3 evolving the concept plan

3.1 OPPORTUNITIES & CONSTRAINTS

The significant opportunities and constraints relating to the site are set out below based on the background studies carried out and summarised in the previous section.

Constraints include:

- some minor acid sulphate soil issues
- need to respond sensitively to Aboriginal archaeology sites adjacent to development areas
- need to protect development from fire and flood risks
- need to protect wetlands and water quality
- need to conserve threatened species habitats and endangered ecological communities (particularly swamp forest, estuary and wetland communities)
- need to maintain habitat corridors and linkages
- need to regulate Highway access
- need to provide utilities and services

Opportunities include:

- Conserving over 73% of the site (principally the high value swamp forest, estuary and wetland communities), providing a sustainable and permanent ongoing management regime at no cost to the public
- Total water cycle management to harvest rainwater and treat stormwater in bio-swales prior to release into wetlands and creeks
- Provision of diverse housing types in an area of high quality and amenity
- Potential to create a model coastal development combining development and conservation objectives
- Capacity to create a "community" in a prime coastal location with excellent access to beach and conserved/maintained coastal environment

The area proposed for development (less than 25% of the site) was informed and determined by the background studies. The precise edges of development were made in direct consultation with the consultant biologists and reviewed in order to improve environmental performance.These have been further amended in the context of the Sainty Report (see section 3.6 of this report).

Site development and management processes were also informed by background studies leading to very high standards of Water Sensitive Urban Design (WSUD), landscape conservation and building design control in order to deliver the vision documented in this Concept Plan.

Fig 3-1 sets out the site analysis, which informed the Concept Plan.

3.2 SITE ANALYSIS

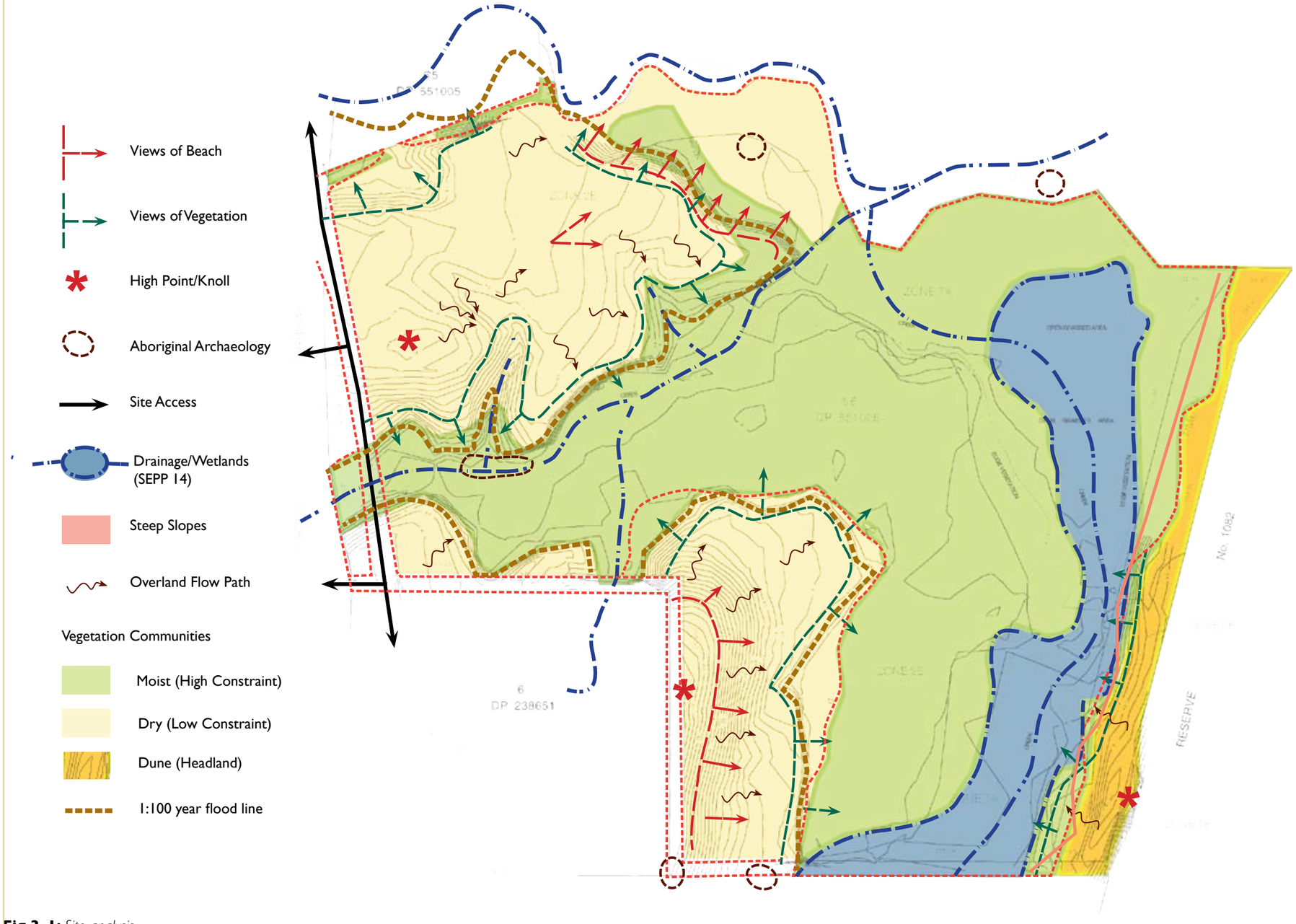


Fig 3-1: *Site analysis*

3.3 DELINEATED DEVELOPMENT AREAS

A review of the development constraints indicates that it is possible to develop certain areas of the site which are appropriately zoned and are not severely constrained, and in the process conserve the highest value areas and establish an ongoing and sustainable management regime over the areas to be conserved.

This would result in a residential development area of less than 23 ha (about 22.5%) and the conservation of about 75ha (about 73%) of the 102ha site.

The plans on the following page indicate early development options which utilise a greater portion of the elevated portions of the site (Concept Plan A) and previous Master Plan Concept (Concept Plan B).This plan is further reviewed in this section and a revised Concept Plan has resulted (Concept Plan C - The Proposal).

LEGEND

Potential Development Areas

Fig 3-2: *Development opportunities*

3.4 CONCEPT OPTIONS

Fig 3-3: *Concept Plan A*

Concept Plan A was the original concept which largely incorporated the information provided in the background studies.

Fig 3-4: *Concept Plan B*

Concept Plan B was amended to expand the southern E-W corridor.

Concept Plan C shows further revision based on the Sainty Report to further expand northern and southern E-W corridors and to create larger setbacks generally to the edge slopes of the more elevated areas.

Fig 3-5: Concept Plan C

3.5 DIRECTOR GENERAL ENVIRONMENTAL ASSESSMENT REQUIREMENTS (DGRs)

Attachment 1: *Director General's Environmental Assessment Requirements*
Section 75F of the Environmental Planning and Assessment Act 1979

		COMMENT
Application number	05_0064	
Project number	Concept Plan for the residential subdivision of the land into 378 lots	This application (November 2007) will yield 300 lots (referred as "dwellings") - 21% less than the original proposal.
Location	Lot 66, DP 551005, Pacific Highway, Moonee Beach	
Proponent	Hillview Heights Estates Pty Ltd	
Date issued	20 October 2006	
Expiry date	Two (2) years from the date of issue	
General requirements	The Environmental Assessment for the Concept Plan must include: 1. An executive summary; 2. An outline of the scope of the project including: • any development options; • justification for the project taking into consideration any environmental impacts of the project, the suitability of the site and whether the project is in the public interest; and • outline of the staged implementation of the project if applicable. 3. A thorough site analysis and description of the existing environment; 4. Consideration of any relevant statutory and non-statutory provisions; 5. An assessment of the potential impacts of the project and a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures to be implemented to minimise any potential impacts of the project; 6. The plans and documents outlined in Attachment 2; 7. A signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading; and 8. An assessment of the key issues specified below and a table outlining how these key issues have been addressed.	This information forms the subject matter of this report.

KEY ISSUES	The Environmental Assessment must address the following key issues:		COMMENT
1. Subdivision Design and Layout	1.1	The proposed subdivision of the land should be consistent with 'Moonee Waters Environmental Constraints and Development Potential Map'. Should the Proponent propose development beyond future development potential areas, then suitable justification and sound technical arguments are required	The proposed subdivision is not consistent with the 'Moonee Waters Environmental Constraints and Development Potential Map' by Sainty but fully justifies the variation and indicates that environmental objectives can still be achieved (see section 3.6 "Environmental Constraints Analysis" and Appendix B " Response & Justification Report" for full response).
	1.2	Demonstrate that the subdivision design and layout considers the Coastal Design Guidelines for NSW (2003), in particular connections to existing and planned urban areas.	Coastal Design Guidelines accommodated. See "Executive Summary" page vii on this report.
	1.3	Provide environmental buffer zones to areas of conservation significance. A degree of flexibility can be considered to allow a suitable subdivision design outcome, subject to justification, including offsets elsewhere on the site.	See discussion in section 3.6.2 "The Need for Environmental Buffers" and Appendix B " Response & Justification Report", section 6.3.
	1.4	Identify areas to be dedicated for public purposes and/or areas to be managed under Community Title	See section 3.8.3 "Management Regime" and Figure 3.15.
2. Flora and Fauna	2.1	Outline measures for the conservation of animals and plants and their habitats within the meaning of the Threatened Species Conservation Act 1995 and Fisheries Management Act 1994.	EECs and habitat for threatened species substantially conserved and managed in perpetuity (see section 3.6 "Environmental Constraints Analysis" and Appendix A "Moonee Waters Flora & Fauna Assessment Report", section 8.2 and Appendix B " Response & Justification Report"
	2.2	Outline measures for the conservation of existing wildlife corridor values and/or connective importance of vegetation on the subject land, including areas identified in the Sainty report.	Complies. See discussion in section 3.6.3 "Regional Context and Significance of Vegetation on the Site", Appendix A "Moonee Waters Flora & Fauna Assessment Report", section 9 and Appendix B " Response & Justification Report", section 11 and 12.
	2.3	Address the relevant controls within Council's Koala Plan of Management.	Done. See Appendix A "Moonee Waters Flora & Fauna Assessment", section 8.9 and Appendix B " Response & Justification Report", section 22.
3. Conservation Areas and Reserves	3.1	Identify conservation areas within the site having regard to the Sainty report and the strategies and recommendations of the Estuary Management Plan for Moonee Creek (or draft Estuary Management Plan for Moonee Creek).	Conservation Area identified and addressed - see section 3.6 "Environmental Constraints Analysis", Appendix A "Moonee Waters Flora & Fauna Assessment Report", section 9, Appendix B "Response & Justification Report", section 12 and 16. Variations to the Sainty report are proposed and justified.

