exit driveway is directly opposite the site in Ocean Drive. The existing character of this location is residential.	<p>As with the comments for viewpoint A above, the proposed development is residential in character and therefore will be consistent in appearance with the existing residential area on Ocean Drive. Whilst the view will alter from that associated with a large vacant allotment, the locality can absorb this view change given the existing residential character of the location.</p> <p>Exhibit 09B (sheet 2) provides a 'before' and 'after' photo which supports the above. Similarly with the after photo for viewpoint A, the potential building envelope shown in this photo represents contiguous buildings and includes the height of the roof. The 'pink mass' in this photo represents 1 to 2 story residential development only. As the viewpoint location is in close proximity to the site the residential development in the foreground will restrict views to the higher elevations of the site being the location of the medium density and mixed use zones.</p> <p>As with viewpoint A, the actual development</p>	The existing view of vacant rural land is not considered to be of a high view quality. The site is elevated and the viewpoint in this photograph is in close proximity to the site.	Minimal impact

View Point	Existing Character	Visual Absorption Capacity	View Quality	Impact
		envelope will incorporate various roof forms, setbacks to roads and buildings and site / street landscaping, all of which will combine to 'soften' this image. In particular, the mounding, landscaping and fencing associated with the proposed acoustic fencing (shown diagrammatically on the image), will combine to restrict direct views into the residential areas. This is evident with the existing mature vegetation shown in the photograph.		
C	View from the headland at Bonny Hills on Ocean Drive, north to the site. View C is available when travelling on the coast road between Lake Cathie and Bonny Hills. Elsewhere on Ocean Drive the views of the coastline are restricted by either vegetation or residential development. Adjoining the view location to the south (not shown in photograph) is existing residential development.	The distance between the viewpoint location and the site is such that the change in the actual view of the site will be difficult to discern. In addition, the site represents a small component of the overall development which is to occur in Lake Cathie in accordance with the UDMP. The view of the coastline from this location will remain of a high quality.	The existing view quality is considered high.	The view quality will not be impacted upon given the distance between the viewpoint location and the site
D	The view from the North Brother lookout is expansive, providing views along the coastline from Bonny Hills to Port Macquarie. Currently the site is visible and easily discernable as vacant land. The overriding character of the view is that of seaside/coastal development situated within large areas of open space/undeveloped land.	Whilst the site is easily discernable from this viewpoint, it represents a very small component of the overall view. The distance between the viewpoint and the site is too great to distinguish detailed development, (i.e.: height and type of buildings etc). The proposed development will appear as coastal residential development, consistent with the residential developments of Laurieton, Lake Cathie and Bonny Hills. Therefore the resultant change to the view itself will be minimal and will not result in a significant change in visual character.	The view quality from this location is considered high.	The proposed development will result in minimal changes to the existing view quality, given the distance and character of the development proposed.
E, F, G, H	Rainbow Beach directly adjoins the site and the rainforest on its eastern boundary. The beach itself extends from the southern extent of the Lake Cathie residential area south to the Bonny Hills residential area. The beach and the adjoining rainforest area are the most dominant natural features of the locality. These areas are	Preservation and retention of the existing beach and rainforest areas in their natural state, including the existing view lines onto the site from the public beach, is one of the primary objectives of the subject proposal. Accordingly four view lines from the beach area have been surveyed to gauge the impact of the proposed three/four storey development associated with the proposed 'mixed use' zone (Exhibits 09C - 4 sheets). These sections have confirmed that the	The view quality from viewpoint 4 is of a high quality and must be protected.	The view will remain unaltered and therefore the proposed development will have no impact on the existing natural landscape from
SURVEYING ARCHITECTURE PLANNING CIVIL ENGINEERING URBAN DESIGN				

View Point	Existing Character	Visual Absorption Capacity	View Quality	Impact
	currently undisturbed and when on the beach in the vicinity of the site the existing nearby residential areas are not visible.	dune height combined with the height and density of the existing vegetation restricts direct views onto site.		viewpoints 4.

6.3.1.4 Viewpoint I

Viewpoint I at Exhibit 09D depicts the existing views from the site to the geographic features of the locality. This view has been specifically depicted within this submission as it represents an opportunity in the future development of the site. The alignment of the lead in collector road and Hilltop Village main road has been partly determined by a development objective to enable retention of these views. The location of the proposed landscaped arrival / focus point, as shown on Exhibit 05A will enable retention of these views.

6.4 Infrastructure Provision

6.4.1 Water Supply

Appendix L includes a Water Supply Strategy prepared by PMHC for the Area 14 UIA. The Strategy indicates that approximately 400 equivalent tenements (ETs) of water supply are currently available at Ocean Drive adjacent to the subject property.

In early 2010 PMHC received a 10 year interest free loan from the State Government to undertake major water supply augmentation works to effectively link the Area 14 Urban Investigation Area to the existing reservoir at Bonny View Drive.

Known as the 'Southern Arm Trunk Main', this augmentation is part of Councils adopted long-term strategy to provide water supply infrastructure for the protection of environmental river flows, improved drought security and to cater for increasing demands associated with urban growth.

PMHC has released a media statement to confirm that construction on the 'Southern Arm Trunk Main' is scheduled to commence in mid June 2010 and that the first stage of the pipeline will be constructed along Ocean Drive, between Lake Cathie and Bonny Hills, adjacent to the site.

The correspondence from PMHC dated 7 July, 2010 and contained in Appendix L confirms that the long term supply works to be completed by PMHC in June 2011 along with future additional developer funded and Council funded water supply infrastructure will cater for all future development within Area 14 in terms of potable water supply.

6.4.2 Sewerage Services

Appendix M contains a copy of the report to the PMHC meeting held on 26 May 2010 which confirmed:

- The upgrade of the Bonny Hills Lake Cathie Sewerage Treatment Plant (STP) is complete;
- The construction of the recycle effluent pipeline as part of the Hastings Effluent Management Strategy (HEMS) will be completed by the end of 2010. The completion of this pipeline will ensure the delivery of dual reticulation (potable and non-potable water services) to Area 14 including the subject properties; and
- The moratorium on new residential development in Lake Cathie/Bonny Hills (including the subject properties) was removed.

Connection to the upgraded STP will be via the adjoining southern property owned by SVF which is currently the subject of:

- A Concept Plan Application (MP06-0085) for residential development, village centre, primary and high school sites and eco-tourism uses.
- A Project Application (MP07-0001) for open space corridor and constructed wetlands.

As outlined in Section 5 of this report the landowners (SVF, Milland Pty Ltd and Seawide Pty Ltd) are currently preparing a Landowners Agreement to provide certainty with respect to ensuring a cooperative approach is applied to the coordination of various aspects of the subject and adjoining proposed developments including the provision of sewerage services and connection to Bonny Hills STP.

Appendix M also provides conceptual details of the sewerage services layout within the subject properties. Further details of the proposed sewerage services infrastructure will be provided in Project Applications for subdivision to follow the subject Concept Plan Application. PMHC's letter dated 19 July 2010 (Appendix M) confirms the above and that "... there are currently no infrastructure services impediments to the Part 3A Concept Plan or Project Applications proposed by Milland Pty Ltd and Seawide Pty Ltd.

6.4.3 Electricity, Telecommunications, Gas

Country Energy are the electricity suppliers within the region and the Lake Cathie sub-station is located opposite the subject property on Ocean Drive (refer Exhibit 04A).

Electricity supply will be provided by augmentation and extension of existing infrastructure in the surrounding residential areas. Country Energy's normal practice is to provide design criteria for the electrical infrastructure works once the development consent for the proposal has

been issued and construction certificate drawings are being prepared.

There are no known constraints to the extension of existing electricity supply infrastructure to service the proposed development.

Telecommunication services proposed to be supplied by an extension of existing services infrastructure in surrounding residential areas. Design of the telecommunications augmentation works are undertaken in conjunction with the electricity supply design as part of the construction certificate process. Additional conduits are proposed to be installed to provide for future optical fibre connections to dwellings and businesses within the proposed development once optical fibre infrastructure is available in the surrounding region.

There are no reticulated gas supplies within the Mid North Coast region. Gas supplies will be provided via tanks leased by future residents for use in their own residence.

6.4.4 Waste Disposal

Waste disposal will be carried out by the existing contractors to PMHC, who currently provide the same services to the existing villages of Lake Cathie and Bonny Hills. This issue has been considered by PMHC as part of the Area 14 UIA Investigation and Masterplan process.

6.4.5 Planning Agreements

Seawide Pty Ltd and Milland Pty Ltd have along with other landowners in Area 14 formally commenced negotiations with PMHC with respect to the following infrastructure:

- Establishment and Maintenance of Environmental Lands and Open Space

Milland and Seawide have offered to:

- Establish the environmental works in accordance with the Stage 1 Project Application as the first stage of the proposed development.
- Establish the formalized pedestrian beach access and other open space areas as part of future stages of the proposed development.
- Maintain the established areas of environmental lands and open space in accordance with an approved management plan for five (5) years.
- Pay contributions at the subdivision certificate stage to fund a further 15 years maintenance of these areas. PMHC have also agreed to seek an alternate funding mechanism for the

maintenance of environmental lands (via a levy or rate) in consultation with state government.

- Payment of Contributions

Milland and Seawide have offered to pay the updated roads and open space contributions for Area 14 that are ultimately adopted by PMHC upon completion of the current reviews of those Section 94 Contribution Plans.

The draft Planning Agreement (VPA) is currently being prepared and as required by the Director General's Requirements will be publicly exhibited in conjunction with the draft LEP. The draft Heads of Agreement with PMHC are contained in Appendix P.

6.5 Traffic and Access

The Roadnet Traffic Impact Study for the Area 14 Urban Investigation Area included at Appendix H was commissioned by PMHC to specifically address and determine the required traffic improvements to the locality as a result of the development of Area 14 as a whole.

Section 4.2 of the Roadnet report outlines the extent of proposed development located within the study area and Figure 4 (p17) confirms that the proposed land uses concept contained in the Concept Plan have been incorporated into the Roadnet traffic model.

It is submitted that the Roadnet Area 14 Traffic Impact Study satisfies the requirements of the RTA's Guide to Traffic Generating Developments by identifying and quantifying traffic volumes expected to be generated by the Concept Plan and other parts of Area 14 and by providing the required technical appraisal of traffic and safety implications of that additional traffic in Area 14.

The Roadnet report has assessed the traffic impacts of the proposed development of Area 14 on existing road networks from safety, functionality, level of service, delivery of infrastructure and road hierarchy perspectives. The Area 14 Traffic Impact Study therefore includes recommendations for major road infrastructure upgrades required as a result of the development of Area 14, including those associated with the Concept Plan proposal.

6.5.1 The Area 14 Traffic Impact Study - Roadnet

The objectives of the Roadnet Traffic Impact Study for the Area 14 Urban Investigation Area study were to plan a road network that:

- Is safe and functional;
- Operates at an acceptable level of service (LOS);
- Can be staged in an orderly and cost effective way to service

planned land development; and

- Establishes a road hierarchy suitable for projected traffic patterns (Roadnet, 2010, p2)

Roadnet produced a two stage model:

Stage 1:

Stage 1, being the 2019 based model assumes:

- 2 primary school sites (on SVF land to the west of the subject site);
- Commercial areas fully developed, including the Hilltop Village;
- All residential areas 50% developed; and
- Industrial areas fully developed (Roadnet, 2010, p19).

The primary access to the site will be via the upgrade of the existing Abel Tasman Drive/Ocean Drive intersection from a t-intersection to a four-way intersection with a local collector road passing through the adjoining SVF property. The draft MOU between the subject landowners and SVF referred to in Section 3.6 (included under separate cover) provides the framework for cooperation between the landowners with respect to this access road and confirmation of landowner's consents to be provided.

The results from the 2019 model indicate a roundabout with two lane approaches will provide the required LOS at the Abel Tasman Drive/Ocean Drive Intersection, with some concern with respect to the pedestrian provision at this intersection.

Stage 2:

Stage 2 is the 2029 full development model. The results from this model found that a roundabout at the Abel Tasman Drive/Ocean Drive intersection will have capacity beyond 2029, however the need for a pedestrian crossing in this location led to Roadnet recommending a signalized intersection.

Roadnet's Key Conclusions and Recommendations are contained on pp 55-56 of their report. As this Concept Plan forms part of the overall development of Area 14, all of the proposed intersection works and upgrades to Ocean Drive are relevant from both overall road network planning and Section 94 contribution perspectives.

The primary road infrastructure upgrade recommendations relating to the implementation of the development as proposed in this Concept Plan are:

- Abel Tasman Drive/Ocean Drive intersection to be upgraded to a signalized intersection with two lane approaches. Notwithstanding a roundabout satisfied LOS requirements Roadnet recommended a signalized intersection (as part of the Stage 1 2019 model) for the following reasons:
 - Requires a smaller intersection footprint component to that of a

roundabout;

- Provides pedestrian crossing amenity across Ocean Drive;
- Allows signal timing to be optimized depending on the demand flows for through traffic on Ocean Drive and internal traffic;
- Provides greater capacity for future traffic growth than a roundabout intersection.
- Further road improvements required at this intersection under the 2029 full development model include:
 - Upgrade of Ocean Drive to two lanes in each direction (Roadnet, 2010, p55-56).

6.5.2 Concept Plan Implications

The indicative road layout included in the Roadnet Traffic Impact Study for Area 14 is generally consistent with the following road layout as proposed by the subject Concept Plan:

- The location of the entry road - being a collector road from Ocean Drive, will pass through the adjoining St Vincent's Foundation lands (The draft MOU between the landowners and SVF provides the framework for cooperation between the landowners with respect to this access road);
- The location of the perimeter road to the rainforest - forming part of the proposed buffer treatment, as recommended by the specialist studies; and
- The provision of internal link roads to the adjoining St Vincent's Foundation lands.

Some minor variations in relation to the internal local roads are the result of detailed investigations and a requirement for an east-west orientation. These variations will not compromise the outcome or recommendations of the Roadnet Traffic Impact Study.

PMHC is currently preparing a Section 94 Developer Contributions Plan to fund all of the intersection and Ocean Drive upgrade works recommended by Roadnet. As the Section 94 Developer Contribution Plan has yet to be adopted by Council, the landowner Planning Agreement offer (VPA) includes an offer to pay the Section 94 road contribution which will be ultimately adopted by Council as a result of this review.

The construction of all other internal intersection and roadworks will be the responsibility of the individual landowner/developer, where such will be designed in accordance with AUSPEC Design Specifications 2009.

The primary access to the site, as determined by the Roadnet study and supported by PMHC, is through the adjoining SVF land, via the Abel Tasman / Ocean Drive intersection. In relation to landowner

cooperation, the draft MOU (provided under separate cover) establishes the principles of cooperation between the parties. The draft MOU deals with a number of infrastructure and servicing issues including access from Ocean Drive. The MOU confirms each landowner's agreement to provide to the other parties the relevant written consents for submission to Council/authorities in relation to works on, near or across the landowners' respective boundaries.

In relation to traffic the draft MOU highlights the following key elements upon which the parties agree to cooperate:

- Road access from Ocean Drive across SVF land to the Milland and Seawide properties; and
- Road access to the SVF eco-tourist land across the Milland property.

In addition, the draft MOU sets up the structure for future more detailed landowner agreements as the planning and construction of the two developments proceeds.

6.5.3 Public Access to Beach

SMEC has prepared a Coastal Hazard Study, dated June 2009, which in addition to addressing the requirements of section 6.1 (coastal processes) of the DGR's, it also addresses section 5.2 (beach access). A copy of this report is included at Appendix G.

The SMEC report provides general design advice relating to the beach access, in accordance with the NSW Coastal Dune Management Manual. The following design objective was adopted:

"..to maintain continuity in the elevation of the dune surface to avoid the creation of wind blowout. Material used in the construction of the accessway should be adjustable in order to accommodate sand accretion or erosion at the same rate as would occur on the natural dune."

SMEC report the position, alignment, gradient, surfaces, steps and stairs, elevated walkways, fencing and maintenance.

SMEC has recommended the use of a "board and chain" walkway for the seaward face of the dune, given the steepness of the dune face and potential high use;

The works associated with the formalisation of the existing track with a boardwalk are contained in the attached Part B Project Application and have incorporated the recommendations of SMEC with respect to the use of the board and chain walkway on seaward side of the dune.

The location of the boardwalk was determined in conjunction with PPEC and Wild Things Native Gardens to ensure:

- No removal of existing trees along the track;

- Suspended boardwalk over small drainage gully;
- Rehabilitation works within the small drainage gully to provide future protection against erosion (refer Part B).

Rainbow Beach is currently a 4 wheel drive access approved beach. Vehicular and pedestrian access to the beach is via an existing driveway off Middle Rock Road, as depicted on the aerial photograph, plans and site photographs accompanying this submission. This existing driveway is suitable for emergency vehicle access onto Rainbow Beach.

6.6 Hazard Management and Mitigation

6.6.1 Coastal Processes

The SMEC report documents the technical studies undertaken for the proposed development, addressing the hazards and provisions of the NSW Government Coastline Management Manual.

The report:

- considers the impacts associated with wind and wave action, coastal erosion, climate change, sea level rise and more frequent and intense storms;
- documents a detailed coastal hazard assessment, using photogrammetric and Aerial Laser Scan (ALS) data analysis and analytical assessments;
- recognises that the coastline adjacent to the site is subject to a high energy wave climate which has seen the gradual long term recession of Rainbow Beach;
- quantifies the observed long-term beach change, as well as estimating the beach recession that may be caused by sea-level rise as a result of climate change;
- defines risk to property in terms of present day risk, a 50 year planning period and a 100 year planning period;
- uses conservative parameters in accordance with the NSW Coastal Management Manual (1990), the NSW Coastal Policy (1997) and the Coastal Protection Act (1979);
- identifies that the underlying strata (of sand) consists of consolidated or indurate sands (coffee rock), which is more resistant to erosion than typical unconsolidated beach sand; and
- recognises that historically Rainbow Beach has been subjected to large storms.

The hazard assessment undertaken by SMEC comprised of quantifying

the following three principle hazards:

1. Short-term storm beach fluctuations:

For this assessment a value of 200 m³/m was adopted, to ensure a conservative assessment in line with the requirements of the precautionary principle.

2. Long-term beach recession:

The location of the 6m contours varied within 2m on average. Therefore the beach is considered to be relatively stable, with a low rate of dune recession.

3. Oceanic inundation:

The maximum expected wave run up level along Rainbow Beach is around 5.1m AHD. This indicates that at a maximum, wave run up would not overtop the existing dune embankment and there would be no impact on proposed dwellings or other infrastructure.

6.6.1.1 Summary and Conclusions of Coastal Hazard Assessment

Based on a detailed photogrammetric survey data and Aerial Laser Scan (ALS) data assessment, a storm erosion value of 200m³/m was adopted for the assessment;

- Estimated sea level rise scenarios in line with the Draft NSW Sea Level Rise Policy Statement were determined. Future sea level rise as a result of global warming indicates a potential sea level rise of 0.40m by 2050 and 0.90m by 2100. This leads to an assessment of beach erosion of 25.2m by 2050 and 54.4m by 2100;
- The study area is not affected by windborne sediment erosion as the dunes are well stabilised by vegetation;
- A risk assessment for the present day, 50 year planning period and a 100 year planning period found that the developed portion of the study area would not be at risk nor be subject to reduced foundation capacity within a 100 year planning period;
- Rainbow Beach was found to be undergoing low long term recession at a rate of around 0.01m/year,
- Wave run up analysis for the design storm has indicated that maximum run up levels of 5.1m would not pose an inundation hazard to the study area as the embankment height is above 7.5m AHD.

6.6.1.2 Concept Plan Implications

SMEC confirmed that, based on a series of worst case scenarios assessment parameters, there would be no impact on the proposed development as a result of coastal hazards as the proposed development is located landward of the coastal hazard zones over a 100 year planning period (SMEC, 2009, p(ii)).

6.6.2 Contamination

King and Campbell Pty Ltd have carried out a Preliminary Site Investigation for Lot 4 DP 615261 and Lot 1 DP 374315, pursuant to the provisions of SEPP No.55 Remediation of Land. A full copy of this investigation is included at Appendix N.

The investigation includes a review of the site history using Council and government records and aerial photographs, together with a site inspection and interviews with current and previous owners and occupiers.

The purpose of the Preliminary Site Investigation was to:

- Identify any likely contaminants from the current and past uses of the site;
- Identify any areas on the site that may be affected;
- Assess the need for further investigations; and
- Determine the suitability of the site for future urban uses.

The guidelines used in the assessment of potential site contamination included the National Environment Protection Measures for the Assessment of Site Contamination 1999 (the NEPM), which states that *"The purposes of site assessment is to determine whether site contamination poses an actual or potential risk to human health and the environment, either on or off the site, of sufficient magnitude to warrant remediation appropriate to the current or proposed land use."*

The sites were assessed considering activities currently and historically associated with the site and taking into consideration the potential for exposure to contaminants, or off-site migration.

Lot 4:

In relation to Lot 4 the following was found:

- Activities on the site, current and past, include clearing of the site, grazing of stock and weed control using Round-Up.
- Round-Up is a broad-spectrum herbicide, in common use, with glyphosate as its active ingredient. Monsanto reports its half-life in soil as being from 2-174 days.
- The Guidelines for Assessing Former Orchards and Market Gardens (Department of Environment and Conservation (NSW) 2005) makes note that herbicides are "not commonly found at residual concentrations likely to pose a risk to human health or the environment". This is due to a number of factors, including the types of active ingredients used in most herbicides, concentrations of active ingredients, rates of application, stored amounts and particularly the persistence (or lack of persistence) of ingredients.
- While glyphosate herbicides are designed to be harmful to weeds, and must be used carefully in accordance with directions, they are not likely to be a cause of land contamination, even in the case of

small spills or over-application.

It was therefore concluded that further investigation in relation to Lot 4 was not warranted.

Lot 1:

In relation to Lot 1 the following was found:

- Past activities on the site are the operation of a general farm. This includes storage of farm machinery, possibly including containerised fuel storage, grazing of stock, milking, keeping of pigs and poultry, growing of fruit, vegetables and feed stock, operation of a water pump, waste disposal and sewage disposal.
- The site is currently vacant and unused.
- The former use of the site for cattle grazing, milking of cows, keeping of pigs and poultry, and growing general fruit and vegetables is not considered to present a risk of land contamination.
- Diesel fuel would likely have been used on site for farm machinery. Diesel is a light non-aqueous phase liquid (LNAPL) with carbon chains >C9, and negligible solubility in water. Natural attenuation (allowing the product to naturally biodegrade) is a generally accepted method of treatment for hydrocarbon contamination, particularly in temperate regions.
- Some small spills would be expected over the course of the years during refuelling of equipment. It would be expected that at the type of volumes that may have been spilled, evaporation of the more volatile components would reduce the spill volume soon after the event, and the heavier fractions remaining in the upper soil layers would biodegrade aerobically. It is unlikely that diesel fuel spilled or leaked from containers or machinery would be a lasting cause of soil contamination.
- Some leaks of hydraulic oil in the past would also be expected. Hydraulic oil varies depending on the use and the supplier, but is generally a highly refined mineral oil which can include additives. It is a non-volatile, light non-aqueous phase liquid (LNAPL). Mineral oil components have a high soil absorption co-efficient, and a low solubility, reducing its mobility in soil. Small volumes released to land as in the case of leaks, would be expected to biodegrade aerobically in the upper soil layers. (Evaporation is expected to have a negligible effect on volume spilled. It is not expected that hydraulic oils would be a lasting source of soil contamination).
- The house and sheds were reported (by more than one source) to be of timber and corrugated iron sheets, and were removed in 1989 (approx). These therefore do not pose a current risk of asbestos contamination (even though it may be possible that parts of the buildings contained asbestos eg enclosing an original verandah). Older buildings can be the source of some localised increased lead levels in soils where paint shavings fell during repainting, and galvanised sheds can present increased levels of zinc in soils in the immediate location. These types of contamination risk would be of a comparable scale to similar buildings in residential areas, and is not

considered to require further investigation.

- Methods of sewerage disposal and waste disposal from past occupation of the site are not considered to present a contamination risk.

It was therefore concluded that further investigation in relation to Lot 1 was not warranted.

The PSI concluded the following in relation to contamination:

"Nothing was found in this Preliminary Site Investigation that would preclude the use of the site for urban purposes, including more sensitive land uses (e.g. child care centres etc).

It is therefore concluded that the site is suitable in its current state for the urban land use concepts included within the Concept Plan application to the Department of Planning."

6.6.3 Acid Sulfate Soils

PMHC's Acid Sulfate Soils (ASS) mapping has identified Class 4 and Class 5 land along the southern boundary of Lot 1, as included on Exhibit 04A - Site Analysis.

The following excerpt has been taken from Councils mapping where light pink represents Class 4 lands and yellow indicates Class 5 lands. The Class 4 lands are generally associated with the 1:100 year flood event.



Works for which Class 4 and Class 5 lands apply include:

SURVEYING ▯ ARCHITECTURE ▯ PLANNING ▯ CIVIL ENGINEERING ▯ URBAN DESIGN

Class 4: Works beyond 2 metres below the natural ground surface

Works by which the water table is likely to be lowered beyond 2 metres below natural ground level;

Class 5: Works by which the water table is likely to be lowered to below 1 metre AHD in adjacent Class 1, 2, 3 and 4 land.

The incidence of ASS and the suitability of the onsite soils in general to support the proposed urban uses were investigated by Jelliffe Environmental Pty Ltd in their Stormwater Quality Management Report of June, 2002. A full copy of this initial investigative report has been included at Appendix D.

This report notes the following in relation to ASS:

"The potential for acid sulfate soil has been identified as either "No Known Occurrence" or "Low Probability" in the DLWC Acid Sulfate Soils maps. In summary acid sulfate potential is limited to soils towards the south western end of the site below 5m AHD which are identified as having a Low Probability. In order to expose the acid sulfate soil to the atmosphere groundwater levels would need to fall below the existing dry season base level. At the base level the hydraulic gradient would be flat. At that level natural losses from the system would be limited to evapotranspiration. Exposure of acid sulfate soils could therefore be expected as a natural course of events during periods of prolonged drought. However any significant reduction in recharge could reduce the length of time required for groundwater to reach the base level during drought, and for evapotranspiration to expose the acid sulfate soils. It is therefore recommended that all opportunities for maximising infiltration within the study area are capitalised on. The most important measure to avoid drawing down the water table in areas with acid sulfate soils is to control the use of spear point bores in this area."

The Jelliffe report concludes the following:

"The potential presence of acid sulfate soils below the water table in areas to the south west of the site imposes the low risk of acid sulfate release if the water table is significantly lowered. It is concluded that the development proposed will not have the potential to significantly lower the water table in these areas provided spear point extraction is controlled."

6.6.3.1 Concept Plan Implications

Concept Plan works that have the potential to be located on the areas affected by ASS are to be limited to protection and enhancement works associated with Duchess Gully. However in the unlikely event that the detailed engineering design for this area results in the possible disturbance to the water table, an ASS Management Plan in accordance with ASSMAC Guidelines will be prepared in conjunction

with the construction certificate documentation. This requirement is included in the Statement of Commitments.

6.6.4 Bushfire

A Bushfire Protection Assessment pursuant to PFBP 2006 has been prepared by Australian Bushfire Protection Planners Pty Ltd (ABPP), dated 23 March, 2010. A full copy of this report can be seen at Appendix I.

PMHC's bushfire prone land mapping has identified the Littoral Rainforest as Category 2 bushfire prone vegetation. The vegetation located within the south-western corner of the site (adjacent to Duchess Gully) and the vegetation on the adjoining vacant residential zoned lands to the west is not recorded on this mapping. However given the classification of the rainforest vegetation, the future development of the site will be classified as 'integrated development' under the provisions of Section 91(1) of the Environmental Planning and Assessment Act, 1979.

As a preliminary measure ABPP sought advice from the NSW Rural Fire Service in relation to the required APZ to the SEPP 26 Littoral Rainforest and to the proposed revegetation / regeneration areas. In written advice dated 9th December 2005, (copy attached as Appendix A in bushfire assessment), the NSW Rural Fire Service (RFS) confirmed that the vegetation on the fore-dunes of Rainbow Beach is 'rainforest'. The RFS also confirmed that subject to the revegetation / regeneration area being planted with rainforest species, a 20m wide Asset Protection Zone will be required to the urban development on its western frontage.

Notwithstanding that the existing vegetation to the south-west of the site (Duchess Gully) is not included on Council's bushfire prone land mapping, the site inspection carried out by ABPP has confirmed that the potential exists for fire to occur within this vegetation.

