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PCU022937

KING + CAMPBELL

27 May 2011

The Director General
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

31st MAY 2011

ATTENTION: Mr Enguang Lee

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Dear Enguang

RE: MP 07_0010 – Environmental Assessment for Concept Plan and Stage 1 Project Application
Lot 4 DP 615261, Lot 1 DP 374315 and Part Crown Reserves R.82555 + R.754444, Ocean Drive Lake Cathie

We refer to our discussion today and our emailed submission dated 19 May 2011 and your email today. As requested we enclose herewith three (3) copies of the documents lodged being:

- Letter to the Department dated 19 May 2011;
- Biolink advice dated 9 May 2011;
- Updated Statement of Commitments;
- New exhibits O6E and O6F as well as updated/amended exhibits O8A, O8B and O8C;
- Vegetation Mapping from the Area 14 KPoM;
- Email advice from Biolink and Peter Parker Environmental Consultants; and
- Correspondence dated 15 April 2011 from PMHC to the Department.

Should you have any queries regarding the above matter please do not hesitate to contact the writer.

Yours sincerely
King & Campbell Pty Ltd

per Anthony Thorne.

Anthony J Thorne
Director

cc clients
encl As listed

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19 May, 2011

The Director General
Department of Planning and Infrastructure
23-33 Bridge Street
SYDNEY NSW 2000

ATTENTION: Mr Enguang Lee (via email: Enguang.lee@planning.nsw.gov.au)

Dear Enguang,

RE: MP 07_0010 - ENVIRONMENTAL ASSESSMENT FOR CONCEPT PLAN AND STAGE 1PROJECT APPLICATION
LOT 4 DP 615261, LOT 1 DP 374315 AND PART CROWN RESERVES R.82555 & R.754444, OCEAN DRIVE, LAKE CATHIE

We refer to our recent telephone conversation in relation to the subject application and in
particular the following matters associated with Duchess Gully:

1. Results of Stormwater Quality MUSIC modelling;

2. The Statement of Commitments and recommendations of the ICWMP; and

3. Status of Vegetation within the South Western (SW) corner of the Subject Property and on the adjoining western property.

We provide the following additional information for your consideration:

1. MUSIC Modelling Results for Pollutant Removal Efficiencies Adopted by PMHC

The project was modelled using MUSIC (Model for Urban Stormwater Improvement Conceptualisation) and the graphical representation of the MUSIC model (as included in the Environmental Assessment) is attached here for clarity (**Exhibit 08C, rev.C**). The Stormwater Concept Plan (**Exhibit 08A, rev.G**) has also been included to show the catchments, the detention and biofiltration locations and to correct an error in the north-western (NW) biofiltration basin. The biofiltration area for the NW catchment shown on Exhibit O8Ahas been amended to 1500m^2, and will be located within the stormwater detention basin. The overall footprint of the stormwater facilities in this location has not changed, nor has the data within MUSIC or DRAINS models.

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MUSIC Input Parameters

The areas of the sub-catchments modelled in MUSIC are categorised by land use and are shown in Table 1.Other input parameters are shown in Table 2 below.

Table 1: Areas of Western Sub-Catchmentsused as Inputs into Preliminary MUSIC Model

Catchment	Area (ha)
North-western sub-catchment	
Commercial	0.86
Medium Density Residential	1.37
Low Density Residential	5.73
Forest	2.51
North-western sub-catchment total	10.47
South – western sub-catchment	
Commercial	0.9
Medium Density Residential	1.25
Low Density Residential	7.36
South – western sub-catchment total	9.51

Table 2: Preliminary Input Parameters for MUSIC Model

Input Parameter	Input Value North-western sub-catchment	Input Value South-western sub-catchment
Biofiltration area	1000m²	1000m²
Surface area (incl.EDD)	1500m²	1500m²
Extended detention depth (EDD)	0.5m	0.5m
Seepage loss	5mm/hr	5mm/hr
Filter K_{sat}	90mm/hr	90mm/hr
Filter depth	0.45m	0.45m
Submerged Zone	0.45m	0.45m

Water Quality Objectives

The water quality objectives referred to in the Environmental Assessment (EA) as being met or exceeded are presented in Table 3 below, together with the MUSIC modelling results for each of the western sub-catchments.

Table 3: Treatment Train Effectiveness – Water Quality Targets and Preliminary MUSIC Modelling Results

Pollutant/Issue	Total suspended solids (kg/yr TSS)	Total Phosphorous (kg/yr TP)	Total Nitrogen (kg/yr TN)	Litter (kg/yr)	Coarse Sediment	Hydrocarbons, motor fuels, oils and grease
North-western sub-catchment					MUSIC does not model removal of coarse sediment. Biofiltration basins remove coarse sediment from stormwater through filtration processes and through the use of sediment forebays and/or vegetated swales or other design methods.	MUSIC does not model removal of hydrocarbons, motor fuels, oils and grease. Biofiltration systems are standard industry practice for the treatment of runoff from roads and associated residential areas. The biofiltration systems for this project are designed to handle flows up to the 3 month ARI peak. Studies have shown that removal of 80-95% of HCs is achievable.
Pollutant Load prior to treatment	11,600	23.7	172	1,510		
Pollutant Load after treatment	1,560	10.8	76.7	0		
Treatment Train Effectiveness	87% retention of average annual TSS load	54% retention of average annual pollutant load	56% retention of average annual pollutant load	100% retention		
South-western sub-catchment						
Pollutant Load prior to treatment	13,100	27.5	194	1,720		
Pollutant Load after treatment	1.730	11.6	85.7	0		
Treatment Train Effectiveness	87% retention of average annual TSS load	58% retention of average annual pollutant load	56% retention of average annual pollutant load	100% retention		
Retention Criteria required by PMHC						
IWCMP (Aug 2006)	50% retention of average annual load for particles ≤ 0.1mm	45% retention of average annual pollutant load	45% retention of average annual pollutant load	90% retention of average annual litter load > 5mm	80% retention of average annual load for particles ≤ 0.5mm	90% retention of average annual pollutant load
AUS-SPEC D-07 (Feb 2004)	80% retention of average annual load	45% retention of average annual pollutant load	45% retention of average annual pollutant load	100% retention of litter greater than 5mm for flows up to the 3 month ARI peak flow	100% retention of sediment ≥ 0.125mm for flows up to the 3 month ARI peak	No visible oils for flows up to the 3 month ARI peak flow
Meets or Exceeds Objectives	Yes	Yes	Yes	Yes	Yes	Yes

2. Recommendations relating to Duchess Gully referred to in the ICWMP and the Statement of Commitments

The EA noted the conclusions from the IWCMP as they relate to Duchess Gully (referred to in the IWCMP as Duchess Creek). These conclusions were incorporated into the Statement of Commitments as set out in Table 2 below.

Table 2: Duchess Gully – IWCMP Conclusions and Statement of Commitment reference

The conclusions drawn by the IWCMP for Duchess Gully in this location were as follows:	**Statement of Commitment reference**
▪ *A viable riparian corridor needs to be established to protect Duchess Creek from the impacts of development.*	CP16 – Water Cycle Management (Western catchments): South-western sub-catchment (Duchess Gully): bullet points 2, 3 and 6.
▪ *Various WSUD features will need to be designed to minimise nutrient loadings on the creek.*	CP16 – Water Cycle Management (Western catchments): South-western sub-catchment (Duchess Gully): bullet points 2, 4 and 5.
▪ *WSUD measures that lead to the reduction of flows into Duchess Creek should be implemented.*	CP16 – Water Cycle Management (Western catchments): South-western sub-catchment (Duchess Gully): bullet points 2 and 4.

3.Status of Vegetation within the South-Western Corner of the Subject Property and on the adjoining Western Property associated with Duchess Gully.