KEY ISSUES	The Environmental Assessment must address the following key issues:		COMMENT
	3.2	Address long term management and maintenance of these areas, including ownership and control, rehabilitation, bushfire and vegetation management.	Done. See section 8.1 "Community Title & Other Procedures" and Appendix B "Response & Justification Report".
	3.3	Address any potential impacts on adjoining public reserves including the Coffs Coast Regional Park, Green Bluff Crown Reserve and Solitary Islands Marine Park.	No impact. See Appendix A "Moonee Waters Flora & Fauna Assessment Report", section 6, Appendix B "Response & Justification Report" Section 10.
4. Coastal Zone, access and impacts	4.1	Demonstrate the management of the coastal zone will be in accordance with the principles of ecologically sustainable development.	It will be. See chapter 2 "Background Studies" section 2.2, Appendix B "Response & Justification Report" and Appendix C "Moonee Waters' Coastline Hazard Definition", section 7 and 8.
	4.2	Protect existing public access to and along the beach and coastal foreshore and provide, where appropriate, new opportunities for controlled public access.	Done. See chapter 4 "Developing Masterplan", section 4.7 and Appendix A "Moonee Waters Flora & Fauna Assessment Report", section 9 and Appendix B " Response & Justification Report", Section 11 and 12.
	4.3	Address impacts of access to and any development of the coastal foreshore; and identify measures to mitigate and control those impacts including uncontrolled access and cleaning of vegetation.	Satisfied. See section 8.1 "Community Title & Other Procedures", Appendix A "Moonee Waters Flora & Fauna Assessment Report", section 9 and Appendix B " Response & Justification Report", Section 11 and 12 . Access controlled and managed. Conservation Areas conserved and managed.
5. Water Cycle Management and Impact on Watercourses	5.1	Address any impacts on the water quality of surface and groundwater, and on the ecology, waters and estuarine environments, of Sugar Mill and Moonee Creeks, wetlands, and waters of Solitary islands Marine Park and demonstrate that where will be no net increase in nutrient and pollutant loads.	None. See chapter 2 "Background Studies", section 2.3 and Appendix D "Moonee Beach Water Management Report Subdivision DA", section 9.3, section 10.2.1 and section 10.2.2 for state of the art water cycle management.
	5.2	Address relevant strategies and recommendations of the Estuary Management Plan for Moonee Creek (or draft Estuary Management Plan).	Done. See Appendix B " Response & Justification Report", Appendix D "Moonee Beach Water Management Report Subdivision DA", section 10.2.2.
	5.3	Outline measures for Integrated Water Cycle Management (including stormwater drainage) based upon Water Sensitive Urban Design principles.	Done. See Chapter 2 "Background Studies", section 2.3 and Appendix D "Moonee Beach Water Management Report Subdivision DA", section 5 to 9 and 10.2.3
	5.4	Address potential impacts of formal and informal access to watercourses, wetlands, creeks and estuaries (such as for recreational use, including ramps and jetties), and identify measures to avoid, ameliorate or compensate impacts.	To be developed with Environmental Management Plan and Development Application: See Conservation Area Management Plan (CAMP) in Appendix B.
	5.5	Liaise with the Department of Natural Resources and Department of Primary Industries/Fisheries in relation to any requirements for water use, water management and work within 40m of the top of the bank of rivers and streams, and free passage of fish in waterways.	Done. See Appendix A "Moonee Waters Flora & Fauna Assessment Report", section 8.7 and 8.8, Appendix B " Response & Justification Report", Section 14, 15 and 16 and Appendix D "Moonee Beach Water Management Report Subdivision DA", section 10.2.5. No significant implications.
6. Hazard Management and Mitigation	6.1	Address the requirements of Planning for Bush Fire Protection 2001 (RFS), in particular the provision of bushfire asset protection zones (APZ) in accordance with appropriate vegetation classification, locations (outside proposed conservation areas and buffer zones); provision of emergency access and egress; water supply, and measures for fuel management and maintenance.	Able to be accommodated. See chapter 2 "Background Studies", section 2.7, section 3.7, Appendix A "Moonee Waters Flora & Fauna Assessment Report", section 9, Appendix B " Response & Justification Report", section 11, and Appendix G Bushfire Protection Assessment For the Proposed Community Title Residential Subdivision.
	6.2	Address the requirements of relevant flooding data in relation to the subdivision design and layout and minimum site and floor levels. This should include consideration of the impacts of predicted sea and level rise.	Done. See Chapter 2 "Background Studies", section 2.2 and 2.3, Appendix C "Moonee Waters' Coastline Hazard Definition", section 6.5 and 6.6 and Appendix D "Moonee Beach Water Management Report Subdivision DA", section 8.1.1.
	6.3	Identify any areas of contamination on site and appropriate mitigation measures to ensure these can be managed.	None. See chapter 2 "Background Studies", section 2.5 and Appendix F "Lot 66 DP 551005 Pacific Highway, Moonee Report on Engineering Infrastructure (Geotechnical and Services)", section 2.2.2.
	6.4	Identify the presence and extent of acid sulphate soils on the site and appropriate mitigation measures.	Not a major issue - addressed. See chapter 2 "Background Studies", section 2.5 and Appendix F "Lot 66 DP 551005 Pacific Highway, Moonee Report on Engineering Infrastructure (Geotechnical and Services)", section 2.2.3.
	6.5	Address coastal hazards and the provisions of the Coastline Management Manual.	No major constraints. See chapter 2 "Background Studies", section 2.2, Appendix C "Moonee Waters' Coastline Hazard Definition", section 6 and 8.
7. Traffic Management and Access	7.1	Prepare a 'Traffic Impact Study' in accordance with the RTA's Guide to Traffic Generating Development, which addresses but is not limited to the following matters:	
		• The RTA's Coffs Harbour Pacific Highway Planning Strategy.	Done . See 2 "Background Studies", section 2. 8 and Appendix H, section 1.

KEY ISSUES	The Environmental Assessment must address the following key issues:				COMMENT
		• Access to the development and provision of a local collector road between Moonee Beach and Split Solitary Road.			Provided. See "The Concept Plan" figure i-1. This development provides a key connecting road between Moonee Beach and Sapphire Beach.
		• No new connections to the highway and legal and physical closure of existing access.			See "The Concept Plan" figure i-1. (Temporary access only, until N-S link road is constructed)
		• The capacity of the road network to safely and efficiently cater for the additional vehicular traffic generated, including impacts on Moonee Beach Road and Split Solitary Road junctions with the Pacific Highway.			Capacity OK. Not an issue. See Appendix H "Traffic Report", section 2.
8. Noise	8.1	Address potential noise impacts, in particular road traffic noise, for future residents and appropriate mitigation measures this should include consideration of the impacts of the RTA's planned upgrade of the Pacific Highway.			Significant setback 30-50m plus. Heavily vegetated buffer. See Appendix I - Report on Qualitative Traffic Noise Intrusion Assessment (Noise Report) on recommended treatment.
9. Infrastructure Provision	9.1	In consultation with relevant agencies, address the existing capacity and requirements of the development for sewerage, water, electricity, telecommunications, waste disposal and gas. Identify staging, if any, of infrastructure works.			Done. See chapter 2 "Background Studies", section 2. 6 and Appendix F "Lot 66 DP 551005 Pacific Highway, Moonee Report on Engineering Infrastructure (Geotechnical and Services)", section 3 to 5.
	9.2	Address the provision of public services and infrastructure having regard to the Council's section 94 Contribution Plan's, including availability and adequacy of open spaces and the need for surf life saving services.			Able to be applied with Development Application. See Section 8.6 Statement of Commitments.
10. Heritage	10.1	Identify whether the site has significance in relation to Aboriginal cultural heritage and identify appropriate measures to preserve any significance.			Very little significance – but protected. See chapter 2 "Background Studies", section 2.4 and Appendix E "Aboriginal and Archaeological Survey and Assessment of Lot 66 DP 551005 Moonee Beach NSW", section 8 and 9.
	10.2	Identify any other items of European heritage significance and provide measures for conservation of such items.			No European heritage
11. Land Ownership	11.1	Ensure that owners consent can be provided for all land included in the development including any parts of the development on Crown land and liaise with the Department of Lands regarding the use, future ownership, construction and works in and management of Crown public road/s.			Done. Letter from Department of Lands on page III-17 address this issue.
Consultation		During the preparation of the Environmental Assessment, you must consult with the relevant local, State or Commonwealth government authorities, service providers, community groups or affected landowners. In particular you must consult with:			Consultation carried out widely with listed authorities at some stage of the process.
			Yes / No	Contact Person (when available)	
		Coffs Harbour City Council	√	Clyde Treadwell (Manager Strategic Planning), Martin Rose Frank Soltau	In relation to Planning Issues In relation to Appendix F - Report on Engineering Infrastructure
		Coffs Harbour Water	√	Glenn O'Grady	In relation to Appendix F - Report on Engineering Infrastructure
		NSW Department of Natural Resources	√	Phil Watson	In relation to Appendix C - Coastline Hazard Definition
		Department of Environment & Climate Change	√	Brendan Diacono, Tom Denman (Coffs Coast Regional Park)	The response has been that detailed submissions would be made to the Concept Plan when finalised. Formal submissions regarding access across the dunes to the beach and to Green Bluff will be addressed when presented as Development Applications, noting that negotiations are currently proceeding for the approved development to the south (North Sapphire).
		NSW Department of Primary Industries	√		In relation to Appendix A and B. The response has been that detailed submissions would be made to the Concept Plan when finalised.
		NSW Department of Lands	√	David Mc Pherson / Kersten Tuckey	In relation to Crown Land access.
		NSW Rural Fire Service	√		See Appendix G Section 1.5
		NSW Roads and Traffic Authority	√	Dan Copeland, Ken Dobinson	Letter pending, see Appendix H.
		Solitary Island Marine Park Authority	√		The response has been that detailed submissions would be made to the Concept Plan when finalised.
		Northern Rivers Catchment Management Authority	√		Referred back to Council regarding the Moonee Creek Estuary Management Plan
		Telstra	√	Tony Hobson (DownerEDI)	In relation to Appendix F - Report on Engineering Infrastructure
		Country Energy	√	Garry Fox	In relation to Appendix F - Report on Engineering Infrastructure
		Commonwealth Department of Environment & Heritage	No		Response & Justification Report (Appendix B) – Chapter 26. No referral is possible until a Development Application is lodged.
		Local Aboriginal Land Council/s	√	Mr Chris Spencer - Coordinator Coffs Harbour and District Local Aboriginal Land Council	In relation to Appendix E - Aboriginal and Archaeological Survey and Assessment of Lot 66 DP 551005, Moonee Beach, NSW
		b) Public Document all community consultation undertaken to date and/or discuss the proposed strategy for undertaking community consultation. This should include any issues arising from community consultation and an effective communications strategy. The consultation process and the issues raised should be described in the Environmental Assessment.			To be implemented. See section 8.5 on this report for proposed public consultation.