Additional consultation was undertaken between ABPP and the Development Control Division of the NSW Rural Fire Service on 22 March, 2010 and the recommendations attached to the report at Appendix I reflect both the consultation process and the findings of the site inspections.

6.6.4.1 Recommendations

ABPP has made the following recommendations in relation to the proposal:

"Recommendation 1:

Asset Protection Zones shall be provided to the residential and tourist development to the widths as nominated in Tables 6 & 7. (Refer to Section 7 – "Planning for Bushfire Protection Measures")

Table 6. Bushfire Protection Assessment – Asset Protection Zones – Residential Development which adjoins Bushfire Prone Vegetation

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Required width of Asset Protection Zone	Width of Asset Protection Zone Provided	Compliance with RFS deemed to satisfy requirements
East	Littoral Rainforest	Rainforest	< 5 degrees upslope	10 metres	20 metres [width of perimeter road + setback to dwellings]	YES.
West of central and south western corner of site	Narrow corridor of Swamp Sheoak Forest	Rainforest [corridor less than 50 metres wide]	< 5 degrees downslope	10 metres for corridor of riparian vegetation	20 metres [road + setback to buildings]	YES.

Table 7. Bushfire Protection Assessment – Asset Protection Zones – Tourist Development [Special Fire Protection Purpose Development] which adjoin Bushfire Prone Vegetation

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Required width of Asset Protection Zone	Width of Asset Protection Zone Provided	Compliance with RFS deemed to satisfy requirements
East	Littoral Rainforest	Rainforest	< 5 degrees upslope	30 metres	Minimum 30 metres	YES.

Recommendation 2:

Defendable Spaces shall be provided to the commercial development to the widths as nominated in Table 8. (Refer to Section 7 - "Plan of Bushfire Protection Measures").

Table 8. Bushfire Protection Assessment – Defendable Space requirements to Commercial Development adjacent to Bushfire Prone Vegetation

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Required width of Defendable Space – Flame Zone width	Compliance with RFS deemed to satisfy requirements
East	Littoral Rainforest	Rainforest	< 5 degrees upslope	> 8 metres	YES.

Recommendation 3:

The Asset Protection Zones/Defendable Spaces shall be maintained as an Inner Protection Area in accordance with Section 4.6.1 of this report; Appendix 5 of Planning for Bushfire Protection 2006 and the NSW Rural Fire Service's publication 'Specifications for Asset Protection Zones

Recommendation 4:

An 88B Covenant, under the Conveyancing Act 1919, shall be applied to the title of those lots so burdened, to ensure the long term maintenance of the Asset Protection Zones / Defendable Spaces.

Recommendation 5:

Future public access roads shall be constructed to comply with the specifications of Section 4.1.3(1) of Planning for Bushfire Protection 2006.

Recommendation 6:

A hydrant water supply shall be installed in accordance with the specifications of Australian Standard A.S 2419.2 - 2005. Hydrants shall have a flow rate of 10 litres / second and be located on the opposite side of the road from the bushfire threat.

Blue hydrant markers shall be provided to locate the positions of the hydrants. The markers shall be positioned on the hydrant side of the centreline of the road pavement.

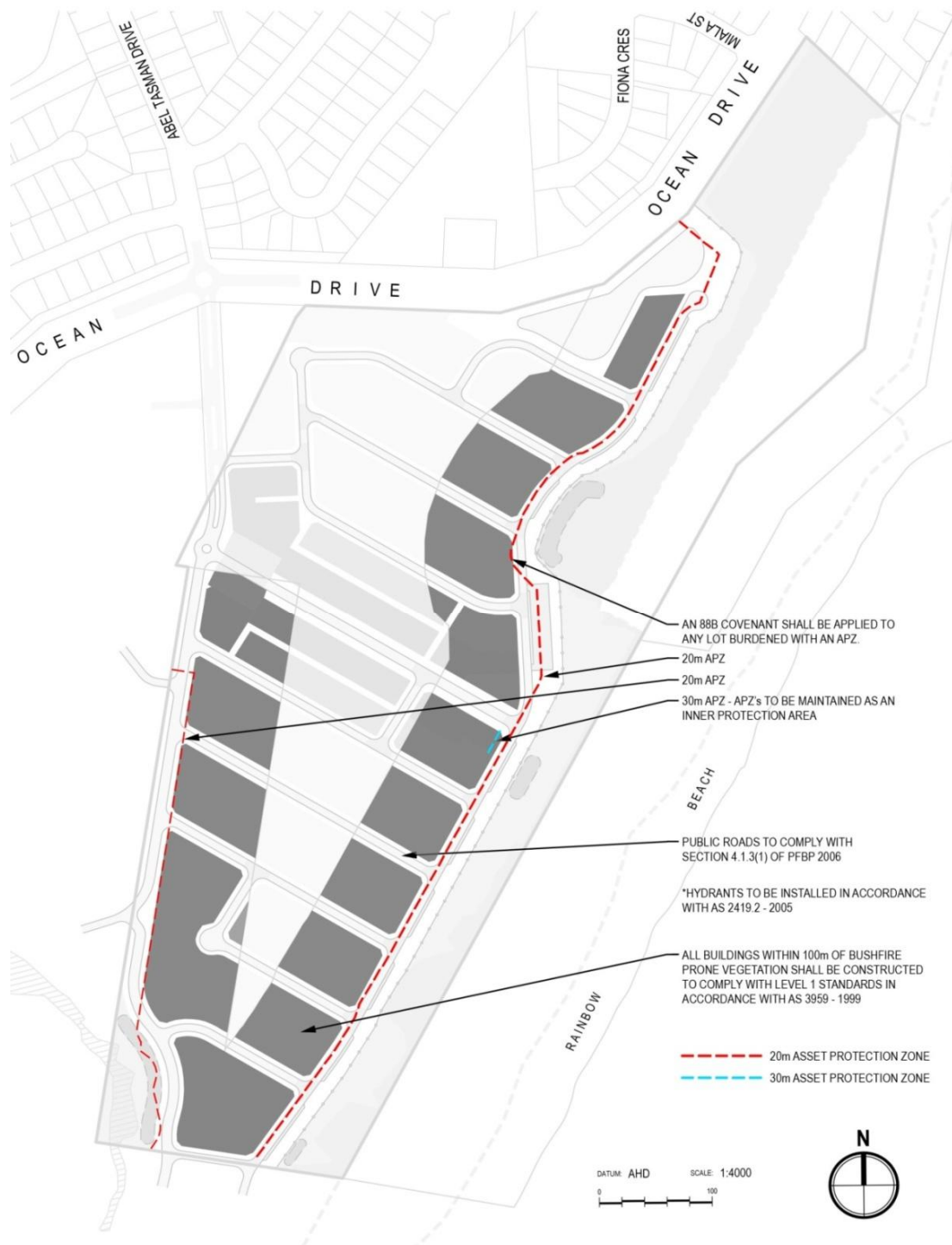
Recommendation 7:

The future residential buildings erected on those lots having exposure to the bushfire prone vegetation shall be constructed to Level 1 standards in accordance with A.S 3959 – 1999 – ‘Construction of Buildings in Bushfire Prone Areas’.

Planning for Bushfire Protection 2006 also requires that all buildings constructed within 100 metres of bushfire prone vegetation shall be constructed to comply with Level 1 standards in accordance with A.S 3959 – 1999 – ‘Construction of Buildings in Bushfire Prone Areas’.

6.6.4.2 Concept Plan Implications

The above recommendations have been incorporated on the following plan and where relevant, included in the Statement of Commitments.



The following is noted in relation to the effect of the recommendations on the built form of the Concept Plan layout:

- The required 20m APZs to the west and east are fully contained within the public open space and public road reserves, and normal (5m) building setbacks. Any future lots created that require an APZ to apply within the building setback area will if necessary have a

Section 88 restriction on the use of land applied.

- A 30m APZ will apply to the eastern extent of the Hilltop Village, should such be used for a 'special fire protection purpose' (i.e. tourist development). This will need to be assessed in detail as part of future Project Applications;
- All residential buildings within 100m of the bush fire prone vegetation, as shaded dark grey on the preceding plan, are required to be constructed to comply with level 1 standards in accordance with AS 3959 – 1999; and
- Upon completion of the residential development to the west of the site (SVF land), the 20m APZ and construction standard requirement will not be required adjacent to this common boundary.

6.6.5 Geotechnical

Geotechnical assessments in relation to the suitability of the site for urban development have been ongoing since 2001. In response to the specific requirements of the DGRs a preliminary geotechnical assessment has been undertaken by Martens & Associates Consulting Engineers, July 2010. A full copy of this report is included at Appendix O.



HACKETT LABORATORIES TEST PIT LOCATION (FEBRUARY 2001)
MARTENS BOREHOLE / PIEZOMETER LOCATION (NOVEMBER 2006)

The Martens Preliminary Geotechnical Assessment has been conducted in accordance with AS 1796 (1993) and AS 2870 (1996). The assessment divides the site into four zones of risk, with a summary of the slope instability risk, based on Australian Geomechanics (2007) guidelines, shown in the following table (Martens, table 3, p9).

Table 3: Summary of slope instability risk assessment based on Australian Geomechanics (2007) guidelines,

Zone	Risk type	Likelihood	Consequence to Property	Risk Level adopted for Property
A	Risk 1: Soil creep	Unlikely	Insignificant	Very Low
	Risk 2: Land slide	Rare	Minor	Very Low
B	Risk 1: Soil creep	Almost Certain	Insignificant	Low
	Risk 2: Land slide	Unlikely	Minor	Low
C	Risk 1: Soil creep	Unlikely	Insignificant	Very Low
	Risk 2: Land slide	Rare	Minor	Very Low
D	Risk 1: Soil creep	Unlikely	Insignificant	Very Low
	Risk 2: Land slide	Rare	Minor	Very Low

This assessment found that "... the proposed development is considered to constitute a very low to low risk to property resulting from geotechnical hazards provided recommendations of this report (Section 3.4) are implemented."

6.6.5.1 Concept Plan Implications

The recommendations at Section 3.4 relate generally to 'good practice' associated with construction for earthworks, footings and foundations and groundwater. Section 3.4 also makes a number of recommendations for further geotechnical investigations which will be required to be undertaken at the PA/DA stage.

As a result of these recommendations the following will be included within the Statement of Commitments for the Concept Plan.

1. That construction standards for future roads and buildings, including footings and foundations, be undertaken in accordance with the Good Hill slope Engineering Practices as set out in Australian Geomechanics Vol. 42 No. 1 March 2007.
2. That detailed construction management plans and dewatering assessments be provided where excavations are proposed to be undertaken below the permanent groundwater table. These plans are to be provided with the Construction Certificate documentation.
3. That the following geotechnical investigations be undertaken at the

DA/PA stage:

- Boreholes to allow for the characterisation of underlying geology and determination of bed-rock depths;
- Penetration testings such as Standard Penetration Test (SPT). Dynamic Cone Penetration Test (DCP) and/or Cone Penetration Tests (CPT) to determine strength of sub-surface materials for future footing/foundation design;
- Californian bearing ratio (CBR) lab testing to determine strength of sub-grade material for pavement design;
- Shrink/Swell and Atterberg Limit lab testings to determine soil reactivity for foundation classification; and
- Settlement analysis to determine future ground settlements beneath engineered structures (buildings, roads and services).

6.6.6 Flooding

Appendix J contains a Flood Assessment undertaken by Cardno (Old) Pty Ltd. The Cardno report addresses DGR 6.6 and 6.7 and draws on the flood assessments undertaken on the adjoining SVF site.

The Cardno report confirms that while the subject property is not designated as "flood prone", the low lying nature of the SW corner of Lot 1 DP 374315 leads to occasional inundation from local storm events in Duchess Gully.

The Cardno Flood Assessment addresses flood risk from those storm events which cross property boundaries between the subject site and the adjoining SVF site (MP06-0085 and MP07-0001) and includes consideration of:

- The requirements of the NSW Floodplain Management Manual;
- Potential future climate change sea level rises and increases in rainfall intensity.

The Flood Assessment contains the following key components:

- Determination of the peak discharge from Duchess Gully using the probabilistic rational method from Australian Rainfall and Runoff (1987);
- Setting up of a Watershed Bounded Network Model (WBNM) for Duchess Gully. The SW corner of the Milland property is within sub area 18 of the WBNM;
- Modification of the WBNM to allow for existing development and proposed development of the subject site and adjoining SVF site;

- Setting up of a MIKE-11 hydrodynamic model to simulate the behaviour for the 1% AEP design event and other lesser events;
- Adoption of RL 2.3mAHD as the tailwater level at the mouth of Duchess Gully for the model line of RL 2.6mAHD was also modelled for the sensitivity analysis;
- Modelling was undertaken of the existing development scenario and the Future Urban Development with Constructed Wetland (on the adjoining SVF site) scenario. The new constructed wetland on the adjoining SVF site is 10.5ha and is proposed to be connected to both the existing lagoon on the adjoining SVF site and the middle reaches of Duchess Gully (downstream of the SW corner of the Milland property);
- The "Development Conditions" included consideration of proposed outlet structures and channel improvements (Ch 80.250 of Duchess Gully) on the adjoining SVF site;
- The MIKE-11 model allows for the detention and attenuation of storm runoff in the proposed constructed wetland in the adjoining SVF site and has assumed no detention basin being required on the Milland/Seawide subject sites;
- The MIKE-11 model shows that under Developed Conditions the 1% AEP event flood level is RL 4.47mAHD at the SW corner of the Milland property which corresponds to a 110mm increase at the subject southern boundary (chainage 835). This afflux reduces to zero 85 metres further upstream within the Milland property at Ch 750;
- The Cardno Flood Assessment also includes MIKE-11 Model results for five year, 10 year and 20 year events and peak discharges in each of these events (refer Tables 18 and 19 Cardno, pp21-24);
- Consideration of the impact of climate change (CC) (20% increase in intensity and Ocean tailwater RL 2.3mAHD) led to a 100 year and CC flood level of RL 4.74mAHD (refer Table 21, Cardno, p26);
- The Cardno Flood Assessment considered the impact of filling 470m² of the Duchess Gully catchment (to up to RL 5.0mAHD) within the SW corner of the Milland property and found that the fill will have no effect on the conveyance at this location and will not increase local flood levels (refer Cardno, pp26-27, and Figures 22 and 25);
- Section 2.6 of the Cardno Flood Assessment deals with Floodplain Management Issues and confirms that:
 - Inundation levels in existing residential areas along the southern boundary of the SVF site are not worsened by the proposed development of the Milland/Seawide properties;
 - Future residential floor levels should be RL 5.27mAHD being 800mm above the 1%AEP event level;
 - Evacuation routes exist to the north via the internal road system to Ocean Drive;

- Inundation hazard conditions are shown on Figure 21 of the Cardno report. The hazard conditions within the SW corner of the Milland property fall into the 'low hazard' category except for the channel proper of Duchess Gully which is categorised as 'high hazard' (Cardno, p32-33).
- Probable Maximum Flood (PMF) conditions were calculated to be RL 4.8m AHD at the Constructed Wetland on the SVF site and the SW corner of the Milland property. Cardno confirm that fill levels in the SW corner of the Milland property will be above the PMF and access paths to higher ground will still be available.

6.6.6.1 Concept Plan Implications

The following outcomes from the Cardno Flood Assessment will be included in the Statement of Commitments at Section 7:

- Residential lots shall be filled to a maximum level of RL 5.0m AHD;
- Road crossings over flowpaths within the proposed development will be designed to take into account the 100 year ARI (plus climate change) and comply with PMHC's AUSPEC Design Specifications;
- The minimum floor level of any residential dwelling is to be RL 5.27m AHD.

6.7 Water Cycle Management

A strategy for water cycle management and sustainable hydrology for the Concept Plan has been prepared and documented for the site. The proposed development will incorporate the principles of Water Sensitive Urban Design into water cycle management, and water supply will be augmented through the use of reclaimed effluent for external and toilet uses and rainwater harvesting via domestic tanks.

The proposed stormwater management strategy for the site, as shown on Exhibit 08A – Stormwater Concept Plan, has been informed by the following studies:

- Stormwater Quality Management Report, Jelliffe Environmental Pty Ltd, July 2002:

This report was prepared in support of the Draft LES prepared by King + Campbell in 2002. This report is included at Appendix D.

- Area 14 Integrated Water Cycle Management Plan, Storm Consulting Pty Ltd, August 2006

PMHC adopted this Integrated Water Cycle Management Plan (IWCMP 2006) as its strategy for development within Area 14.

- Area 14 Stage 1B Groundwater Study, Lake Cathie, NSW, Martens & Associates Pty Ltd, July 2007

After a peer review of the Draft LES, PMHC engaged Martens & Associates Pty Ltd to augment the stormwater management investigations through detailed groundwater monitoring and modelling. This report is included at Appendix D.

- Area 14 Stage 1B Groundwater Study, Lake Cathie, NSW, Amendment 1, Martens & Associates Pty Ltd, July 2010

Following further issues raised by PMHC, Martens provided this updated and amended report, also included at Appendix D.

The site is divided by a ridgeline which separates stormwater runoff draining to the east from that draining to the west. The eastern side falls naturally towards the SEPP 26 Littoral Rainforest, whilst the western side is divided again with the south-western catchment naturally falling towards Duchess Gully and the north-western catchment naturally falling to the north where it drains to an existing culvert under Ocean Drive and ultimately to Lake Cathie.

Accompanying Exhibit 08A are plans showing the infrastructure details and modelling results for the western catchments (Exhibit 08B to Exhibit 08F) and modelling details for the eastern catchments (Exhibit 08G to Exhibit 08J, as reproduced from Sheets 6 to 9 of the Martens report).

The issues relating to stormwater management from each catchment will be discussed under the heading of each receiving environment and catchment.

6.7.1 Eastern Catchments - SEPP 26 Littoral Rainforest

The topography of the site is such that existing stormwater runoff from catchments in the east runs directly into the SEPP 26 Littoral Rainforest. As Crown Land it is administered by the NSW Department of Lands.

By letter dated 13 April, 2007, regarding the proposed concept Plan, the Department of Lands noted the significant impacts that stormwater runoff can have on downstream environments, including:

- Erosion;
- Sedimentation;
- Altering the nutrient levels;
- Increasing levels of pollution;
- Spreading weeds; and
- Exacerbating flooding.

The letter noted that alternatives such as on-site pollution, retention and removal and infiltration and sub-surface discharge should be considered in the development of the Stormwater Management Plan. In addition

the plan should include an assessment of potential impacts on the adjoining SEPP 26 Littoral Rainforest.

Martens & Associates Pty Ltd, Consulting Engineers (Martens) have assessed the impacts of the proposed development on the hydrologic regime of the SEPP 26 Littoral Rainforest, including both surface water and groundwater impacts. Martens have made a number of recommendations (Martens 2007 & Martens 2010) to address the concerns listed by the NSW Department of Lands, using both water quality measures, controlled discharge and groundwater recharge. These recommendations have been incorporated into the proposed Stormwater Management Plan for the site. Martens' water cycle strategy is based on replicating the existing surface water and groundwater conditions in the "post-development" phase.

The NSW Department of Lands has not made any suggestion that stormwater be directed away from the SEPP 26 Littoral Rainforest. The Littoral Rainforest has been and will continue to be dependent on existing runoff and groundwater recharge from the eastern catchments of the subject property.

Martens noted that *"With consideration to potential impacts of climate change on local hydrogeology, it is likely that groundwater re-charge and surface soil moisture conditions will be considerably reduced from existing conditions over the next 20-100 years. This being the case we see that controlled urban runoff will provide a possible mechanism to supply additional water to the SEPP 26 forest otherwise lost through reduced annual rainfall and increased evaporation."* (Martens 2010, p49).

The Storm IWCMP 2006 recommends that the SEPP 26 Littoral Rainforest No 116 be preserved and protected by:

- *"Limiting development surrounding the rainforests and maintaining a buffer zone"; and*
- *"Ensuring that runoff through the SEPP 26 forest does not become an avenue for weed propagation".*

PMHC engaged Martens in 2007 to carry out detailed groundwater monitoring and modelling (as noted above). The Martens updated and amended 2010 report then responded to further issues raised by PMHC as follows:

- Providing further clarity in terms of groundwater impacts and management requirements.
- Providing supplementary information in relation to stormwater management adjacent to the SEPP 26 rainforest and integrating stormwater management systems with groundwater management systems.

The report and its amendment (Martens 2007 and 2010) detail the results of this work and make recommendations specifically relating to the management of stormwater discharging to the Littoral Rainforest. The basis of the recommendations, which include the use of recharge

pits for groundwater recharge, is to mimic the existing hydrological cycle as closely as possible. The measures detailed in Martens 2010 will achieve the above Storm IWCMP recommendations, to preserve and protect the SEPP 26 Littoral Rainforest.

The objectives of the updated work undertaken by Martens 2010 include (p.7):

- *To more fully document the existing groundwater regime.*
- *Assess in detail the likely impacts of the proposed rezoning for Area 14 on local groundwater regimes which come about principally through modifications to the local water cycle (ie. Surface runoff and infiltration changes).*
- *Assess the requirements for a suitable buffer design. This includes not only set-back distance, but also any compensatory measures which would need to be included in the buffer design (eg. Planting, stormwater management and infiltration, environmental monitoring etc).*
- *Determine any initial and on-going site and buffer management requirements to ensure that the current groundwater conditions are maintained or modified as required.*

The investigations undertaken by Martens resulted in the separation of the eastern catchment into four primary coastal sub catchments. These catchments have been reproduced on the site analysis plan at Exhibit 04A and the Stormwater Concept Plan at Exhibit 08A.

The existing site conditions were established together with the existing groundwater conditions. This required the excavation of six sub-surface boreholes and the installation of six piezometers for monitoring the in-site groundwater level. This was then followed by modelling to determine the post-development conditions and an assessment of the potential impact on groundwater level was undertaken for various densities.

The Martens 2010 report (pp 49-50) concluded and recommended the following management measures to mitigate any potential impacts on groundwater conditions within or near the rainforest:

"1. We broadly concur with the vegetated set-back or buffer approach provided by King + Campbell in the draft LES structure plan. On the basis of a proposed average 40m planted distance, unlikely to be significant impacts on groundwater conditions below the SEPP 26 forest community.

2. With consideration to the potential impacts of climate change on local hydrogeology, it is likely that groundwater re-charge and surface soil moisture conditions will be considerably reduced from existing conditions over the next 20-100 years. This being the case, we see that controlled urban runoff will provide a possible mechanism to supply additional water to the SEPP 26 forest otherwise lost through reduced annual rainfall and increased evaporation.

On this basis, we recommend that stormwater discharge control structures are fitted with variable or exchangeable orifice or weir plates that can be used to adjust flow rates to the recharge pits.

3. Deep stormwater infiltration pits (or trenches depending on final designs) should be constructed within or to the west of the planted buffer zone. These should be excavated so that they extend through the surface clay layer and intersect the lower sand aquifer. There should be good connectivity between the infiltration trench bed and the underlying permeable aquifer.

The effect of this will be to ensure that surface water is allowed to rapidly enter the local groundwater table without excessively saturating surface soils except during extreme rainfall conditions. This mechanism will have the additional benefit of reducing some of the edge effects of the existing pasture which is likely to have raised surface soil moisture conditions adjacent to the SEPP 26 forest.

4. We recommend that water which does not infiltrate to the deeper groundwater system (ie surcharges from the biofiltration units), is evenly distributed as it is released into the planted vegetated buffer area. Further to this, ground within the buffer area should be prepared in such a way so as to ensure maximum infiltration. This can be achieved by way of ground 'riffing' or minor contouring.

5. The buffer revegetation programme should be undertaken as soon as possible so as to ensure that maximum evapotranspiration rates can be achieved as early as in the development process.

6. Other than the deep infiltration pits/trenches, care should be taken within the development areas that groundwater is not significantly intersected and hence groundwater flow impeded or redirected. On the hillslopes, we suggest that excavations should preferably not exceed 2.5m below ground level. If deeper excavations are required, then suitable mitigation measures should be included to ensure that groundwater flow is not redirected or permanently lowered. We do not believe that this will compromise future development, particularly given the likely lowering of groundwater tables in the urban zone.

On the lower slopes, say below 12.5m AHD (which excludes the majority of the residential development area), excavations > 1m in depth (other than for the deep infiltration pits) should be plastic lined and backfilled with low permeability materials. This should minimise the impact of trenching for services and the stormwater system on groundwater recharge and flow directions.

7. For roads in low lying areas (say below 12.5m AHD), we recommend that these should either be constructed to enable sufficient durability and bearing pressure under the assumption that the groundwater table may be close to or within the sub-grade materials, or be designed somewhat elevated to ensure that pavement and upper sub-grade materials do not become water logged.

8. OSD structures, including domestic rainwater tanks (where these are installed within the catchments) and other surface storages should be used to ensure that post-development flow rates approximate as close as possible pre-development flow rates."

The Martens study has also made recommendations in relation to requirements for future Project Applications on the site. These recommendations include the following:

"1. More rigorous geotechnical investigations and design will be required for the design of the recharge pits. As a minimum, the following is recommended:

- a. A series of four (4) groundwater bores should be established along the SEPP 26 zone within the proposed revegetated buffer zone to document sub-surface conditions.*
- b. At each bore, further testing of saturated hydraulic conductivity in the underlying sand aquifer should be undertaken.*
- c. Measurements of storativity/specific yield should be made in order that the groundwater mounding from recharge pits can be minimised.*
- d. Each bore should be instrumented for a period of six (6) months in order that long-term groundwater level fluctuations can be validated and incorporated into the design of the recharge pits.*
- e. Two (2) of the existing bores at higher elevations should be instrumented for the same six (6) month period.*

2. We recommend the establishment of at least two (2) further monitoring bores within the SEPP 26 area (if this is possible) so that the current groundwater model for the study area can be extended to the coast as far as practical. Recommendations are:

- a. Bores should be located in either sub-catchments C2 or C3.*
- b. Bores should be instrumented for the same six (6) month period as noted in item 1. Bores within the SEPP 26 area may need to be installed by hand or water jetting given the site sensitivity and difficulty of site access.*

3. Further groundwater quality monitoring (notably nutrients) is recommended to provide base-line groundwater quality data. This will assist with design of the bio-filtration units. In addition to those parameters already covered by this study, bound and unbound phosphorus levels should be determined in any future sampling. This will enable improved design of biofiltration units. We recommend at least two (2) further rounds of water quality sampling being spaced three to six months apart from established bores.

4. *Groundwater salinity measurements should be further documented. We recommend continuous monitoring for the six month period noted in item 1 at three locations:*
 - a. *Within the SEPP 26 forest*
 - b. *Within the revegetation area*
 - c. *An existing bore location further upslope*
5. *Surface water sampling will be required to determine existing surface water nutrient concentrations. A minimum of three rounds of sampling during and following rainfall runoff periods is recommended. This will assist with design of the bio-filtration units.*
6. *A report will need to be prepared at the Project Application stage that provides the following:*
 - a. *An updated groundwater model for the area incorporating the findings of past and on-going groundwater investigations and monitoring. The model should demonstrate that post-development drawdown (-ve or +ve) is minimised or avoided altogether within the SEPP 26 rainforest area.*
 - b. *A more detailed sea level rise groundwater model should be developed which would take into account of any effects of coastal recession. This would enable 'fine tuning' of the design of the groundwater recharge system(s).*
 - c. *Confirmation of the design of end-of-line stormwater structures. This should include on a sub-catchment basis, revised OSD requirements and a daily water balance modelling demonstrating that surface moisture conditions within the SEPP 26 rainforest will not be affected by the proposed stormwater management infrastructure.*
 - d. *Updated and appropriately supported designs of the stormwater recharge pit system."*

The Martens proposals Groundwater Assessment and Concept Stormwater Management Plan for the eastern catchments are fully documented in Appendix D. The major points of the scheme include the construction of three biofiltration basins that provide water quality treatment as well as providing detention storage and a facility to recharge groundwater. Details of the location of these basins, the MUSIC layout and "Drains" stormwater results are shown on Exhibit 08G to Exhibit 08J.

The stormwater and groundwater management plans for the eastern catchment propose to protect the ecological health of the adjoining SEPP 26 rainforest.