We refer to the Department's email dated 23 March, 2011 and our subsequent discussions. We enclose herewith the following information as an addendum to our EA and in response to the Department's request for clarification of the status of the vegetation associated with Duchess Gully in the Sw corner of the subject property and on the adjoining western property owned by St Vincent's Foundation (SVF).

- Emails from Dr Stephen Phillips of Biolink and Peter Parker of Peter Parker Environmental Consultants (PPEC) dated 28 March, 2011. The advices from Biolink and PPEC confirm the small patch of rainforest in the SW corner of the subject property is an EEC;

  Biolink confirm that the proposed treatment of the buffer to Duchess Gully in the SW corner as shown in **Exhibits O8Arev.G** and **O8Brev.C** (copies attached) is appropriate on the presumption that the area between the water management feature and the rainforest patch in question is planted out. **Exhibit O8B** includes details of the extent of the proposed revegetation work to be undertaken between the Biofiltration Basin and the existing riparian rainforest;

- Copy of our correspondence to Port Macquarie Hastings Council (PMHC) dated 8 April, 2011, requesting advice as to the Council's ongoing management regime for the Easement for Water Supply and Sewerage Pipelines adjoining the subject property's western boundary. (This correspondence is enclosed for information purposes).

- Copy of PMHC correspondence dated 15 April, 2011, to the Department confirming:
  - → that Council have sewerage and water infrastructure in the easement and wish to keep the easement clear of significant vegetation; and
  - → that Council did not believe there was any significant benefit to providing further planted buffer as it would afford no significant protection to the EEC.
- Copy of the Plan (**Exhibit 06E rev.C**) and Cross-Section (**Exhibit 06F rev.B**) of the proposed Western boundary edge treatment adjoining the existing easement and swamp oak forest on the adjoining SVF land that were forwarded to Biolink Pty Ltd on 29 April, 2011.
- Copy of correspondence (dated 9 May, 2011 and received 16 May, 2011) from Dr Stephen Phillips of Biolink Pty Ltd confirming:
  - → The swamp oak forest on the adjoining SVF property is considered to be an EEC (Swamp Oak Flood plain Forest on the NSW North Coast, Sydney Basin and South East Corner bioregions). Vegetation mapping prepared by Biolinkas part of the Area 14 Koala Plan of Management is attached confirming the above conclusions;
  - → The small patch of rainforest (about 750-800m^2) in the SW corner of the subject property has been determined by Biolink and PPEC to be a rainforest EEC;
  - → Biolink agree with PMHC that the Water Supply and Sewerage Easement approximately 9m wide effectively undermine the merit of an ecological buffer to the swamp oak forest;
  - → Biolink's preference is that from the western edge of the easement and for a distance of some metres into the swamp oak forest, dense plantings of Lomandra and Gahnia are established;
  - → The small area rainforest within the subject property is a poorly connected patch due to the easement separating it from vegetation to the north;
  - → Biolink support buffer measures that result in a smoothing and outwardly radiating expansion of the existing vegetation edge as a positive ecological outcome notwithstanding the constraint imposed by the easement;
  - → The water management feature may be advantageous in the buffer area by controlling nutrient input and minimising public access to the rainforest patch. The water management feature should be aligned with the proposed perimeter road; and
  - → The remaining area between the edge of the existing vegetation and the water management feature should be planted out in a manner compatible with rainforest patch and be subject to a Vegetation Management Plan (VMP).

In relation to the Vegetation Management Plan and the ongoing maintenance of the buffer to the rainforest patch on the subject property we advise as follows:

- The VPA for the Milland property defines Environmental Management Land (EML) as that land zoned E2 or E3. The SW buffer to the patch of rainforest will be zoned E3;
- The VPA places obligations on the landowner to Establish EML in accordance with a VMP approved by Council and dedicate the land as public reserve once Council is satisfied the EML has been satisfactorily established;

- The VPA requires the landowner to maintain the EML for 10 years in accordance with the provisions of the VMP;
- The VPA requires the landowner to pay a Management Contribution to fund a further 10 years of maintenance by Council; and
- **Exhibit O5B** – 'Indicative Staging Plan' confirms that the buffer area in the SW corner is intended to be established in Stage M2 (i.e.the first stage of residential development of the Milland property). The VMP for the establishment of the buffer area will therefore form part of the first PA/DA for residential development on the Milland Property.

We submit that the attached information provides the clarification requested by the Department in relation to:

- Results of Stormwater Quality MUSIC modelling;
- The inclusion of the recommendations of the IWCMP into the Statement of Commitments; and
- The Status of Vegetation in the subject SW corner and the adjoining western property and details of the proposed buffer and edge treatments. The buffer and edge treatments have also been reviewed and supported by Biolink from an ecological perspective on the basis of the constraints associated with the site and the location of the existing easement.

We have attached an updated Statement of Commitments – May, 2011, which has been amended to include:

- Amended **Exhibit O8Arev.G** – 'Stormwater Concept Plan'; and
- New **Exhibit 06E rev.C** and **Exhibit 06F rev.B** in relation to the western boundary edge treatment.

We trust the above additional information is of assistance and satisfactorily addresses the issues raised. Please do not hesitate to call should you require additional information.

Yours sincerely
King & Campbell Pty Ltd

Anthony Thorne

Anthony J Thorne

cc clients
encl Updated Statement of Commitments – May, 2011;
Exhibit O8A rev.G;
Exhibit O8Brev.C;
Exhibit 08C, rev.C;
Exhibit 06E rev.C;
Exhibit 06F rev.B;
Emails from Dr Stephen Phillips and Peter Parker of Peter Parker Environmental Consultants (PPEC) dated 28 March, 2011;
K+C correspondence to PMHC dated 8 April, 2011;
PMHC correspondence dated 15 April, 2011, to the Department of Planning and Infrastructure; and
Correspondence from Dr Stephen Phillips of Biolink Pty Ltd re adjoining vegetation.
Vegetation Map Excerpt Area 14 KPoM (Biolink)

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King & Campbell Pty Ltd
Attn: Mr. Tony Thorne
PO Box 243
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May 9, 2011

Dear Tony

I write in response to your letter of the 29th April 2011, and indirectly to associated matters raised in an e-mail from Mr. Enguang Lee (Dept. of Planning) dated 23rd March, 2011. My understanding upon consideration of both is that advice is required firstly regarding the status of vegetation along that part of Duchess Creek on adjoining lands owned by the St. Vincent's Foundation (SVF), and secondly in terms of the treatment of vegetation in the southwestern corner of the Milland & Seawide property, currently the subject of your interest for purposes of a Part 3A application.

Our vegetation mapping of the subject area referred to firstly identifies a linear stand of native vegetation that loosely follows the central upper catchment drainage line of Duchess Creek. As detailed in our vegetation map (Figure 2) accompanying the Area 14 Koala Plan of Management, the majority of this vegetation was classified by us as Swamp Oak Forest, our mapping further indicating (as indicated by double asterisk) that we considered this community to satisfy the physiognomic and floristic criteria supporting recognition as the Endangered Ecological Community (EEC) *Swamp Oak Floodplain Forest on the NSW North Coast, Sydney Basin and South East Corner bioregions*.

Towards the southern extremity of the Swamp Oak Forest (and where Duchess Creek traverses the southwestern corner of the Milland & Seawide property) we also mapped a small patch (ca 750 – 800m^2) of rainforest. We considered this community to satisfy the physiognomic and floristic criteria of the EEC *Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner bioregions*. I am aware that Mr. Peter Parker holds a slightly different view, considering the community to instead better constitute a form of riparian rainforest. Regardless, there is no dispute between Mr. Parker and I that the vegetation in question is rainforest; it is thus an EEC by any measure. In this regard I feel obliged to draw your attention to the last paragraph in Sec 5 of the NSW Scientific Committee's Final Determination regarding the listing of Lowland Rainforest in NSW North Coast and Sydney Basin bioregion, *vis*

"... Littoral Rainforest .....may replace Lowland Rainforest with increasing maritime influence. In both cases, the Determinations of these respective communities collectively encompass all transitional stands of rainforest."