Attachment 2: *Plans and Documents to accompany the Application*

No	Plans and Document of the Development	Provided	Comment
1	Existing Site Survey Plan	√	See Appendix J
2	Site Analysis Plan	√	See Figure 3-1
3	Locality/Context Plans	√	See Figure 1- 4 and 1-5
4	Environmental Assesment	√	See this chapter (Chapter 3)
5	Subdivision Plans		
	Concept only showing:		
	• subdivision	√	See Figure i-1 and Appendix J (Survey)
	• roads	√	See Figure i-1, 6-1 and Appendix J (Survey)
	• road sections	√	See Figure 6-2, 6-3, 6-4, 6-5 and 6-6
	• finished levels	X	Will be provided at Development Application stage.
	• access to parks	√	See Figure 4-6, 4-8 and 5-1
	• vegetation retained	√	See Figure 3-13
	• services infrastructure	√	See Appendix F (Report on Engineering Infrastructure)
	• drainage method	√	See Appendix D (Water Management Report)
	• easements covenants	√	Community title over Conservation Area and local roads
	• type subdivision	√	Community title
6	Stormwater Concept	√	See Appendix A (Engineering Plans) of F (Report on Engineering Infrastructure)
7	Erosion/Sediment Control Plan	X	Will be provided at Development Application stage.
8	Landscape Concept	X	Will be provided at Development Application stage.
9	Construction Management Plan	X	Will be provided at Development Application stage.
10	Specialist advice provided for:		
	• flora and fauna	√	See Appendix A (Flora & Fauna Report) and Appendix B "Response & Justification Report"
	• bushfire	√	See Appendix G (Bushfire Report)
	• traffic	√	See Appendix H (Traffic Report)
	• landscaping	X	Will be provided at Development Application stage.
	• geotechnical	√	See Appendix F (Report on Engineering Infrastructure) Section 2.
	• stormwater/drainage	√	See Appendix D (Water Management Report) and Appendix F (Report on Engineering Infrastructure)
	• architecture/urban design	√	Chapter 7 and Section 8.3 (Building Design Controls and Requirements)
	• contamination	√	Section 2.2.2 of Appendix F (Report on Engineering Infrastructure)
	• Acid Sulphate Soil Management Plan	√	Section 2.2.3 of Appendix F (Report on Engineering Infrastructure)
11	Electronic documents		available on the website: http://www.mooneewaters.com.au

3.6 ENVIRONMENTAL CONSTRAINTS ANALYSIS (The Sainty Report)

In September 2006, Sainty Associates were commissioned by the Department of Planning to carry out an independent environmental constraints analysis of the site.

A detailed and fully documented response to the Sainty Report has been prepared on the basis of the comprehensive studies of the biota of the subject site by Gunninah and Whelans Insites (Appendix B - Response to the Sainty Report and Justification of the 2007 Concept Plan).

This section reviews the analysis by Sainty as a basis for review of the draft Concept Plan for the site. A number of amendments to the Concept Plan have been incorporated that take the content of the Sainty Report into consideration. The amended Concept Plan does not accept all of the Sainty recommendations, but full justification is provided for the proposed variations.

3.6.1. Endangered Ecological Communities

Sainty identifies three *"endangered ecological communities"* (EECs) on the site and has mapped their boundaries (figure 3-6)

The boundaries of the EECs provided by Sainty are general, and those provided in the report by Gunninah Environmental Consultants/ Whelans Insites (Appendix A and B) more accurately reflect the actual boundaries of the relevant vegetation. Nevertheless, the issues raised by Sainty have been taken into account in preparing the amended Concept Plan (section 3.6.3) of this report.

We do not agree with the requirement by Sainty to retain the areas of Blackbutt and Turpentine forest in the northwestern part of the site either for direct conservation purposes or as part of a purported Regional or Sub-regional Corridor.

In addition, we believe that the 50m buffer required by Sainty (section 3.6.2) around the "endangered ecological communities" is excessive and unnecessary.

Further, we maintain that the proposed 'Moonee Waters' project:

- protect the overwhelming majority of EECs on the site;
- retains and appropriately manages '*wildlife corridors*' through the site which are considerably more substantial than any others in the locality; and
- provides a mechanism to protect, enhance and manage the substantial Conservation Area (75 Ha) in the site in perpetuity.

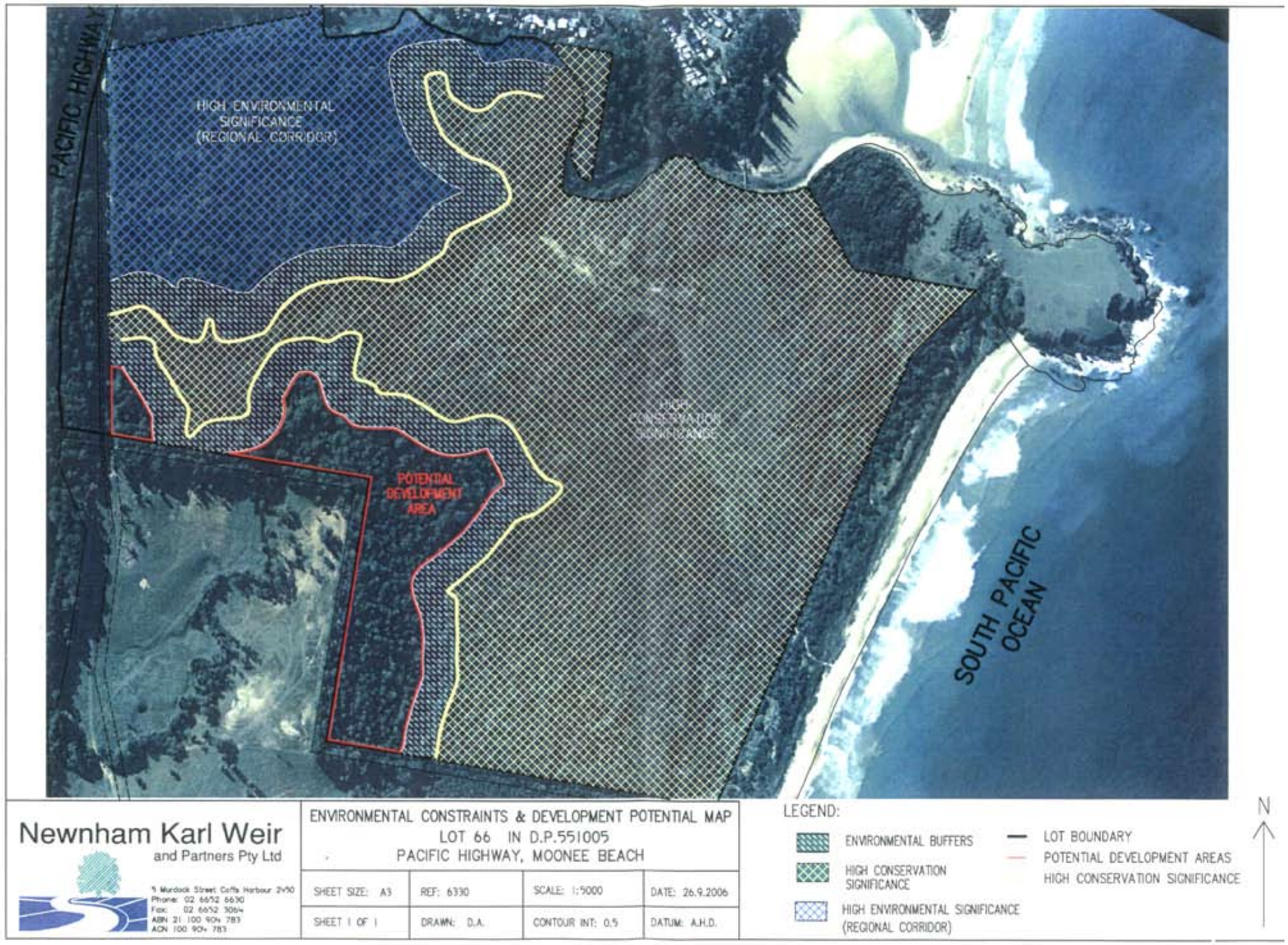


Fig 3-6: *Environmental Constraints & Development Potential Map*

3.6.2. The Need for Environmental Buffers

The rationale for Buffers

Sainty (2006) discusses the need for "environmental buffers" to the "endangered ecological communities" on the site.

Sainty identifies the prime purpose of an "environmental buffer" as being to "insulate areas where biodiversity conservation is the primary objective, from potentially damaging external influences and particularly from those caused by inappropriate forms of land use" (Bennett & Mulongoy 2006). There may be a need for "environmental buffers" where adjoining land uses do not incorporate specific or appropriate measures to protect the adjoining natural environment, and there is consequently a need to absorb adverse impacts from unsympathetic land use activities.

The 'Moonee Waters' development Concept Plan specifically identifies biodiversity conservation as a major objective of the project. In particular, the overwhelming majority of the "endangered ecological communities" in the low-lying parts of the subject site are to be retained, protected, enhanced and managed in perpetuity for biodiversity conservation purposes. The remainder of the proposed Conservation Area (which contains plant communities and ecosystems which are not listed as "endangered ecological communities") will be afforded the same protection.

Sainty (2006) states that an "environmental buffer zone" will provide:

- a physical barrier to human encroachment
- protection for the edges of retained vegetation from storm damage;
- an increase in natural habitat and a reduction in "edge effects" on the retained vegetation; and
- an enhancement of "environmental services provided by the nature reserve".

The 'Moonee Waters' project and Concept Plan has considered the issues raised by Sainty in the approach to the Conservation Area on the subject site (which occupies approximately 73% of the land). Consideration of the issues raised by Sainty with respect to the function of buffers is provided below.

Physical Barrier to Human Encroachment

The provision of a physical barrier to human encroachment around the boundaries of the development area and/or around the site at Moonee is neither warranted nor feasible.

Development as proposed on the subject site at Moonee will provide barriers to vehicular access, controlled pedestrian access and a high degree of visual monitoring of the vegetation adjoining the development areas. Implementation of the Management Plan for the Conservation Area in perpetuity will facilitate the identification of areas where human encroachment is causing damage, and provide the resources to repair any such damage and to educate those responsible. Such measures are not currently part of management of the subject site, and would not conceivably occur without development as proposed on the site at Moonee.

The project will provide features which identify the physical edge of the Conservation Area, as well as signage to encourage proper respect for the conservation values of retained vegetation on the site. In addition, the proposal incorporates the construction of dedicated walkways and bicycle paths through the Conservation Area which are intended specifically to concentrate human activities and to both educate with respect to the environmental values of the Conservation Area and constrain human access to environmentally sound constructed pathways. Again, these features would not be provided unless the project is approved.