6.7.2 South Western Catchment - Duchess Gully

The south-western catchment of 10.23ha (denoted as SW on Exhibit 08A) is proposed to discharge into Duchess Gully following treatment in a bio-filtration system. As this is the lower reaches of Duchess Gully stormwater detention will not be provided in order that stormwater volume from the site can travel downstream before stormwater volumes from catchments further upstream reach this point. The Flood Assessment undertaken by Cardno (Appendix J) confirms that the flood model has not allowed for any on-site stormwater detention in the SW catchment of the subject site. The emphasis for this sub-catchment is to provide water quality treatment prior to discharge into Duchess Gully, consistent with the approach of the Storm IWCMP (2006).

The IWCMP 2006 notes that *"increased levels of wetness associated with urban development are not likely to cause dieback of vegetation in or adjacent to Duchess Creek. ... The impact of low flows and in particular the increase in the frequency of low flows is not likely to impact on the long term stability of the lower section of Duchess Creek."*

"This statement is based on the assumption that water quality measures will be put in place to control the additional nutrients that may be exported into the creek following urban development."

The conclusions drawn for Duchess Gully in this location were as follows:

- *A viable riparian corridor needs to be established to protect Duchess Creek from the impacts of development.*
- *Various WSUD features will need to be designed to minimise nutrient loadings on the creek.*
- *WSUD measures that lead to the reduction of flows into Duchess Creek should be implemented.*

The pre and post development results and the Music model set up are shown on Exhibit 08C to Exhibit 08F.

6.7.3 North Western catchment - Lake Cathie

The north-western catchment area of 9.18ha (denoted as NW on Exhibit 08A) falls toward the bend in Ocean Drive where there is a natural surface depression. The proposed Stormwater Concept Plan works with the existing topography and formalises this depression to provide stormwater detention for the northern sub-catchment. The concept plan also incorporates a vegetated biofiltration area within the basin for treatment of stormwater runoff before it leaves the area.

The impacts of development on Lake Cathie were considered in the IWCMP 2006, which determined that adverse impacts of urban development on Lake Cathie would include an increase in nutrients and an increase in weed species. Therefore *"it was concluded that provided there is adequate stormwater quality treatment, the changes to the*

hydrological regime will have less of an impact on the SEPP 14 Wetland."

The conclusions drawn for SEPP 14 Wetland 509 – Lake Cathie were to "preserve and protect coastal wetland (No.509) by:

- *Providing viable riparian buffers on all waterways leading [to] the wetland.*
- *Minimising nutrient loads draining to the wetland arising from urban development.*
- *Trapping weed seeds prior to discharge into the wetland – use sand filters for this.**
- *Controlling the quantity, frequency and duration of stormwater runoff into the wetlands by using flow reduction measures without the need to develop specific flow management measures.*
- *Actively preventing the planting of non-native vegetation in all public areas.*
- *Promoting the use of native vegetation and dissuading the use of exotic plants among the existing and new communities."*

(* The IWCMP was developed prior to the widespread adoption of biofiltration. The reasoning behind using sand filters is as an alternative to free water surface wetlands. Both treatment system types are able to reduce nutrient concentrations in the outflow; however filtration methods are also able to arrest the spread of weeds so are preferable over free water surface wetlands. The proposed stormwater management plan for the site utilises biofiltration systems which operate similarly to sand filters in the trapping of weed seeds, but have more scope than sand filters for achieving higher pollutant removal efficiencies.)

The proposal is to construct a detention basin as shown in Exhibit 08A. This basin will also contain water quality treatment via an area of biofiltration. Modelling of the stormwater catchment has indicated that detention is required to ensure that the downstream drainage infrastructure is not impacted by additional flows associated with urban development.

King + Campbell has undertaken an analysis of the "Drains " model and determined that there is sufficient volume in the basin to provide the necessary detention to attenuate flows to the predevelopment levels. The DRAINS model confirmed that a volume of approximately 13,200m³ will be required within an approximate area of 7,500m². The capacity of downstream drainage pipes, gullies and culverts (including under Ocean Drive near the on-site detention discharge point) were modelled and a sufficient volume for on-site detention is provided.

The pre-and post development results and the Music layout are shown on Exhibit 08C to Exhibit 08F.

Water Quality Targets

To achieve the aims of the IWCMP for each receiving environment, the IWCMP makes recommendations regarding appropriate stormwater quality criteria, as shown in the table below. These recommendations are generally consistent with the criteria established by AUS-SPEC 2009 Development Design Specification (based on Australian Runoff Quality (ARQ)), which is also shown in the table below for comparison.

Pollutant/Issue	Retention Criteria	
	IWCMP	AUS-SPEC
Coarse Sediment	80% of average annual load for particles $\leq 0.5\text{mm}$	80% of average annual load
Fine particles	50% of average annual load for particles $\leq 0.1\text{mm}$	100% retention of sediment greater than 0.125mm for flows up to the 3 month ARI peak
Total Phosphorous	45% of average annual pollutant load	45% of average annual pollutant load
Total Nitrogen	45% of average annual pollutant load	45% of average annual pollutant load
Litter	90% of average annual litter load > 5mm	100% of litter greater than 5mm for flows up to the 3 month ARI peak flow
Hydrocarbons, motor fuels, oils and grease	90% average annual pollutant load	No visible oils for flows up to the 3 month ARI peak flow

Preliminary modelling in the Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 4.0) has also been carried out using the parameters recommended in the Gold Coast MUSIC Modelling Guidelines and rainfall data for the Lake Cathie locality provided by the Bureau of Meteorology.

The proposed stormwater treatment strategies have been modelled using the MUSIC modelling program, and results show that the above pollutant removal efficiencies adopted by PMHC are met or exceeded.

The following photographs provide an example of a recently constructed biofiltration basin, with a width of approximately 4m. The photographs have been included to demonstrate that their design can be tailored to sit comfortably within a residential environment, in close proximity to urban infrastructure.



6.7.4 Concept Plan Implications

The Stormwater Management Plan has the following implications for the subject Concept Plan:

- Further groundwater monitoring and modelling work is to be undertaken in the eastern sub-catchments that drain to the SEPP 26 Rainforest as part of the future Project Applications;
- Detailed modelling and design of the end-of-line stormwater facilities in the eastern sub-catchments incorporating stormwater quality, groundwater recharge and stormwater detention measures as part of future Project Application and Construction Certificate Applications;
- Detailed modelling and design of the end-of-line stormwater facility

in the NW sub-catchment incorporating stormwater quality and detention measures;

- Detailed modelling and design of the end-of-line stormwater facility in the SW sub-catchment incorporating stormwater quality measures and conditions associated with a Controlled Activity Approval in relation to Duchess Gully.

These outcomes have been incorporated into the Statement of Commitments in Section 7 of this report.

6.8 Heritage and Archaeology

6.8.1 Cultural Heritage Report, February 2003

A Cultural Heritage Assessment was prepared in February 2003 by Jacqueline Collins (Consultant Archaeologist). A full copy of this report is attached as Appendix E.

The assessment considered Aboriginal cultural heritage as well as non-indigenous cultural heritage. The Assessment which included the consultation process was carried out in accordance with the draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DECC July 2005) and the Interim Community Consultation Requirements for Applicants (DEC 2004).

The Birpai LALC was contacted at commencement of the assessment and assistance was provided by Senior Sites Officer Lindsay Moran. During the field survey an artefact was recorded (AHIMS 30-6-0162). The artefact lies within an area zoned 7(f1) Environment Protection-Coastal. At the request of Birpai LALC the location of the artefact has not been made public.

The Cultural Heritage Assessment makes recommendations regarding the artefact and Duchess Gully. Whilst Duchess Gully is considered as a location of high archaeological sensitivity, no artefacts were found at this location. The following recommendations were developed through discussion with Lindsay Moran as the representative of the Birpai LALC:

"To ensure maximum protection for the Site 1B-1 scarred tree it is recommended that the current 7(f1) [Environment Protection-Coastal] zoning for the eastern margin of Lot 4 be retained";

"In order to maintain the Littoral Rainforest in the residential context and mitigate the adverse effects of an increased human presence it is recommended that close consideration be given to appropriate fencing for the western margin of the rainforest, and to providing restricted formalized beach access. It will be necessary for any formalized beach access to be situated well away from the Site 1B-1 location."

"In view of its high level of potential archaeological sensitivity it is recommended that the existing vegetation along Duchess Creek in the south-west section of Lot 1 be retained and that a buffer zone at

least 5m wide be established along the creek bank. In an effort to preserve any archaeological materials which may be present, this buffer zone should be spared all development-related ground disturbance."

In assessing the Aboriginal cultural/social significance of the artefact, the Birpai LALC and Mingaletta Corporation was consulted and the Cultural Heritage Assessment concluded that the artefact has a high level of general heritage value, enhanced by its proximity to the significant midden at Middle Rock Point. In addition, the Cultural Heritage Assessment concluded that the artefact is also of high scientific significance.

6.8.2 Community Consultation

In accordance with Section 7.7 of the DGRs the requirements contained in the draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation Requirements for Applicants (DEC 2004) have now also been addressed.

By letter dated 30 October 2008 the NSW Department of Environment and Conservation provided a list of known Aboriginal stakeholder groups (other than LALC) for the mid north coast area. Individual letters were then sent to the each contact on the list in addition to the placement of an advertisement in five (5) local newspapers. Correspondence was also received from the Office of the Registrar, Aboriginal Land Rights Act 1983, dated June 2009. This correspondence confirmed that the subject land does not have registered aboriginal owners.

A copy of the above correspondence together with copies of the newspaper advertisements is included at Appendix E. The notification process, including the wording of both the letters and public notices were reviewed and amended where requested by Mr Lindsay Moran of Birpai LALC.

The stakeholders were advised of the proposed works contained in the Concept Plan and the Stage 1 Project Application, including the provision of fencing to the western side of the vegetated buffer to the rainforest. A low impact boardwalk or similar pedestrian access through the rainforest to the beach in the location of the existing tracks. These works in conjunction with the proposed revegetation works have been included in the Stage 1 Project Application. The aim of the Concept Plan Application and Project Application is to protect the rainforest from general pedestrian access and in so doing, restrict access to the Aboriginal artefact within the rainforest. In accordance with the wishes of Birpai LALC, the site will not be signposted or identified in any way.

In relation to the public notices in the local papers, a total of five (5) individuals made contact with King + Campbell following the exhibition period. Four of these individuals made general enquiries and appreciate the non-disclosure of the artefacts location and proposed protection measures. All four individuals advised that they do not require further

contact in relation to the matter.

The fifth individual was Mr John Heath in his capacity as the Interim Secretary of the Bril Bril Traditional Owners (Birpai area). In response to his enquiry a letter was forwarded to Mr Heath setting out the history of the site and previous studies, the consultation process and the proposed management of the site as part of the Part 3A process. A copy of this correspondence is included at Appendix E. Mr Heath has made no further contact.

6.8.3 Concept Plan Implications

The formal exhibition of the Concept Plan and Stage 1 Project Application will provide further opportunities for public involvement and consultation in relation to this issue.

In conjunction with the formal exhibition period and in consultation with the Department of Planning it is proposed to conduct a public meeting during the exhibition period to provide an opportunity for community input. The Local Aboriginal Land Council is to be invited to this meeting. This undertaking is included in the Statement of Commitments.

6.9 Flora and Fauna

Ecological investigations of the site have been ongoing since 2002.

Appendix C to this submission contains the following reports and correspondence dealing with Flora and Fauna issues:

- Flora and Fauna Survey – Peter Parker Environmental Consultants Pty Ltd (PPEC) July 2010:

This is the primary ecological report providing details of surveys undertaken between 2002 and 2010 and the resultant recommendations. This report also incorporates recommendations made by Dr Peter Brennan in relation to Littoral Rainforest edge effects as part of his peer review of the 2002 survey and additional works as recommended by Biolink Ecological Consultants in their peer review of the PPEC 2002 Report.

- Area 14 Stage 1B Ecological Assessment – Biolink Ecological Consultants, June 2007:

This report was commissioned by PMHC to:

- Review the PPEC 2002 Report and supplementary correspondence from PPEC and Brennan, review the June 2002 Stormwater Quality Management Report by Jelliffe and subsequent groundwater monitoring by Martens & Associates;
- Review the King + Campbell draft rezoning application and

Revegetation Plan;

- Update threatened species records for the site;
- Make recommendations with respect to environmental setbacks in the vicinity of the SEPP 26 Littoral Rainforest.

The Biolink report made recommendations with respect to the following:

- The width of revegetation area on the western side of the rainforest including a recommendation to reduce it to an average width of 30m.

This recommendation was based partly on Martens & Associates preliminary groundwater work in 2007. The Martens July 2010 has confirmed the average revegetation width of 40m as proposed is appropriate;

- Rifling at 1.0m contours within the environmental buffer (also recommended by Martens & Associates);
- Potential staggering of groundwater recharge areas.

Note – the Concept Plan Application is ultimately adopting the recommended groundwater recharge locations by Martens & Associates July 2010 which are acknowledged to be flexible;

- Investigate the potential for an above ground stormwater reservoir within the APZ buffer for potential direct feed into groundwater recharge areas.

Note: the Concept Plan Application incorporates the recommendations generated by the detailed modelling in the Martens July 2010 report which does not include a similar recommendation for an above ground reservoir.

- Ongoing monitoring of water cycle issues.

Note: the Statement of Commitments contains provisions for further monitoring of groundwater conditions as recommended by Martens & Associates (July 2010);

- Installation of a 2m fence on the western edge of the revegetation area with a maximum of two formal access points through the rainforest to the beach. Formal accesses should be a boardwalk with self-closing gates at access points.

Note: this recommendation has been incorporated into the Project Application in Part B of this submission.

- Restriction of revegetation works to endemic Littoral Rainforest species and interpretative signposting be utilized to reinforce the conservation significance of the Littoral Rainforest.

Note: this recommendation has been included in the Project

Application at Part B.

- Correspondence from PPEC and Brennan in March 2006:
This correspondence provides confirmation that the recommended Littoral Rainforest buffer treatment is consistent with their 2002 reports.
- Correspondence from PPEC in June 200:
This correspondence confirms the vegetation type in Duchess Gully in the SW corner of the Milland property as being 'riparian rainforest'.
- Flora and Fauna Survey, PPEC, May 2002:
This is the original flora and fauna survey by PPEC which has now been superseded by the July 2010 report prepared by PPEC.

6.9.1 Flora and Fauna Survey, PPEC, July 2010

This report is the primary ecological assessment for the Concept Plan and Stage 1 Project Application. The report provides details of ecological assessments undertaken by PPEC from 2002 through to 2010, including:

- 25-28 February 2002 – Systematic flora and fauna survey of site;
- 30 May 2007 – Resurvey of vegetation associations along Duchess Gully;
- 10 December 2007 – Resurvey of Littoral Rainforest to determine potential locations for additional pedestrian access path;
- 29 & 30 June 2010 – Additional field surveys including:
 - Additional fish survey of Duchess Gully;
 - Survey of proposed boardwalk location;
 - Resurvey of vegetation along Duchess Gully;
 - Resurvey of grassland and location of rough-shelled bush nut; and
 - Resurvey of vegetation along Ocean Drive in the NW sector of the subject site; and
- 2002 to 2010 – An additional seven (7) site inspections to advise on revegetation and amelioration works on the western edge of the rainforest, including inspection of borehole log locations.

6.9.1.1 Content of PPEC Report

A summary of the results of these surveys and the content of the July 2010 report is provided below:

- Section 1.1 details the statutory requirements associated with the

subject ecological assessment and confirms that the July 2010 report has been prepared to address the DGRs relating to Flora and Fauna and DECCW's advice to DoP with respect to the Concept Plan;

- Section 2 details other relevant studies relating to either the subject site or the adjoining lands that have been reviewed as part of the PPEC July 2010 report;
- Section 3 provides details of the various field surveys between 2002 and 2010 as outlined above;
- Section 4 contains details of the results of the various field surveys;
- Section 5 contains a discussion of those results;
- Section 5.3 outlines a number of management initiatives to improve the long-term conservation viability of the Littoral Rainforest remnant and other habitats and the faunal assemblages contained therein;
- Section 6 contains detailed consideration of the statutory requirements relevant to the Concept Plan;
- Appendix 2 contains details of other fauna recorded in similar habitats to those occurring at the site;
- Appendix 4 contains 7 Part Test Assessments of Significance for the threatened flora and fauna species that were either recorded on the site or may occur at the site or in the vicinity of the site;
- Appendix 5 contains 7 Part Test Assessments of Significance for the threatened fish and invertebrates that were either recorded on the site or may occur at the site or in the vicinity of the site; and
- Appendix 6 contains an assessment of significance under the Environment Protection and Biodiversity Conservation Act, 1999.

A summary of the findings to the above is provided below.

6.9.1.2 Results of Field Surveys

- A total of eight (8) vegetation associations in four communities were recorded and mapped, including:
 - Littoral Rainforest (two communities);
 - Brush box, beach acronychia, tuckeroo simple notophyll Littoral Rainforest;
 - Blackwood, brown kurrajong, bitou bush simple notophyll (regrowth), Littoral Rainforest;
 - Forest (three communities);
 - Grey ironbark, brushbox lantana tall open forest;
 - Woodland – (two communities);
 - Coast banksia and paspalum mid-high open woodland;
 - Watergum, blackwood and swamp form low-mid-high

woodland to the open forest;

- Swamp sclerophyll forest – dominated by pink-tipped bottlebrush, broad-leaved paperbark and swamp she-oak and by watergum and blackwood; and
 - Grassland – parramatta grass, paspalum (+/- kikuyu) and kangaroo grass low closed sod grassland.
- The Littoral Rainforest is the most significant environmental feature of the site. It is one of the largest Littoral Rainforest remnants in the local area, is relatively weed free and not impacted by cattle grazing or other significant anthropocentric effects.
 - Littoral Rainforest 116 stands out from many other remnants along the NSW coastline in its size, species diversity, small mammal assemblages and the virtual absence of rubbish dumping. However in relation to rubbish dumping, this remnant has benefited from litter removed from the site by the landowners over a number of years.
 - An inspection of the western edge of the forest revealed that the micro-climate typical of the interior of the rainforest existed right up to the boundary of the rainforest. The edge appears stable and the vegetation along the boundary is in good condition with weed invasion being limited to the first few metres (Section 6.1.2, PPEC, 2010);
 - Compensatory reforestation dominated by pink-tipped bottle brush was recorded in the regeneration area in Lot 4. Management of these plantings adjacent to the SEPP 26 Littoral Rainforest is well advanced with established plantings providing a complete canopy cover in parts of the planting area.
 - A small area of broad leaved paperbark forest was recorded primarily within the adjoining Ocean Drive road reserve (refer Figure 3, PPEC, July 2010) which some regeneration occurring on Lot 4.
 - Water gum dominated the banks of Duchess Gully in a small association as open forest due to its fragmented and open canopy and the scale of mapping adopted compared with the small area of rainforest species versus non-rainforest species.
 - The banksias woodland was recorded as scattered trees and clumps of trees in the SE corner of Lot 1. The coast banksia is a significant feed tree for the common blossom bat which was captured at the site.
 - One threatened plant species, the rough-shelled bush-nut was recorded approximately 150m west of the Littoral Rainforest and is considered to have been planted in the vicinity of dwelling ruins in that location. This planted specimen is not known in the wild south of the Clarence River and in this context has little ecological value; and
 - The results of the fauna surveys include:
 - one vulnerable bat, the common blossom bat, was trapped at the site while foraging on coast banksias, this being the most significant mammal recorded on the site;

- Another two vulnerable species, the grey-headed flying fox and little bent-wing bat were recorded flying over the site;
- Other vulnerable species which have suitable habitat components at the site include the rose-crowned fruit-dove and greater broad-nosed bat.
- Reptiles recorded on site– eastern grass skink, tree-toed skink, eastern water dragon, lace monitor and eastern brown snake;
- Frogs recorded on site– eastern dwarf frog, common eastern froglet, brown striped frog, red backed toadlet and the dusky toadlet;
- Birds – no vulnerable bird species were recorded however a wide range of forest birds and open country species were found to be supported by the site (refer Section 4.2.3 PPEC, July 2010);
- Mammals recorded on site– northern brown bandicoot, introduced black rat, brown ant echidna, bush rat, eastern grey kangaroo, swamp wallaby, eastern forest bat, little forest bat, eastern horse shoe bat, eastern broad nosed bat and the lesser long eared bat; and
- Fish recorded on site– striped gudgeon.

6.9.1.3 Seven Part Test Assessments of Significance

Appendix 4 of the PPEC, July 2010 report contains 7 Part Test Assessments of Significance for the following threatened species that were either recorded on the site or may occur at the site or in the vicinity of the site:

- Flora:
 - Rough shelled bush nut; and
 - White flowered wax plant.
- Fauna:
 - Barred cuckoo-shrike;
 - Glossy black cockatoo;
 - Masked owl;
 - Osprey;
 - Powerful owl;
 - Rose-crowned fruit-dove;
 - Wampoo fruit-dove;

- Common bent-wing bat;
- Greater broad-nosed bat;
- Fishing bat;
- Little bent-wing bat;
- Common blossom bat; and
- Grey-headed flying fox.

The 7 part tests found that in relation to each of the above listed threatened species that the proposed development, being outside the potential conservation areas (the Littoral Rainforest), is unlikely to have an adverse effect on the life cycles of the species such that a viable local population of the species is likely to be placed at risk of extinction (S.5(a)), as follows:

- The proposed action will not cause a viable local population of the listed species to be placed at risk of extinction (S.5(b));
- The proposal will enhance and extend the area of Littoral Rainforest and will not have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction nor will any proposed action substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction (S.5A(c));
- No threatened species habitat will be removed or modified as a result of this proposal (S.5A(d));
- The site does not contain any area identified and declared as critical habitat under Part 3 of the TSC Act. Therefore critical habitat will not be affected by the development of the site (S.5A(e));
- Conservation measures designed in the Concept Plan are consistent with recovery plans likely to apply to the site which would include European red fox, plague minnow and Bitou bush (S.5A(f));
- The PPEC report identifies the Threatening processes gazetted pursuant to the TSC Act and confirms that the proposed Concept Plan will not increase any of the listed threatening processes and that the proposed bushland management works contained in the Project Application will target removal of Bitou bush and lantana and thus minimise the impact of those two listed species on the rainforest (S.5A(g)).

Appendix 5 of the PPEC, July 2010 report contains 7 Part Test Assessments of Significance for threatened fish and invertebrates, in accordance with the Fisheries Management Act 1994 and s.5A of the Act. The survey found:

- That no threatened freshwater fish species is likely to occur at or in the vicinity of the site;

- That no endangered fish or invertebrate populations occur within the vicinity of the site;
- That no Critically Endangered or Endangered Ecological Communities listed under the FM Act occur at or in the vicinity of the site;
- That the proposal will not result in the removal or modification of threatened species habitat or EEC's, nor will it result in habitat fragmentation;
- That the site does not contain any area which has been declared as critical habitat under the TSC Act;
- That no recovery or threat abatement plans apply to the site; and
- The proposal will not require the removal of woody debris or lead to an increase in any threatening processes.

6.9.1.4 The Environment Protection and Biodiversity Conservation Act, 1999

The EPBC Act Protected Matters Tool lists the osprey and grey-headed flying-fox as vulnerable species. The PPEC flora and fauna survey considered both of these species, either recorded or likely to occur on the site.

As the Concept Plan will not result in the removal of any trees along the foreshore, it was concluded that the proposal will not result in any potential impact on osprey habitat.

In relation to the grey-headed flying-fox the assessment found that the Concept Plan proposal, which includes considerable planting within the Littoral Rainforest buffer and along Duchess Gully, will contribute to the grey-headed flying-fox foraging resources.

Therefore the PPEC report concluded that the Concept Plan proposal is unlikely to impact on the osprey and grey-headed flying-fox and therefore does not need to be referred to the Minister for the Environment, Heritage and the Arts.

The EPBC Act has also recently listed the Littoral Rainforest and Coastal Vine Thickets of Eastern Australia as a critically endangered ecological community. In relation to this community the PPEC report found the following:

"The proposal will not require any clearing or impact on the Littoral Rainforest. Moreover, ameliorative measures which are discussed in this report include the construction of a boardwalk over a degraded access track through the Littoral Rainforest, weed control, buffer plantings and the control of stormwater runoff. Thus, the proposal will not impact the Littoral Rainforest and does not need to be referred to the Commonwealth Minister for the Environment, Heritage and the Arts."

6.9.1.5 Director General's Requirements

Section 6.1 deals with the Director General's Requirements No.9.1 –

9.4. This section of the PPEC report also includes the outcomes of a peer review undertaken by Dr Peter Brennan. The Brennan review included the identification of potential impacts on the existing Littoral Rainforest and assessment of the effectiveness of the proposed measures designed to provide ongoing protection to the SEPP 26 vegetation.

The potential impacts of the proposed development on the SEPP 26 Littoral Rainforest were identified. The following summary provides details of these potential impacts and the measures to mitigate the impacts:

- Fragmentation of rainforest due to clearing of vegetation creates edge effects (primarily microclimatic and human intrusion).

Comment – no vegetation removal is proposed within or adjacent to the SEPP 26 rainforest. The buffer treatment includes revegetation to ensure a minimum 40m buffer to the SEPP 26 rainforest edge.

- Inspection of the western edge of Littoral Rainforest 116 and review of aerial photos and past reports revealed the existing edge has been in place since at least between 1976 and 1986. A microclimate typical of the interior of the rainforest existed up to the boundary of the rainforest. The edge appears stable with weed invasion limited to the first few metres.

Comment – the Concept Plan and Stage One Project Applications include measures to remove and manage existing weeds and revegetate to create a minimum vegetated width of 40 metres adjoining the SEPP 26 boundary, thereby reinforcing the existing edge of the rainforest.

- Wind and salt spray – the western edge of the Littoral Rainforest is on the leeward side of the prevailing SE and NE winds and not obviously affected by salt sprays. Construction of tall buildings (within 40m of the rainforest edge – refer Brennan correspondence dated 21 March 2006 – Appendix C) could cause turbulence leading to an increase in salt deposition along the western edge.

Comment – the revegetation works will ensure a minimum vegetated buffer of 40 metres to the existing rainforest edge. The proposed environmental buffer in the Concept Plan ensures that all buildings are set back a minimum of 70 metres from the existing SEPP 26 rainforest edge.

- Hydrology and runoff – Housing developments have the potential to:
 - Change the level of the water table under the rainforest through changes to infiltration and surface runoff conditions; and
 - Drain untreated runoff to the rainforest leading to erosion, sedimentation and increased levels of nutrients facilitating growth of weeds.

Comment – The Martens 2010 groundwater study includes recommendations to ensure that the existing groundwater regime is maintained and the runoff is to be suitably treated to ensure there is

a net reduction in nutrients contained therein.

- Noise and light – increases in noise and light from residential development adjacent to rainforests may impact negatively on some rainforest fauna.

Comment – The proposed vegetated buffer with a minimum width of 40m is well in excess to the 10m wide vegetated buffer specified by Brennan. The vegetated buffer will ameliorate any potential edge effects from both noise and light.

- Domestic and feral animals – ground dwelling rainforest fauna are at threat from domestic animals.

Comment – The design features of the proposed buffer included in the Concept Plan will greatly decrease the likelihood of domestic animal incursions into the rainforest. The features include protective fencing, a low thick hedge of spiky planting and a cleared public area which allows casual surveillance, separation of houses from the rainforest and a food source for macropods.

6.9.2 Concept Plan Implications

Section 5.3 of the PPEC July 2010 (pp47-48) report outlines a number of management initiatives to improve the long-term conservation viability of the Littoral Rainforest remnant and other habitats and the faunal assemblages contained therein.

The design of the Concept Plan has adopted each of the recommended management initiatives the implementation of which has been reinforced through the Statement of Commitments in Section 7.

A summary of these recommendations is provided below:

- Provide a substantial Littoral Rainforest buffer. PPEC acknowledge that the Littoral Rainforest buffer design contained in the subject Concept Plan takes into account both vegetation and hydrological requirements;
- Improve the shape of the Littoral Rainforest by decreasing the edge-to-area ratio by plantings along the western boundary;
- Works with neighbouring landowners to the south to enhance the Littoral Rainforest along its entire length. Incorporate the coast banksias woodland in the south-east corner into the Littoral Rainforest using additional plantings and bush regeneration techniques and emphasise coast banksias in the landscaping of the site. Properly constructed and managed, this corridor will provide feeding resources for the common blossom bat, assist in fauna passage for the more cryptic animal species and provide a greater biodiversity;
- Provide a 20m riparian buffer along the water course in the west and work with neighbouring landowners to enhance the riparian connection and widen the wildlife corridor where it passes through the site. Engage bushland regeneration to undertake weed control;

- Construct an elevated walkway to the beach along the existing pathway and improve drainage or minimize erosion by rip-rap filters or similar structures. Weed infestations and erosion in the Littoral Rainforest were attributed to stormwater passage; and
- Protective fencing should be incorporated along the western edge of a planted buffer to the Littoral Rainforest. Fencing will also define the forested edge and limit human intrusion.