Hence, in response to the matter raised in Mr. Enguang's e-mail of the 23rd March, I reiterate that view inherent in our mapping that both of the aforementioned vegetation communities are both EECs.

As we have consistently advocated in Area 14 and elsewhere, we would normally advise the need for an ecological buffer (excluding any APZ requirements) to be afforded what we generally term as Significant Vegetation Communities (e.g. EECs, regionally significant plant communities and riparian vegetation etc), notwithstanding that some circumstances may warrant lesser or greater buffer areas to achieve desired objectives. Along the greater length of the eastern boundary of the aforementioned Swamp Oak Forest on the adjoining SVF land, Port Macquarie Hastings Council maintains a water supply and sewage pipeline easement approximately 9m wide. In my opinion and consistent with the view of Council, this requirement effectively undermines the merit of an ecological buffer, instead offering the challenge of how best to minimise undesirable edge effects. Upon consideration and mindful that this issue relates to the SVF land more than it does the Milland & Seawide property, my preference would be to see dense plantings of genera such as *Lomandra* and *Gahnia* along the western edge of the easment and for a distance of some metres into the patch (sufficient to offer some light filtering and ground cover shade from the influence of morning sun).

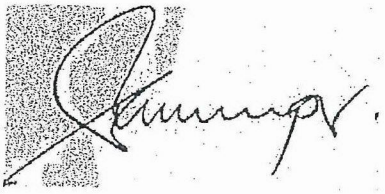
This brings us to the issue of the small rainforest patch in the southwestern corner of the Milland & Seawide property. Because it is effectively excised from that vegetation to the north by Council's easement requirement, it appears destined to remain a poorly connected patch. This does not mean however that it should be discounted as non-viable and therefore able to be offset (as may be determined using something like OEH's biometric assessment tool); because it <u>is</u> a rainforest EEC <u>and</u> in a relatively unusual location I would argue that it has intrinsic scientific value independently of either its conservation status or small patch size. In this regard I have noted that provision for sympathetic treatment and management of the patch is already contained in the western boundary edge treatment associated with the Part 3A application. In this context I would consider any measures that would result in a smoothing and then outwardly radiating expansion of the existing edge as consistent with achieving a positive ecological outcome notwithstanding the constraint imposed by the already *in situ* easment.

In conclusion I advise that I am also aware that a water management feature is also intended to be located within that area discussed in the preceding paragraph. Given existing constraints and that the area comprises cleared land anyway, I do not regard this to be a significant issue and acknowledge that it may even be advantageous in terms of both controlling nutrient input and minimizing access to the patch by the general public. In saying this I am also presuming that the water management feature will be aligned to the maximum extent possible with the proposed perimeter road, and that the

remaining area will be planted out in a manner that both recognises and is sympathetic to the small rainforest patch. Hence and in agreement with the e-mail advice on this matter that has been provided by Mr. Parker, I would support preparation of a Vegetation Management Plan for this small area, or inclusion of it into any existing VMP for the site, and would be more than willing to provide further advice on this matter if so required.

Please don't hesitate to contact me directly if you require any further information.

Yours Sincerely



Dr. Stephen Phillips
Managing Director/Principal Ecologist

Section 6

Revised Statement of Commitments – May, 2011

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.	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: • Exhibit 05A Revision G– Subdivision Concept Plan, King + Campbell • Exhibit 05B Revision C – Indicative Staging Plan, King + Campbell • Exhibit 06A Revision D – Landscape Concept Plan, King + Campbell • Exhibit 06B Revision D – Landscape Concept Detail, King + Campbell • Exhibit 06C Revision C – Landscape Concept Detail, King + Campbell • Exhibit 06E Revision C – Western Boundary Edge Treatment, King + Campbell • Exhibit 06F Revision B – Cross-Section Western Boundary Edge, King + Campbell • Exhibit 07 Revision C – Indicative Hilltop Village Architectural Treatment, King + Campbell • Exhibit 08A Revision G – Stormwater Concept Plan, King + Campbell • Exhibit 08B Revision C – Indicative South Western Biofiltration Basin Detail, 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	Preparation of each Project Application or Development Application	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		2010 • Appendix P – Heads of Agreement for VPA between land owners and PMHC (final VPA to be included in PPR).		
CP2 - Voluntary Planning Agreement (VPA)	To ensure the long-term management and maintenance of areas of open space and conservation.	The landowners are to enter into a Planning Agreement based on the following heads of agreement: • The establishment of environmental works and beach access as part of the Stage 1 Project Application; • 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. The Planning Agreement will be publicly exhibited with the rezoning Planning Proposal for the land.	In conjunction with the rezoning of the land	Landowner
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	All future PAs are to demonstrate consistency with:	Preparation of the PA's for future stages	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
	generally.	• 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; • 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.	• 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 all future lots to be provided with dual reticulation water supply • 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 Vinents Foundation)	The future project applications will ensure the provision of the following road and pedestrian networks, as established by the MOU: • 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 Vincent's 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; • Provision of public car park and local park adjoining the beach access	Preparation of the PA's for future stages	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		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.	• The future PA associated with Duchess Gully shall ensure that works are limited to protection and enhancement associated with Duchess Gully; • The biolilitration works adjacent to Duchess Gully shall be designed to avoid the disturbance of ASS by restricting excavation depths to no more than 2m below natural surface levels. Any works as a depth greater than 2m AHD in the Class 4 area will require an ASS management plan. • The ASS Management Plan shall be prepared in accordance with ASSMAC Guidelines.	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.	• At the issue of subdivision certificate and in perpetuity the developable portion of the site shall be managed as an inner protection area (IPA), as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bushfire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'; • A 10m APZ shall be provided within the lots in the north-west of the site, until such time as the threat is extinguished; • Water, electricity and gas are to comply with section 4.1.3 of 'Planning for Bushfire Protection 2006'; • Roads shall comply with section 4.1.3 (1) of 'Planning for Bushfire Protection 2006'; • Landscaping of the site shall comply with the principles of Appendix 5 of 'Planning for Bushfire Protection 2006'. • Asset Protection Zones shall be provided to the residential and tourist development from the Littoral Rainforest; • Defendable Spaces shall be provided to the commercial development; • 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. • A hydrant water supply shall be installed in accordance with the specifications of Australian Standard A.S 2419.2 - 2005. Hydrants shall	Preparation of the PA's for future stages	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		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. General: • Future DA's/PA's for class 1, 2, 3 and 9 buildings as identified by the Building Code of Australia shall be subject to separate applications under section 79BA and 100B of the EP & A Act and shall address the requirements of 'Planning for Bushfire Protection 2006'.		
CP13 - Geotechnical	To effectively manage any geotechnical limitations of the site.	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. 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. The following geotechnical investigations are to be undertaken: • 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 for foundation classification; and • Settlement analysis to determine future ground settlements beneath engineered structures (buildings, roads and services).	With the CC documentation	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
CP14 - Flooding	To effectively manage flooding, including compliance with any future climate change and sea level rise scenarios.	• 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; and • All future PA's and DA's for the site shall have regard to the provisions of the NSW Coastal Planning Guideline: Adapting to Sea Level Rise (DOP, August, 2010)	CC documentation Future PA's/DA's	Landowner / Developer Landowner / Developer
CP15 - Water Cycle Management (Eastern catchments)	To ensure maintenance of the existing groundwater conditions, to mitigate potential impacts on the Littoral Rainforest	General: • 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. • All stormwater runoff must be adequately treated at its source and/or diverted through the stormwater process designed for the site prior to the stormwater being discharged to surface water and groundwater sources; • The final design of the stormwater treatment system shall be forwarded to the LPMA for consideration/information. Additional works: Prior to the preparation of the Stage 2 PA, the following additional groundwater monitoring shall be undertaken, in accordance with Martens, 2010: • More rigorous geotechnical investigations and design will be required for the design of the recharge pits, including: o Establish a series of four (4) groundwater bores within the proposed revegetated buffer zone to document sub-surface conditions. o At each bore, further testing of saturated hydraulic conductivity in the underlying sand aquifer is to be undertaken. o Measurements of storativity/specific yield are to be made in order that the groundwater mounding from recharge pits can be minimised. o Each bore shall be instrumented for a period of six (6)	Stage 1 works With relevant CC Prior to the preparation of the Stage 2 PA	Landowner / Developer Landowner / Developer Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		months in order that long-term groundwater level fluctuations can be validated and incorporated into the design of the recharge pits. o Two (2) of the existing bores at higher elevations shall be instrumented for the same six (6) month period. • 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: o Bores to be located in either sub-catchments C2 or C3; and o 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: o Within the SEPP 26 forest; o Within the revegetation area; and o 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: o 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)		