Protection from Storm Damage

There is no need to provide additional "buffers" along the edges of retained vegetation adjoining the development areas for protection from storm damage, other than the APZ treatments immediately adjoining the development areas. In this regard:

- it is noted that the swamp forest communities adjoining the swamp sedgelands in the eastern part of the subject site possess no such buffer under natural circumstances;
- the area of retained forest modified for bushfire protection purposes, immediately adjoining the perimeter roads on the subject site, will provide sufficient protection for the retained vegetation from potential storm damage;
- most of the retained vegetation adjoining the development areas is located at a somewhat lower elevation, and will thus be shielded from storms by the topography and by the urban development itself;

Natural Habitat and Edge Effects

Given the substantial area which is dedicated to conservation purposes and the management of those lands in perpetuity (at no cost to the public purse), there is no reasonable requirement for any "increase in natural habitat" beyond that which is provided by the 'Moonee Waters' Concept Plan as proposed. The project involves the protection and management of approximately 75ha of "natural habitat".

The Concept Plan and long-term management of the Conservation Area incorporate measures to deal with "edge effects". The area of retained vegetation as well as the stormwater bio-swales outside of the peripheral roadway provide a means of absorbing the "edge effects" which might otherwise be imposed on retained vegetation. In this regard, it is noted that management of those areas will include the control and removal of weeds, management of stormwater discharges and nutrients, controls on human access, the maintenance of vegetation to provide buffering of the adjoining vegetation, and ongoing maintenance and active management.

Enhancement of Environmental Services

Given the extent of the Conservation Area on the subject site and its management in perpetuity for biodiversity conservation purposes (at no cost to the public purse), there is no further requirement for any "enhancement of environmental services". The Concept Plan provides both for the permanent protection management of vegetation within the Conservation Area on the subject site and for appropriate human access and education using controlled and sensitively constructed pathways and signage.

It is to be noted that the Conservation Area on the subject site at Moonee is not a "nature reserve", although the level of active management and long-term maintenance which this area will receive will substantially exceed that afforded to most other conservation reserves in the general locality.

The current Concept Plan provides a greater level of "environmental services" than any other current or likely development in the region, or indeed than provided by most conservation reserves in the region.

Buffer Size

Sainty (2006) states that "due to lack of research, the size of buffer zones .... should be determined on a case by case basis". He further notes that landform, ecological attributes, climate threats and abutting land uses will influence the size of environmental buffers at any location.

Sainty (2006) recommends a 50m "environmental buffer" around the retained vegetation to "reduce edge effects, allow for regeneration and protect key features such as nature corridor, remnant vegetation and significant habitat".

It is the opinion of those responsible for preparation of the Concept Plan and for providing in excess of 73% of the subject site (nearly 75ha) as a conservation reserve in perpetuity that the requirements of Sainty for a 50m buffer are unjustified. Whilst a buffer of that size may be necessary where development activities adjoining a Conservation Area are not sympathetic to the conservation requirements or to the sensitivity of the environmental features of the conservation lands, those circumstances do not pertain to the 'Moonee Waters' Concept Plan.

The Concept Plan incorporates a range of measures which avoid the requirement for a 50m buffer zone by appropriately managing and protecting retained vegetation and by avoiding the imposition of adverse impacts on the Conservation Area (as discussed above).

Sainty further requires that Asset Protection Zones (APZs) for bushfire protection purposes be located beyond the "environmental buffers" around the retained vegetation. Thus, having recommended an "environmental buffer" of 50m in width, Sainty requires a buffer to the buffer.

The proposal generally provides a buffer zone of 15-50m throughout (depending on the slope of the bank) and a 20m APZ at the top of the bank. We believe that this approach, along with active management of the Conservation Area in perpetuity, satisfies the buffering objectives of the Sainty Report.

3.6.3. Regional Context and Significance of Vegetation on the Site

Forested land

Sainty maintains that the subject site "effectively represents the single largest unit of forested land in the strip between Coffs Harbour and Woolgoolga". Sainty further maintains the subject site provides "habitat for fauna and .. offers a refuge for local wildlife during times of fire, drought or loss of habitat elsewhere".

Review of aerial photography (see Response and Justification Report by Gunninah/Whelans Insites - Appendix B)) reveals that the subject site is not the "single largest unit of forested land" along that part of the coast. Nevertheless, the subject site and the adjoining lands to the south and north do constitute a substantial tract of habitat and native vegetation.

Furthermore, the Concept Plan for the subject site retains substantial areas of habitat and maintains connectivity with vegetation to the north and west. Management of that substantial tract of land (approximately 75ha) in perpetuity will ensure that those habitat features are retained. In the absence of the development as proposed, there is no guarantee that vegetation on the site will be maintained in an appropriate condition or managed for the benefits of biodiversity conservation.

Importance of Vegetation

Sainty further claims that the clearing of vegetation from the subject site will affect "many taxa "of native fauna and "is recognised as a key threatening process by the NSW Scientific Committee".

Sainty further states that the "impacts of vegetation clearing can include":

- fragmentation;
- an "increase in invasive species in remnants";
- an increase in "nutrient loads in remnants"; and
- "physical changes at the edge including wind exposure, temperature, light and humidity".

Sainty further identifies a "suite of processes associated with landscape change" which are involved in the "concept of fragmentation" including:

- habitat degradation;
- habitat subdivision;
- patch isolation; and
- "edge effects".

The Concept Plan for the 'Moonee Waters' development specifically addresses and acknowledges the adverse effects of the clearing of native vegetation and the potential risks associated with fragmentation, habitat loss and the potential for "edge effects" and other indirect impacts. Whilst the proposal does inevitably involve some removal of vegetation and loss of habitats, the Concept Plan also includes the retention and enhancement of approximately 75ha of native vegetation, and its management in perpetuity for biodiversity conservation purposes. That approach is neither required nor likely to occur in the absence of the funding and opportunities which would be derived from development of the subject site as identified in the Concept Plan.

In this regard, development of the subject site has been cognisant of the potential impacts which may or theoretically could arise from the activities. Management of the Conservation Area through the Conservation Area Management Plan (CAMP) includes:

- minimizing fragmentation by the retention and enhancement of broad bands of vegetation across the subject site;
- ongoing management of all of the conservation lands to ensure that invasive weed species are removed and controlled in perpetuity. It should be noted that this activity (ie. the removal and control of weed species) is not likely to occur on the subject site without development as currently proposed;
- the development areas are to be managed specifically inter alia to avoid an increase in nutrient discharges into the conserved lands. The stormwater management system has been specifically designed to retain nutrients and to control nutrient discharges;
- the retention of vegetation at the periphery of the development areas and its management in part for bushfire protection purposes will provide a buffer to retained vegetation. The combination of that buffer, protection by dwellings in the development area, and the bio-retention swales will limit the potential for physical changes along the periphery of retained vegetation on the subject site; and
- the long-term management of the Conservation Area on the subject site specifically address issues concerning "habitat degradation", "habitat subdivision", patch isolation and edge effects.

Sainty further claims that "the Flora & Fauna Assessment Report for the 'Moonee Waters' development (Gunninah 2005) incorrectly interprets the classification of vegetation by Fisher et al (1996)", and that the Gunninah Report had suggested that "this vegetation community is 'adequately conserved'".

However, the relevant document for thi proposal is not the Gunninah 2005 Report, but the Flora & Fauna Assessment Report by Gunninah Environmental Consultants/Whelans Insites in August 2006 (Appendix A). That Report does not make the 'incorrect interpretation' claimed by Sainty, but does note that, while swamp forest communities have been listed as "endangered ecological communities", the Dry Blackbutt and other similar communities are not so listed.

It is to be noted that approximately 16.4ha of the Dry Blackbutt forest community (47%) is to be retained within the Conservation Area on the subject site. As is the case with other vegetation within the Conservation Area, this vegetation forest will be afforded a degree of protection and enhancement which is not currently available on the site.

Role of Site as a Nature Corridor

Sainty maintains that the subject site "includes the coastline Regional Corridor and a small area of Key Habitat .. and includes a Sub-regional Corridor link to the Orara East State Forest west of the Pacific Highway". As acknowledged by Sainty, these corridors "have been identified independent of planning legislation and structures" in two conservation Reports (Scotts 2003; Scotts & Drielsma 2003).

Sainty admits that "the role of wildlife corridors to ameliorate the impacts of habitat degradation, habitat subdivision and patch isolation is still debated". Nevertheless, he maintains that "there is a plethora of literature arguing the need for corridors for their role for providing linkages in the landscape for biota".

Sainty also acknowledges that "the Pacific Highway provides a north-south barrier to some species and can result in "wildlife fatalities" and that "these effects may be compounded with the RTA planned upgrade of the Pacific Highway. Sainty suggests that this "formidable barrier ... can be addressed by measures such as roadside barrier fences with culverts, underpasses and rope crossings" (emphasis added).

Further, Sainty maintains that the "overall continuity of the vegetation corridor is excellent (if not ideal) in terms of the needs of more nimble species including birds, bats and insects" and that "habitats on private lands to the west of the Pacific Highway can be protected to prevent the integrity of the corridor being comprised".

We maintain that the Concept Plan for the proposed 'Moonee Waters' development provides an outstanding example of an urban coastal development which integrates both appropriate residential planning and the maintenance of connectivity and 'nature corridors' through the landscape.

In this regard, we note that:

- the Pacific Highway is indeed a "formidable north-south barrier" to many species of native fauna;
- only the "more nimble species" would be capable of crossing the Pacific Highway other than by the use of culverts, bridges or rope crossings. At present, there are no rope bridges across the Pacific Highway, there are no fauna underpasses and the drainage culverts are largely unsuitable for travel by native terrestrial fauna species;
- notwithstanding the likely employment of those features for native wildlife to cross the Pacific Highway when it is upgraded, the construction of a four-lane dual carriageway at this location will restrict opportunities for other than the "more nimble species" to cross the Highway other than as restricted to the specific locations of rope bridges, fauna underpasses or culverts; and
- the existing nature of the lands to the west of the Pacific Highway at the location of the 'Moonee Waters' site already provides a significant constraint to fauna movement. There is no continuous band of vegetation westwards from the Pacific Highway to the Orara East State Forest which is as broad as the two bands of vegetation which are to be retained on the subject site to facilitate the east-west movement of native fauna species. Further, despite Sainty's optimism about the possibility of protecting "habitats on private land to the west", there are no mandatory mechanisms by which such outcomes can be achieved.

Whilst the concerns expressed by Sainty regarding "nature corridors" and fauna movements are legitimate (in a theoretical sense at least), they have been appropriately addressed by the Concept Plan for the proposed development.