6.10 Noise

A noise impact assessment has been undertaken by Heggies Pty Ltd to determine the impact of road traffic noise (Stage 1B, Area 14) and to identify and recommend ameliorative measures to mitigate any traffic noise impacts on the future residential use. The 'Traffic Noise Impact Assessment' dated 5 July, 2010, is included at Appendix F.

Two (2) scenarios were modelled for the purpose of the assessment:

1. Scenario 2009 – a baseline which assumes 2009 traffic volume information with Stage 1B (the subject site) not constructed; and
2. Scenario 2029 – assumes 2029 traffic volume information and Stage 1B constructed.

The results of the modelling which are presented in the form of noise contours for daytime and night time scenarios are shown at Appendices B, C and D to the Heggies report. The predicted noise levels were then used to recommend mitigation measures and construction standards for the future residential development.

The recommended noise mitigation measures were developed by Heggies having regard to the following:

- The predicted exceedance of external day-time and night –time noise criteria;
- The visual amenity of the occupant;
- The visual aspect of the development from Ocean Drive; and
- The residential occupation.

The recommended mitigation measures include:

- The provision of a 2m high noise barrier on Ocean Drive for external noise reduction, as depicted in figure 4 (Heggies, p.20); and
- Recommended architectural treatments for dwellings with frontage to Ocean Drive for internal noise reduction, as set out in Tables 11 and 12 (Heggies, p.22).

The Heggies report confirms that provided the recommended mitigation measures are implemented, the relevant noise criteria requirements contained in AS 2107:2000 and the ECTRN (Environmental Criteria for

Road Traffic Noise, DECCW, May 1999) can be satisfied.

6.10.1 Concept Plan Implications

The adopted objective in relation to road traffic noise for the purposes of the Concept Plan proposal is:

" to minimise the impact of road traffic noise on surrounding residents and where necessary, comply with all relevant standards to reduce noise to an acceptable level, being:

- *L Aeq 45dBA daytime internal noise; and*
- *L Aeq 40dBA night time internal noise."*

The following specific measures will apply to the Concept Plan layout:

1. A 2m high noise wall shall be constructed as the rear boundary fence for all residential allotments that directly adjoin the Ocean Drive road corridor, as indicated on Exhibit 05A. The noise wall shall be continuous for its full length and the nominal mass of the material used in its construction should not be less than 15 kg/m².
2. All proposed dwellings to be located on residential allotments that share a common boundary with Ocean Drive, as indicated on Exhibit 05A, shall be designed to meet the following construction standards as outlined in AS 3671-1989, *"Acoustics - Road traffic noise intrusion - Building siting and construction"*:

Single storey – Category 2; and

Two storey – Category 2

3. All proposed dwellings to be located on residential allotments with frontage to the detention basin, as indicated on Exhibit 05A, shall be designed to meet the following construction standards:

Single storey – Category 2; and

Two storey – Category 2

4. All proposed dwellings to be located on all other residential allotments within the site shall be designed to meet the following construction standards:

Single storey – Category 1

Two storey – Category 1

(Where the construction categories are outlined in AS 3671-1989 as follows:

Category 1 – Standard construction; openings, including open windows and doors may comprise up to 10% of the exposed

façade;

Category 2 – Standard construction except for light-weight elements such as fibrous cement or metal cladding or all-glass facades. Windows, doors and other openings must be closed).

The above specific mitigation measures have been included in the Statement of Commitments at Section 7.

6.11 Socio Economic Impacts

The site, being part of the Area 14 UIA, has been included in previous investigations in relation to social impact. The Concept Plan proposal represents a small scale urban development within a much broader scale urban community comprising the area from Lake Cathie to Bonny Hills which is forecast to house approximately 10,000 people.

6.11.1 Previous Community Consultation

The Lake Cathie Bonny Hills UDMP Master Plan developed by Diecke Richards (Appendix B) carried out the following investigations relevant to social impact:

- Population Growth and Community Needs (being the population characteristics, community facilities, education, childcare, sport and recreation, open space and economic needs of the area); and
- Community issues and values.

The community consultation process included design workshops which were attended by Council, the Hastings Urban Growth Strategy (HUGS) implementation committee, State Government agencies and the local community.

In addition a public meeting, the 'Community Visioning Workshop', was conducted and included representatives from the community, local organisations and the Lake Cathie and Bonny Hills Progress Association.

The workshops discussed the following issues relevant to Area 14:

- Movement – street network, public transport, pedestrian / cycle access, built form interfaces;
- Environment and heritage – fauna / flora, bushfire, Aboriginal archaeology, visual assessment, built form interfaces;
- Infrastructure – water, sewerage, soils, geotechnical, landslip, hydrology, drainage, flooding,
- Community and cultural needs – community facilities; education;

retail, employment, cultural.

This process identified the significant issues for the community. In priority order these were:

- Maintaining a village atmosphere and environmental values
- Sensitive water management
- Environmental management and wildlife corridors
- Adequate infrastructure for development
- Remedy existing infrastructure deficiencies
- Urban/community/environment relationships
- Integrated community centre
- Ensure road system adequacy
- Danger of overdevelopment

The following table provides a summary of the overall findings from the Master Plan process (Diecke Richards, 2003):

Socio Economic findings from Master Plan process	
1. General	<p>The population of the Hastings Local Government area is expected to grow to 97,800 by 2021;</p> <p>The proportion of this growth planned for Area 14 is 9,900;</p> <p>The Master Plan anticipates a final population of 10,000 for Area 14.</p>
2. Population characteristics	<p>The Master Plan population differs from the NSW average in the following areas:</p> <ul style="list-style-type: none"> • Older age profile, with less people in the 15 – 34 age group and more in the 60+; • Significant in-migration of families and retirees with out-migration of post-secondary school young people; • There is a similar proportion of children (therefore schools are full); • Individual incomes are generally lower than for NSW as a whole.
3. Facilities	<p>A number of community facilities will be required, some of which requiring a catchment population of 6,000 to 7,000, including:</p> <ul style="list-style-type: none"> • One state and one non-government primary school; • Community / cultural branch library; • Multi-purpose community centre; • A child care centre (30 to 50 place); • Sports facilities including soccer, baseball, tennis, rugby league, cricket and netball; • Open space, including passive areas, smaller parks and buffer areas adjoining sensitive ecological areas.

Socio Economic findings from Master Plan process	
4. Economic needs	<p>Facilities which will support the development of local employment, including the following sectors:</p> <ul style="list-style-type: none"> • Retail; • Tourism; • Community services; and • Business, property and financial services. <p>The above services should include:</p> <ul style="list-style-type: none"> • Specialty and supermarket shopping; • Medical and other professional services; • Library; • Community centre; • Office space; • Tourist accommodation; • Tourist related services; • Tourist related retail; <p>The higher order retail uses should be related to community facilities and schools;</p> <p>It would be anticipated that 30% of employment will be created in the Master Plan area to service the day to day needs of the residential community.</p>
5. Industrial lands	A single area with good road access will be required

6.11.2 Social Impact Assessment for Concept Plan

A social impact assessment of the Concept Plan application has been undertaken to identify features of the proposal that may have social impacts and to identify the groups that may be affected. This assessment will also provide information on strategies to manage and mitigate potential impacts as a result of the development. For the purpose of this assessment 'the site' is the proposed residential community forming the Concept Plan application.

6.11.2.1 Community profile of the existing Lake Cathie / Bonny Hills community

The Lake Cathie and Bonny Hills areas are predominantly village residential in character with the majority of community, educational, service and employment facilities located at Port Macquarie. Data from the Port Macquarie Hastings Council Community Profile (prepared by PMHC and based on the 2006 and 2001 enumerated census information as published by the Australian Bureau of Statistics), has been used to develop the community profile of the existing Lake Cathie / Bonny Hills area.

For the purpose of the census data, the existing Lake Cathie / Bonny Hills area is that area bound by Cowarra Creek and the locality of Lake Innes in the north, the Pacific Ocean in the east, the locality of North Haven and Queens Lake in the south and the localities of Bobs Creek

and Herons Creek in the west, as depicted on the following map:



The following table provides a summary of this existing Lake Cathie / Bonny Hills residential community:

	Lake Cathie / Bonny Hills Census Area
Existing population	5,427
Age structure	26.6% of population aged 0 – 17 (school age) 35% of population aged 18 - 49 38.4% of population aged 50 and over
Birthplace	9.3 % born overseas 87.2% born in Australia
Employment status	92.5% of population working part / full time 7.5% unemployment rate
Occupation categories	18.5% categorised as professionals 16.7% as technicians and trade workers 15.1% as clerical and administration workers These three occupations account for 50.3% of the employed people in the resident population

	Lake Cathie / Bonny Hills Census Area
Mode of transport to work	76% of workers travel to work by private car / motor bike / truck 0.1% use bicycle 1.8% walk to work
Households and family types	79.6% of households with children 17.1% are households with no children
Number of persons in the household	17.3% of lone households 42% of 2 person households 40.7% of households with more than 3 persons
Owners / renters	75.9% own, or are purchasing their place of residence 20.4% are renting
Car ownership	92.1% own their own vehicle 4.2% do not have a vehicle
Type of dwelling	80.6% in single dwellings 6.1% in either semi-detached or flats

The following conclusions can be drawn from the above data for the existing population within the Lake Cathie Bonny Hills census area:

- The area attracts equal numbers of families with younger (school age) children and older people / retirees (50+);
- The majority of the existing population (92.5%) has either part or full time employment;
- Private car ownership is high (92.1%) and cars are the preferred mode of transport to work (76%);
- Home ownership is high (75.9%) with single dwellings representing the typical form of residential accommodation (80.6%).

6.11.2.2 Profile of incoming residents

The best indicators for the profile of future residents to the site are:

- The issues of significance / importance as expressed by the existing Lake Cathie / Bonny Hills residents as part of the consultation process for the Area 14 Master Plan; and
- The profile of the existing Lake Cathie / Bonny Hills community, as derived from the 2006 census data.

It is therefore anticipated that the following characteristics will be representative of the incoming residents to the residential community

envisaged by the Concept Plan:

- The site will be seen as desirable by both families and active, younger retirees, where the proximity to employment areas is important (15 minute drive to Port Macquarie, 10 minute drive to Laurieton and 10 minute drive to the Pacific Highway) and come limited employment opportunities in the newly established local area;
- The site will provide an attractive lifestyle choice where convenience to urban facilities and services is as important as convenience to recreation facilities. The site is in close proximity to proposed shops, community services, medical centres, schools, sporting fields, beaches and outdoor recreation facilities, both existing and proposed as part of the Area 14 development;
- The Hilltop Village will also provide some limited opportunities for employment and urban facilities as part of the tourist and commercial components of the Village main street;
- The environment will be valued and residing within a community with likeminded residents who also value the environment will be an attraction;
- Living within a safe community where children can walk to local facilities and primary schools will be desirable;
- Car ownership will be high however access to school bus services, particularly to secondary schools, will be important;
- Retaining natural features and areas of open space will be important, together with retaining sight lines to these natural features from public places;
- Retaining aspects of the natural environment and access to these natural areas will be considered as important as access to all urban infrastructure;
- Community values will be important, including investing the local community with a sense of ownership over the environmental features of the locality.

6.11.2.3 Scope of assessment

The main population groups that are likely to be affected by the Concept Plan proposal are:

- The incoming residents to the site;
- The adjacent incoming residents to new residential areas within the broader Area 14 area; and
- The existing population of Lake Cathie and Bonny Hills with whom the incoming residents will interact and with whom they will share facilities and services.

6.11.2.4 Key Issues

The main source of impact will centre on the juxtaposition of maintaining the environment and natural areas with providing urban infrastructure, facilities and services to a level which will be expected by future residents. It is anticipated that future residents will demand a high level of access (roads, cycle ways and pathways) as well as access to all urban infrastructure (water, sewer, stormwater quality/control), within a safe, neighbourhood style residential community. However the residents attracted to the beachside locality will not accept adverse impacts on the natural environment, including visual intrusions into the natural areas.

The relationship between the environment and urban infrastructure will be discussed in the following section.

6.11.2.5 Social Impact: assessment

The following table has been developed to categorise, evaluate and identify likely impacts of the development.

Issue Identification	Assessment
Demographic Change, including population size, age of future residents and housing mix.	<p>The profile of incoming residents has confirmed that the site will attract people who chose to reside in the locality for its lifestyle advantages, including its proximity to urban infrastructure and its environmental and scenic qualities. The existing Lake Cathie / Bonny Hills area offers beach side living in a relaxed environment with the convenience of Port Macquarie only a 15 minute drive away.</p> <p>It is expected that incoming residents will be families or active younger retirees, as can currently be found in the locality.</p> <p>The proposed development will increase the population density of the site in accordance with the Greater Lake Cathie Bonny Hills UDMP and the Mid North Coast Regional Strategy.</p> <p><u>Impacts on incoming residents:</u></p> <p>Incoming residents will likely be similar in age, hold similar values and be of similar economic status. This should facilitate the development of a mutually supportive community which will participate readily in activities at the local level. Incoming residents with similar values will develop a strong sense of ownership over the adjacent beach and rainforest area, contributing to its protection in the longer term.</p> <p><u>Impacts on the existing population of the Lake Cathie / Bonny Hills area:</u></p> <p>It is expected that the incoming residents will have similar values and socio economic status as the existing local population. However there is a possibility that the existing residents may object to the increased population for being part of a development process which results in the change in use from rural to urban landuses.</p> <p>Currently the existing residents enjoy views across an expansive rural area, with the ability to access Rainbow Beach only through private rural property and the Rainforest. The beach itself is not patrolled and therefore ideal for secluded walks and unleashed dog walking.</p>

Issue Identification	Assessment
	<p>The Concept Plan will result in a conversion of land use from rural to urban on the subject property, but in doing so will also provide legal public access to approximately 1km of coastline foreshore reserve that is currently only accessible either from the beach or by crossing private land.</p> <p>Existing residents may view an increase in resident population size and density as a negative due to changes in the traffic environment and having the potential to have an adverse impact on the unique qualities of the locality, including environmental and scenic.</p> <p>The Concept Plan seeks to mitigate these potential impacts by contributing to the implementation of the road improvements on Ocean Drive as recommended in the Area 14 Traffic Impact Study and implementing the majority of the proposed Environmental Works as part of Stage 1 of the proposal.</p>
<p>Housing choice and supply, including housing stock, affordability and special needs</p>	<p>The Concept Plan proposal aims to increase housing choice in the locality by offering specific areas for medium density (residential flat buildings / townhouses / integrated housing) and low density residential. Currently the majority of existing residents reside in detached single dwellings. Whilst this housing style is popular for families with younger children, an increase in housing choice and supply will extend the appeal of the locality for a variety of household types. Housing affordability will also be achieved with an increase in housing styles.</p> <p>In addition, the provision of medium density areas adjacent to the proposed Hilltop Village will appeal to people with limited mobility or with a disability. It is envisaged that the proposed residential flat buildings will have direct level grade access through to the Main Street. Lifts will be provided within the three/four storey residential buildings, making them an ideal choice for older people and people with a disability.</p> <p><u>Impacts on incoming residents:</u></p> <p>The housing type and supply proposed as part of the Concept Plan will provide incoming residents with choice where currently this is limited. The proposal will offer a range of dwelling types and therefore purchase price, this being a positive impact for incoming residents.</p> <p><u>Impacts on the existing population of the Lake Cathie / Bonny Hills area:</u></p> <p>Conversely, the increase in housing types and the introduction of zoned medium density areas with three/four storey buildings will be relatively new concepts for the existing population of the locality. It can be derived from the census data that the existing population has chosen to reside in the locality for its single dwelling /low density appeal. The proposed increase in density may not be supported by the existing residents if it comes at a cost to the natural environment, provision of public space and access to the foreshore.</p> <p>The increased density is proposed to be primarily focussed on the Hilltop Village main street, a precinct which has the potential to have a high amenity due to its elevated coastal location. The Hilltop Village and associated main street are designed to provide a local focal point for existing and incoming residents as well as tourists in the area.</p>
<p>Community identity and integration, including social interaction, residential amenity</p>	<p>The Concept Plan layout will create a sense of place; from the tree lined Village Square which announces your 'arrival' at the Hilltop Village, to the orientation of the local road system which all lead visually to the public open space adjoining</p>

Issue Identification	Assessment
and social / cultural networks	<p>the rainforest/beach area. This strong sense of place will promote a strong local identity for both residents and visitors.</p> <p><u>Impacts on incoming residents:</u></p> <p>A strong community identity as a result of the built form concepts included in the Concept Plan will provide a positive impact for incoming residents. Incoming residents will seek to be part of a community with similar values to their own. The strong community identity established by the Concept Plan proposal will therefore be a positive aspect of the development for incoming residents.</p> <p><u>Impacts on the existing population of the Lake Cathie / Bonny Hills area:</u></p> <p>The proposed Concept Plan includes a range of development concepts which are currently not found in the Lake Cathie/Bonny Hills locality. Whilst tourist accommodation / facilities and retail areas are currently provided for, they are generally integrated with the low density, detached dwellings which are the prevalent building type in the locality.</p> <p>However, it is anticipated that the Hilltop Village and new cycleway / pathway links to the existing communities of Lake Cathie to the north and Bonny Hills (via St Vincents Foundation) to the south will encourage social interaction between the incoming residents and existing residents. The Main Street will include activated street frontages and promote walking between key focal points, including the pocket park and beach access. The increased density associated with the Hilltop Village is proposed to promote an activated main street.</p> <p>It is therefore anticipated that the strong community identity created by the Concept Plan proposal will provide a positive outcome for the existing and incoming populations.</p> <p>Managing the concerns of the existing population with respect to potential impacts on the natural environment are proposed to address through:</p> <ul style="list-style-type: none"> - Implementation of the Stage 1 Environmental Works prior to the urban components of the Concept Plan. The buffer area established adjacent to the littoral rainforest will ultimately form part of an enlarged foreshore public reserve linking the existing communities of Bonny Hills and Lake Cathie. - Ongoing monitoring and management of the foreshore public reserve and other components of public open are proposed to be implemented and funded through to a Planning Agreement with Council which will ensure pro-active management of the area for the next 20 years. - Stormwater management works are proposed to improve stormwater quality compared to existing runoff in all sub-catchments while also addressing minor existing stormwater erosion issues near the beach access track. - Groundwater recharge facilities and associated ongoing monitoring of groundwater quantity and quality will be designed to maintain the existing groundwater regime which has been assessed an important factor in maintaining the existing health of the littoral rainforest. - Management of the potential visual impacts of the Hilltop Village and associated medium density areas to ensure that the built environment is not visible from the beach and views of the ocean and other natural points of interest are available from future public areas. - Protection of the aboriginal artefact with the littoral rainforest reserve.

Issue Identification	Assessment
Services and facilities	<p>Council has been undertaking planning works in 'Area 14' since the adoption of HUGS in October 2001 recognised the area as an Urban Investigation Area (UIA). The upgrade of the Bonny Hills STP (which has been a constraint to development in the past) was recently opened in May, 2010. The upgrade to the STP will also result in a significant improvement in the environmental performance of the existing sewerage treatment plant – this benefit will be enjoyed by both existing and incoming residents.</p> <p>While the existing villages of Lake Cathie and Bonny Hills and the 'Area 14' UIA currently lack some of the community infrastructure and service facilities normally expected in an urban area, it is the implementation of the current Part 3A applications and the development of the remainder of Area 14 that will provide the impetus for such services to be supplied.</p> <p>Services will likely include child care, health, educational (schools) and other community services for disadvantaged groups. The increase in population will ensure that these services are provided to the existing residents in Lake Cathie and Bonny Hills, as well as the future population generated by the existing Part 3A proposals.</p> <p><u>Impacts on incoming residents:</u></p> <p>The range of services and facilities available to the incoming residents as a result of the subject Concept Plans together with the adjoining Part 3A Concept application (school, regional playing fields and village shopping centre) will surpass those currently available for the existing community.</p> <p><u>Impacts in the existing population of the Lake Cathie / Bonny Hills area:</u></p> <p>Negative social impacts due to the lack of community infrastructure and human service facilities are already being experienced by existing residents in Bonny Hills and Lake Cathie, with the lack of a primary school and medical services and the poor environmental performance of the Bonny Hills STP being well documented. These impacts will be mitigated via the provisions of services within the new central town centre and to a less extent the Hilltop Village as envisaged in the Area 14 Master Plan.</p>
Community safety and health	<p>In relation to community safety, data from the NSW Bureau of Crime Statistics and Research confirms that the level of crime generally in the Port Macquarie Hastings Local Government Area is below average for the State. The crime mapping, "hotspot maps", shows very low levels of most categories of crime in the Lake Cathie Bonny Hills area, with domestic violence, break and enter, car theft, stealing from cars and dwellings, and damage to property showing a low to moderate occurrence.</p> <p>In relation to health it would be expected that increases in resident population will in the longer term attract additional medical services to the locality. A new medical practice has recently opened on Ocean Drive immediately opposite the site and is already undergoing expansion. The Base Hospital at Port Macquarie is a 20 minute drive from the site.</p> <p><u>Impacts on incoming residents:</u></p> <p>Building on the low levels of crime in the locality, a new residential area with a strong sense of community as is anticipated with the Concept Plan, will help</p>

Issue Identification	Assessment
	<p>promote a sense of security for incoming residents.</p> <p><u>Impacts in the existing population of the Lake Cathie / Bonny Hills area:</u></p> <p>It is not anticipated that the Concept Plan will increase levels of crime in the general locality for the existing residents. The proposed layout and design of the Concept Plan includes perimeter roads, allowing casual surveillance of public spaces and open space areas and an activated and well located village main street. natural surveillance provided by the orientation of future dwellings and other mixed uses should therefore discourage anti-social behaviour.</p> <p>A general increase in population should attract additional medical practitioners to the locality, thereby benefitting the existing residents. The provision of commercial space within the subject Concept Plan and within the adjoining SVF's Part 3A submission should also act as an attraction for medical practitioners and other allied health professionals.</p>
Economic and employment	<p>The economic effects of developing the site for residential purposes are positive. An increased population will support the existing local facilities, including the Woolworths development at Lake Cathie and have a positive flow on effect for the provision of additional shops and services in the area, in particular, the adjoining future village centre and the Hilltop Village. As identified by the 'Area 14' master plan, the provision of services will 'follow on' with an increase in population. As the proposed development will be staged over a number of years, there will be a gradual increase in demand for retail and commercial uses.</p> <p>The employment impact and related economic impacts arising from the construction on the site will be substantial in relation to employment in construction itself, with added offsite benefits for suppliers. An on-site workforce will also benefit the local community with increased expenditure in shops and retail areas.</p> <p><u>Impacts on incoming residents:</u></p> <p>The proposed Hilltop Village and the adjoining future village centre will also provide some employment opportunities to residents within walking distance of their future residence.</p> <p><u>Impacts in the existing population of the Lake Cathie / Bonny Hills area:</u></p> <p>A high proportion of the existing population of Lake Cathie Bonny Hills utilise private cars for access to employment. With the increase in population as a result of the proposed development it is likely that public transport opportunities will be expanded, thereby benefiting the current and future populations of the area. Notwithstanding, access to employment generally will be improved with improved public infrastructure (roads etc).</p> <p>Additionally, employment opportunities will be created within the adjacent Village Centre, Area 14 Industrial lands and the Hilltop Village for existing and future residents alike.</p>
The natural environment and Aboriginal archaeology	<p>The Concept Plan and Project Application for the 'Stage 1 Environmental Works' incorporates the retention and protection of the aboriginal artefact located within the rainforest. The Birpai LALC has confirmed that the non-disclosure of the artefacts location and restriction of pedestrian access to a defined boardwalk style path through the rainforest is supported. This submission will ensure the protection of this piece of aboriginal heritage for future generations.</p>

Issue Identification	Assessment
	<p>The existing wildlife corridors formed by the SEPP 26 rainforest and to a less extent Duchess Gully will be enhanced by the development through the improvement of the width to edge length ratio achieved via the proposed revegetation works. The quality of the vegetation within the existing corridors will be improved by the proposed weed and vegetation management works.</p> <p>The other significant natural environmental feature of the site is the SEPP 26 Littoral Rainforest.</p> <p>The protection and enhancement of the existing littoral rainforest is a fundamental component of the Concept Plan. The Stage 1 Environmental Works which are proposed to be undertaken prior to any residential development will include eradication of existing weeds, ongoing weed management, establishment of a 40-60 metre vegetated buffer, a 2m exclusion fence to minimise impacts of human intrusion and domestic pets and the formalisation of the existing track with a pedestrian boardwalk through the littoral rainforest to the beach.</p> <p>These works will ensure the retention and enhancement of this significant feature of the natural environment for existing and incoming residents which also proving legal public areas to the coastal foreshore.</p> <p>The site adjoins Rainbow Beach which is another very important feature of the natural environment. The Stage 1 Environmental Works include the establishment of legal public access to the beach and help establish pedestrian links to the other beach accesses at Middle Rock and on the St Vincents Foundation property to the south.</p> <p>The visual impact assessment undertaken in association with the Concept Plan has determined that the three/four storey buildings proposed in the Hilltop Village main street will not be visible from the beach or Middle Rock. The retention of the largely natural visual environment on the adjoining beach is an important aspect of mitigating potential impacts on the natural environment.</p> <p>Significant stormwater quality controls and groundwater recharge facilities are proposed to ensure that stormwater quality is higher post-development than currently exists and the existing groundwater regime is retained in the long term, thereby protecting the adjoining rainforest.</p> <p><u>Impacts on incoming residents:</u></p> <p>A development which will protect the environmental qualities of the site and adjoining landscape will be attractive for incoming residents. The benefits in maintaining the environmental qualities is two-fold, it will attract new residents to the area and it will ensure the protection of the rainforest in the longer term by investing a sense of ownership for adjoining residents.</p> <p><u>Impacts in the existing population of the Lake Cathie / Bonny Hills area:</u></p> <p>The existing residential community will not accept any compromise in relation to the environmental and natural features of the locality. An increase in population and provision for medium density development may have connotations of over development compared to the existing situation. Appropriate assurances with supporting scientific evidence that the proposed urban development will not harm the environment will be required. The completion of the Stage 1 Environmental Works as the first stage of the development will help mitigate concerns with respect to impacts on the natural environment.</p>

6.11.2.6 Social Impact: management and mitigation

A number of built form controls at the private / public interface with the rainforest can assist to integrate the incoming residents with the existing residents. The establishment of the proposed public foreshore reserve as part of the rainforest buffer will incorporate revegetation/regeneration areas, weed management programs, cycle ways, footpaths public carparking and open space immediately adjacent to the rainforest. Whilst this public interface will engender a sense of ownership for the future incoming residents, it will also allow ease of access for the broader existing community which does not currently enjoy public access through the site to this part of the coast. The public pathway and cycleway will link with the existing pathways and enable improved access for all residents.

The existing population will require assurances that the proposal will not adversely affect the natural environment and that the areas of increased density will make a positive contribution for the community generally.

Managing the concerns of the existing population with respect to potential impacts on the natural environment are proposed to be addressed through:

- The implementation of the Stage 1 Environmental Works prior to the urban components of the Concept Plan. The buffer area established adjacent to the littoral rainforest will ultimately form part of an enlarged foreshore public reserve linking the existing communities of Bonny Hills and Lake Cathie.
- The ongoing monitoring, management and funding of the foreshore public reserve and other components of public open space as proposed through the Planning Agreement with Council, ensuring pro-active management of the area for the next 20 years.
- Stormwater management works to improve stormwater quality compared to existing runoff in all sub-catchments, while also addressing minor existing stormwater erosion issues near the beach access track.
- Groundwater recharge facilities and associated ongoing monitoring of groundwater quantity and quality designed to maintain the existing groundwater regime which has been assessed an important factor in maintaining the existing health of the littoral rainforest.
- Management of the potential visual impacts of the Hilltop Village and associated medium density areas to ensure that the built environment is not visible from the beach and views of the ocean and other natural points of interest are available from future public areas.
- Protection of the aboriginal artefact with the littoral rainforest reserve.