No.	Objective	Commitment	Timing	Responsibility
		is minimised or avoided altogether within the SEPP 26 rainforest area. o 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). o 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. o Updated and appropriately supported designs of the stormwater recharge pit system.		
		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: • 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 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. • 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 'riffling' 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	Details to be provided with the relevant CC documentation	

No.	Objective	Commitment	Timing	Responsibility
		that groundwater flow is not redirected or permanently lowered. • On the lower slopes (below 12.5mAHD, 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. Groundwater Licences: • All groundwater licences must be obtained and associated works appropriately authorised prior to works commencing. • All works that intersect the aquifer shall be licensed by NOW prior to any work being carried out. This includes groundwater excavations within the groundwater aquifer, which includes, but is not necessarily limited to excavations for on-site detention basins, recharge pits, all monitoring and production bores (if any), wells and spear points. Therefore all Form A's associated with the construction of bores must be submitted to NOW at the time drilling is undertaken. • For all area on the site that requires dewatering, a water licence under Part 5 of the Water Act 1912 is to be obtained prior to commencement of work. The water licence application is to be accompanied by a groundwater and excavation monitoring program and acid sulfate soils contingency plan, developed to the satisfaction of NOW.	Prior to works commencing	Landowner / Developer
CP16 - Water Cycle Management (Western catchments)	To ensure that the post development water quality and quantity satisfy best practice guidelines.	North-western sub-catchment (Lake Innes): • 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. • The facility shall be designed with sufficient capacity to ensure post	Details to be provided with the relevant PA and CC documentation.	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		development flows are attenuated to pre-development levels for all storm events up to and including the 100 year ARI flood event; and • The top of water level within the basin is located below the road surface level in Ocean Drive (with allowance for freeboard. South-western sub-catchment (Duchess Gully): • A groundwater management plan and monitoring plan for the proposal must be prepared to NOW's satisfaction. • 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 2 PA and future relevant PA and CC documentation.	Landowner / Developer
CP17 - Heritage and Archaeology	To preserve and protect items of Aboriginal significance.	• 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. • Continued consultation with the registered local Aboriginal representatives shall be undertaken in the ongoing management of the Aboriginal Cultural Heritage values. Evidence of this consultation shall be collated and provided to the consent authority upon request. • In the event that surface disturbance identifies a new Aboriginal site, all works shall halt in the immediate area to prevent any further impacts to the object(s). A suitably qualified archaeologist and representatives of the local Aboriginal community shall be contacted to determine the significance (cultural and scientific) of the object(s). The site shall be registered in the Aboriginal Heritage Information Management System (AHIMS) (managed by DECCW) and the management outcome for the site included I the information provided to the AHIMS. The proponent	Stage 1 Project Application	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		shall consult with the Aboriginal community representatives the archaeologist ad DECCW to develop and implement management strategies for all objects/sites. • If human remains are located in the event that surface disturbance occurs, all works shall halt in the immediate area to prevent any further impacts to the remains. The NSW Police shall be contacted immediately. No action shall be undertaken until Police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent shall contact DECCW's Enviroline on 131555. No works are to continue until DECCW provide written notification to the proponent. • All reasonable efforts shall be made to avoid impacts to Aboriginal cultural heritage at all stages of the development works. If impacts are unavoidable, mitigation measures shall be negotiated with the local Aboriginal community and DECCW. All sites impacted shall have a DECCW Aboriginal Site Impact Recording (ASIR) form completed and submitted to DECCW AHIMS unit within 3 months of completion of the works. • An Aboriginal Cultural Education Program shall be devvloped for the induction of all personnel and contractors involved on the construction activities on site. Records are to be kept of which staff/contractors were inducted and when for the duration of the project. The program should be developed and implemented in collaboration with the local Aboriginal community.		
CP18 - Flora and Fauna	To minimise and manage any potential impacts on flora and fauna biodiversity.	<u>Littoral Rainforest</u>: Implement a Vegetation Management Plan as part of the Stage 1 Project Application, in order to : • Immediately improve the existing condition of the rainforest by the removal of the 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.	Stage 1 Project Application	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		The VMP shall include: • 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. <u>Duchess Gully:</u> • 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. • A Vegetation Management Plan shall be prepared in relation to the buffer area to Duchess Gully. The VMP shall be submitted with the DA/PA for Stage 2. <u>Stage 2 VMP:</u> • A Vegetation Management Plan shall be prepared in relation to the 'grassed area' on the western side of the exclusion fence. The VMP shall be submitted with the DA/PA for Stage 2. <u>Revegetation - general:</u> • Any proposed revegetation must be in accordance with best practice measures, specifications and principles as outlined Nationally accepted guidelines (where appropriate) – *Flora Bank Guidelines* (1998-2000), *Germplasm conservation guidelines for Australia* (Germplasm Working Group 1997) and revegetion manuals (e.g. Corr & Whyte 2003), using	Stage 2 DA/PA Stage 2 DA/PA	Landowner / Developer Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		suitbla qualified and experienced bush regenerators. Furthermore, any replanting of native species should use stock, seeds or other material of local provenance. • If seed and/or vegetative material from a threatened species or taxa that constitute an endangered ecological community that is outside the approved development footprint, then a licence under s91 of the Threatened Species conservation Act 1995 will be required.		
CP19 - Noise	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: • L Aeq 45dBA daytime internal noise; and • L Aeq 40dBA night time internal noise.	The final acoustic treatment along Ocean Drive will be consistent with the outcomes of the PMHC Ocean Drive Corridor Plan and Area 14 DCP. The deemed-to-satisfy treatment specified by Heggies will be a 2m high noise wall or fence 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/fence 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/m^2. Final details of the acoustic wall/fence are to be included in the PA/DA for Stage 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: • Single storey – Category 2 • Two storey – Category 2 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 • Two storey – Category 2 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 (The construction categories are outlined in AS 3671-1989, "*Acoustics - Road traffic noise intrusion - Building siting and construction*", as follows: • Category 1 – Standard construction; openings, including open windows	Construction of the noise wall shall be completed prior to the occupation of the affected residential premises. Details in relation to construction standards shall be provided with the Construction Certificate Application.	Landowner / Developer

No.	Objective	Commitment	Timing	Responsibility
		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).		
CP20 -The Environment	To ensure the on-going protection of the environment.	The landowners/developers shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, maintenance, decommissioning or rehabilitation of the project	Throughout duration of works	Landowner / proponent
CP21 – Plant and equipment	To ensure the safety of workers on site	All plant and equipment installed at the premises or used in connection with the proposal: • Shall be maintained in a proper and efficient condition; and • Shall be operated in a proper and efficient manner.	Throughout duration of works	Landowner / proponent
CP22 – Air	To protect air quality	All dust generating activities on the site must be managed in a proper and efficient manner to minimise dust emissions from the site.	Throughout duration of works	Landowner / proponent
CP23 - Water	To ensure maintenance of the water quality	Except as may be expressly provide by a licence under the *Protection of the Environment Operations Act 1997* in relation of the development, section 120 of the *Protection of the Environment Operations Act 1997* prohibiting the pollution of waters must be complied with on connection with the carrying out of the development. Soil and water management controls shall be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands during construction activities in accordance with the requirements outlined in *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004)	Throughout duration of works	Landowner / proponent
CP24 – Waste	To ensure the proper disposal of waste	All waste and fill materials, whether imported or generated on site, shall be assessed, classified, managed and disposed of in accordance with the *Waste Classification Guidelines* (DECC 2008). All waste and fill material removed from the site shall only be directed to a waste management facility lawfully permitted to accept the materials.	Throughout duration of works	Landowner / proponent