In this regard:

- the proposed development will have no impact whatsoever on the alleged "coastline Regional Corridor";
- the proposed development will have no impact whatsoever on the "major area of Key Habitat (Moonee Beach Nature Reserve)";
- the proposed development maintains broad east-west bands of vegetation across the site to its boundary with the Pacific Highway (Figure 3-7) which have been designed and are intended expressly for the purposes of maintaining fauna movement corridors and habitat linkages to the west. We note that the habitat corridors maintained on the subject site at Moonee are broader than any such corridors west of the Pacific Highway. Furthermore, those habitat bands on the subject site are to be managed in perpetuity for biodiversity conservation purposes. The same cannot be said of any vegetation on private lands to the west of the Pacific Highway at present; and
- the proposed Concept Plan for the subject site at Moonee provides absolute certainty with respect to the maintenance and retention in perpetuity of broad bands of native vegetation for wildlife corridors between the substantial conservation reserve on the subject site (which occupies approximately 75ha) and the putative habitat corridor extending to the west of the Pacific Highway and linking to the Orara East State Forest.

We note that there is no guarantee or certainty with respect to any of the purported "nature corridors" west of the Pacific Highway. We also note that those corridors are narrower than any of the habitat linkages to be maintained on the subject site, and that the proposal incorporates measures to manage and maintain those "corridors" in perpetuity. We further note that the constraints which are imposed now and which will be imposed to a greater extent by the Pacific Highway severely restrict the value of any east-west habitat linkage for other than the "more nimble species" (as noted by Sainty).

Fig 3-7: *Cleared Land Areas*

3.6.4. Conclusions

We concur with Sainty that "the property has many ecological attributes". However, we do not accept that the subject site "effectively represents the single largest unit of forested land in the strip between Coffs Harbour and Woolgoolga".

Further, we note that there are no provisions for the ongoing maintenance, protection or enhancement of vegetation on the site under current circumstances. In addition, we contend that the approximately 75ha of conserved land within the subject site which is to be retained, enhanced and protected in perpetuity (as part of the Concept Plan) will provide an outstanding biodiversity conservation facility and resource.

Sainty further claims that the site "is part of a nature corridor linking the coast with significant vegetation west of the Pacific Highway". In this assertion, Sainty apparently ignores the significance of the current and future Pacific Highway as a constraint to fauna movements (despite his comment elsewhere that the Highway represents a "formidable barrier" to fauna movements). He also largely ignores the substantial fragmentation of vegetation west of the Pacific Highway, compared with the provision of broad bands of vegetation in an east-west alignment across the subject site, and their maintenance in perpetuity (unlike the circumstances to the west of the Highway).

Future crossing points of the Pacific Highway will be primarily restricted to the watercourses, and are not contiguous with the northern development precinct. In any case, the habitat corridors across the subject site are substantially larger and more intact than any of those west of the Pacific Highway, and the Concept Plan will facilitate their retention, protection, enhancement and management in perpetuity. That circumstance does not apply to any lands west of the Pacific Highway.

Despite the implications by Sainty, there will be a substantial area of Dry Blackbutt forest retained on the subject site (approximately 16.4 ha or 47% of that present). In addition, the active management of the Conservation Area on the subject site substantially removes concerns regarding "edge effects" and the potential for development to impose indirect impacts on that vegetation.

As noted elsewhere in this Report, the very substantial Conservation Area on the subject site is to be maintained in perpetuity for biodiversity conservation purposes at no cost to the public purse. Active management of that land will inter alia protect the conserved vegetation from edge effects and other indirect impacts from development on the site.

We maintain that the assertion by Sainty that the "proposed development will also destroy both Regional and Sub-regional Corridors and Key Habitats" is incorrect. The development as currently proposed in the Concept Plan will have absolutely no impact on the coastline corridor, and the proposal maintains two broad, substantial and permanently managed corridors in an east-west direction across the site. That situation cannot be claimed for any other piece of privately owned land in this vicinity, and does not pertain to the purported corridors to the west of Pacific Highway.

There will doubtless be some loss of habitat and some mortality of fauna as a result of the proposed development. However, the positive benefits of the proposal offset the losses that will occur, and include:

- the retention of examples of all major habitat types and ecosystems within the subject site;
- the retention, enhancement and permanent protection of a substantial tract of land (approximately 75ha) as a Conservation Area, available to the public and managed in perpetuity at no cost to the public purse;
- the removal of weeds, rubbish and urban debris from the Conservation Areas;
- permanent controls on human access and weed infestation;
- the provision of facilities for controlled human access as well as the monitoring of the Conservation Area by local residents of the development;
- the implementation of management regimes within the 75ha Conservation Area which would not otherwise be implemented, in perpetuity;
- the maintenance of habitat and wildlife corridors across the subject land in excess of those which are available on other lands in the vicinity; and
- the retention of the vast majority of all "endangered ecological communities" on the subject site.

None of these substantial and significant environmental benefit apply to any of the lands to the west of the Pacific Highway, or any other lands in the vicinity.

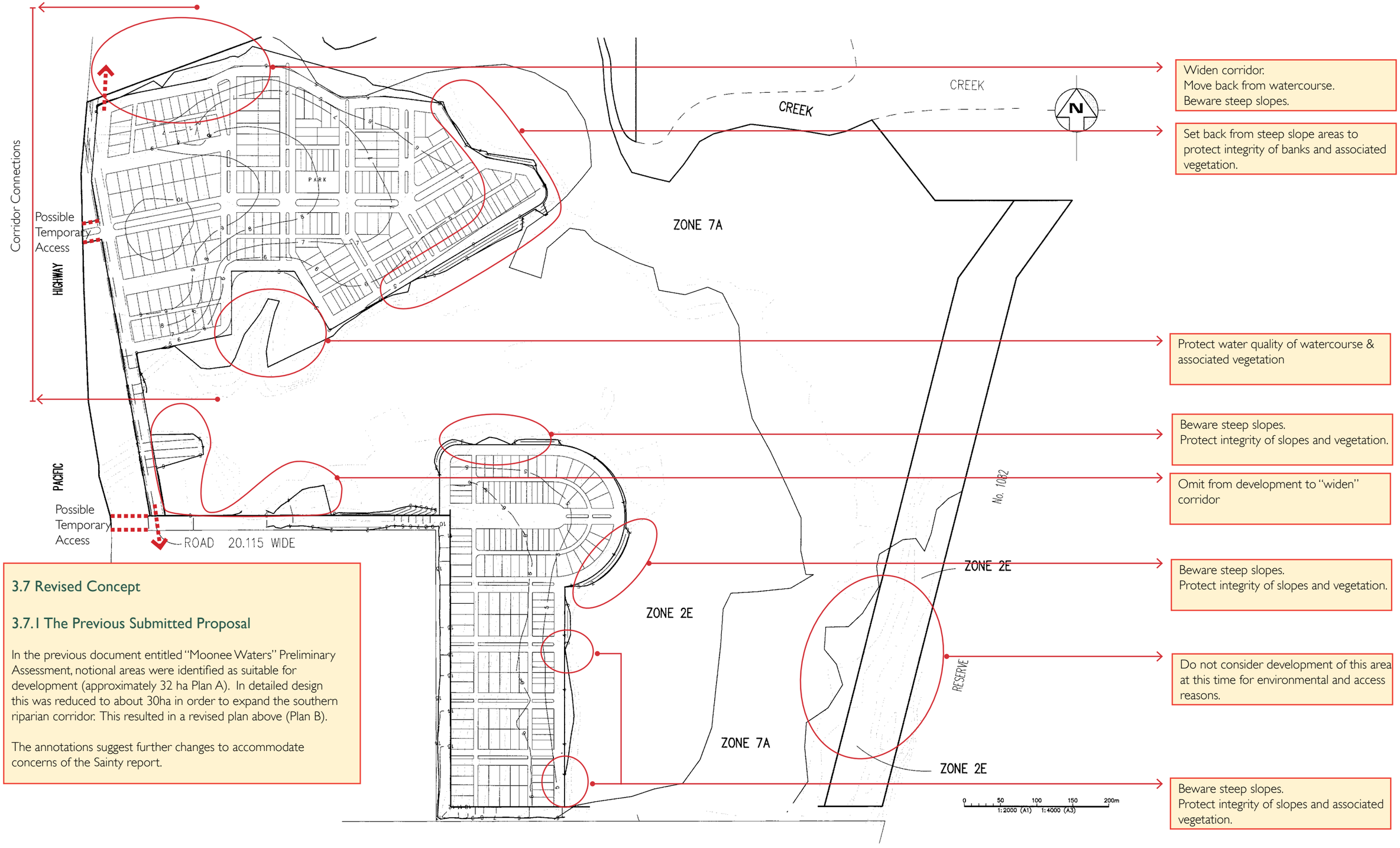
Other relevant matters concerning the Concept Plan which we maintain are of relevance in considering the proposal include:

- confinement of the development area to that proposed by Sainty is unrealistic and unreasonable, given the substantial area of land which is proposed to be dedicated as a Conservation Area (approximately 75ha or 73% of the subject site);
- the inability of a smaller development than that which has been generated in this revised Concept Plan to provide sufficient funds or incentive for the protection, enhancement and management in perpetuity of the Conservation Area;
- the lack of incentives or requirements for any protection of the Conservation Area under current circumstances; and
- the failure by Sainty to take into account the substantial benefits which will be derived from dedication of the Conservation Area and its management in perpetuity for biodiversity conservation purposes. We contend that the substantial environmental benefits which will be derived from that approach outweigh the losses that will be imposed by development of the site in the limited and reasonable manner proposed.

We commend the revised Concept Plan for the 'Moonee Waters' development as a realistic, reasonable and achievable balance between environmental and conservation objectives and reasonable development expectations. We also note that the 2007 Concept Plan is the result of a very conservative approach which involves the development of only 25% of the subject site.

The revised (2007) Concept Plan is entirely justifiable in terms of its environmental impacts and offers the only practicable means of generating sufficient funds to ensure the retention, protection and enhancement of vegetation within the Conservation Area on the site in perpetuity, at no cost to the public purse, whilst providing a major public benefit and biodiversity conservation outcome.

3.7 CONCEPT REVIEW - PLAN B



3.7 Revised Concept

3.7.1 The Previous Submitted Proposal

In the previous document entitled "Moonee Waters" Preliminary Assessment, notional areas were identified as suitable for development (approximately 32 ha Plan A). In detailed design this was reduced to about 30ha in order to expand the southern riparian corridor. This resulted in a revised plan above (Plan B).

The annotations suggest further changes to accommodate concerns of the Sainty report.