The built form of the development in particular the Hilltop Village with its mixed use environment will facilitate the social integration between the incoming and existing residents. The public places (Village Square, Main Street, pocket park and beach access) will link with the existing

and proposed street network and cycle ways/pathways.

Incoming residents should integrate well into the local community as it would be expected that they would utilise the same services, shops, schools and public recreation facilities as the existing residents.

The increase in population associated with the Concept Plan and Area 14 in general will ultimately lead to the provision of additional services and facilities associated with a larger urban community. The integration of the public areas, urban areas and mixed uses contained in the Concept Plan with the adjacent parts of Area 14 and the existing residential areas will be important in ensuring an overall positive impact for the existing and incoming residents.

6.11.2.7 Conclusion

The proposed development has been found to generate overall positive outcomes when considered in the context as part of the implementation of Council's Urban Design Master Plan for the Lake Cathie Bonny Hills area.

- Economic benefits associated with the Concept Plan and Area 14 in relation to job creation and support for local facilities, in both the short and long term;
- The proposed development forms part of the population growth in Area 14 which will ultimately lead to the provision of a broader range of community services that are currently lacking in the existing villages of the Lake Cathie and Bonny Hills;
- The ongoing protection and monitoring of the rainforest will benefit from a resident local community which has taken a form of 'ownership' for its wellbeing; and
- Short-term negative social impacts due to the current lack of community infrastructure and human service facilities in Lake Cathie and Bonny Hills (eg the lack of a primary school and medical services) are expected to be alleviated in the medium to long term through the implementation of the subject Concept Plan, adjoining Part 3A applications and Area 14 in general. As indicated in the Area 14 Master Plan the resultant population increase will lead to the provision of additional services that will benefit both future and existing residents of the Greater Lake Cathie Bonny Hills area.

Section 7

Draft Statement of Commitments

The landowner is committed to responsible management of the project and to minimising potential adverse impacts that may arise from the proposed works. The advice from all specialist consultants has been considered and the recommendations of these specialists have been included in the commitments.

The following table outlines the commitments the landowner makes in relation to this Concept Plan Application.

No.	Objective	Commitment	Timing	Responsibility
CP1 - General	To ensure that the future development of the site for urban purposes is carried out in accordance with the Concept Plan approval and that the potential environmental impacts are managed.	<p>All future Project Applications are to be prepared generally in accordance with the Environmental Assessment prepared by King + Campbell Pty Ltd and the supporting specialist reports/plans including:</p> <ul style="list-style-type: none"> • Exhibit 05A – Subdivision Concept Plan, King + Campbell • Exhibit 05B – Indicative Staging Plan, King + Campbell • Exhibit 06 – Landscape Plans, King + Campbell • Exhibit 07 – Indicative Hilltop Village Architectural Treatment • Exhibit 08A – Stormwater Concept Plan, King + Campbell • Appendix C - Flora and Fauna Report, Peter Parker Environmental Consultant, July, 2010 • Appendix D - Area 14 Stage 1B, Groundwater Study, Amendment 1, Martens & Associates, July 2010 • Appendix E - Cultural Heritage Assessment, Jacqueline Collins, February 2003 • Appendix F - Noise Assessment, Heggies Pty Ltd, March 2010 • Appendix G - Coastal Processes, SMEC, March 2010 • Appendix H – Traffic Impact Study, Roadnet, April 2010 • Appendix I - Bushfire Risk Management, ABPP Pty Ltd, March, 2010 • Appendix J – Flood Assessment, Cardno, July 2010 • Appendix K – Coordination Plan for Coastal Walkway and Cycle Trails • Appendix O – Geotechnical Assessment, Martens & Associates, July 2010 • Appendix P – Heads of Agreement for VPA between land owners and PMHC (final VPA to be included in PPR). 	Preparation of each Project Application or Development Application	Landowner / Developer
CP2 - Voluntary Planning Agreement (VPA)	To ensure the long-term management and maintenance of areas of open space and conservation.	<p>The landowners are to enter into a Planning Agreement based on the following heads of agreement:</p> <ul style="list-style-type: none"> • The establishment of environmental works and beach access as part of the Stage 1 Project Application; 	In conjunction with the rezoning of the land	Landowner

No.	Objective	Commitment	Timing	Responsibility
		<ul style="list-style-type: none"> The establishment of other open space areas as part of the future stages; The maintenance of these lands in accordance with an approved management plan for five (5) years; The payment of contributions at the subdivision stage to fund a further fifteen (15) years maintenance; and The payment of the updated open space roads Section 94 contributions for Area 14. <p>The Planning Agreement will be publicly exhibited with the rezoning Planning Proposal for the land.</p>		
CP4 - Staging	To ensure development of the site is carried out in stages, to manage environmental impacts in a coordinated manner.	Staging of the development contained in the Concept Plan to be as indicatively outlined in Section 3.4 of Environmental Assessment (EA, September 2010 prepared by King + Campbell) and shown on Exhibit 05B. Staging is to be confirmed by subsequent Project Applications.	Throughout the development	Landowner / Developer
CP5 - Public Consultation	To ensure effective and receptive consultation with the local community and key interest groups	A public meeting with the local progress associations is to be conducted during the exhibition period for the CP to ensure the community are briefed on the content of the CP and PA.	During the CP exhibition period	Landowner / Developer
CP6 - Strategic Planning	To satisfy the statutory requirements of the Area 14 Draft LEP and DCP	All future PAs will comply are to meet the provisions of the Area 14 LEP, DCP and VPAs	Preparation of the PA's for future stages	Landowner / Developer
CP7 - Urban Design and Sustainability	To ensure coordination with the development of the Area 14 locality generally.	<p>All future PAs are to demonstrate consistency with:</p> <ul style="list-style-type: none"> The implementation of the services and infrastructure for Area 14, as set out in the VPA between the landowners and PMHC; The coordination plan for the coastal walkway and cycle trails; The Area 14 traffic management plan, as set out in the Roadnet Traffic Impact Study; 	Preparation of the PA's for future stages	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		<ul style="list-style-type: none"> The adjoining development sites, as set out in the MOU with the SVF. 		
CP8 - Visual Impact	To retain and enhance the existing visual and scenic qualities of the site, including the retention of views to the surrounding geographic features.	The future PA's proposed in relation to the Hilltop Village are to ensure the retention of view lines to surrounding geographic features along public streets as per the CP. The PA shall also confirm the findings of this concept application; that the proposed three/four storey buildings are not visible from Rainbow Beach.	Preparation of the PA's for future stages	Landowner / Developer
CP9 - Infrastructure	To coordinate with the adjoining proposed urban development, to ensure that the provision of services is cost effective.	<ul style="list-style-type: none"> Sewer – Connection to PMHC's upgraded STP in conjunction with adjoining SVF's land Water – Connection to existing infrastructure on Ocean Drive Recycled water – Connection to existing infrastructure on Ocean Drive Electricity – Connection to existing infrastructure on Ocean Drive Waste Disposal – to be supplied by PMHC Telecommunications - conduits to be laid in all future roads to provide for connection to optical fibre once available to provide for high speed broadband access 	Preparation of the PA's and CC's for future stages	Landowner / Developer
CP10 - Traffic & Access	To coordinate with the adopted Area 14 traffic plan and the adjoining landowner (St Vincents Foundation)	<p>The future project applications will ensure the provision of the following road and pedestrian networks, as established by the MOU:</p> <ul style="list-style-type: none"> A collector road onto the site through the St Vincent's Foundation land from the new signalised intersection at Ocean Drive and Abel Tasman Drive travelling a north-south direction and connecting back into St Vincents Foundation land; An east-west "main street" road as part of the Hilltop Village; A public perimeter road, incorporating walking and cycle park, for the full frontage of the rainforest; The restriction of pedestrian access through the rainforest to a boardwalk style path with self closing gate; 	Preparation of the PA's for future stages	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		<ul style="list-style-type: none"> Provision of public car park and local park adjoining the beach access path; and Provision of a link to the existing formed pathway in Ocean Drive and create a new cycleway and pathway in accordance with the coordination plan for the locality. 		
CP11 - Acid Sulfate Soils	To effectively manage PASS.	<ul style="list-style-type: none"> The future PA associated with Duchess Gully shall ensure that works are limited to protection and enhancement associated with Duchess Gully. In the event that the detailed engineering design for this area results in the possible disturbance to the water table, an ASS Management Plan in accordance with ASSMAC Guidelines will be prepared in conjunction with the construction certificate documentation. 	CC documentation for the area incorporating Duchess Gully	Landowner / Developer
CP12 - Bushfire	To ensure compliance with PFBP 2006 and the protection of the Littoral Rainforest from potential fire.	<ul style="list-style-type: none"> Asset Protection Zones shall be provided to the residential (20m) and tourist development (30m) from the Littoral Rainforest; Defendable Spaces (>8m) shall be provided to the commercial development; The Asset Protection Zones/Defendable Spaces shall be maintained as Inner Protection Areas in accordance with Appendix 5 of Planning for Bushfire Protection 2006 and the NSW Rural Fire Service's publication 'Specifications for Asset Protection Zones; An 88B Covenant, under the Conveyancing Act 1919, shall be applied to the title of those lots so burdened, to ensure the long term maintenance of the Asset Protection Zones / Defendable Spaces. Future public access roads shall be constructed to comply with the specifications of Section 4.1.3(1) of Planning for Bushfire Protection 2006. A hydrant water supply shall be installed in accordance with the specifications of Australian Standard A.S 2419.2 - 2005. Hydrants shall have a flow rate of 10 litres / second and be located on the opposite side 	Preparation of the PA's for future stages	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		<p>of the road from the bushfire threat.</p> <ul style="list-style-type: none"> Blue hydrant markers shall be provided to locate the positions of the hydrants. The markers shall be positioned on the hydrant side of the centreline of the road pavement. The future residential buildings erected on those lots having exposure to the bushfire prone vegetation shall be constructed to Level 1 standards in accordance with A.S 3959 – 1999 – ‘Construction of Buildings in Bushfire Prone Areas’. All buildings within 100 metres of bushfire prone vegetation shall be constructed to comply with Level 1 standards in accordance with A.S 3959 – 1999 – ‘Construction of Buildings in Bushfire Prone Areas’. 		
CP13 - Geotechnical	To effectively manage any geotechnical limitations of the site.	<p>That construction standard for future roads and buildings, including footings and foundations, be undertaken in accordance with the Good Hill slope Engineering Practices as set out in Australian Geomechanics Vol. 42 No. 1 March 2007.</p> <p>Detailed construction management plans and dewatering assessments are to be provided where excavations are proposed to be undertaken below the permanent groundwater table. These plans are to be provided with the Construction Certificate documentation.</p> <p>The following geotechnical investigations are to be undertaken:</p> <ul style="list-style-type: none"> Boreholes to allow for the characterisation of underlying geology and determination of bed-rock depths; Penetration testings such as Standard Penetration Test (SPT). Dynamic Cone Penetration Test (DCP) and/or Cone Penetration Tests (CPT) to determine strength of sub-surface materials for future footing/foundation design; Californian bearing ration (CBR) lab testing to determine strength of sub-grade material for pavement design; Shrink/Swell and Atterberg Limit lab testings to determine soil reactivity 	With the CC documentation	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		for foundation classification; and <ul style="list-style-type: none"> Settlement analysis to determine future ground settlements beneath engineered structures (buildings, roads and services). 		
CP14 - Flooding	To effectively manage flooding, including compliance with any future climate change and sea level rise scenarios.	<ul style="list-style-type: none"> Residential lots shall be filled to a minimum level of RL 5.0mAHD; Road crossings over flowpaths within the proposed development will be designed to provide 100 year ARI (plus climate change) immunity and comply with PMHC's AUSPEC Design Specifications; The minimum floor level of any residential dwelling is to be RL 5.27mAHD. 	CC documentation	Landowner / Developer
CP15 - Water Cycle Management (Eastern catchments)	To ensure maintenance of the existing groundwater conditions, to mitigate potential impacts on the Littoral Rainforest	<p>The Stage 1 Project Application 'Environmental Works' shall provide temporary fencing to delineate the area required for the three (3) biofiltration units adjacent to the littoral rainforest.</p> <p>Prior to the preparation of the Stage 2 PA, the following additional groundwater monitoring shall be undertaken, in accordance with Martens, 2010:</p> <ul style="list-style-type: none"> More rigorous geotechnical investigations and design will be required for the design of the recharge pits, including: <ul style="list-style-type: none"> Establish a series of four (4) groundwater bores within the proposed revegetated buffer zone to document sub-surface conditions. At each bore, further testing of saturated hydraulic conductivity in the underlying sand aquifer is to be undertaken. Measurements of storativity/specific yield are to be made in order that the groundwater mounding from recharge pits can be minimised. Each bore shall be instrumented for a period of six (6) months in order that long-term groundwater level fluctuations can be validated and incorporated into the 	<p>Stage 1 works</p> <p>Prior to the preparation of the Stage 2 PA</p>	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		<p>design of the recharge pits.</p> <ul style="list-style-type: none"> ○ Two (2) of the existing bores at higher elevations shall be instrumented for the same six (6) month period. <ul style="list-style-type: none"> • Establishment two (2) further monitoring bores within the SEPP 26 area (if this is possible) so that the current groundwater model for the study area can be extended to the coast as far as practical. Recommendations include: <ul style="list-style-type: none"> ○ Bores to be located in either sub-catchments C2 or C3; and ○ Bores are to be instrumented for the same six (6) month period as noted above. Bores within the SEPP 26 area may need to be installed by hand or water jetting given the site sensitivity and difficulty of site access. • Undertake further groundwater quality monitoring (notably nutrients) to provide base-line groundwater quality data. This will assist with design of the bio-filtration units. In addition to those parameters already covered by this study, bound and unbound phosphorus levels shall be determined in any future sampling. This will enable improved design of biofiltration units. Two (2) further rounds of water quality sampling shall be undertaken, spaced three to six months apart from established bores. • Groundwater salinity measurements shall be further documented, including continuous monitoring for the six month period noted above at the following three locations: <ul style="list-style-type: none"> ○ Within the SEPP 26 forest; ○ Within the revegetation area; and ○ An existing bore location further upslope. • Surface water sampling shall be undertaken to determine existing surface water nutrient concentrations. A minimum of three rounds of sampling during and following rainfall runoff periods is recommended. This will assist with design of the bio-filtration units. • The Preparation of a report to accompany the Stage Two PA to provide the following: 		

No.	Objective	Commitment	Timing	Responsibility
		<ul style="list-style-type: none"> ○ An updated groundwater model for the area incorporating the findings of past and on-going groundwater investigations and monitoring. The model should demonstrate that post-development drawdown (-ve or +ve) is minimised or avoided altogether within the SEPP 26 rainforest area. ○ A more detailed sea level rise groundwater model should be developed which would take into account of any effects of coastal recession. This would enable 'fine tuning' of the design of the groundwater recharge system(s). ○ Confirmation of the design of end-of-line stormwater structures. This should include on a sub-catchment basis, revised OSD requirements and a daily water balance modelling demonstrating that surface moisture conditions within the SEPP 26 rainforest will not be affected by the proposed stormwater management infrastructure. ○ Updated and appropriately supported designs of the stormwater recharge pit system. <p>The design and construction standards of the biofiltration units and road infrastructure for the eastern catchments shall, subject to detailed design generally, satisfy the following, as set out by Martens, 2010:</p> <ul style="list-style-type: none"> • Stormwater discharge control structures to be fitted with variable or exchangeable orifice or weir plates that can be used to adjust flow rates to the recharge pits; • The deep stormwater infiltration pits (or trenches depending on final designs) shall be excavated so that they extend through the surface clay layer and intersect the lower sand aquifer. There should be good connectivity between the infiltration trench bed and the underlying permeable aquifer. The effect of this will be to ensure that surface water is allowed to rapidly enter the local groundwater table without excessively saturating surface soils except during extreme rainfall conditions. This mechanism will have the additional benefit of reducing 	Details to be provided with the relevant CC documentation	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		<p>some of the edge effects of the existing pasture which is likely to have raised surface soil moisture conditions adjacent to the SEPP 26 forest.</p> <ul style="list-style-type: none"> • Water which does not infiltrate to the deeper groundwater system (ie surcharges from the biofiltration units), is to be evenly distributed as it is released into the planted vegetated buffer area. Further to this, ground within the buffer area should be prepared in such a way so as to ensure maximum infiltration. This can be achieved by way of ground 'riffing' or minor contouring. • Groundwater should not be significantly intersected and hence groundwater flow impeded or redirected. On hillslopes the excavations shall not exceed 2.5m below ground level. If deeper excavations are required, then suitable mitigation measures shall be included to ensure that groundwater flow is not redirected or permanently lowered. • On the lower slopes (below 12.5m AHD, which excludes the majority of the residential development area), excavations > 1m in depth (other than for the deep infiltration pits) shall be plastic lined and backfilled with low permeability materials. • Roads in low lying areas (below 12.5m AHD), shall be constructed to enable sufficient durability and bearing pressure under the assumption that the groundwater table may be close to or within the sub-grade materials, or be designed somewhat elevated to ensure that pavement and upper sub-grade materials do not become water logged. • OSD structures, including domestic rainwater tanks (where these are installed within the catchments) and other surface storages shall be used to ensure that post-development flow rates approximate as close as possible pre-development flow rates. 		
CP16 - Water Cycle Management (Western catchments)	To ensure that the post development water quality and quantity satisfy best practice guidelines.	<p>North-western sub-catchment (Lake Innes):</p> <ul style="list-style-type: none"> • The stormwater biofiltration and detention basin for the NW sub-catchment is to be located generally as shown on Exhibit 08A. • Detailed modelling and design shall be undertaken in accordance with the aims of the IWCMP and Auspec. 	Details to be provided with the relevant PA and CC documentation.	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		<ul style="list-style-type: none"> The facility shall be designed with sufficient capacity to ensure post development flows are attenuated to pre-development levels. <p>South-western sub-catchment (Duchess Gully):</p> <ul style="list-style-type: none"> The biofiltration basin, erosion controls and riparian revegetation for the SW sub-catchment is to be located generally as shown on Exhibit 08A. The Stage 1 Project Application 'Environmental Works' shall provide temporary fencing to delineate the area required for the biofiltration basin. Erosion controls and riparian revegetation works. Detailed modelling and design of the biofiltration basin shall be undertaken in accordance with the aims of the IWCMP and Auspec. The outlet structures shall be designed generally in accordance with the 'indicative outlet detail' (DECCW), shown on Exhibit 08B. The riparian revegetation works shall be undertaken in the areas specified on Exhibit 08B. 	Stage 1 PA and future relevant PA and CC documentation.	Landowner / Developer
CP17 - Heritage and Archaeology	To preserve and protect items of Aboriginal significance.	<ul style="list-style-type: none"> The Stage 1 Project Application shall include the exclusion fencing to the rainforest to ensure pedestrian restriction and protection of the identified aboriginal artefact. Temporary fencing shall be erected adjacent to the Duchess Gully vegetated area to preserve any archaeological materials which may be present. The LALC shall be invited to attend the public meeting during the exhibition stage of the Concept Plan. 	Stage 1 Project Application	Landowner / Developer
CP18 - Flora and Fauna	To minimise and manage any potential impacts on flora and fauna biodiversity.	<p>Littoral Rainforest:</p> <p>Implement a Vegetation Management Plan as part of the Stage 1 Project Application, in order to :</p> <ul style="list-style-type: none"> Immediately improve the existing condition of the rainforest by the 	Stage 1 Project Application	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		<p>removal of the weeds along its western edge;</p> <ul style="list-style-type: none"> • Provide longer-term enhancement of the existing rainforest by decreasing the edge-to-area ratio through plantings along the western boundary; • Restrict and control public access through the rainforest; and • Ensure that revegetation works are well established and fenced off prior to the commencement of other stages of the proposed residential, commercial and tourist project. <p>The VMP shall include:</p> <ul style="list-style-type: none"> • Plantings of coast banksia woodland in the south-east corner into the Littoral Rainforest using additional plantings and bush regeneration techniques and emphasise coast banksias in the landscaping of the site. Properly constructed and managed, this corridor will provide feeding resources for the common blossom bat, assist in fauna passage for the more cryptic animal species and provide a greater biodiversity; • An elevated walkway to the beach along the existing pathway and improve drainage or minimize erosion by rip-rap filters or similar structures; and • Protective fencing along the western edge of the planted buffer to the Littoral Rainforest. <p>Duchess Gully:</p> <ul style="list-style-type: none"> • Provide a riparian buffer along the water course in the west and work with neighbouring landowners to enhance the riparian connection and widen the wildlife corridor where it passes through the site. Engage bushland regeneration to undertake weed control. • Enter into a Planning Agreement with PMHC as per the Heads of Agreement in Appendix D to provide detail of landowner obligations with respect to establishment and maintenance of environmental works over a 20 year period. 		

No.	Objective	Commitment	Timing	Responsibility
CP19 - Noise	<p>To minimise the impact of road traffic noise on surrounding residents and where necessary, comply with all relevant standards to reduce noise to an acceptable level:</p> <ul style="list-style-type: none"> • L Aeq 45dBA daytime internal noise; and • L Aeq 40dBA night time internal noise. 	<p>A 2m high noise wall shall be constructed as the rear boundary fence for all residential allotments that directly adjoin the Ocean Drive road corridor, as indicated on Exhibit 05A. The noise wall shall be continuous for its full length and the nominal mass of the material used in its construction should not be less than 15 kg/m².</p> <p>All proposed dwellings to be located on residential allotments that share a common boundary with Ocean Drive, as indicated on Exhibit 05A, shall be designed to meet the following construction standards:</p> <ul style="list-style-type: none"> • Single storey – Category 2 • Two storey – Category 2 <p>All proposed dwellings to be located on residential allotments with frontage to the detention basin, as indicated on Exhibit 05A, shall be designed to meet the following construction standards:</p> <ul style="list-style-type: none"> • Single storey – Category 2 • Two storey – Category 2 <p>All proposed dwellings to be located on all other residential allotments within the site shall be designed to meet the following construction standards:</p> <ul style="list-style-type: none"> • Single storey – Category 1 • Two storey – Category 1 <p>(The construction categories are outlined in AS 3671-1989, "Acoustics - Road traffic noise intrusion - Building siting and construction", as follows:</p> <ul style="list-style-type: none"> • Category 1 – Standard construction; openings, including open windows and doors may comprise up to 10% of the exposed façade; • Category 2 – Standard construction except for light-weight elements such as fibrous cement or metal cladding or all-glass facades. Windows, doors and other openings must be closed). 	<p>Construction of the noise wall shall be completed prior to the occupation of the affected residential premises.</p> <p>Details in relation to construction standards shall be provided with the Construction Certificate Application.</p>	Landowner / Developer

Section 8

Conclusion

The purpose of this Concept Plan has been to establish a clear vision for development of the site for urban environmental enhancement purposes, to ensure integration with the future development of the Area 14 Urban Investigation Area and to ensure the development is sustainable.

The site has been identified for future urban development in previous studies undertaken by and on behalf of PMHC. The site is also identified in the Mid North Coast Regional Strategy for future urban development and is in the process of being rezoned for urban development. The proposal will help to meet the region's forecast housing demand for the next 15-20 years.

Extensive consultation with Council, State Government stakeholders and the community has been undertaken both throughout the above processes and in relation to the subject project.

The key land use components of the Concept Plan (refer Exhibits 05 and 06) for which the Ministers approval is sought include the following:

- The Environmental Works associated with the SEPP 26 Littoral Rainforest, where all works will be undertaken to satisfy the aims and objectives of SEPP 26.

The environmental works, to be undertaken on part Lots 1 and 4 and part Crown Reserves R82555 and R754444, will occupy approximately 8.59 ha of the subject properties and are proposed to be rezoned from their current rural zoning to E3 Environmental Management.

The Environmental Works will incorporate:

- 6.01 ha of land to include 40m – 60m of revegetation and regeneration works on the western side of the SEPP 26 rainforest, within Lots 1 and 4;

(These revegetation and regeneration works, together with the exclusion fence / hedge, weed management works within the western edge of the rainforest (1.26 ha) and the formalisation of the existing pedestrian track, form the basis of the attached Project Application for the Stage 1 Environmental Works)

and;

- 2.58 ha of land on the western edge of the revegetation / regeneration area and exclusion fence incorporating grassed public open space with scattered trees, pathway / cycleway, stormwater management and groundwater recharge facilities and the public perimeter road.

- The environmental buffer area to Duchess Gully (5,400m²) in the south western corner of Lot 1 is also proposed to be rezoned from rural to E3 Environmental Management. This buffer area will contain regeneration/revegetation works and stormwater quality management facilities.
- The subdivision of Lot 1 and Lot 4 to provide for the following land use concepts:
 - Low density residential areas to occupy approximately 14.76ha of Lots 1 and 4, generating approximately 217 residential lots at a density of 13-14 dwellings/ha;
 - Medium density residential areas to occupy approximately 3.27ha of Lots 1 and 4, which at a density of 25 dwellings/ha will generate approximately 82 medium density dwellings;
 - A 'Hill-Top Village', comprising three/four storey part residential, commercial and tourist development to occupy approximately 3ha of Lots 1 and 4. This area also contains the proposed Village Square which occupies a land area of approximately 2,750m² providing an entry statement to the main street of the Hilltop Village. This area is located within the proposed B4 Mixed Use zone and is intended to be dedicated for public uses.

Based on a commercial/tourist floor space at ground level with three storeys of residential/tourist uses above and basement car parking below, yields of approximately 160 residential/tourist apartments and approximately 6,000m² of commercial/residential/tourist uses at the ground floor level in the main street are expected;

- Open Space works (in addition to the Village Square referred to above) which are proposed to be zoned RE1 Public Recreation including:
 - A Pocket Park (990m²) on the western side of the perimeter road providing a public pedestrian link between the Hilltop Village main street and the beach pedestrian access; and
 - A public carpark and associated landscape works (1,780m²) proposed to be located adjacent to the beach pedestrian access.

and;

- An access and circulation network of roads and pedestrian / cycle paths.

The site is to be developed in stages. The Project Application at Part B to this submission represents the first stage, being the environmental works associated with establishing a vegetated buffer to the SEPP 26 Littoral Rainforest and formalisation of the existing beach access track with a pedestrian boardwalk.

The identification and carrying out of this first stage is seen as critical to the overall development of the site. Not only will it provide immediate protection and future enhancement to the rainforest and so be consistent with the aims of the SEPP 26, the environmental works will also provide an assurance to the existing community and stakeholders that the development overall will be environmentally sensitive to its unique coastal locality and is intended to promote the importance of protecting the littoral rainforest with adjacent existing and future incoming residents alike.

In addition, given that the site is a component within the overall development of the Area 14 locality, the relationship with the proposed development of the adjoining and nearby lands is also critical. It is therefore proposed to enter into a Voluntary Planning Agreement with PMHC and a Memorandum of Understanding (MOU) with the adjoining landowners. The VPA provides certainty of funding and management of the environment buffer to the littoral rainforest for the next 20years. The MOU provides certainty with respect to issues requiring cooperation between adjoining landowners.

All matters listed in the amended DGR's have been addressed.

Given the suitability of the site, the planning context outlined in this submission and the minimal environmental impacts, it is submitted that the proposal as set out in this submission can be supported by the Minister for Planning.

Ecologically Sustainable Development

Importantly, the Concept Plan provides an opportunity to serve the public interest at a local, regional and state level by preserving, protecting and monitoring the adjoining littoral rainforest through ecologically sustainable development:

The principles of ecologically sustainable development require the integration of economic and environmental considerations in the decision making process. This can be achieved through the implementation of four primary principles / programs.