No.	Objective	Commitment	Timing	Responsibility
CP25 – Street tree planting	To ensure use of appropriate tree species within subdivision.	All future PA's/DA's shall incorporate street trees from the following list: • Tuckeroo (*Cupaniopsis anacardioides*); • Rosewood (*Dysoxylon fraserianum*); • Smooth Quandong (*Elaeocarpus obovatus*); • Broad-leaved Paperbark (*Melaleauca quinquinerva*); • Beach Alectryon (*Alectryon coriaceus*); • Coogera (Rose Tamarind) (*Arytera divaricata*); • Oyster Bay Pine (*Callitris rhomboidea*); • Hairy Rosewood (*Dysoxylon rufum*); • Guioa (*Guioa semiglauca*); and • Water Gum (*Tristaniopsis laurina*).	All future DA's/PA's	Landowner / proponent

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.	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: • 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)	To ensure the long term protection of Littoral Rainforest No.116 for future generations, through specifying the following control measures; • fencing and vegetation buffering;	All works within the Project Application site boundary shall be carried out in accordance with the VMP specification at Section 6. The Vegetation Management Plan will : • Immediately improve the existing condition of the rainforest through the	Stage 1 works	Landowner / proponent

No.	Objective	Commitment	Timing	Responsibility
	• 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.	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. The VMP will include: • 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.		
PA3 – Voluntary Planning Agreement	To ensure the long-term management and maintenance of areas of open space and conservation.	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: • 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	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.	During the exhibition period	Landowner / proponent

No.	Objective	Commitment	Timing	Responsibility
		Signage shall be erected adjacent to the pedestrian boardwalk to advise of the state significance of the rainforest and of its floristic makeup. Signage shall be placed at the edge of the littoral rainforest adjacent to each T-intersection to direct the public to the beach access point.		
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 Bushfire buffer purposes.	When undertaking work in accordance with VMP	Landowner / proponent
PA5 - Heritage and Archaeology	To preserve and protect items of Aboriginal significance.	The exclusion fencing to the rainforest buffer shall be carried out as part of the first stage works. 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	Prior to works commencing on site	Landowner / proponent
PA6 - Flora and Fauna	To minimise and manage any potential impacts on flora and fauna biodiversity.	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.. A temporary fence will be erected adjacent to the existing vegetation within Duchess Gully for protection from construction activity.	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

No.	Objective	Commitment	Timing	Responsibility
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
PA9 – Beach Access / Pedestrian Boardwalk	To protect the 'SEPP – Littoral Rainforest' and 'Littoral Rainforest' EEC and prevent further edge clearing / damage of this environmentally sensitive community.	General: Development, erection and all works associated with the construction of the pedestrian boardwalk through the mapped 'SEPP 26 – Littoral Rainforest' and 'Littoral Rainforest' EEC must only occur within the existing track footprint (i.e. 2.2m wide track), as shown on Exhibit PA06, sheet 1. Specific Requirements: • The boardwalk is to be raised by no less than 0.5m and constructed of hardwood and "Envirowalk mini mesh" treads or equivalent; • The proposed 'board and chain' beach access shall be replaced with holey belt rubber matting and hardwood timber guide rails; • Handrails / barriers shall be provided to the pedestrian boardwalk; and • The detailed design of the beach access shall be agreed to by PMHC prior to the issue of the CC.	During construction works With CC documentation	Landowner / proponent Landowner / proponent

ST VINCENT'S FOUNDATION
SUBJECT TO MP_06.0085 &
MP07_0001

LOT 1232
DP1142133

A

DUCHESS GULLY

DRAINAGE LINE

PROPOSED
CORRIDOR

PROPOSED
CORRIDOR

(A)

W

S

E

PROPOSED PERIMETER ROAD

A

MP_07.0010

LOT 1
DP374315

PRELIMINARY ONLY - DO NOT USE FOR CONSTRUCTION

K+C REF: L:\14898_MILLAND_SEAWIDE\Planning\WesternEECBufferReviewMar11\14898P_WesternEEC.dwg - A3(L)-Exhibit, 19- May- 2011, michaelw

LEGEND

- PROPERTY BOUNDARY
- (A) EXISTING EASEMENT FOR WATER SUPPLY AND SEWERAGE PIPELINES VARIABLE WIDTH (VIDE X.879674)
- E OVERHEAD ELECTRICITY
- EXISTING FENCE LINE
- S EXISTING Φ300mm SEWERAGE TRUNKMAIN
- W EXISTING Φ450mm WATER SUPPLY TRUNKMAIN
- CENTRELINE OF DUCHESS GULLY
- 1m CONTOURS (SOURCE PM-H COUNCIL GIS)

N

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REV.	DATE	DESCRIPTION
A	08.04.2011	ISSUED FOR INFORMATION
B	29.04.2011	MINOR AMMENDMENTS
C	19.05.2011	EXHIBIT NUMBER ADDED

DATUM: AHD SCALE: 1:1500 @ A3

0 37.5

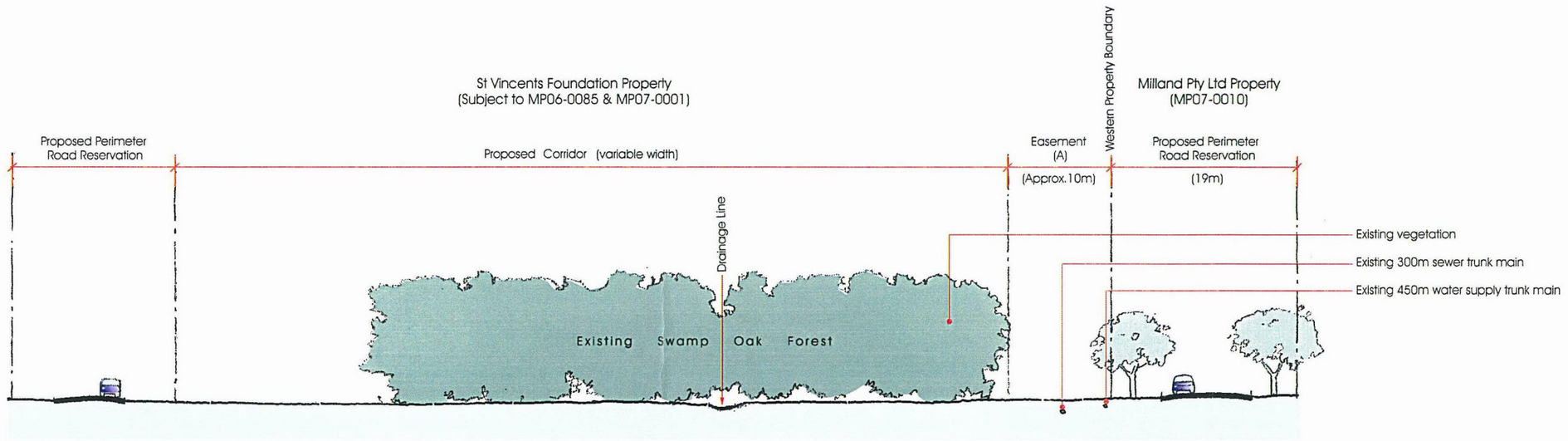
PROJECT NO:	4898
DA NO.:	
DESIGNED BY:	AJT
DRAWN BY:	MW
CHECKED BY:	AJT
DATE CREATED:	APRIL 2011