Fig 3-8: *Concept Review - Plan B*

REVISED PROPOSAL (PLAN C)

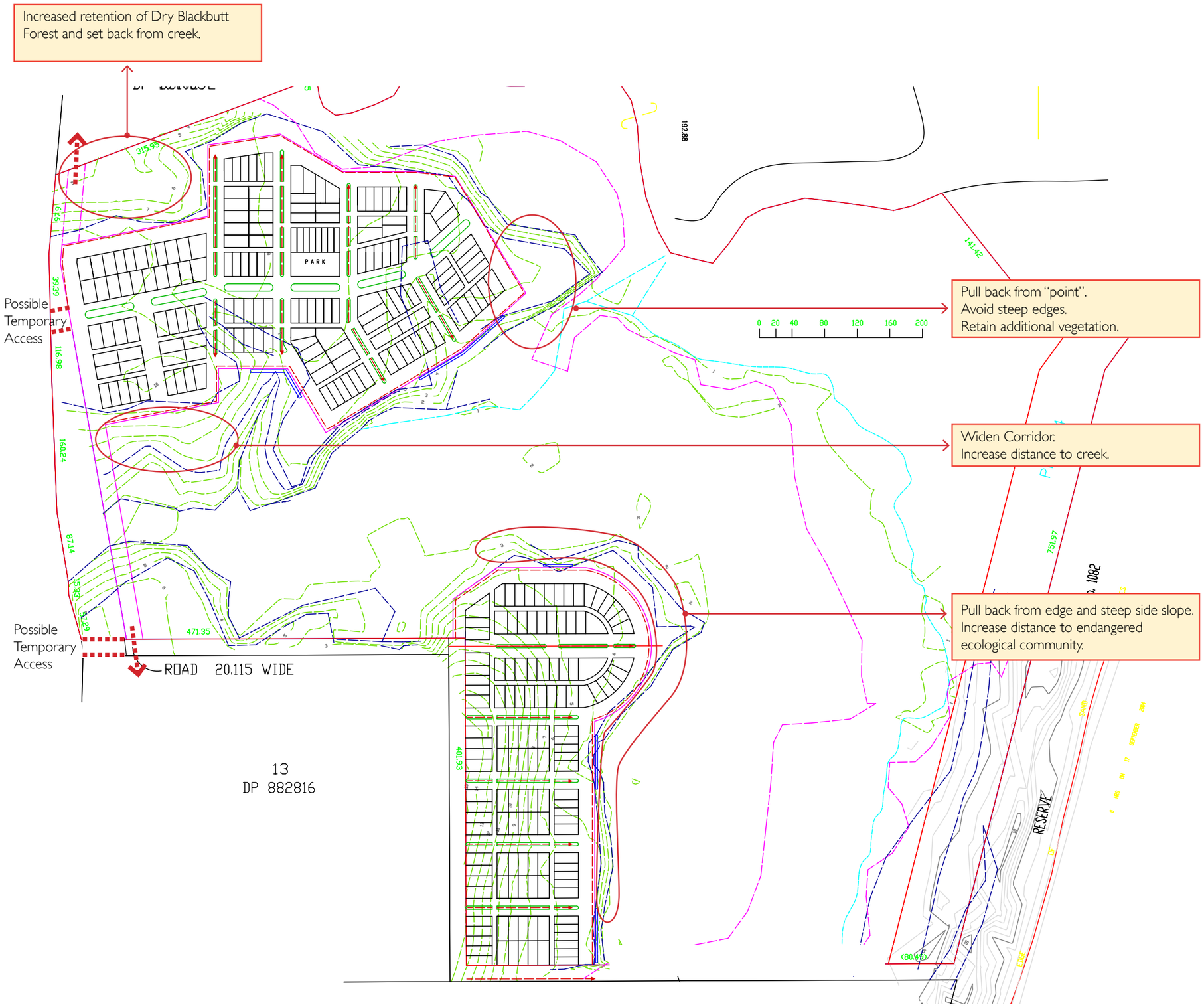


Fig 3-9: *Revised Proposal (Plan C)*

3.7.2 The Revised Proposal

a. Design Parameters

A review of the proposal has been carried out in the context of the Sainty report. We note as basic parameters, the following:

- Conserve the EECs
- Maintain regional north-south corridor
- Maintain sub-regional east-west corridors
- Protect the edge of the EEC's in terms of:
  - access control
  - prevent nutrient runoff into EECs
  - protect edges from:
    - » storms
    - » weed invasion

b. Plan Achievements

Note that the revised plan is able to achieve this in the following manner:

- EECs protected
- North-south corridor maintained
- East-west corridor connected via generous riparian corridors under the Highway to connect with State Forest to the west
- The EECs are protected by:
  - limited access along controlled paths and boardwalks and managed and funded by the community (Community Title)
  - nutrient runoff is collected and treated by an extensive system of bio-swales located in median strips and in an extensive perimeter swale all along the edge of development (see edge condition treatments). This captures and cleans all runoff from the site before it enters streams and/or wetlands.

It is proposed that the development will be implemented in a single stage.

c. Edge Protection

The edges of the EECs are protected in the following manner:

- EECs are predominantly in low-lying areas at the rear of the coastal dune system and extending up the two major creek systems to the Highway.
- Development is only proposed on the higher areas of land in the north-western and south-western part of the site.
- Residential development is generally set back between 10m and 50m beyond which steep slopes grade down to the EECs.
- A perimeter road is located around the upper edge of the raised area with a section as shown in **Fig 3.10** (4m verge, 7.2m road, 8.8m edge) which contains swale and appropriate buffer planting, then uncompromised slope containing remnant vegetation and/or buffer planting of between 20-50m. This edges down to and protects the edge of the EECs (see **Fig 3.10**).
- The level change, bio-swale and residual slope vegetation will protect the edge of the EECs.
- Note that the managed edge incorporating verge road and bio-swale (20m), and approximate front setback (5m) will also function as the asset protection zone in the event of bushfire.
- In areas where small watercourses cut back into the site, retaining walls and fill will be employed to minimise disturbance to the remnant edge slope planting beyond the perimeter bio-swale (see **Fig 3.11**).
- Thus, the revised proposal is able to achieve the attributes proposed by Sainty to a very considerable degree and at the same time provide a level of development able to fund the ongoing management of the environmental attributes in a sustainable manner.