Principle	Comment
<p>(a) Precautionary Principle</p> <p>If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. Public and private decisions should be governed by :</p> <p>(i) Careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment;</p> <p>(ii) An assessment of the risk-weighted consequences of various options.</p>	<p>The proposal has undergone extensive investigation with the preparation of numerous environmental studies. These studies conclude that there are no environmental constraints to preclude development of the site as set out in this submission. The precautionary principle has been applied to the management of the environmentally sensitive rainforest, with the Concept Plan incorporating managing plans and mitigation measures in relation to any potential impact and implementing these measures as part of the first stage of works.</p>
<p>(b) Inter-generational Principle</p> <p>The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future</p>	<p>The Concept Plan and Stage 1 Project Application will provide for a range of urban facilities, including housing, employment opportunities, recreational areas, tourism and conservation measures, to meet the needs of both</p>

Principle	Comment
generations.	current and future generations. In particular, the proposal will ensure the long-term protection and enhancement of the Littoral Rainforest for future generations.
(c) Conservation of Biological Diversity and Ecological Integrity. This should be a fundamental consideration.	The Concept Plan will contribute to the conservation of the existing natural environment, ensuring protection of the biological diversity with appropriate groundwater management. The Concept Plan includes appropriate management plans to ensure future monitoring of the environment.
(d) Improved Valuation, Pricing and Incentive Mechanisms. Environmental factors should not be included in the valuation of assets and services, such as: <ul style="list-style-type: none"> (i) Those who generate pollution and waste should bear the cost of containment, avoidance or abatement, (ii) The users of goods and services should pay the prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste, (iii) Environmental goals should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems. 	<p>The cost of infrastructure and the measures to ensure an appropriate level of environmental performance will be incorporated into the cost of development. Importantly such controls will be established prior to the development of the land for urban purposes.</p> <p>Planning Agreements are proposed to provide certainty and funding to the ongoing maintenance of environmental works and lands to achieve environmental goals.</p>

Part B: Project Application

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Executive Summary

Part A to this submission has set out the key land use concepts of the Concept Plan for which the Minister's approval is sought. The purpose of the Concept Plan was to establish a clear vision for development of the site for urban purposes, to ensure integration with the future development of the Area 14 Urban Investigation Area and to ensure the development is sustainable.

The Concept Plan proposes a new residential community which will respond to the environmental constraints of the site. The community will comprise a number of key land use concepts including a mix of low and medium density residential areas, commercial and tourist development, an integrated open space network, an access network of roads/footpaths/cycle ways and environmental works to ensure the retention and protection of the Littoral Rainforest and the Duchess Gully for future generations.

The site is to be developed in stages with Part B representing the first stage, being the environmental works associated with the Littoral Rainforest.

The identification and carrying out of this first stage is seen as critical to the overall development of the site. The Stage 1 Environmental Works will result in the immediate protection and enhancement of the rainforest and when carried out in conjunction with other environmental/stormwater management/groundwater management works in future stages, will ensure the development overall satisfies the Aims and Objectives of SEPP 26. The proposed staging will ensure the Stage 1 Environmental Works are in place prior to the first stage of residential development thereby establishing certainty for nearby existing residents and future incoming residents that the protection of SEPP 26 Littoral Rainforest is a fundamental component of the development.

The Stage 1 Project Application for Environmental Works will be undertaken as the first step to satisfy the aims and objectives of SEPP No. 26 – Littoral Rainforests, thereby ensuring its protection and enhancement for future generations.

The Site

The site is known as part Lot 4 in DP 615261 (4.11 ha), part Lot 1 in DP 374315 (2.48ha), part Crown Reserve R82555 (231m²) and part Crown Reserve R754444 (6,614m²), Ocean Drive, Lake Cathie.

For the purposes of Part B the 'site' for the Stage 1 Project Application is shown on Exhibit PA 01 being the land area bound by the property boundary of Lot 4 to the north, the property boundary of Lot 1 to the south, a distance of approximately 10m inside the existing Littoral Rainforest within Lot 4, a distance of approximately 10m past the

eastern boundary of Lot 1 (to within the Littoral Rainforest) and the exclusion fencing to the west. The exclusion fencing incorporates the planting of a row of spiky plants on the western side of the two (2) metre high fence. The Stage 1 Project Application relates to a land area of approximately 7.27 ha.

The Project Application

The Stage 1 Project Application for the Environmental Works are generally associated with the SEPP 26 Littoral Rainforest, where all works will be undertaken to satisfy the aims and objectives of SEPP 26. The environmental works will incorporate the following:

- (a) The retention of all native vegetation on the western side of the rainforest (within part Lots 1 and 4), including the removal of all weed species;
- (b) 40-60m of revegetation and regeneration works on the western side of the rainforest (within part Lots 1 and 4);
- (c) The fencing of the revegetation/regeneration area and hedging with a spiky hedge to minimise the potential impacts of human intrusion edge effects on the rainforest (within part Lots 1 and 4);
- (d) The removal of weeds and regeneration of rainforest species in the vicinity of the western edge of the SEPP 26 rainforest (generally with 10m of that edge and located within part Lot 4 and part crown reserves); and
- (e) The provision of a low impact boardwalk in lieu of the existing informal pedestrian track through the littoral rainforest to Rainbow Beach (within part Lots 1 and 4 and part Crown reserves).

The Rainforest Boardwalk

The provision of a low impact boardwalk in the location of the existing informal pedestrian track within the rainforest is to be undertaken as part of the Stage 1 Project Application. The proposed boardwalk will be positioned within part Lots 1 and 4 and part Crown Reserves R82555 and R754444. Details including location, construction and photographs are provided at Exhibit PA06, sheets 1 and 2.

The proposed 1.5m wide boardwalk will connect to the future proposed 2.2m wide concrete cycleway / pathway running north/south adjacent to the Stage 1 Environmental Works which will be constructed as part of a future project application stage.

The boardwalk will commence at the western edge of the Littoral Rainforest and continue through to Rainbow Beach. A spring gated self closing gate will mark the entrance to the littoral rainforest and appropriate signage will advise of the importance of the rainforest and

of its floristic makeup.

Whilst the route of the boardwalk will align generally with the existing informal track, a number of existing trees have been surveyed to clearly define any minor departures. The boardwalk will 'weave' between these trees, such that no trees will require removal for its construction.

The eastern extent of the boardwalk includes a small 'bridge' to span an existing eroded gully area. Rehabilitation, including erosion control and planting will be undertaken within the minor gully, with such works included in the accompanying Vegetation Management Plan.

The majority of the boardwalk will be elevated above natural ground level and constructed from plastic decking material (Replas Enduroplank™, or similar). Upon crossing of the minor gully the boardwalk will be constructed as a 'board and chain' access way leading onto Rainbow Beach, as depicted in Exhibit PA06 (sheet 1).

The Vegetation Management Plan

The proposed revegetation works are to be undertaken in accordance with the provisions of a Vegetation Management Plan (VMP) (see Section 5.2.1) and the accompanying plan at Exhibit PA05 (sheet 1 and 2).

The VMP provides detail on the work to be undertaken in the nominated revegetation areas, as required to provide an environmental buffer to State Environmental Planning Policy (SEPP) 26 - Littoral Rainforest. The objectives of the VMP are to ensure protection of Littoral Rainforest No.116 mapped under SEPP No.26 by specifying the following control measures;

- fencing and vegetation buffering;
- bush regeneration treatments within and adjacent to Littoral Rainforest No. 116, including weed control; and
- revegetation providing both protection of Littoral Rainforest No.116 as well as a meaningful extension to it.

A Voluntary Planning Agreement (VPA) will be prepared to provide for the Environmental Works being undertaken as the first stage of the development.

The Voluntary Planning Agreement

Seawide Pty Ltd and Milland Pty Ltd have along with other landowners in the Area 14 Urban Investigation Area have formally commenced negotiations with PMHC with respect to the following infrastructure:

- Establishment and Maintenance of Environmental Lands and Open Space:

Milland and Seawide have offered to:

- Establish the environmental works and formalised pedestrian beach access in accordance with the Stage 1 Project Application as the first stage of the proposed development;
 - Establish other open space areas as part of future stages of the proposed development;
 - Maintain the established areas of environmental lands and open space in accordance with an approved management plan for five (5) years; and
 - Pay contributions at the subdivision certificate stage to fund a further 15 years maintenance of these areas by Council. PMHC have also agreed to seek an alternate funding mechanism for the maintenance of environmental lands (via a levy or rate) in consultation with state government; and
- Payment of Contributions:

Milland and Seawide have offered to pay the updated roads and open space contributions for Area 14 that are ultimately adopted by PMHC upon completion of the current reviews of those Section 94 Contribution Plans. The draft Planning Agreement (VPA) is currently being prepared and as required by the Director General's Requirements will be publicly exhibited in conjunction with the draft LEP. A copy of the draft Heads of Agreement submitted to PMHC is included at Appendix P.

Conclusion

The Stage 1 Project Application has been submitted to facilitate the early implementation of the Environmental Works measures well prior to the commencement of other development stages. This approach has been applied to protect and enhance the existing SEPP 26 Littoral Rainforest:

- Immediately improving the existing condition of the rainforest by the removal of the weeds located generally in the vicinity of its western edge;
- Providing longer-term enhancement of the existing rainforest by increasing its width to length ratio;
- Ensuring that revegetation works are well established and fenced off prior to the commencement of other stages of the proposed residential, commercial and tourist project.

Given the suitability of the site, the planning context outlined in this submission and the minimal environmental impacts, it is submitted that the proposal as set out in this submission can be supported by the Minister for Planning.

Table: Addressing the Key Issues

No.	Issue	Relevant section of report
12. Compliance with the requirements for the Concept Plan		
12.1	The environmental assessment must demonstrate consistency with all DGRs detailed in Part A, and the following additional matters.	Sections 1.1, 5.1
13. Rehabilitation and revegetation		
13.1	Provide a detailed Revegetation Management Plan that includes, but is not limited to, the following: <ul style="list-style-type: none"> - A list of plant species proposed to be used; - A plan and description of where the revegetation will be undertaken; - A description of the methods employed for the revegetation including a probable timeframe for the completion of the works; and - Proposed management and maintenance measures to ensure the ongoing viability of the works and the party responsible for their implementation. 	Section 6
13.2	Provide details of the proposed fencing of the SEPP 26 – Littoral Rainforests vegetation.	Section 6

Section 1

Introduction

1.1 Introduction

This environmental assessment for Project Application approval is submitted to the Director-General pursuant to Section 75H of the Act.

Part A to this submission has set out the key land use concepts of the Concept Plan for which the Minister's approval is sought. The purpose of the Concept Plan was to establish a clear vision for development of the site for urban purposes, to ensure integration with the future development of the Area 14 Urban Investigation Area and to ensure the development is sustainable.

The Concept Plan proposes a new residential community which will respond to the environmental constraints of the site. The community will comprise a number of key land use concepts including a mix of low and medium density residential areas, commercial and tourist development, an integrated open space network, an access network of roads/footpaths/cycle ways and environmental works to ensure the retention and protection of the Littoral Rainforest for future generations.

The site is to be developed in stages with Part B representing the first stage, being the environmental works associated with the Littoral Rainforest.

The identification and carrying out of this first stage is seen as critical to the overall development of the site. Not only will it provide immediate protection to the rainforest, the environmental works will provide an assurance to the existing community and stakeholders that the development overall will be environmentally sensitive to its unique beachside locality and foster a sense of goodwill.

In summary the Stage 1 Project Application for Environmental Works will be undertaken to satisfy the aims and objectives of SEPP No. 26 – Littoral Rainforests.

1.2 Real Property Description

The Project Application site is shown on Exhibit PA 01 and known as part Lot 4 in DP 615261 (4.26ha), part Lot 1 in DP 374315 (2.7ha), part Crown Reserve R82555 (230m²) and part Crown Reserve R754444 (5,595m²), Ocean Drive, Lake Cathie.

For the purposes of Part B the 'site' for the Stage 1 Project Application is the land area bound by the property boundary of Lot 4 to the north, the property boundary of Lot 1 to the south, a distance of approximately

10m inside the existing Littoral Rainforest within Lot 4, a distance of approximately 10m past the eastern boundary of Lot 1 (to within the Littoral Rainforest) and the exclusion fencing to the west and the footprint of the existing pedestrian track within the Littoral Rainforest as shown on Exhibit PA 01. The exclusion fencing incorporates the planting of a row of spiky plants on the western side of the two (2) metre high fence. The Stage 1 Project Application relates to a land area of approximately 7.27 ha.

A Location and Context Plan (Exhibit PA01), Site Survey (Exhibit PA02), Aerial Photograph (Exhibit PA03) and Site Analysis (Exhibit PA04) are attached to Part B of this submission.

Section 2

The Existing Environment

The site and the physical attributes it exhibits are identified on the Site Analysis plan at Exhibit PA04.

The preparation of this exhibit has relied in part on the specialist studies undertaken in support of the initial Draft Local Environmental Study prepared on behalf of Council in 2005 (the Stage 1B Draft LES) and the recently completed specialist studies and field investigations.

These studies document the existing site conditions and identified the key environmental risk factors relevant to the future residential use of the site.

Exhibit PA04 recognises the following natural and man-made features of the site and should be read in conjunction with this section:

- Part Lot 4 and part Lot 1 are currently zoned Rural 1(a1) under the provisions of Hastings LEP 2001;
- The site includes an approximate 1,100 metre frontage to Littoral Rainforest No 116 which itself is zoned Environmental Protection 7(f1) – Coastal;
- Littoral Rainforest No 116 forms the eastern boundary of Lot 1 and approximately 3.18ha of the rainforest is contained within the cadastral boundaries of Lot 4.
- The SEPP 26 Littoral Rainforest also extends approximately 120 metres of Lot 1 south and to the north along the rear of existing residential properties in the existing village of Lake Cathie;



Photo 1: Typical western edge of Littoral Rainforest.



Photo 2: Typical eastern edge of Littoral Rainforest adjoining Rainbow Beach.

- The SEPP 26 Littoral Rainforest is reported by PPEC to be "... one of the largest Littoral Rainforest remnants in the local area, is relatively weed free and not impacted by cattle grazing or other significant anthropocentric effects. Littoral Rainforest 116 stands out from many other remnants along the NSW coastline in both its size, species diversity, small mammal assemblages and the virtual absence of rubbish dumping this remnant has benefited from litter removal from the site by the landowner over a number of years." (Parker, 2002 p.28);

Parker and Brennan further report that the existing western edge of Littoral Rainforest No 116 "..... appears stable and the vegetation along the boundary is in good condition with weed invasion being limited to the first few metres.";

- The site is currently vacant with evidence that the site is used to provide direct pedestrian beach access to the adjoining coastline of Rainbow Beach from existing surrounding/adjoining residential areas. This informal access arrangement has resulted in the creation of a defined pathway through the rainforest area;



Photo 3: Existing western extent of pedestrian access path through rainforest.



Photo 4: Existing eastern extent of pedestrian access leading onto Rainbow Beach.



Photo 5: View west from Rainbow Beach to existing pedestrian access leading onto beach.

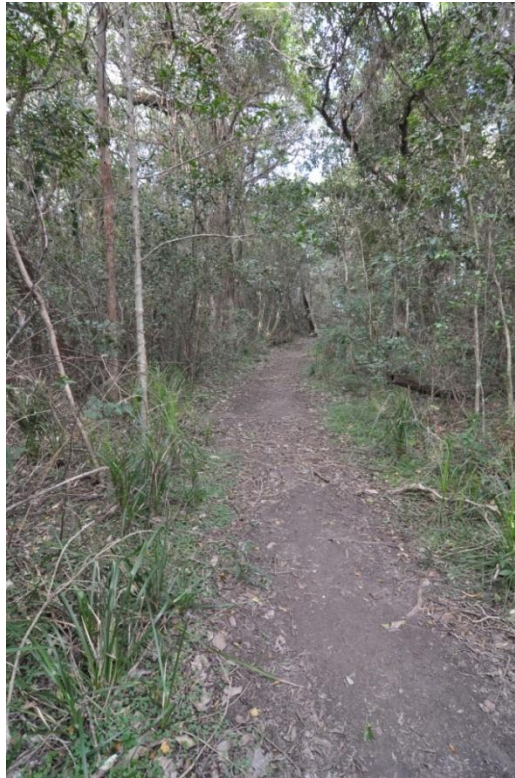


Photo 6: Typical character of pedestrian path within rainforest.

- Stormwater erosion is also evident within the rainforest, occurring in close proximity to the pedestrian access track;



Photo 6: Existing erosion within minor gully through rainforest.

- The existing vegetation on the land within 100 metres of the SEPP 26 rainforest boundary has been mapped by PPEC as follows:
 - Predominantly Grassland – Kangaroo Grass, Paspalum, Kikuyu, low closed sod grassland;
 - Swamp forest revegetation areas dominated by Pink-tipped Bottlebrush established by the owner in compensation for vegetation removed in 1994. The revegetation areas are now well established with a complete canopy in parts of the planting area;
 - A small area of Coast Banksia woodland;
 - A small area of Blackwood, Brown Kurrajong, Bitou Bush and Lantana Simple Notophyll (regrowth) Littoral Rainforest;
 - A very small area of Grey Ironbark, Brushbox Lantana tall open forest;
- A baseline weed map has been prepared by Wild Things Native Gardens, with the majority of weed infestation confined to the vegetation within Lot 1, adjoining the Littoral Rainforest.



Photo 7: View east to Pacific Ocean from pedestrian access onto Rainbow Beach.

Section 3

Statutory Context

Section 4 to Part A of this submission has provided a summary of the statutory context applicable to development of the site and an assessment against the relevant controls contained within the legislation.

This summary has confirmed that the proposal demonstrates consistency with the existing local, regional and state planning strategies. The draft LEP developed for the site at Part A, Exhibit 10 will ensure that all future development generally satisfies the aims and objectives of these planning strategies.

3.1 Key Commonwealth and State Legislation

Legislation	Comment
The Environment Protection and Biodiversity Conservation Act 1999	<p>This legislation provides for the protection and management of nationally and internationally important flora, fauna, ecological communities and heritage places, known as matters of national environmental significance.</p> <p>The EPBC Act has listed the "Littoral Rainforest and Coastal Vine Thickets of Eastern Australia" as 'Critically Endangered' and therefore assessment of the level of impact of the proposed development is required under this Act.</p> <p>The retention and protection of the existing rainforest for future generations has been the primary object in the development of the site. Accordingly, all specialist reports prepared in support of the initial LES through to this EA submission have focussed on achieving this objective. It is therefore submitted that the development will have minimal impact on the Rainforest given the inclusions of the following development principles, as identified by the specialist consultants:</p> <ol style="list-style-type: none"> 1. The establishment of a specific buffer to the rainforest: 2. The provision of a designated public access path, ensuring beachgoers are restricted to the designated pathway (Parker, SMEC – Appendices C and G); 3. Ensuring the maintenance of the existing groundwater regime through groundwater recharge (Martens – Appendix D) 4. Preparation of a VMP to enhance the rainforest with specific species decreasing the edge to area ratio and reducing the potential edge effects (PPEC, Wild Things); 5. Implementation of a stormwater quality management train (Martens – Appendix D) <p>Details in relation to each of the above are included in this submission. The impact on the rainforest as a result of development of the site is an improved and protected rainforest for future generations. Development of</p>

Legislation	Comment
	<p>the site as set out in the submission will also enable the practical implementation of development controls, ensuring the long term viability of the rainforest for future generations.</p> <p>The assessment of impact undertaken in accordance with the 'Significant Impact Guidelines 1.1' at Part A Section 4.1.1 has confirmed this finding.</p>
SEPP No.26 – Littoral Rainforests	<p>The preservation, conservation and enhancement of Littoral Rainforest no. 116 is the primary consideration of any development of the site. Accordingly all specialist consultants have undertaken their investigations in keeping with the aim of this policy as a primary consideration. Accordingly both land within the rainforest and land within 100m of the rainforest has been considered in the investigations. The potential edge effects to the rainforest as a result of future urban development has been assessed and a holistic approach to the buffer design aimed at mitigating potential impacts is to be implemented. The proposed buffer design, which incorporates features developed by Peter Parker Environmental Consultants, Dr Peter Brennan, Jelliffe Environmental, Martens & Associates and Biolink, with facilitates the protection and enhancement of the rainforest for future generations, in accordance with the aim of this policy.</p>

3.2 Key Local Legislation

3.2.1 Hastings Local Environmental Plan 2001

The following clauses within the Hastings Local Environmental Plan 2001 are applicable to the proposal:

Clause	Comment
Cl.9 Zoning of land and zone table	<p>The site is currently zoned part Rural 1(a1) and part Environmental Protection 7(f1) 'coastal', where the 7(f1) zoning generally applies to the area containing the Littoral Rainforest. That part of the Littoral Rainforest within Lot 4 is zoned Urban 1(a1).</p> <p>The proposed Stage 1 works not within the SEPP 26 gazetted rainforest are permissible with the consent of Council. The proposed Stage 1 works within the gazetted rainforest are permissible with the consent of Council and the concurrence of the Director.</p>
Cl.20 Tree Preservation	<p>The Project Application will not require the removal of trees. Whilst the route of the boardwalk will align generally with the existing informal track, a number of existing trees have been surveyed to clearly define any minor departures. The boardwalk will 'weave' between these trees, such that no trees will require removal for its construction.</p>

Section 4

The Stage 1 Project Application

4.1 Overview

The Stage 1 Project Application for the Environmental Works is generally associated with the SEPP 26 Littoral Rainforest, where all works will be undertaken to satisfy the aims and objectives of SEPP 26. The environmental works, to be undertaken on part Lots 1 and 4 and part Crown Reserves R82555 and R754444, will occupy approximately 7.88 ha of the subject properties and incorporate the following:

- (a) The retention of all native vegetation on the western side of the rainforest (within part Lots 1 and 4), including the removal of all weed species;
- (b) 40-60m of revegetation and regeneration works on the western side of the rainforest (within part Lots 1 and 4);
- (c) The fencing of the revegetation/regeneration area and hedging with a spiky hedge to create a human exclusion boundary (within part Lots 1 and 4);
- (d) The removal of weeds and regeneration of rainforest species generally within 10 metres of the SEPP 26 rainforest edge (within part Lot 4 and part Crown Reserves); and
- (e) The provision of a low impact boardwalk in the location of the existing informal pedestrian track through to Rainbow Beach (within part Lots 1 and 4 and part Crown reserves).
- (f) An ongoing maintenance regime for 20 years post establishment (via a Planning Agreement with Port Macquarie Hastings Council).

The proposed revegetation works are to be undertaken in accordance with the provisions of a Vegetation Management Plan (VMP) (see Section 5.2.1) and the accompanying plan at Exhibit PA05.

The VMP provides detail on the work to be undertaken in the nominated revegetation areas, as required to create an environmental buffer to State Environmental Planning Policy (SEPP) 26 - Littoral Rainforest. The objectives of the VMP are to ensure protection of Littoral Rainforest No.116 mapped under SEPP No.26 by specifying the following control measures;

- fencing and vegetation buffering;
- bush regeneration treatments within and adjacent Littoral Rainforest No. 116, including weed control; and
- revegetation providing both protection of Littoral Rainforest No.116 as well as a meaningful extension to it.

The Stage 1 Project Application has been submitted to facilitate the

early implementation of the revegetation measures well prior to the commencement of other development stages. This approach has been applied to protect and enhance the existing SEPP 26 Littoral Rainforest:

- Immediately improving the existing condition of the rainforest by the removal of the weeds along its western edge;
- Providing longer-term enhancement of the existing rainforest by increasing its width to length ratio;
- Ensuring that revegetation works are well established and fenced off prior to the commencement of other stages of the proposed residential, commercial and tourist project.

An offer to enter into a Voluntary Planning Agreement (VPA) has been lodged with PMHC. The VPA will contain provisions relating to the landowner obligations to establish and maintain the environmental works and to facilitate the Environmental Works being undertaken as the first stage of the development.

4.1.1 Rainforest Boardwalk

The provision of a low impact boardwalk in the location of the existing informal pedestrian track within the rainforest is to be undertaken as part of the Stage 1 Project Application. The proposed boardwalk will be positioned within part Lots 1 and 4 and part Crown Reserves R82555 and R754444. Details including location, construction and photographs are provided at Exhibit PA06, sheets 1 and 2.

The proposed 1.5m wide boardwalk will link to the proposed 2.2m wide concrete cycleway / pathway running north/south adjacent to the western edge of the Stage 1 Environmental Works. The construction of the north/south pathway/cycling will be included as part of a future project application stage.

The boardwalk will commence at the eastern edge of the Littoral Rainforest and continue through to Rainbow Beach. A spring gated self closing gate will mark the entrance to the Littoral Rainforest and appropriate signage will advise of the importance of the rainforest and of its floristic makeup.

Whilst the route of the boardwalk will align generally with the existing informal track, a number of existing trees have been surveyed to clearly define any minor departures. The boardwalk will 'weave' between these trees, such that no trees will require removal for its construction.

The eastern extent of the boardwalk includes a small 'bridge' to span an existing eroded gully area. Rehabilitation, including erosion control and planting will be undertaken within the minor gully, with such works included in the accompanying Vegetation Management Plan.

The majority of the boardwalk will be elevated above natural ground level and constructed from plastic decking material (Replas Enduroplank™, or similar). Upon crossing of the minor gully the

boardwalk will be constructed as a 'board and chain' access way leading onto Rainbow Beach, as depicted in Exhibit PA06 (sheet 1).

4.1.2 Voluntary Planning Agreement

Seawide Pty Ltd and Milland Pty Ltd have along with other landowners in the Area 14 Urban Investigation Area has formally commenced negotiations with PMHC with respect to the following infrastructure:

- Establishment and Maintenance of Environmental Lands and Open Space:

Milland and Seawide have offered to:

- Establish the environmental works in accordance with the Stage 1 Project Application as the first stage of the proposed development;
- Establish the formalized pedestrian beach access and other open space areas as part of future stages of the proposed development;
- Maintain the established areas of environmental lands and open space in accordance with an approved management plan for five (5) years; and
- Pay contributions at the subdivision certificate stage to fund a further 15 years maintenance of these areas by Council. PMHC have also agreed to seek an alternate funding mechanism for the maintenance of environmental lands (via a levy or rate) in consultation with state government; and

- Payment of Contributions:

Milland and Seawide have offered to pay the updated roads and open space contributions for Area 14 that are ultimately adopted by PMHC upon completion of the current reviews of those Section 94 Contribution Plans. The draft Planning Agreement (VPA) is currently being prepared and as required by the Director General's Requirements will be publicly exhibited in conjunction with the Environmental Assessment and the draft LEP. A copy of the draft Heads of Agreement submitted to PMHC is included at Appendix P.

Section 5

Environmental Assessment

5.1 Compliance with the Concept Plan

The attached exhibits to Part B are consistent in both area and content with the Concept Plan Application. Exhibit PA05 provides the detail to accompany the Vegetation Management Plan – Specification, as included in Section 5.2.1 of this report.