DRAWING TITLE: EXHIBIT 06E - WESTERN BOUNDARY EDGE TREATMENT

PROJECT: PART 3A CONCEPT PLAN APPLICATION LOT 1 DP374315 AND LOT 4 DP615261 OCEAN DRIVE, LAKE CATHIE

CLIENT: MILLAND PTY LTD & SEAWIDE PTY LTD

DRAWING NO:	SHEET:	REVISION:
4898P_WesternEEC	1	C



Indicative Cross Section AA
Scale 1:500

(A) Existing Easement for water supply and sewerage pipelines variable width (vide X879674)

L:\14898_MILLAND_SEAWIDE\Planning\WesternEECBufferReview\Mar11\14898_Exhibit06F_WesternEECBuffer.psd

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REV.	DATE	DESCRIPTION
A	26.04.2011	ISSUED FOR INFORMATION
B	16.05.2011	ISSUED FOR INFORMATION - EXHIBIT NO ADDED

DATUM: AHD SCALE: 1:1000

0

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PROJECT NO:	4898
DA NO.:	
DESIGNED BY:	DAT
DRAWN BY:	KW
CHECKED BY:	AJT
DATE CREATED:	APRIL 2011

DRAWING TITLE: EXHIBIT 06F: CROSS SECTION WESTERN BOUNDARY EDGE TREATMENT AND ADJOINING EXISTING EASEMENT AND SWAMP OAK FOREST ON ADJOINING PROPERTY

PROJECT: PART 3A CONCEPT PLAN APPLICATION LOT 1 DP 374315 AND LOT 4 DP 615261 OCEAN DRIVE, LAKE CATHIE

CLIENT: MILLAND PTY LTD & SEAWIDE PTY LTD

DRAWING NO:	SHEET:	REVISION:
14898_Exhibit06F_WesternEECBuffer.psd	1	B

WESTERN CATCHMENT MUSIC MODELLING BY KING + CAMPBELL. SEE EXHIBITS 08C TO 08F

BIOFILTRATION AREA 1500m² SEE DETAIL AT EXHIBIT 08B

DUCHESS

GULLY

BIOFILTRATION/ DETENTION AREA 210m²

SW

NW

C1

C2

C3

C4

BIOFILTRATION/ DETENTION AREA 560m²

BIOFILTRATION/ DETENTION AREA 750m²

BIOFILTRATION (1500m²) AND DETENTION BASIN 13 200m³

DETENTION PROVIDED TO ENSURE PRE AND POST DEVELOPMENT DISCHARGE REMAIN THE SAME TO EXISTING DRAINAGE CHANNEL

OCEAN DRIVE

ABEL TASMAN DRIVE

FIONA CRES

OCEAN DRIVE

MALAST

RAINBOW BEACH

MIDDLE ROCK POINT

EASTERN CATCHMENT MODELLED BY MARTENS & ASSOCIATES FOR STORMWATER QUALITY, DETENTION AND GROUNDWATER RECHARGE TO PROVIDE STORMWATER MANAGEMENT INSTALLATIONS THAT MITIGATE POTENTIAL IMPACTS ON GROUNDWATER AND SURFACE WATER CONDITIONS WITHIN OR NEAR TO THE SEPP 26 RAINFOREST. SEE EXHIBITS 08G TO 08J

RECOMMENDATIONS FOR TRENCHING AND ROADS WITHIN DEVELOPMENT AREA (MARTENS):

- On hillsopes excavation should preferably not exceed 2.5m below ground level.
- On lower slopes (below RL12.5m) excavations > 1m in depth (other than deep infiltration pits) should be plastic lined and backfilled with low permeability materials.
- Roads in low lying areas (below RL12.5m) to be constructed assuming groundwater table is close or within subgrade materials.

LEGEND

- EXTENT OF CONCEPT PLAN APPLICATION
- EXISTING CADASTRAL BOUNDARIES
- 12.5m EXISTING CONTOUR
- SEPP 26 BOUNDARY (AS GAZETTED)
- STORMWATER CATCHMENT BOUNDARIES
- BIOFILTRATION AND BIORETENTION BASINS TO INCLUDE VARIABLE OR EXCHANGEABLE ORIFICE OR WEIR PLATES TO ADJUST FLOW RATES TO THE RECHARGE PITS. BASINS WITHIN THE EASTERN CATCHMENT TO INCLUDE DEEP STORMWATER INFILTRATION PITS IN ACCORDANCE WITH MARTENS PLAN 12 SEDGE PLANTING IN BASIN
  - ISOLEPSIS NODOSA
  - CARESSA APPRESSA
- OVERLAND FLOW DIRECTION
- APPROX. DISCHARGE POINTS
- STORMWATER DETENTION BASIN WITH BIOFILTRATION (AS ABOVE)
- C1 - C4 EASTERN CATCHMENT
- REGENERATION AND REVEGETATION AREA
- GROUND RIFFLING OR MINOR CONTOURING WITHIN REVEGETATED AREAS TO ENSURE MAXIMUM INFILTRATION

CAUTION

This plan has been prepared for the purpose of a concept plan application. The information shown herein is only reliable for the above purpose. It should not therefore be used for any other purpose without verification.

N

K+C REF: L:\14898_MILLAND_SEAWIDE\Planning\ 4898P_Exhibits.dwg - A3(L)- Ex 8 SW, 19- May- 2011, michaelw

KING + CAMPBELL

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REV.	DATE	DESCRIPTION
A	23.03.2010	ISSUED FOR INFORMATION
B	28.06.2010	ISSUED FOR EA
C	07.07.2010	ISSUED FOR EA
D	19.07.2010	ISSUED FOR EA
E	11.10.2010	ISSUED FOR EA - OVERLAND FLOW DIRECTIONS ADDED
F	15.02.2011	ISSUED FOR EA - SUBMISSIONS REPORT
G	11.05.2011	ISSUED FOR EA - NW BIOFILTRATION AREA

DATUM: AHD SCALE: 1:4000 @ A3

0 100

PROJECT NO:	4898
DA NO.:	
DESIGNED BY:	ES/MT
DRAWN BY:	MW
CHECKED BY:	PJR
DATE CREATED:	FEB 2010

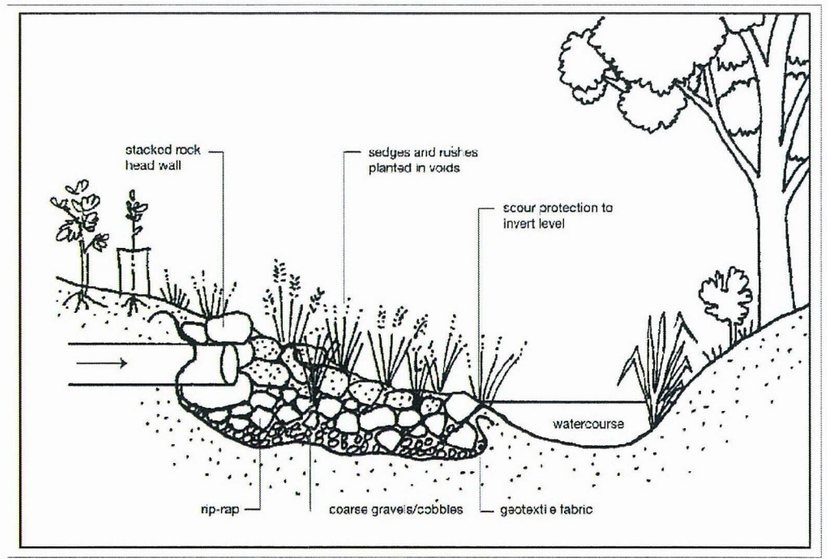
DRAWING TITLE: EXHIBIT 08A: STORMWATER CONCEPT PLAN

PROJECT: LOT 1 DP 374315 & LOT 4 DP615261 OCEAN DRIVE, PORT MACQUARIE

CLIENT: MILLAND PTY LTD & SEAWIDE PTY LTD

DRAWING NO:	SHEET:	REVISION:
4898P_Exhibits.dwg	1	G

PHOTO 1: EXAMPLE OF RECENTLY CONSTRUCTED BIOFILTRATION BASIN WITH A WIDTH OF APPROXIMATELY 4m



DETAIL 1: INDICATIVE OUTLET DETAIL (DECCW - GUIDELINES FOR CONTROLLED ACTIVITIES OUTLET STRUCTURES, FEBRUARY 2008)