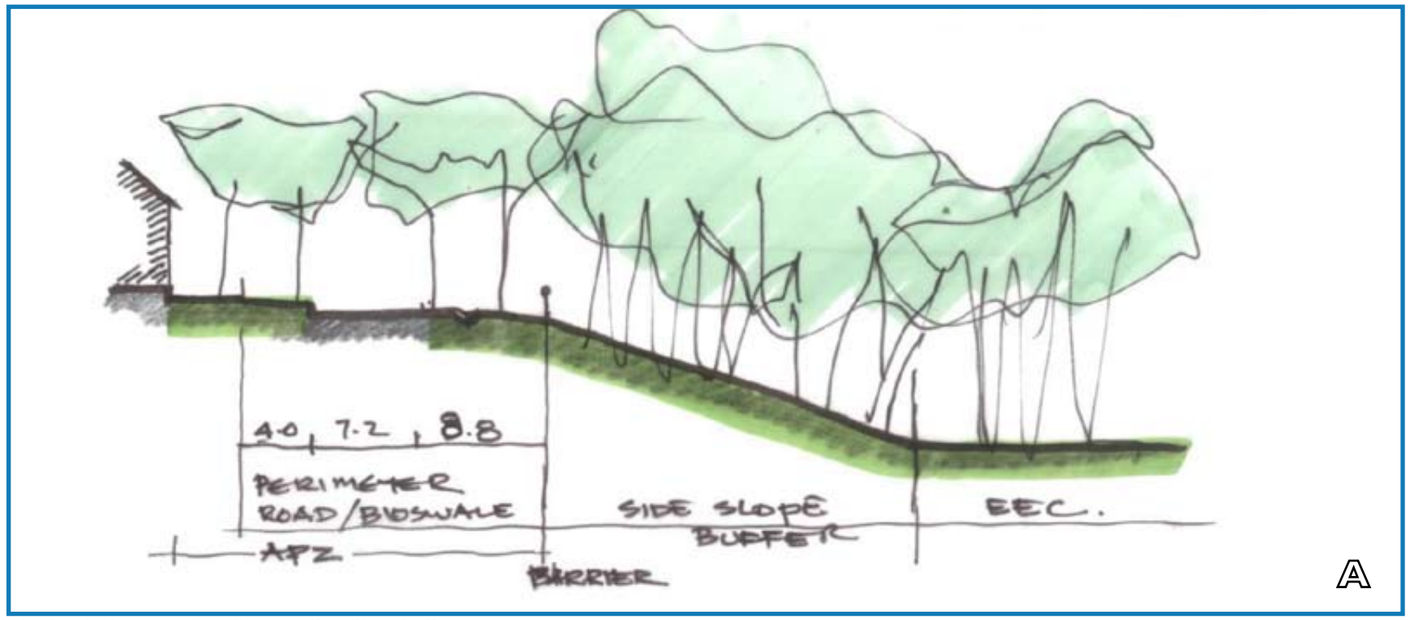


Fig 3-10: *Perimeter Road/Bioswale/Side Slope Buffer*

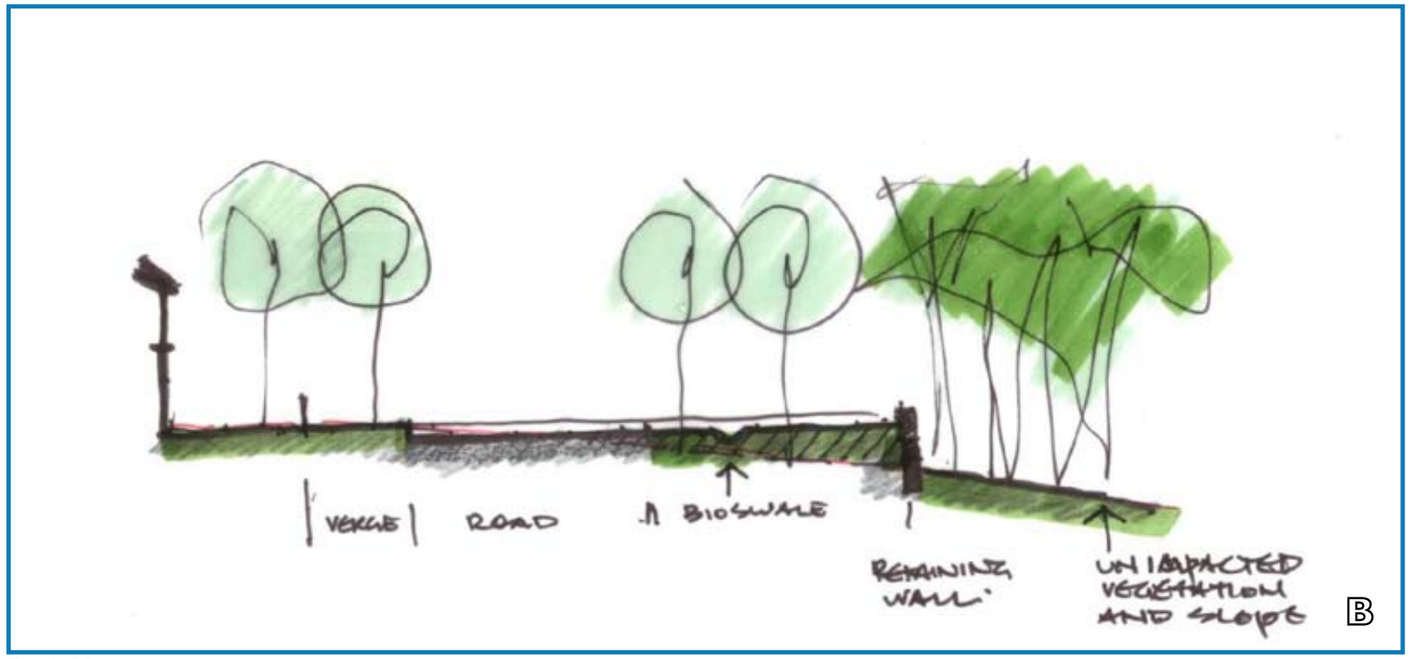


Fig 3-11: *Retaining Wall Treatment at Gullies*

3.7.3 Blackbutt Woodland Retention

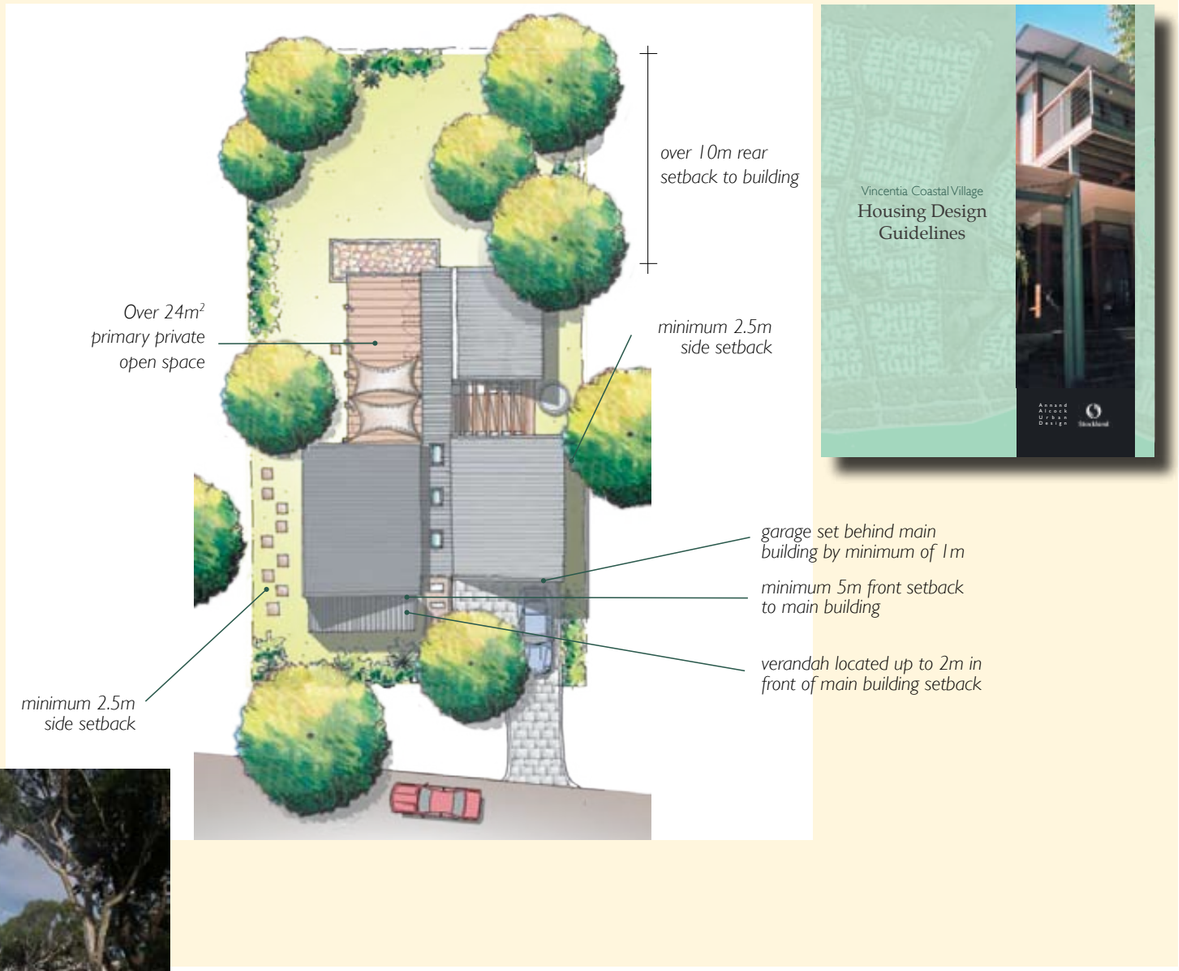
The revised Concept Plan retains, protects and enhances extensive habitat corridors along both watercourses to the Pacific Highway, as well as the major band of habitat through the eastern parts of the site. In addition, approximately 16.4ha of the dry Blackbutt forest community is to be retained within the subject site (refer to **Fig 3.14)**

The developed area of the site is also able to conserve and/or regenerate indigenous tree species within the public domain (in streets, parks and median strips) and on private allotments (in front gardens and on rear fence lines). This approach will create and maintain significant additional resources throughout the development as well as connection for "nimble species" (birds, bats and insects) throughout the development estate.

The Conservation Area is not a "nature reserve", although it will be managed in a manner which is superior to that applied to many conservation reserves along the coast. Nevertheless, the 75ha of Conservation Area on the subject site, and its management in perpetuity for biodiversity conservation purposes provides a balance to the establishment of a residential development in a fine and much sought after coastal location.

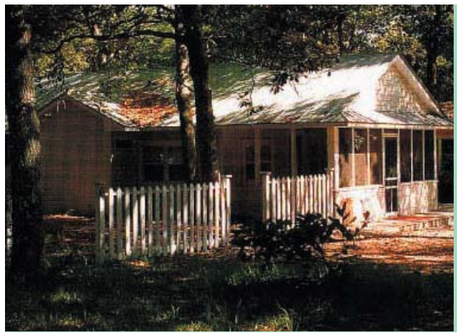
Development Controls (including the retention and replanting of native trees and shrubs) will be consistent with the approach which has been proposed at Callalla Beach and at Vincentia, both at Jervis Bay. Development in these locations involved the creation of a sustainable development within a sensitive bushland setting, and provide for habitat and resources within the development area itself. The Concept Plan for the 'Moonee Waters' development will achieve even greater results with sensitive landscaping and rigorously applied development guidelines.

Fig 3-12: *Design Guidelines - Vincentia*







Housing in Woodlands - Callalla Beach


3.7.4 Southern Precinct Access Road: Ecological And Riparian Issues

3.7.4.1 Background

- The access road between the Pacific Highway and the Southern Precinct of the 'Moonee Waters' project is to be located along an existing Crown Road Reserve which abuts the southern boundary of the subject land at Moonee.
- There is an existing four-wheel drive track on the Crown Road Reserve, which is not maintained and which is in poor condition.

3.7.4.2 Current Circumstances

- As noted above, there is a degraded four-wheel drive track along the alignment of the Crown road, which has been in part grader excavated but is not maintained.
- In elevated areas, the track is in reasonable condition, but at the creek crossing (approximately midway along the western part of the Crown Road Reserve) there is serious damage and erosion as a result of vehicle crossings during wet weather.
- Even during dry climatic conditions, there is usually a pool of water in the track at this location.
- Vegetation along the majority of the Crown Road Reserve between the Pacific Highway and the proposed Southern Precinct on the 'Moonee Waters' development site, as well as in along that part of the Crown Road Reserve adjacent to the western boundary of the Southern Precinct, is Dry Blackbutt open forest.
- There are small areas of riparian and swamp forest vegetation along that portion of the Crown Road Reserve between the Pacific Highway and the Southern Precinct, where a tributary to Sugar Mill Creek crosses the track.
- There are high levels of weed infestation, rubbish and urban debris, and motor vehicles in the Dry Blackbutt forest vegetation, particularly between the Pacific Highway and the tributary to Sugar Mill Creek.

3.7.4.3 Ecological and Riparian Issues

- The band of vegetation immediately adjacent to the four-wheel drive track within the Crown Road Reserve is, as noted above, highly modified and degraded.
- The Dry Blackbutt open forest community is not of high conservation value or significance compared with other forest vegetation on the subject site or in the vicinity.
- Removal of vegetation for construction of an access road to the Southern Precinct along the Crown Road Reserve would not result in the imposition of any significant adverse impacts upon the natural environment in general, nor any "significant effect" upon any "threatened species, populations or ecological communities".
- The existing four-wheel drive track is in poor condition, and contributes a substantial amount of sediment (as well as urban rubbish and debris), thus constituting an environmental problem at this locality.
- The construction of an access road between the Pacific Highway and the Southern Precinct along the Crown Road Reserve would involve the construction of an appropriate crossing over the tributary to Sugar Mill Creek and would resolve the outstanding issues of erosion and sediment discharges.
- This feature would also improve the connectivity between the upper and lower reaches of the tributary.
- There is a requirement (as identified in the 2007 Concept Plan for the 'Moonee Waters' project) for the provision of bushfire safety measures along the access road to the Southern Precinct. These would involve some limited tree removal and management of the understorey vegetation to provide an Asset Protection Zone.
- Those bushfire protection measures are considered in the Conservation Area Management Plan (CAMP) for the 'Moonee Waters' development, and their implementation would be undertaken in a manner which preserves the biodiversity conservation values of this vegetation.
- There is no proposal in the 2007 Concept Plan for works within the Crown Road Reserve between the Southern Precinct and the beach (ie along that portion of the Crown Road Reserve throughout SEPP 14 wetland along the southeastern boundary of the subject land).
- The two portions of the Crown Road Reserve on which the construction of a new road is proposed are that section between the Pacific Highway and the Southern Precinct (along the southwestern boundary of the subject site) and along the western side of the Southern Precinct. These two areas abut approved development on the North Sapphire Beach project, to the immediate south of the subject land.
- As noted in earlier advice, most of those portions of the Crown Road Reserve are characterized by the existing unformed four-wheel drive track and disturbed Dry Blackbutt forest.
- The unformed but regularly used four-wheel drive track contributes to sediment discharge and erosion into the tributary to Sugar Mill Creek. Much of the existing bushland along the track (between the Highway and the tributary to Sugar Mill Creek) has been disturbed by some clearing, rubbish dumping and the trashing and burning of motor vehicles.
- The proposed road within the Road Reserve would be a two-lane formal carriageway with pedestrian path and curb and guttering.
- Of most significance is the proposal to provide a properly constructed crossing of the tributary to Sugar Mill Creek which will remove the current sediment loads and other adverse impacts, and will involve rehabilitation of that portion of the watercourse.
- The only area of any "endangered ecological community" along that portion of the Crown Road Reserve which will be affected is a narrow strip of Swamp Sclerophyll Forest on Coastal Floodplains at the crossing of the tributary to Sugar Mill Creek. As noted above, this area is currently highly disturbed and degraded, and the proposed crossing will improve circumstances and construction of the road will involve rehabilitation of degraded forest at this location.