The following table demonstrates the consistency of the Project Application with the DGR's detailed for the Concept Plan:

Issue	Comment
Strategic Planning	<p>The land use concepts envisaged in the Greater Lake Cathie and Bonny Hills Urban Design Master Plan has been incorporated within the Concept Plan and the Stage 1 Project Application. The proposed buffer to the rainforest will ensure its retention and protection enhancement for future generations and incorporates a public road and public reserve on the landward edge of the rainforest as required by the UDMP.</p> <p>The Stage 1 Project Application is the important first step which will see the retention of existing vegetation adjacent to the rainforest and the regeneration of additional areas to establish effective environmental protection of the Littoral Rainforest. The works to be undertaken by the Project Application, including weed eradication, plant establishment and ongoing maintenance and formal pedestrian access, will provide for its protection and the meaningful extension to the rainforest itself.</p>
Urban Design and Sustainability	<p>The Project Application relates to a land area of approximately 7.88 ha generally on the western side of the rainforest.</p> <p>The Stage 1 Environmental Works will incorporate the retention and enhancement of all existing native vegetation on the western side of the rainforest and include weed removal, both within the regeneration areas, on the fringes of the rainforest itself and along the existing informal track.</p> <p>The 40-60m wide vegetated buffer will be protected by a combination 2m high fence and 'spiky' hedge planting. The buffer will also incorporate a 'boardwalk' pedestrian path in the location of the existing informal pathway though to Rainbow Beach.</p> <p>The Stage 1 Environmental Works will facilitate future public access to Rainbow Beach and along the foreshore reserve while ensuring the sustainable management of the Littoral Rainforest through the ongoing maintenance regime established via the proposed Planning Agreement with PMHC.</p>
Visual Impact	<p>The visual impact assessment prepared at Section 6.3 to Part A established a number of significant viewpoint locations where the views onto the site may be detrimentally impacted as a result of the proposal. The existing views onto the site from adjoining Rainbow Beach (Views E, F, G and H, Exhibit 09C) are considered to be of a high view quality and their protection therefore required.</p>

Issue	Comment
	<p>The extension to the existing vegetation (the Littoral Rainforest) as a result of the retention and revegetation works included in the Project Application will assist in the protection of these view lines. The sections derived from survey at Exhibit 09C confirm that the dune height combined with the height and density of the existing vegetation currently restricts direct views onto the site.</p>
Infrastructure Provision	<p>Martens and Associates (Appendix D) have nominated their preferred location for the bioretention/groundwater recharge facilities within the area of the Project Application. The area required for these features will be temporarily fenced and gated such that their construction can occur as part of a later Project Application associated with the urban development.</p>
Traffic and Access	<p>The Concept Plan application provides for a formal beach access path from the perimeter road parking area through to Rainbow Beach. The Coastal Hazard Study undertaken by SMEC and included at Appendix G provides general design advice relating to the beach access, in accordance with the NSW Coastal Dune Management Manual. The following design objective was adopted:</p> <p><i>"...to maintain continuity in the elevation of the dune surface to avoid the creation of wind blowout. Material used in the construction of the accessway should be adjustable in order to accommodate sand accretion or erosion at the same rate as would occur on the natural dune."</i></p> <p>Exhibit PA05 and Exhibit PA06 for the Stage 1 Project Application identify the preferred location of the boardwalk generally located within the footprint of the existing informal track. A hardwood board and chain beach access is proposed at the beach (being one of SMEC's recommended options). The board and chain accessway has been identified as being able to adjusted to changes in dunal profile. The area will be fenced in accordance with the VMP Specifications such that the regeneration and revegetation works can be carried out without compromising this access area.</p>
Hazard Management and Mitigation	<p>A number of specialist reports have been undertaken in relation to the issues of hazard management and mitigation. Of particular relevance to the Stage 1 Project Application are the findings of SMEC (coastal hazards – Appendix G) and ABPP (bushfire – Appendix I).</p> <p>In relation to coastal hazards, the SMEC report concludes</p> <ul style="list-style-type: none"> - that the site is not affected by windborne sediment erosion as the dunes are well stabilised by vegetation; - the developed portion of the site would not be at risk nor be subject to reduced foundation capacity within a 100 year planning period; and - the maximum run up levels of 5.1m would not pose an inundation hazard to the study area as the embankment height is above 7.5m AHD. <p>In relation to bushfire, the ABPP report has confirmed that subject to the use of rainforest species within the proposed revegetation areas, the threat of bushfire is minimised. ABPP has also confirmed that the use of <i>lomandra longifolia</i> as part of the exclusion fence treatment is an appropriate fire retardant species.</p>
Water Cycle Management	<p>Water cycle management and its effect on the Littoral Rainforest has undergone extensive investigations since 2002 with the completion of the first report by Jelliffe Environmental Pty Ltd. Martens and Associates have continued the investigations, culminating in their report to PMHC of 2009. All reports are attached to this submission at Appendix D.</p>

Issue	Comment
	<p>Martens & Associates has made a number of recommendations to mitigate any potential impacts on groundwater conditions within or near the rainforest. Of relevance to the Stage 1 Project Application is the recommendation for the provision of stormwater biofiltration/groundwater recharge facilities, to be constructed within the planted buffer zone. The effect of these biofiltration basins will be to ensure that surface water is allowed to rapidly enter the local groundwater table without excessively saturating surface soils except during extreme rainfall conditions. Martens has confirmed that this mechanism will have the additional benefit of reducing some of the edge effects of the existing pasture which is likely to have raised surface soil moisture conditions adjacent to the SEPP 26 forest.</p> <p>The location of the required biofiltration basins, as recommended in the Martens report, are shown on all exhibits attached to this submission. In relation to the Stage 1 Project Application, Exhibit PA05 details their location, together with the proposed temporary fencing and gating.</p>
Heritage and Archaeology	<p>A cultural heritage assessment of the site was initially undertaken by Jacqueline Collins in 2003 (Appendix E). In relation to the area of land the subject of the Stage 1 Project Application, an artefact of significance to the local aboriginal peoples was detected within the existing Littoral Rainforest. The recommendations in relation to this artefact, which was developed through discussion with Lindsay Moran as the representative of the Birpai LALC, included the following:</p> <p><i>"To ensure maximum protection for the Site 1B-1 scarred tree it is recommended that the current 7(f1) [Environment Protection-Coastal] zoning for the eastern margin of Lot 4 be retained;</i></p> <p><i>In order to maintain the Littoral Rainforest in the residential context and mitigate the adverse effects of an increased human presence it is recommended that close consideration be given to appropriate fencing for the western margin of the rainforest, and to providing restricted formalized beach access. It will be necessary for any formalized beach access to be situated well away from the Site 1B-1 location."</i></p> <p>The Stage 1 Project Application will satisfy the above recommendations through fencing and revegetation works on the western side of the rainforest and the restriction of pedestrian access to a boardwalk through the rainforest to Rainbow Beach.</p> <p>In accordance with the DGRs additional consultation with the community has been undertaken. Individual letters were sent to a number of individual stakeholders (Appendix E) and an advertisement seeking comment was placed in five (5) local newspapers.</p> <p>The stakeholders were advised of the proposed works to be set out in the Concept Plan and Stage 1 Project Application, including the provision of fencing to the western side of the rainforest and the provision of a low impact boardwalk or similar pedestrian access through the rainforest to the beach which is to be provided in a later Project Application. The stakeholders were advised that the aim of the current Concept Plan Application and Project Application is to protect the rainforest from general pedestrian access and to restrict access to the Aboriginal artefact within the rainforest. In accordance with the wishes of Birpai LALC, the site will not be signposted or identified in any way.</p> <p>Four of the individual stakeholders made general enquiries and appreciate the non-disclosure of the artefacts location and proposed protection measures. All four individuals advised that they do not require further contact in relation to the matter.</p>

Issue	Comment
	<p>The fifth individual was Mr John Heath in his capacity as the Interim Secretary of the Bril Bril Traditional Owners (Birpai area). In response to his enquiry a letter was forwarded to Mr Heath setting out the history of the site and previous studies, the consultation process and the proposed management of the site as part of the Part 3A process. A copy of this correspondence is included at Appendix E. Mr Heath has made no further contact.</p>
Flora and Fauna	<p>Ecological investigations of the site have been ongoing since 2002. The initial survey was undertaken in 2002 (PPEC, 2002), with an updated flora and fauna report completed in 2010 (PPEC, 2010). A copy of these reports are included at Appendix C.</p> <p>In relation to the area of land associated with the Stage 1 Project Application the assessment found that the Littoral Rainforest is the most significant environmental feature of the site. It is one of the largest Littoral Rainforest remnants in the local area, is relatively weed free and not impacted by cattle grazing or other significant anthropocentric effects. The western edge of the forest revealed that the micro-climate typical of the interior of the rainforest existed right up to the boundary of the rainforest. The edge appears stable and the vegetation along the boundary is in good condition with weed invasion being limited to the first few metres. Compensatory reforestation dominated by pink-tipped bottle brush was recorded in the regeneration area in Lot 4. Management of these plantings adjacent to the SEPP 26 Littoral Rainforest is well advanced with established plantings providing a complete canopy cover in parts of the planting area.</p> <p>The proposed Vegetation Management Plan – Specification and supporting exhibits and Appendices incorporates the findings of the flora and fauna investigations in relation to preferred plant species for revegetation and the identification of existing weed types for removal.</p>
Noise	<p>Issues associated with road traffic noise from Ocean Drive and residential developments adjacent to this road corridor are not relevant to the Stage 1 Project Application.</p>
Socio-economic Impacts	<p>The site, being part of the Area 14 UIA, has been included in previous investigations in relation to social impact. The Lake Cathie Bonny Hills UDMP Master Plan developed by Diecke Richards (Appendix B) carried out a number of investigations relevant to social impact.</p> <p>Specifically the Master Plan process identified through a workshop process the most significant issues for the community in priority order. These were:</p> <ol style="list-style-type: none"> 1. Maintaining a village atmosphere and environmental values; 2. Sensitive water management; 3. Environmental management and wildlife corridors; 4. Adequate infrastructure for development; 5. Remedy existing infrastructure deficiencies; 6. Urban/community/environment relationships; 7. Integrated community centre; 8. Ensure road system adequacy; and 9. Danger of overdevelopment (Diecke Richards, 2003) <p>The Stage 1 Project Application will facilitate the early implementation of the revegetation measures well prior to the commencement of other development stages. Not only will this approach protect and enhance the Littoral Rainforest, it will ensure</p>

Issue	Comment
	that the future residents of the locality will be reassured of the landowners commitment to ecologically sustainable human settlement. Signposting of the rainforest edge to include appropriate and informative information for the general public will be carried out.

Section 6

Vegetation Management Plan

In the preparation of this Vegetation Management Plan (VMP) King + Campbell (K+C) has relied on technical advice from Wildthings Native Gardens (WNG). Representing WNG was Sue Regan, a member of the Australian Association of Bush Regenerators (AABR). Sue has a BSc (Macquarie University), Associate Diploma of Applied Science (Landcape) (Ryde TAFE) and Bush Regeneration Certificate (Ryde TAFE). Sue has been working as a bush regeneration contractor since 1996.

This VMP should be read in conjunction with Exhibit PA05 to Part B.

This VMP provides detail on the work to be undertaken in the nominated revegetation areas, as required to provide an environmental buffer to State Environmental Planning Policy (SEPP) 26 - Littoral Rainforest. This work includes weed eradication, plant establishment and ongoing maintenance.

6.1 VMP - Specification

The objectives of this VMP are to ensure protection of Littoral Rainforest No.116 mapped under SEPP No.26 by specifying the following control measures;

- Fencing and vegetation buffering;
- Bush regeneration treatments within and adjacent Littoral Rainforest No. 116, including weed control; and
- Revegetation providing both protection of Littoral Rainforest No.116 as well as a meaningful extension to it.

The implementation of this VMP will be the responsibility of the owners of Lot 1 DP 374315 and Lot 4 DP 615261. All works will be carried out by a suitably qualified revegetation contractor and design documented and monitored and certified by a suitably qualified consultant. All certification will be submitted to and verified by PMHC.

In preparation of this VMP, the following resources have been utilised:

- A Flora and Fauna Survey of Lot 4 DP 615261 and Lot 1 DP 374315, Ocean Drive, Lake Cathie. Prepared for King and Campbell Pty Ltd, Port Macquarie by Peter Parker Environmental Consultants, July, 2010;
- Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner bioregions – endangered ecological community listing. NSW Scientific Committee – final determination (Gazetted 2004)
- Guidelines for controlled activities – Vegetation Management Plans.

NSW Department of Water and Energy, February 2008.

- How to Prepare a Vegetation Management Plan Guideline. NSW Department of Water & Energy. Draft Version 7: March 2007.
- Residential, commercial, tourist and environmental works, Lake Cathie (07_0010) Review of Draft Environmental Assessment. NSW Department of Planning, April 2010;
- Regional Weeds Strategy 2008 to 2012. Mid North Coast Weeds Advisory Committee inc ; and
- Consultation with Peter Parker, June 2010.

6.1.1 Fencing

A two (2) metre high fence is to be erected along the proposed extent of revegetation works, the extent of which is illustrated on Exhibit PA05. The fence construction will be as follows:

- Black PVC coated chainmesh incorporating 2.5mm wire – as manufactured by Onesteel (or equivalent);
- Black Galvanised mild steel posts at maximum 2 metre centres;
- Black Galvanised mild steel bracing posts on fence corners;
- Three strands of PVC coated 3mm wire to which the chainmesh is fixed;
- Locked gates will be provided in locations to assist maintenance operations. Gates will be constructed from the materials listed above.

6.1.2 Management of Existing Weed Species

6.1.2.1 Description of Weeds Present

Weed species on the site and Littoral Rainforest No. 116 (within Lot 4 and adjacent to Lot 1) have been identified in the Flora and Fauna Survey (Peter Parker, May 2002) and mapped by Wild Things Native Gardens.

Weed Species	
Botanical Name	Common Name
<i>Protasparagus aethiopicus</i>	Asparagus fern
<i>Protasparagus africanus</i>	Climbing asparagus fern
<i>Bambusa sp</i>	Bamboo
<i>Axonopus affinis</i>	Broad-leaved carpet grass
<i>Briza maxima</i>	Quaking grass
<i>Paspalum dilatatum</i>	Paspalum
<i>Pennisetum clandestinum</i>	Kikuyu
<i>Setaria palmifolia</i>	Palm grass
<i>Sorghum bicolor</i>	Sorghum
<i>Sporobolus indicus var. capensis</i>	Parramatta grass
<i>Asclepias curvassica</i>	Redhead cotton bush
<i>Gomphocarpus fruitcocus</i>	Narrow-leaf cotton bush

Weed Species	
Botanical Name	Common Name
<i>Ageratina adenophora</i>	Crofton weed
<i>Chrysanthemoides monilifera</i> spp. <i>Rotundata</i>	Bitou bush
<i>Hypochoeris radicata</i>	Flatweed
<i>Senna pendula</i>	Winter senna
<i>Senna floribunda</i>	Smooth cassia
<i>Cinnamomum camphora</i>	Camphor laurel
<i>Hibiscus splendens</i>	Pink hibiscus
<i>Sida rhombifolia</i>	Paddy's lucerne
<i>Musa paradisiaca</i>	Banana
<i>Passiflora subpeltata</i>	White's passionflower
<i>Plantago gaudichaudii</i>	Narrow-leaf plantain
<i>Citrus limon</i>	Bush lemon
<i>Solanum mauritianum</i>	Wild tobacco
<i>Solanum seaforthianum</i>	Climbing nightshade
<i>Lantana camara</i>	Lantana
<i>Verbena bonariensis</i>	Purpletop

A Baseline Weed Map is provided at Exhibit PA04 (sheet 2).

Site monitoring is specified in Section 6 and includes photo monitoring. Appendix PA B includes the photo monitoring points and photographic record sheet. Refer to this section for pre-treatment weed photographs.

The most significant weed infestation and threat to the Littoral Rainforest is the dense stand of *Senna pendula* on the western side of the rainforest edge.

6.1.2.2 Noxious and Priority Weeds

Of the weeds listed in the table above, some have particular ecological implications including control difficulties, ability to invade Littoral Rainforests and/or inhibit regeneration of Littoral Rainforests, including edges.

Such ecological implications are reflected in the Noxious Weed Declaration of three (3) weeds recorded on site (per Noxious Weeds Act 1993 as Gazetted). All (3) of these are listed in the lowest two control classes assigned under the declaration for the Port Macquarie Hastings local government area (Mid North Coast Weeds Advisory Committee Inc.):

- *Ageratina adenophora* (Crofton Weed) and *Chrysanthemoides monilifera* spp. *Rotundata* (Bitou Bush) – Class 4, Locally Controlled Weeds. These are plants that pose a threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area. The growth and spread of the plant must be controlled; and
- *Lantana camara* (Lantana) – Class 5, Restricted Plants. These are plants that are likely, by the sale of their seeds or movement within the state to an area of the State, to spread in the State or outside

the State. Sale of these plants is restricted.

Prioritisation of weeds in a variety of landscape situations is also given by the Mid North Coast Weeds Advisory Committee Inc. 7 weeds recorded on site appear in these listings, 6 of which are rated "D" – the lowest priority rating. Priority weeds recorded on site and their ratings in the Port Macquarie Hastings local government area are detailed below:

- *Bambusa sp* (Bamboo): Priority C (Urban Landscapes) – "Weeds present with moderate distribution in the MNCWAC area, numerous to large partially dispersed areas";
- *Protasparagus aethiopicus* (Asparagus Fern), *Protasparagus africanus* (Climbing Asparagus Fern), *Chrysanthemoides monilifera* spp. *Rotundata* (Bitou Bush), *Senna pendula* (Winter Senna), *Senna floribunda* (Smooth Cassia) and *Lantana camara* (Lantana): Priority D (Coastal Landscapes) – "Weeds that are widespread throughout the region".

All Noxious Weeds and Priority Weeds as listed by MNCWAC will be targeted on site within the first year of revegetation works. Eradication of emerging seedlings will continue until the end of the maintenance period. This will see a significant depletion of the soil stored weed seed of these species thereby limiting future reinfestation.

Other weeds occurring on site include pasture grasses, annuals, vine weeds and woody weeds. The pasture grasses will be managed such that they do not inhibit revegetation of the proposed Littoral Rainforest buffer. Vine and woody weeds will be targeted as for the Noxious and Priority Weeds listed above.

6.1.2.3 Weed Control Methods

Successful management of the weeds present on site will involve a variety of weed control methods. Recommendations of weed control methods per species recorded on site is listed in the following table.

Timing of weed control can also be critical. Where relevant the most appropriate time for weed treatment is also detailed in the following table. Generally, control should aim to interrupt the weed's reproductive cycle.

Where timing of weed treatments is significant it has been included in the Gantt Chart attached at Appendix PA A.

Scientific Name	Common Name	Recommended Control Methods and Treatment Timing	Comments
Noxious & Priority Weeds			
<i>Ageratina adenophora</i>	Crofton Weed	<ul style="list-style-type: none"> Hand pull ensuring removal of rhizome May need to use mattock or knife 	<ul style="list-style-type: none"> Woody perennial Treat prior to seeding in September Treat early in project due to intractable nature and likely need for retreatment
<i>Bambusa sp</i>	Bamboo	<ul style="list-style-type: none"> Cut approximately 10cm from ground and paint¹ with glyphosate and metsulfuron mix² 	<ul style="list-style-type: none"> Multi-stemmed shrub with rhizome May require repeated applications involving recutting stems closer to ground level and painting¹ with glyphosate, metsulfuron mix²
<i>Chrysanthemoides monilifera</i> spp. <i>Rotundata</i>	Bitou Bush	<ul style="list-style-type: none"> Cut and paint¹ stem bases with glyphosate mix³ 	<ul style="list-style-type: none"> Woody weeds
<i>Lantana camara</i>	Lantana	<ul style="list-style-type: none"> Stack weed refuse in neat piles to maximise potential regeneration between piles and facilitate maintenance access 	
<i>Protasparagus aethiopicus</i>	Asparagus Fern	<ul style="list-style-type: none"> Remove corm using serrated plasterers knife or similar 	<ul style="list-style-type: none"> Perennials with woody underground corm
<i>Protasparagus africanus</i>	Climbing Asparagus Fern	<ul style="list-style-type: none"> Bag and remove corms from site 	
<i>Senna pendula</i>	Winter Senna	<ul style="list-style-type: none"> Cut stems at ground level and paint¹ with glyphosate and metsulfuron mix² Hand pull immature plants as practical Spray seedlings with 1:100 glyphosate mix⁴ as appropriate 	<ul style="list-style-type: none"> Shrubs Thin vascular tissue can render success of glyphosate only cut and paint treatments variable Treatment during April/May flowering can assist in location of individual plants Treat before May/June pod production Control as high priority due to invasive nature and to complement work undertaken in adjacent bushland by Bonny Hills Landcare In densely infested areas mass germination of seedlings may occur following treatment
<i>Senna floribunda</i>	Winter Senna		
Other Woody Weeds			
<i>Asclepias curvassica</i>	Redhead Cotton Bush	<ul style="list-style-type: none"> Cut and paint¹ stem bases with glyphosate mix³ 	
<i>Cinnamomum camphora</i>	Camphor Laurel	<ul style="list-style-type: none"> Inject base of stems with glyphosate mix³ 	<ul style="list-style-type: none"> Use cordless drill or chainsaw auger with 10mm or larger drill bit to create herbicide injection points Control as high priority
<i>Gomphocarpus fruitocus</i>	Narrow-leaf Cotton Bush	<ul style="list-style-type: none"> Cut and paint¹ stem bases with glyphosate mix³ 	
<i>Hibiscus splendens</i>	Pink Hibiscus		
<i>Musa paradisiaca</i>	Banana		
<i>Citrus limon</i>	Bush Lemon		
<i>Solanum mauritianum</i>	Wild Tobacco		
Vine Weeds			

<i>Passiflora subpeltata</i>	White Passionflower	<ul style="list-style-type: none"> Scrape and paint⁵ stem bases with glyphosate mix³ 	<ul style="list-style-type: none"> Control as high priority
<i>Solanum seaforthianum</i>	Climbing Nightshade		
Perennials			
<i>Hypochoeris radicata</i>	Flatweed	<ul style="list-style-type: none"> Spray with 1:100 glyphosate mix⁴ as appropriate 	<ul style="list-style-type: none"> Treatment is a low priority
<i>Plantago gaudichaudii</i>	Narrow-leaf Plantain		
<i>Sida rhombifolia</i>	Paddy's Lucerne		<ul style="list-style-type: none"> Large individuals may require hand pulling or cut and paint¹ with glyphosate mix³
<i>Verbena bonariensis</i>	Purpletop		
Tall Pasture Grasses			
<i>Briza maxima</i>	Quaking Grass	<ul style="list-style-type: none"> Spray with 1:100 glyphosate mix⁴ as appropriate Where practical reduce seed head formation and dispersal by removing with whipper snipper or slashing 	<ul style="list-style-type: none"> Occurrence will naturally reduce as revegetation and regeneration produces shrub canopy and associated soil shading Control required only when inhibiting natural regeneration or impeding growth of plantings
<i>Paspalum dilatatum</i>	Paspalum		
<i>Setaria palmifolia</i>	Palm Grass		
<i>Sorghum bicolor</i>	Sorghum		
<i>Sporobolus indicus var. capensis</i>	Paramatta Grass		
Rhizomatus Pasture Grasses			
<i>Axonopus affinis</i>	Broad-leaved Carpet Grass	<ul style="list-style-type: none"> Spray with 1:100 glyphosate mix⁴ as appropriate 	<ul style="list-style-type: none"> Occurrence will naturally reduce as revegetation and regeneration produces shrub canopy and associated soil shading Control required only when inhibiting natural regeneration or impeding growth of plantings
<i>Pennisetum clandestinum</i>	Kikuyu		

(Notes on herbicide mixes:

¹ Cut stems as close to ground as practical using sharp loppers or secateurs and apply herbicide mix as soon as possible.

² Undiluted 360 g/L glyphosate (such as Roundup Biactive®) and 835g/L glyphosate 10g/kg metsulfuron-methyl (such as Trounce®) mixed at ratio of 10:1. Herbicide marker dye (such as Bigfoot®) added to colour. Apply via 100mm container with small nozzle.

³ Undiluted 360 g/L glyphosate (such as Roundup Biactive®) and herbicide marker dye (such as Bigfoot®) to colour. Apply via 100mm container with small nozzle.

⁴ 1:100 360 g/L glyphosate (such as Roundup Biactive®) and clean water. Herbicide marker dye (such as Bigfoot®) to be added to mix to colour.

⁵ Scrape stems of vine weeds exposing vascular tissue along approximately 30cm stem length and 1/3 of stem in cross section)

6.1.2.4 Environmental Value of Existing Weed Species

As with most forest edges, Littoral Rainforest No. 116 has many areas where a dense shrub layer is present. This is the result of different microclimatic edge conditions, including predominantly more sunlight and serves to protect the core rainforest from weather extremes. On the western side of Littoral Rainforest No.116 a dense stand of *Senna pendula* performs this role.

To replace these *Senna pendula* ecological roles, planting along the Littoral Rainforest's western edge will include dense stands of *Nematolepis squamea* and *Acacia binervata*. Planting of this area is to occur within 6 months of *Senna pendula* removal.

6.1.2.5 Future Weed Encroachments

Although not currently present on site the following weed species are known to occur in similar landscapes in the Port Macquarie Hastings area.

- *Ipomoea cairica* (Coastal Morning Glory) – Priority D weed (MNCWAC)
- *Delairea odorata* (Cape Ivy) – Priority C weed (MNCWAC)
- *Acetosa sagittata* (Turkey Rhubarb) – difficult to control due to underground tubers.

They warrant particular attention due to their invasive and/or intractable nature.

The site should be monitored for occurrence of these weeds, with their treatment given high priority.

6.1.2.6 Consultation with Neighbours

The Bonny Hills Landcare Group is actively working in the Crown Land from Middle Rock south to the Sewage Treatment Plant, including Littoral Rainforest No. 116. A site meeting was held with Bonny Hills Landcare President Fred Love on 9 June 2010.

Wild Things Native Gardens is implementing a Vegetation Management Plan in the property to the south of Lots 1 and 4. This involves extensive revegetation of a number of ecological communities.

PMHC continues to target spray *Chrysanthemoides monilifera* spp. *Rotundata* (Bitou Bush) along Rainbow Beach foredunes via helicopter and using 4WD beach access. Previously Council has engaged contractors Hastings Bush Regeneration Services to undertake bush regeneration works on the crown land adjacent lots 1 and 4. Since September 2009 they have their own Bush Regeneration crew who will likely continue this work.

Implementation of this VMP should involve co-ordination with Bonny Hills Landcare, Wild Things Native Gardens and Council to enhance the Littoral Rainforest along its entire length.

6.1.3 Revegetation and Regeneration of Littoral Rainforest Buffer

6.1.3.1 Ecological Role of Littoral Rainforest Buffer

A 40 – 60 metre vegetation buffer of Littoral Rainforest is proposed within Lots 1 and 4 on the western side of Littoral Rainforest No.116 as shown on Exhibit PA05.

The buffer aims to:

- improve the shape of the Littoral Rainforest western edge by decreasing edge to area ratio;
- extend Littoral Rainforest No.116; and
- protect the core of Littoral Rainforest No. 116 from negative edge effects such as weed invasion, weather extremes and impacts of human activity.

6.1.3.2 Regeneration and Revegetation Techniques

Recommended techniques for revegetating this buffer area depend on the bushland resilience expressed on site.

Areas of low bushland resilience require staged planting, transplanting, direct seeding and ongoing weed maintenance. Such planting will provide a meaningful extension to the existing Littoral Rainforest and feeding resources for the common blossom bat.

Areas of high resilience will be managed by hand weeding treatments (as listed in previous section), relying on natural regeneration and recruitment of species from adjacent Littoral Rainforest No. 116. Such areas have been mapped by Peter Parker (March 2010), are shown on Exhibit PA05 and include:

- *Lophostemon confertus*, *Acronychia imperforata* and *Cupaniopsis anarcardioides* simple notophyll Littoral Rainforest;
- *Banksia integrifolia* var *integrifolia* and *Paspalum dilatatum* mid-high woodland;
- *Acacia melanoxylon*, *Commersonia bartramia* and *Chrysanthemoides monilifera* ssp. *Rotundata* simple notophyll (regrowth) Littoral Rainforest;
- *Callistemon saligna*, *Melaleuca quinquinervia* and *Gahnia clarkeii* low to mid-high open forest (previous planting); and
- *Eucalyptus siderophloia* and *Lantana camara* tall open forest.

6.1.3.3 Seed Collection

Seeds for propagation of revegetation plant material and direct seeding are to be collected from the following areas:

- Littoral Rainforest No.116. on crown land to the east of Lots 1 and 4;

- Littoral Rainforest on Lot 4;
- Neighbouring private land to the south;
- Spooneys Reserve to the south; and
- Queens Lake State Forest and Burrawan State Forest to the south-west.

With the exception of the State Forest, all of these source areas are within 3km of the revegetation buffer, as specified by Department of Water and Energy (March 2007).

Seed collection within the State Forest will likely be unnecessary, however provides a relevant alternative if seed availability in the other listed reserves is inadequate.

Permission for seed collection is to be obtained from Council (Littoral Rainforest No.116 and Spooneys Reserve) and neighbouring landowners to the south. Seed collection in the State Forests requires authorisation under section 30(i) of the Forestry Act 1916 for Queens Lake State Forest No. 475 and Burrawan State Forest No. 181. This is available from the State Forests office in Wauchope.

Seed collection records are to be maintained including date of collection, collector, collection site and species.

Dry seed can be stored for up to 12 months in water proof containers.

Fleshy seed such as *Lomandra longifolia* and *Crinum pedunculatum* collected for direct seeding should not be stored for longer than 7 days, less if humidity is high.

Fleshy rainforest species seed is to be sown fresh or composed for propagating as appropriate.

Seed collection should begin at project commencement and continue until all required species are germinated. Although not to be planted until revegetation Stage 2, rainforest seed collection should begin at project commencement as rainforest species germination can be very slow (refer to Gantt Chart).

6.1.3.4 Site Preparation for Planting

Initial woody weed treatment in the planting areas of the vegetation buffer is to be completed a minimum of 6 months prior to commencement of Stage 1 planting.

During this 6 month interim period, the following weed control measures are to be implemented:

- re-treatment of woody weeds as necessary;
- treatment of *Senna pendula* seedlings germinating from the significant bank of soil stored weed seed; and
- multiple spraying of pasture grasses and annuals present, timed to minimise seed production and deplete the soil stored weed seed

bank. Areas of slashed pasture grasses are to be retained as erosion and sediment controls, as discussed in Section 4.10.

Depending on soil condition at time of planting, planting areas may be ripped to a depth of 15cm minimum, with rip lines at minimum of 2 metre spacing's. Added advantages of ripping include improved plant performance and dislodgement of poisoned *Senna pendula* roots.