LEGEND

- EXISTING CADASTRAL BOUNDARIES
- EASEMENT
- TOP OF BANK
- PMHC ALS 1M CONTOURS
- S — SEWER MAIN
- W — WATER MAIN
- REVEGETATION TO BE UNDERTAKEN IN ACCORDANCE WITH STAGE 2 VEGETATION MANAGEMENT PLAN
- FOREST (RIPARIAN)
- BIOFILTRATION BASIN - SEDGE PLANTING IN BASIN - ISOLEPSIS NODOSA - CARESSA APPRESSA

CAUTION

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K+C REF: LN14898_MILLAND_SEAWIDE\Planning\4898P_Exhibits.dwg - A3(L)- Ex 8 Detail, 24- Feb- 2011, kmw

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REV.	DATE	DESCRIPTION
A	07.07.2010	ISSUED FOR EA
B	14.10.2010	ISSUED FOR EA
C	15.02.2011	ISSUED FOR EA - SUBMISSIONS REPORT

DATUM: AHD SCALE: 1:1000 @ A3

0 25

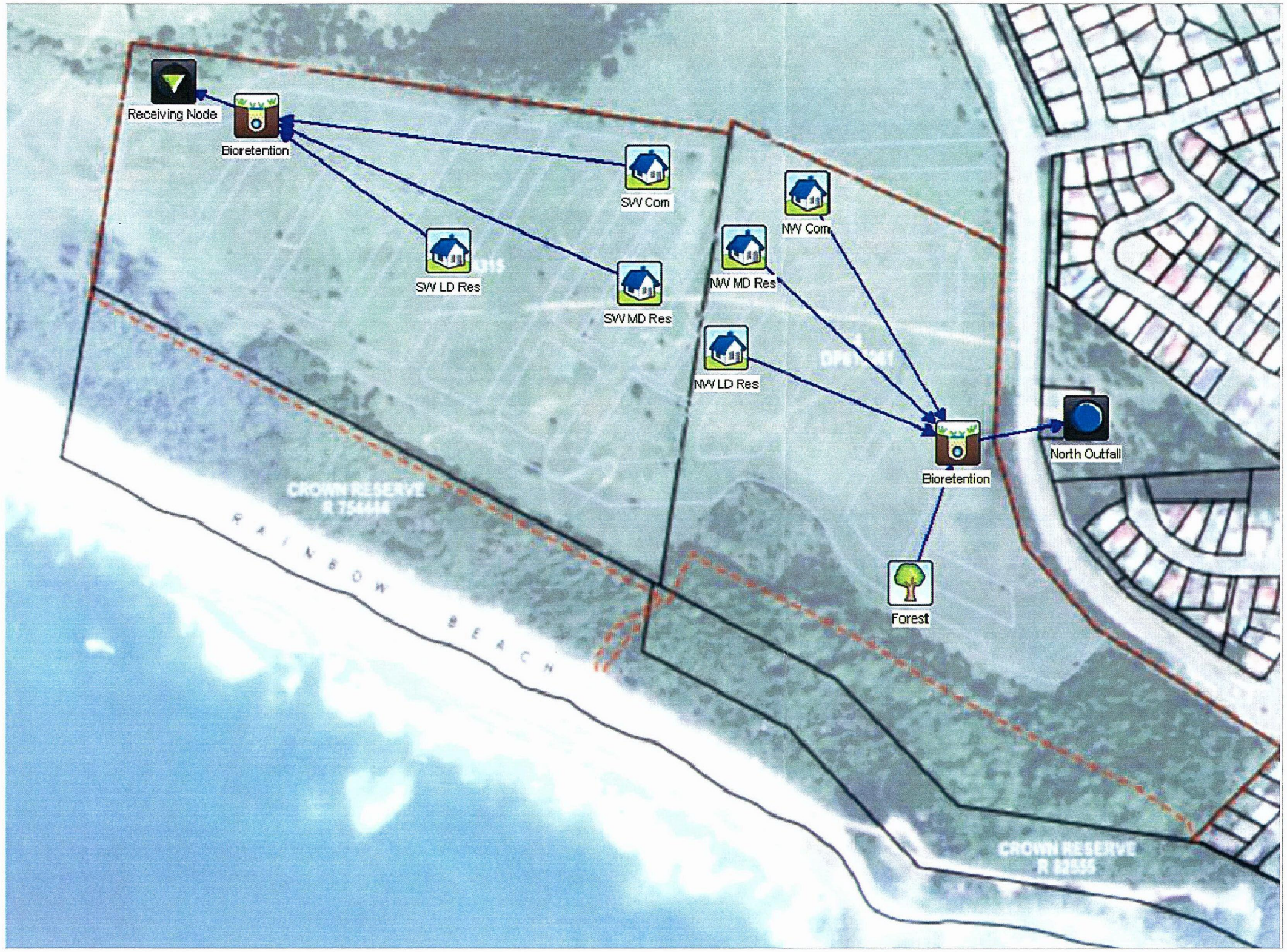
PROJECT NO:	4898
DA NO.:	
DESIGNED BY:	PJR
DRAWN BY:	MW
CHECKED BY:	PJR
DATE CREATED:	FEB 2010

DRAWING TITLE: EXHIBIT 08B: INDICATIVE SOUTH WESTERN BIOFILTRATION BASIN DETAIL

PROJECT: LOT 1 DP 374315 & LOT 4 DP615261 OCEAN DRIVE, PORT MACQUARIE

CLIENT: MILLAND PTY LTD & SEAWIDE PTY LTD

DRAWING NO:	SHEET:	REVISION:
4898P_Exhibits.dwg	2	C



CAUTION

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REV.	DATE	DESCRIPTION
A	06.07.2010	ISSUED FOR INFORMATION
B	07.07.2010	ISSUED FOR EA
C	14.10.2010	ISSUED FOR EA

DATUM: AHD SCALE: NOT TO SCALE

PROJECT NO:	4898
DA NO.:	
DESIGNED BY:	ES/MT
DRAWN BY:	MW
CHECKED BY:	PJR
DATE CREATED:	FEB 2010

DRAWING TITLE: EXHIBIT 08C: WESTERN CATCHMENTS MUSIC MODEL SETUP POST DEVELOPMENT

PROJECT: LOT 1 DP 374315 & LOT 4 DP615261 OCEAN DRIVE, PORT MACQUARIE

CLIENT: MILLAND PTY LTD & SEAWIDE PTY LTD

DRAWING NO.	SHEET:	REVISION:
14898_DrainsData.dwg	3	C

Area 14 KPoM

Study area

Vegetation Communities

- Banksia Shrubland
- Bbutt - Twood - Nbark
- Brush Box
- Dry Blackbutt (Sand)
- Fore Dune Complex
- Grey Ironbark - Grey Gum
- Littoral Rainforest**
- P'bark - S/Mahogany - S'Oak**
- Sclerophyll Forest + Plantings
- Swamp Oak**
- Unknown**
- Water Body

Note: vegetation communities highlighted with a double asterisk (**) are also Endangered Ecological Communities for purposes of the Threatened Species Conservation Act 1995.