Prior to Stage 1 planting the proposed exclusion fencing should be in place (refer to Gantt Chart).

At time of planting for Stages 1, 2 and 3, the soil surface should be weed free (refer to Gantt Chart).

6.1.3.5 General Planting Guidelines

Unless otherwise specified the following applies to all planting activities.

With the exception of transplants, all plants are to be supplied in a weed free state as tubestock. Roots should extend to base of tube without circling. When removed from the tube, the root ball and growing medium should remain in-tact.

Placement of plants on site is to be undertaken by a suitably qualified bush regenerator who is able to identify all species to be planted and has an understanding of their mature size and ecological requirements.

Plants should be placed to mimic a common natural distribution pattern of clumped groups of 3 to 7 plants of same species.

When selecting and placing species, the aesthetic appeal is to be considered. Plants such as *Archontophoenix cunninghamiana* (Bangalow Palm) and *Livistona australis* (Cabbage Palm) offer aesthetic value and are to be used as appropriate.

All plants are to be watered on the day of planting with 2 litres of water. A liquid water retention and wetting agent additive (such as Hydretain® or Hydrasoil®) is to be used with this initial watering. If no rainfall greater than 10mm in a single event occurs during one month following planting, the initial watering, including additive, is to be repeated. Water retention crystals are not to be used.

Watering frequency in addition to that involving additive is obviously weather and soil moisture dependent and therefore specifications are irrelevant. It is important to note however that:

- single rainfall events of less than 10mm do little to replenish soil moisture; and
- on average 3 waterings are required after planting tubestock.

Protection from browse damage by macropods and feral deer may be necessary. Experience on the southern neighbouring property revegetation project was that particular species were selectively browsed. Of these, only *Omolanthus populifolius* is included in the planting lists in sections 4.7 and 4.8. On the day of planting, all

Omolanthus populifolius are to be protected from browse damage by plastic plant bags and 3 bamboo stakes. Plantings are to be regularly monitored for browse damage and similarly protected as required.

Plant losses during the maintenance period should not exceed 80%, as specified by NSW Department of Water and Energy (March 2007 and February 2008). Losses exceeding this are to be replaced by species of similar habit and planting stage.

6.1.3.6 Staged Revegetation Concept

Approximately 21,073 m² will be revegetated as Littoral Rainforest through planting, transplanting and direct seeding.

Revegetation will be undertaken following removal of woody weeds and vine weeds, fence construction and spraying of pasture grasses and annuals in planting areas.

Revegetation will be undertaken in 3 stages:

- Stage 1 – establishment of colonisers, Lomandra edge and common blossom bat (*Syconycteris australis*) feeding resources;
- Stage 2 – introduction of long lived rainforest species;
- Stage 3 – following construction of biofiltration units and rainforest boardwalk.

Planting lists have been compiled by considering:

- Littoral Rainforest species list compiled by Peter Parker (March 2010);
- Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner bioregions – endangered ecological community listing. (NSW Scientific Committee – final determination Gazetted 2004);
- Species known to occur on neighbouring property to the south;
- Species that can be readily propagated; and
- Role of each species in natural regeneration as pioneer or long lived rainforest species.

Planting density is to be 1 tubestock per m².

6.1.3.7 Stage 1 Revegetation

Stage 1 revegetation should result in a closed shrub layer of colonising species and immature sclerophyll trees within 18 months of Stage 1 planting completion.

The role of Stage 1 revegetation is to replicate natural plant succession by modifying the open paddock microclimate to ensure success of the Stage 2 rainforest species planting. This includes reductions in sunlight at ground level, daily maximum air temperatures, diurnal soil temperature ranges and wind velocity and increases in humidity, and soil moisture.

An additional advantage of this staged approach is a significant reduction in germination of weed species once the colonising shrub canopy is established.

The *Lophostemon confertus*, *Acronychia imperforata* and *Cupaniopsis anarcardioides* simple notophyll Littoral Rainforest and *Acacia melanoxylon*, *Commersonia bartramia* simple notophyll (regrowth) Littoral Rainforest existing on site are naturally occurring examples of the first stage of rainforest plant succession.

Stage 1 revegetation species are listed in the following table.

Of the 8 tree species listed in the Stage 1 revegetation species list, a minimum of 6 tree species are to be supplied and planted, excluding *Banksia integrifolia*.

Of the 5 shrub species listed in the Stage 1 revegetation species list, a minimum of 4 shrub species are to be supplied and planted (excluding *Commersonia bartramia* transplants).

Stage 1 revegetation includes planting all revegetation areas with:

- 1,834 colonising trees and 800 *Banksia integrifolia* (planting rate of 1 tubestock per 8m²); and
- 5,268 colonising shrubs (2 tubestock per 8m²).

As seen in the following table this totals 7,902 tubestock (not including *Lomandra* buffer) or 3 tubestock per 8m².

The 800 *Banksia integrifolia* are to be planted throughout the vegetation buffer to provide feeding resources for the common blossom bat (*Syconycteris australis*). 100 of these are to be planted in area A.

Commersonia bartramia (Brown Kurrajong) is to be introduced to Stage 1 revegetation by transplanting. 40 "plugs" from the Littoral Rainforest regrowth areas already within the vegetation Lots 1 and 4 buffer should be transplanted throughout the planting areas in groups of 5, spaced 2 metres apart.

A hedge of 1260 *Lomandra longifolia* and/or *Lomandra hysterix* is to be planted on the eastern side of the proposed fence at 0.8 metre centres. This hedge is to be mulched to 100mm depth and 1 metre width with tea tree mulch.

Stage 1 revegetation is to begin as soon as tubestock becomes available for planting – approximately 2 years following project commencement.

Stage 1 revegetation should be completed within 18 months of project commencement (refer to Gantt Chart).

Stage 1 Plantings – colonisers, lomandra buffer and common blossom bat forage trees:

Scientific name	Common name	Occurs in Littoral Rainforest no. 116 ¹	Listed in Littoral Rainforest EEC ²	Present on neighbouring property to south ³	Planting numbers	Comments
Trees						
<i>Acacia melaloxylon</i>	Blackwood	✓		✓	1,834	
<i>Alphitonia excelsa</i>	Red Ash					Can be difficult to propagate. Excellent rainforest edge species. Recorded in open forest on site.
<i>Banksia serrata</i>	Saw-tooth Banksia	✓		✓		
<i>Callistemon saligna</i>	Pink-tipped Bottlebrush	✓		✓		
<i>Glochidian ferdinandii</i>	Cheese Tree	✓	✓			
<i>Eucalyptus siderphloia</i>	Grey Ironbark	✓		✓		
<i>Lophostemon confertus</i>	Brushbox	✓	✓	✓		
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark	✓	✓	✓		
<i>Rhodomyrtus psidioides</i>	Native Guava	✓	✓			Easily propagated from seed
<i>Tristaniopsis laurina</i>	Water Gum	✓				Easily propagated from seed
Shrubs						
<i>Acacia binervata</i>			✓	✓	5,268	
<i>Breynia oblongifolia</i>	Coffee Bush	✓	✓	✓		Susceptible to browse damage by macropods & feral deer
<i>Commersonia bartramia</i>	Brown Kurrajong	✓		✓		Transplant suckers
<i>Duboisia myoporoides</i>	Dubosia	✓	✓	✓		
<i>Omolanthus populifolius</i>	Bleeding Heart			✓		Susceptible to browse damage by macropods & feral deer
<i>Nematolephis squamea</i>	Silver Basswood	✓		✓		
Common Blossom Bat Forage Trees						
<i>Banksia integrifolia</i> var <i>integrifolia</i>	Coast Banksia	✓	✓	✓	800	Common Blossom Bat (<i>Syconycteris australis</i>) forage trees to be planted throughout buffer as specified.
Hedge Planting						
<i>Lomandra hysterix</i>		✓			1260	Buffer hedge on eastern side of fence. Planting in remainder of buffer area in Stages 2 and 3.
<i>Lomandra longifolia</i>		✓	✓	✓		
Totals					9,162	

6.1.3.8 Stage 2 Revegetation

Growth of Stage 2 revegetation will be substantially slower than Stage 1, such that growth targets cannot be applied.

Stage 2 revegetation species are listed in the following table, with planting numbers totalling 13,170 tubestock.

This list is extensive to account for:

- the erratic seed availability characteristic of rainforest vegetation;
- the difficulty in harvesting seeds at canopy height; and
- the unreliable germination of rainforest species seeds.

Of the 25 tree species listed in the Stage 2 revegetation species list, a minimum of 14 tree species are to be supplied and planted.

Of the 7 shrub species listed in the Stage 2 revegetation species list, a minimum of 4 shrub species are to be supplied and planted.

Of the 8 groundcover species listed in the Stage 2 revegetation species list, a minimum of 5 groundcover species are to be supplied and planted.

Stage 2 revegetation includes planting all revegetation areas with:

- 2,634 trees (planting rate of 1 tubestock per 8m²);
- 2,634 shrubs (1 tubestock per 8m²); and
- 7,902 groundcovers (3 tubestock per 8m²).

As seen in the following table this totals 13,470 tubestock or 5 tubestock per 8m².

Direct seeding of *Crinum pedunculatum*, *Isolepis nodosa*, *Juncus usitatus*, *Lomandra spp* and *Dioscorea traversa* should occur concurrently with tubestock planting.

Likelihood of direct seeding success is to be improved by ensuring ground surface is free of groundcover vegetation including weeds, with some areas of soil scarified with hand tools.

Stage 2 revegetation should commence at least 6 months after completion of Stage 1 planting to maximise the benefit afforded by Stage 1 colonising plantings. As planting progresses, areas where Stage 1 plantings are most established are to be planted sequentially with the Stage 2 plantings.

Stage 2 revegetation should be completed within 3.5 years of project commencement (refer to Gantt Chart).

Stage 2 Plantings – long lived rainforest species:

Scientific Name	Common Name	Occurs in Littoral Rainforest No. 116 ¹	Listed in Littoral Rainforest Eec ²	Present on Neighbouring Property To South ³	Planting Numbers	Comments
Trees						
<i>Alectryon coriaceus</i>	Beach Birds Eye	✓	✓		2,634	
<i>Aphananthe philippinsis</i>	Rough-leaved Elm	✓	✓			
<i>Arytera divaricata</i>	Coogera	✓	✓			Easily propagated from seed
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm	✓	✓			Easily propagated from seed
<i>Bridelia exaltata</i>	Brush Ironbark	✓	✓			
<i>Cassine australis</i> var <i>australis</i>	Red Olive Plum	✓				Easily propagated from seed
<i>Cinnamomum virens</i>	Red-barked Sassafras	✓				
<i>Clerodendrum floribundum</i>	Smooth Clerodendrum	✓				
<i>Drypetes deplanchei</i>	Yellow Tulip	✓				
<i>Endiandra discolor</i>	Rose Walnut	✓	✓			
<i>Endiandra sieberi</i>	Hard Corkwood	✓	✓			
<i>Euroschinus falcata</i> var <i>falcata</i>	Ribbonwood	✓				
<i>Ficus rubiginosa</i>	Rusty Fig		✓	✓		Easily propagated from seed
<i>Litsea reticulata</i>	Bolly Gum	✓	✓			
<i>Livistona australis</i>	Cabbage Palm	✓	✓			Easily propagated from seed
<i>Myrsine variabilis</i>	Muttonwood	✓	✓			
<i>Neolitsea australiensis</i>	Green Bollygum	✓				
<i>Planchonella australis</i>	Black Apple	✓				Easily propagated from seed
<i>Rhodamnia rubescens</i>	Brush Turpentine	✓	✓			
<i>Sarcopteryx stipata</i>	Steelwood	✓				Easily propagated from seed
<i>Stenocarpus salignus</i>	Scrub Beefwood	✓				Easily propagated from seed
<i>Synoum glandulosum</i>	Scentless Rosewood	✓	✓			Easily propagated from seed
<i>Syzygium hemilamprum</i>	Broad-leaved Lilly Pilly	✓	✓			Easily propagated from seed
<i>Syzygium smithii</i>	Lilly Pilly	✓	✓			Easily propagated from seed
<i>Toeckima dasyrrhache</i>	Blunt-leaved Steelwood	✓				Easily propagated from seed
Shrubs						
<i>Alchornea ilicifolia</i>	Native Holly	✓			2,634	
<i>Claoxylon australe</i>	Brittlewood	✓	✓			
<i>Cordyline stricta</i>	Narrow-leaf Palm Lily	✓	✓	✓		
<i>Diospyros australis</i>	Black Plum	✓	✓			
<i>Eupomatia laurina</i>	Bolwarra	✓	✓	✓		
<i>Myoporum acuminatum</i>	Pointed Boobialla		✓			
<i>Wilkiea heugliana</i>	Veiny Wilkea	✓	✓			
SURVEYING ARCHITECTURE PLANNING CIVIL ENGINEERING URBAN DESIGN						

Scientific Name	Common Name	Occurs in Littoral Rainforest No. 116 ¹	Listed in Littoral Rainforest Eec ²	Present on Neighbouring Property To South ³	Planting Numbers	Comments
Groundcovers						
<i>Alocasia brisbanensis</i>	Conjevoi	✓			7,902	
<i>Crinum pedunculatum</i>		✓				Direct seeding and planting
<i>Gahnia clarkei</i>	Tall Sawsedge	✓				
<i>Hibbertia scandens</i>	Twining Guinea Flower	✓				
<i>Juncus usitatus</i>	Tussock Rush					Recorded by Peter Parker in rainforest regrowth. Direct seeding and planting
<i>Isolepis nodosus</i>						Recorded by Peter Parker in rainforest regrowth. Direct seeding and planting
<i>Lomandra hysterix</i>		✓				Direct seeding and planting
<i>Lomandra longifolia</i>		✓	✓	✓		Direct seeding and planting
Climbers						
<i>Dioscorea traversa</i>	Native Yam	✓			300	Direct seeding only
<i>Morinda jasminoides</i>	Morinda	✓	✓			Easily propagated from seed
Total					13,470	

6.1.3.9 Stage 3 Revegetation

This includes:

- Post construction planting of biofiltration pond edges; and
- Rehabilitation of Rainforest Boardwalk surrounds as presented on Exhibit PA06.

Such plantings include groundcovers and selected shrubs and climbers as listed in the following table.

Planting rates of biofiltration units and rainforest boardwalk surrounds are to be 4 tubes per square metre of disturbed area as required.

Stage 3 Plantings – biofiltration unit and rainforest boardwalk

Scientific Name	Common Name	Planting Densities
Biofiltration Unit Surrounds		
<i>Carex appressa</i>	Tall Sedge	4 tubes / m ² as appropriate
<i>Crinum pedunculatum</i>	Swamp Lily	
<i>Dianella caerulea</i>	Blue Flax Lily	
<i>Eustrephis latifolius</i>	Wombat Berry	
<i>Gahnia clarkei</i>	Tall Sawsedge	
<i>Hibbertia scandens</i>	Twining Guinea Flower	
<i>Juncus usitatus</i>	Tussock Rush	
<i>Isolepis nodosus</i>		

<i>Lomandra hysterix</i>	Long Leaved Mat Rush	
<i>Lomandra longifolia</i>	Spiny-headed Mat Rush	
Rainforest Boardwalk Surrounds		
<i>Alocasia brisbanensis</i>	Conjevoi	
<i>Crinum pedunculatum</i>	Swamp Lily	
<i>Eupomatia laurina</i>	Bolwarra	
<i>Gahnia clarkei</i>	Tall Sawsedge	
<i>Gymnostachys anceps</i>	Settler's Flax	
<i>Juncus usitatus</i>	Tussock Rush	4 tubes / m ² as appropriate
<i>Isolepis nodosus</i>		
<i>Lomandra hysterix</i>	Long Leaved Mat Rush	
<i>Lomandra longifolia</i>	Spiny-headed Mat Rush	
<i>Morinda jasminoides</i>	Jasmine Morinda	
<i>Wilkea heugliana</i>	Veiny Wilkea	

6.1.3.10 Erosion and Sediment Control

Stages 1 and 2 Planting - Erosion and Sediment Control:

Stage 1 planting preparation will involve the following temporary erosion and sediment control measures as appropriate, with particular emphasis on hillslopes:

- pasture grasses to be retained in slashed strips of minimum 10m width and minimum 40 metres apart. These should be parallel with contours, retained until erosion risk is reduced as Stage 1 plantings become established and planted;
- silt fencing and/or hay bales; and
- rip lines should run parallel to the contour.

Rainforest Boardwalk and Biofiltration Units – Erosion and Sediment Control:

Prior to Rainforest Boardwalk installation, water flow paths along the existing track are to be interrupted by random log placement. During boardwalk construction overburden is to fill these existing track water flow paths.

Erosion control of the Rainforest minor gully is to include in stream structures such as rock weirs and temporary hay bale silt traps.

Biofiltration unit surrounds are to be stabilised with jute mesh and anchor pins as appropriate.

6.1.3.11 Areas of High Bushland Resilience

Areas of high bushland resilience generally exhibit one or a combination of the following:

- original soil and associated seed bank;
- indigenous species canopy;
- remnants of indigenous vegetation such as *Themeda* sp (Kangaroo Grass); and

- nearby bushland.

Such areas respond well to weed removal and regenerate via soil stored native seed or recruitment of species from adjacent bushland, such as Littoral Rainforest No. 116.

Areas of high bushland resilience on Lots 1 and 4 include the following vegetation communities. These have been mapped by Peter Parker (March 2010) and are shown on Exhibit PA05:

- *Lophostemon confertus*, *Acronychia imperforata* and *Cupaniopsis anarcardioides* simple notophyll Littoral Rainforest;
- *Banksia integrifolia* var *integrifolia* and *Paspalum dilatatum* mid-high woodland;
- *Acacia melanoxylon*, *Commersonia bartramia* and *Chrysanthemoides monilifera* ssp. *Rotundata* simple notophyll (regrowth) Littoral Rainforest;
- *Callistemon saligna*, *Melaleuca quinquinervia* and *Gahnia clarkeii* low to mid-high open forest (previous planting); and
- *Eucalyptus siderophloia* and *Lantana camara* tall open forest.

Treatment of high resilient areas on Lots 1 and 4 should be limited to hand weeding.

6.1.3.12 Maintenance

Maintenance of the vegetation buffer is to be ongoing from initial treatment to project completion.

Maintenance to include, but not be limited to, the following:

- Spraying annual and grass weeds between plantings (Section 3.3);
- Hand weeding of high bushland resilience areas (Section 4.11);
- Slashing retained pasture grasses until revegetation is completed (Section 4.10.1);
- Watering plantings (Section 4.5);
- Replacing plantings as necessary (Section 4.5);
- Installing and/or replacing plant protection bags (Section 4.5);
- Repair and/or replacement of temporary erosion and sedimentation control devices as discussed in (Section 4.10)
- Maintenance of fencing (Section 2); and
- Re-mulching of Lomandra hedge (Section 4.7).

6.1.4 Revegetation Works Contractor

Revegetation and regeneration works will be undertaken by a suitably qualified bush regeneration contractor. The contractor is to be a member of the Australian Association of Bush Regenerators (AABR) and will be required to demonstrate a high level of experience and competency at the time of engagement.

6.1.5 Key Performance Indicators and Environmental Protection Monitoring

6.1.5.1 Annual Assessments

Annual assessment reports are to be prepared by the contractor implementing the VMP. This report is to detail:

- performance of plantings, transplantings, direct seeding, erosion and sediment control structures, woody weed eradication, natural regeneration etc;
- progress of revegetation and regeneration tasks as discussed in the VMP and presented on the Gantt Chart.

A site assessment and review of this report is to be undertaken annually by a suitably qualified consultant (Landscape Architect or Bush Regenerator with demonstrated experience in revegetation and regeneration).

6.1.5.2 Photo Monitoring

Eleven (11) photograph monitoring points have been established on site. These are marked on site by red painted survey pegs.

The location of these points is shown on the aerial photograph at Appendix PA B, together with the initial photographs taken from these points.

Photo monitoring is to be undertaken 6 monthly from project commencement to completion.

Section 7

Draft Statement of Commitments

The Stage 1 Project Application applies to the following works:

- a) The retention of all native vegetation on the western side of the rainforest (within part Lots 1 and 4), including the removal of all weed species;
- b) 40-60m of revegetation and regeneration works on the western side of the rainforest (within part Lots 1 and 4);
- c) The fencing of the revegetation/regeneration area and hedging with a spiky hedge to minimise the potential impacts of human intrusion edge effects on the rainforest (within part Lots 1 and 4);
- d) The removal of weeds and regeneration of rainforest species in the vicinity of the western edge of the SEPP 26 rainforest (generally with 10m of that edge and located within part Lot 4 and part crown reserves); and
- e) The provision of a low impact boardwalk in lieu of the existing informal pedestrian track through the littoral rainforest to Rainbow Beach (within part Lots 1 and 4 and part Crown reserves).
- f) An ongoing maintenance regime for 20 years post establishment (via a Planning Agreement with Port Macquarie Hastings Council).

The landowner is committed to responsible management of the project and to minimising potential adverse impacts that may arise from the proposed works. The following table outlines the commitments the landowner makes in relation to this Stage 1 Project Application.

No.	Objective	Commitment	Timing	Responsibility
PA1 - General	To ensure that all works associated with Stage 1 are carried out in accordance with the Project Application approval and that the potential environmental impacts are managed.	<p>All works are to be carried out generally in accordance with the Environmental Assessment prepared by King + Campbell Pty Ltd and the supporting specialist reports/plans including:</p> <ul style="list-style-type: none"> Section 6 - Vegetation Management Plan (VMP) – Specification, King + Campbell, in consultation with Wild Things Native Gardens; Exhibit PA05 and Exhibit PA06 – Vegetation Management Plan Rainforest Boardwalk, King + Campbell Appendix PA A – Gantt Chart Flora and Fauna Report, Peter Parker Environmental Consultant, July, 2010 (Appendix C) SMEC Coastal Hazard Study (Appendix G) Martens Groundwater Study (Appendix D) VPA between the landowners and PMHC (as included in PPR) 	With CC documentation (boardwalk) and during all works on site	Landowner / proponent
PA2 – Vegetation Management Plan (VMP)	<p>To ensure the long term protection of Littoral Rainforest No.116 for future generations, through specifying the following control measures;</p> <ul style="list-style-type: none"> fencing and vegetation buffering; bush regeneration treatments within and adjacent Littoral Rainforest No. 116, including weed control; and revegetation providing both protection of Littoral Rainforest No.116 as well as a meaningful extension 	<p>All works within the Project Application site boundary shall be carried out in accordance with the VMP specification at Section 6.</p> <p>The Vegetation Management Plan will :</p> <ul style="list-style-type: none"> Immediately improve the existing condition of the rainforest through the removal of weeds along its western edge; Provide longer-term enhancement of the existing rainforest by decreasing the edge-to-area ratio through plantings along the western boundary; Restrict and control public access through the rainforest; and Ensure that revegetation works are well established and fenced off prior to the commencement of other stages of the proposed residential, commercial and tourist project. <p>The VMP will include:</p> <ul style="list-style-type: none"> Plantings of coast banksia woodland in the south-east corner into the 	Stage 1 works	Landowner / proponent

No.	Objective	Commitment	Timing	Responsibility
	to it.	<p>Littoral Rainforest using additional plantings and bush regeneration techniques and emphasise coast banksias in the landscaping of the site. Properly constructed and managed, this corridor will provide feeding resources for the common blossom bat, assist in fauna passage for the more cryptic animal species and provide a greater biodiversity;</p> <ul style="list-style-type: none"> • An elevated walkway to the beach along the existing pathway and improve drainage or minimize erosion by rip-rap filters or similar structures; and • Protective fencing along the western edge of the planted buffer to the Littoral Rainforest. 		
PA3 – Voluntary Planning Agreement	To ensure the long-term management and maintenance of areas of open space and conservation.	<p>The Preferred Project Report shall include, as an Appendix, a signed VPA between the landowners and PMHC. With respect to Stage 1 the VPA shall provide for the following:</p> <ul style="list-style-type: none"> • The establishment of environmental works and beach access as part of the Stage 1 Project Application; • The maintenance of these lands in accordance with an approved management plan for five (5) years; and • The payment of contributions at the subdivision stage to fund a further fifteen (15) years maintenance. 	As part of PPR	Landowner / proponent
PA3 - Public Consultation	To ensure effective and receptive consultation with the local community and key interest groups	<p>A public meeting with the local progress associations and LALC is to be conducted during the exhibition period for the CP/Stage 1 Project Application to ensure the local community has the opportunity to be briefed on the extent of the proposed Stage 1 Environmental Works.</p> <p>Signage shall be erected adjacent to the pedestrian boardwalk to advise of the state significance of the rainforest and of its floristic makeup.</p>	During the exhibition period	Landowner / proponent
PA4 - Bushfire	To effectively manage the sites natural hazards.	The proposed revegetation area adjacent to the rainforest shall incorporate rainforest species only, to ensure retention of the rainforest classification for	When undertaking work in accordance with VMP	Landowner / proponent

No.	Objective	Commitment	Timing	Responsibility
		Bushfire buffer purposes.		
PA5 - Heritage and Archaeology	To preserve and protect items of Aboriginal significance.	<p>The exclusion fencing to the rainforest buffer shall be carried out as part of the first stage works.</p> <p>Contractors involved in weed removal, revegetation, fencing and stormwater management shall be advised of their obligations under the NPWS Act 1974 and the NSW Heritage Act 1977. Should artefacts or sites of potential cultural significance be uncovered, work will cease and the NSW DECC will be contacted</p>	Prior to works commencing on site	Landowner / proponent
PA6 - Flora and Fauna	To minimise and manage any potential impacts on flora and fauna biodiversity.	<p>All works to be carried out in accordance with the recommendations of the Flora and Fauna Report (Appendix C of the Concept Plan Application) and the Vegetation Management Plan contained in Section 6 of this Application and the Gantt Sheet contained in Appendix PA-A..</p> <p>A temporary fence will be erected adjacent to the existing vegetation within Duchess Gully for protection from construction activity.</p>	Prior to works commencing on site	Landowner / proponent
PA7 - Water Cycle Management	To clearly define the areas required for future stormwater infrastructure and revegetation works, ensuring the maintenance of the existing groundwater conditions, to mitigate potential impacts on the Littoral Rainforest	Temporary fencing shall be erected around the future biofiltration unit locations to protect the proposed revegetation areas.	Prior to works commencing on site	Landowner / proponent
PA8 – Monitoring of Revegetation / Regeneration Works	To measure the effectiveness of the VMP works by benchmarking against the current condition of the buffer area.	Photomonitoring at the 11 locations shown on the aerial photograph contained in Appendix PA_B is to be undertaken on a six monthly basis during the establishment phase and the five year management phase.	Six monthly from commencement to end of management period.	Landowner

Section 8

Conclusion

The Stage 1 Project Application for the Environmental Works are generally associated with the SEPP 26 Littoral Rainforest, where all works will be undertaken to satisfy the aims and objectives of SEPP 26.

The proposed revegetation works are to be undertaken in accordance with the provisions of a Vegetation Management Plan (VMP).

The objectives of the VMP are to ensure protection of Littoral Rainforest No.116 mapped under SEPP No.26 by specifying the following control measures;

- fencing and vegetation buffering;
- bush regeneration treatments within and adjacent Littoral Rainforest No. 116, including weed control; and
- revegetation providing both protection of Littoral Rainforest No.116 as well as a meaningful extension to it.

The Stage 1 Project Application has been submitted to facilitate the early implementation of the revegetation measures well prior to the commencement of other development stages. This approach has been applied to protect and enhance the existing SEPP 26 Littoral Rainforest:

- Immediately improving the existing condition of the rainforest by the removal of the weeds along its western edge;
- Providing longer-term enhancement of the existing rainforest by increasing its width to length ratio;
- Ensuring that revegetation works are well established and fenced off prior to the commencement of other stages of the proposed residential, commercial and tourist project.

A final Voluntary Planning Agreement (VPA), to be attached to the Preferred Planning Report, will provide for the Environmental Works being undertaken as the first stage of the development.

The Stage 1 Project Application will facilitate the early implementation of the revegetation measures well prior to the commencement of other development stages. Not only will this approach protect and enhance the Littoral Rainforest, it will ensure that the future residents of the locality will be reassured of the landowner's commitment to ecologically sustainable human settlement.

Given the suitability of the site, the planning context outlined in this submission and the minimal environmental impacts, it is submitted that the proposal as set out in this submission can be supported by the Minister for Planning.