N
W E
S

Figure 2. Vegetation Communities

Cadastre supplied by Hastings Council.
Vegetation mapping based on 2005 1:16000 photography.

BIOLINK PTY LTD
ECOLOGICAL CONSULTANTS
PO BOX 196 UKI NSW 2484
TEL: 02 6672 6966 FAX: 02 6672 6077
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From: "Steve Phillips" <steve@biolink.com.au>
To: "Tony Thorne" <tonyt@kingcampbell.com.au>
Cc: "'Peter Parker'" <peterp@mullum.com.au>; "Carmen Watts" <carmenw@kingcampbell.com.au>
Sent: Monday, 28 March 2011 2:51 PM
Subject: RE: 14898 Milland & Seawide Part 3A & Stage 1B Area 14

Hello Tony, Peter & Carmen
I have read through Peter's report/supplementary information. Without pre-empting a response from Peter, there appears little doubt (based on what I have read) that we would both agree to the patch being called "rainforest" of one form or another. Couldn't find a plant species list for the community in Appendix C of Peter's report so was unable to objectively evaluate the patch in terms of which rainforest sub-alliance it may best be described as; there is some danger in doing so however because of its small size. Regardless of what the sub-alliance is – as "rainforest" it would generally fall into one or the other of the various "rainforest" EECs. This begs the question of how the issue should be resolved for DoP's purposes. Based on the maps Tony provided, I am comfortable with the proposed treatment of the area, presuming that the area between the patch in question and the water management feature could/would be planted out.
Will call to discuss.
Regards
Steve

Steve Phillips | B.Sc.(Hons), Ph.D., FEIANZ
Managing Director/Principal Ecologist
Biolink Ecological Consultants
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F: 02 6679 5523
M: 0409778633
www.biolink.com.au

From: "Peter Parker" <peterp@mullum.com.au>
To: "Tony Thorne" <tonyt@kingcampbell.com.au>
Sent: Monday, 28 March 2011 3:05 PM
Subject: Fw: 14898 Milland & Seawide Part 3A & Stage 1B Area 14

Tony:

Regardless of whether the veg along the some 80 m of Duchess Creek within the property is LRF or Subtropical RF it is still an EEC as subtropical RF was subsequently listed as an EEC following review by the NSW Scientific Committee. There appears little point debating vegetation classification further.

The main issue is protection (buffering), enhancement (reafforestation) and management (weed control and monitoring). I would anticipate that a condition of consent would include the requirement for a vegetation management plan which addresses these matters.

Regards

Peter

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ABN 11 236 901 601

PORT MACQUARIE
HASTINGS

15 April 2011

Our ref: 34-2009-0004
Your ref:MP07_0010

Director – Regional Projects
Department of Planning
GPO Box 39
SYDNEY NSW 2001

ATT: Mr Enguang Lee

Dear Sir

Response to Submissions Report: Concept and Project Applications for land at Ocean Drive, Lake Cathie and described as Lot 1 DP374315 and Lot 4 DP615261

I refer to your letter dated 21 March 2011 inviting Council to respond to the submissions report prepared by King and Campbell. I am also responding to King and Campbell's letter to the Council dated 8 April 2011 regarding the easement and its implications on providing a vegetated buffer to the swamp oak flooded forest (SOFF) ecologically endangered community (EEC) on the adjoining property.

Submissions report

Council is generally satisfied that the issues raised by the Department in relation to the Project and Concept Plan applications have been addressed in the proponents response with the exception of the following issues:

Additional rainforest revegetation

Council maintains that it prefers to have the proposed fence immediately alongside the pedestrian path, rather than setback within the area to be revegetated. This has been raised with the proponent on several occasions. Their arguments have been that there is no point in constructing one fence during the stage 1 works and then another at the stage 2 works or if the fence is constructed in Council's preferred position it will be damaged or removed during the construction of the road and pedestrian path. Council does not expect the stage 1 works to be fenced. The fencing can occur at anytime before the first residential subdivision. Therefore it can be done at the time of the road and pedestrian path construction.

The purpose of the fencing is to deter human intrusion and also to discourage other impacts such as tree removal, damage to vegetation, weed invasion and rubbish dumping. At some point the fence will require maintenance and it is illogical that the established rainforest be damaged in order to undertake the work. The fence is far more susceptible to deliberate damage if it is hidden behind 7m of vegetation than if it is visible.

Council agrees that the requirement for the fence to include deterrent measures such as a 'single string of barbwire' as described in its response dated 22 December 2010 may not be appropriate in this location. Council withdraws this requirement but reiterates that any fence in this location must contribute to the amenity of the streetscape.

Domestic animals, particularly cats will overcome most fences and there will be points where domestic animals can enter the littoral rainforest. The 100mm gap under the fence is to be maintained for the movement of native animals and in particular to prevent entrapment.

Whilst it is noted that Exhibit 06D rev D notes *"Stage 2 revegetation (littoral rainforest species)"*, no further detail has been provided and the plan does not reflect the intent. Council does acknowledge the proponents commitment 'CP18 – Flora and Fauna' that a *"Vegetation Management Plan shall be prepped in relation to the 'grassed area' on the western side of the exclusion fence. The VMP shall be submitted with the DA/PA for Stage 2."* The plan as it exists should not infer that Council approves or otherwise supports the "grassed area" option with a fence along the edge of the stage 1 works.

Height of Village Centre

I refer to the Department's phone call to confirm Council's support of the proposed 14.5m height maximum (up to 4 storeys) for the village centre that is greater than the 2-3 storey built form recommended in the Masterplan and the 2-3 storey recommendation of the Coastal Design Guidelines for new coastal villages.

The key views potentially affected are to North Brother Mountain from Ocean Drive and east from Rainbow Beach. The view analysis prepared as part of the Environmental Assessment illustrates that North Brother Mountain will maintain its prominence in the landscape as viewed by southbound traffic and the hill top village will not be visible from the Rainbow Beach.

Council reviewed the indicative hilltop village architectural treatment concept plan, the hilltop village landscape concept plan, the view analysis and housing density presented in the EA. It is considered an appropriate built form for the site subject to high quality building and urban design. The increased height will help support the proposed mixed use, tourist and residential accommodation land uses and helps to achieve the desired precinct housing density.

Noise walls

CP 19 – Noise. The reference to the following statement needs clarification:

> *"The deemed-to-satisfy treatment specified by Heggies will be a 2m high noise wall or fence constructed as the rear boundary fence for all residential allotments that directly adjoin the Ocean Drive road corridor, as exhibited on Exhibit 05A.*

The noise wall/fence shall be continuous for its full length and the nominal mass of the material used in its construction should not be less that 15kg/m^2. Final detail of the acoustic wall/fence are to be included in the PA/DA for stage 2."

The 2m wall is not a *'deemed-to-satisfy'* noise solution. It is an engineering response to noise only and does not reflect Council's expectations for the Ocean Drive corridor. Council does note the proponents commitment (CP19) *"The final acoustic treatment along Ocean Drive will be consistent with the outcomes of the PMHC Ocean Drive Corridor Plan and the Area 14 DCP."*

Buffer to EEC on the adjoining SVF property

Council received a submission from King and Campbell referring to the easement for water supply and sewerage pipelines and its implications for providing a buffer to the SOFF EEC that is located on the adjoining property.

Council can confirm that it does have sewerage and water infrastructure within the easement. For maintenance purposes it is preferred to keep this easement clear of significant vegetation. In this instance, Council does not believe there is any significant benefit to providing planting for the remainder of the buffer width as it will afford no significant protection to the EEC from edge effects.

Thank you for the opportunity to provide comment on the submissions report. Should you require further information please do not hesitate to contact Rob Corken on telephone number 6581 8111 or by email on robert.corken@pmhc.nsw.gov.au.

Yours sincerely

Matt Rogers
Director – Development and Environment

cc:
King and Campbell
PO Box 243
PORT MACQUARIE NSW 2444