Department of Lands
Land Administration & Management
Property & Spatial Information

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kersten.tuckey@lands.nsw.gov.au

Our Reference: GF06H44
Your Reference:

Date:24 October 2007

Dear Mr Biasotto

Amended letter regarding consideration of the use of a Crown Road for the proposed Moonee Waters Coastal Village.

I refer to your email of 9 October 2007 requesting a letter acknowledging that you have made contact with the Department of Lands regarding the proposed use of a Crown road reserve to the south of Lot 66 DP 551005 in the County of Moonee and Parish of Fitzroy.

The Department of Lands wishes to advise that as major works are proposed within the Crown road reserve, including the construction of the main access road for part of the proposed development, owners consent from the Department to lodge the development application would not be forthcoming. Prior to any determination of the development application the road would either have to be purchased or transferred to Coffs Harbour City Council.

The Department previously wrote to the NSW Department of Planning advising that the proponent of the development would need to make an application to the Department of Lands to close and purchase the road. This would be assessed under the provisions of the Roads Act 1993 and the Department offers no guarantee that the application would be successful. To date, no such application has been received. Furthermore, Council has made no application to have this road transferred to their control.

Preliminary inspection of the limited documentation provided highlights a number of issues that would be investigated by the Department when assessing the suitability of closure and purchase of the Crown road in question or its transfer to Council. These include, but are not limited to the presence of SEPP14 wetlands within the road reserve and required buffers to protect this area, threatened species, vegetation connectivity and public access requirements.

It should be noted that the Department would not support the upgrade of the section of road through and adjoining the SEPP14 wetland for access to residential developments or for use as an asset protection zone. However, should an application to purchase this section of the Crown road reserve be successful, or should the road be transferred to Council, this would be a matter for Council and the relevant planning authority to address.

If you have any further questions please do not hesitate to give me a call on the number above.

Regards

K Tuckey

Kersten Tuckey
Senior Environmental Officer
Department of Lands

Fig 3-13: *Letter from Department of Lands.*

3.8 PROJECT IMPACTS ASSESSMENT

3.8.1 Revised Proposal

The revised Concept Plan for 'Moonee Waters' development incorporates:

- the employment of Water Sensitive Urban Design principles based on the concept of total water cycle management which includes the harvesting of rainwater reduction of potable water use, collection and filtering of stormwater, use of bio-swales in road medians and around the perimeter of the subject development, and controlled discharge of excess stormwater;
- the location of urban development in the least sensitive and significant parts of the subject site;
- the conservation of approximately 75ha of the subject site for biodiversity conservation purposes including the overwhelming majority of the "endangered ecological communities" present as well as some areas of dry Blackbutt open forest;
- the management in perpetuity through a 'community title' management regime of the Conservation Area for benefit of the public and of the local residents, and to ensure that the substantial conservation reserve is enhanced and maintained in a prime condition; and
- the construction and maintenance of access paths and bicycle paths through the Conservation Area to control human access throughout the lands.
- providing for the permanent rehabilitation and management of a substantial Conservation Area (of approximately 75ha) at no cost to the public purse;
- the retention within the Conservation Area of all of the vegetation types present on the subject site including the overwhelming majority of the swamp forest communities and areas of dry Blackbutt forest; and
- the provision of an village housings type appropriate to the market and the coastal character of the site.

With respect to the habitat and wildlife corridor issues raised by Sainty (2006) it should be noted that:

- the proposed development will have no impact on the north-south coastline corridor which has been identified on the site;
- the proposal maintains two broad east-west habitat and wildlife corridors through the site which will be managed in perpetuity for biodiversity conservation purposes; and
- the Pacific Highway, both in its current form and once upgraded, located to the immediate west of the subject site will provide a "formidable barrier" for any but the most "nimble species" (such as birds, bats and insects).

Thus, the proposed development of 'Moonee Waters' will minimise the impacts on any habitat or wildlife corridors which have been identified in this locality.

The revised Concept Plan detailed in this document and addressed in the relevant Reports (see Appendices) does not conform to the constraints imposed by Sainty in respect either of development areas or his recommended environmental buffers (of 50m plus Asset Protection Zones). We contend that those constraints are excessive and unnecessary, and unreasonably limit the development opportunities on the subject site.

3.8.2 Potential Impacts and Mitigation

Development of the subject site as proposed will involve some adverse impacts upon the natural environment, specifically:

- the removal of vegetation over approximately 23ha of the subject site;
- an increase in the number of local residents on the site and in the immediate vicinity;
- localized increases in noise and light emanation; and
- the risk of contaminants or pollutants being discharged from the residential areas.

Conversely, the Concept Plan for the subject site has accommodated and will mitigate, manage and monitor those potential impacts by a variety of measures including:

- limiting the removal of vegetation primarily to more elevated parts of the site which support vegetation of lower conservation significance or value;
- reducing the extent of the development area from that originally proposed, limiting the development footprint to just 23% of the subject site;
- incorporation of Water Sensitive Urban Design principles into the project to contain stormwater discharges and to control water quality;
- implementing measures to control human access through the Conservation Area;

With respect to protecting the natural environment, the revised Concept Plan includes a range of relevant measures:

- management of vegetation at the edges of the development areas to retain canopy and a native understorey whilst providing appropriate bushfire protection. These areas will also provide an environmental buffer to the retained lands adjoining the development footprints;
- the placement of bio-swales and other stormwater management features around the periphery of the subject site which will be planted with native sedges, rushes and reeds to provide further habitat and environmental buffering capacity;
- the management of nutrient runoff via the bio-retention swales both within development areas and around the periphery;
- protection of vegetation from possible storm damage by the retained buffer vegetation as well as changes in levels and the presence of the development itself; and
- the APZs around the periphery of the development area will include the front yards and the peripheral roads as well as the bio-swales system around the development footprint.

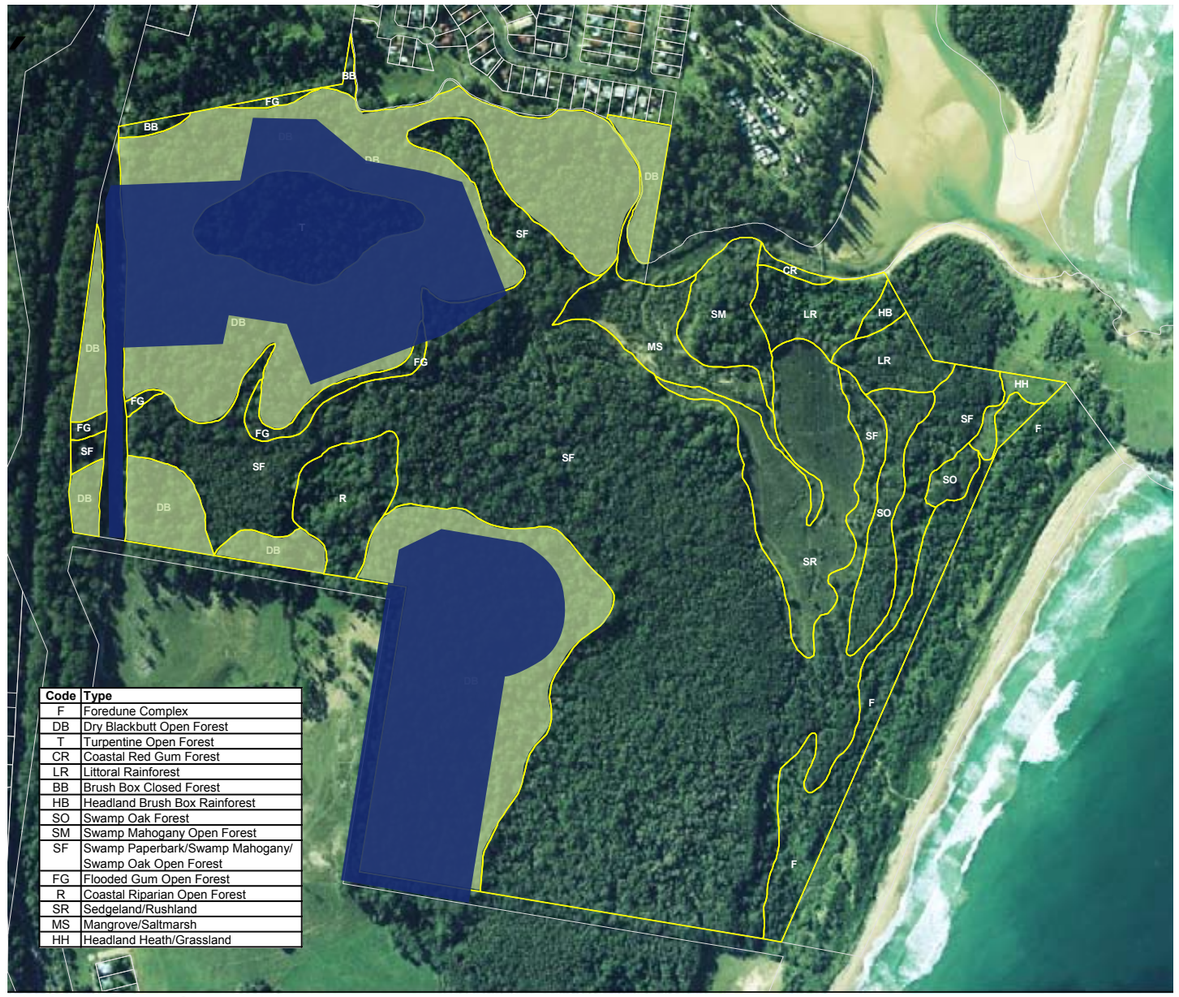

Fig 3-14: *Extent of proposed development*

3.8.3 Management Regime

The majority of the subject site (approximately 75ha or 73%) is to be retained and managed in perpetuity for biodiversity conservation purposes. The Conservation Area will be open to the public, and will be managed through a 'Community Title' arrangement which ensures that the substantial reserve is managed to protect the valuable habitats and biota contained therein.

Management of the Conservation Area will include:

- a program of weed removal and control;
- replanting regimes where necessary;
- fencing of parts of the Conservation Area if necessary to protect certain species or habitats;
- the provision of formed public paths and bicycle ways and the provision of signage to ensure that residents and visitors understand the conservation values of the land and remain on those formed paths (to be detailed in Development Application stage);
- the provision of and maintenance of local parks for recreation purposes, and their management in a manner which does not adversely affect the biodiversity conservation values of the adjoining Conservation Area; and
- a permanent and ongoing monitoring regime which identifies issues or problems and provides solutions.

As noted elsewhere in this Concept Plan, the proposed development of 'Moonee Waters' will provide the largest privately owned conservation reserve on the north coast of NSW, managed for biodiversity conservation purposes in perpetuity at no cost to the public. Enhancement and rehabilitation of that land, and its permanent management at no cost to the public purse constitute a substantial and significant environmental benefit arising from the Concept Plan for 'Moonee Waters'.

Note: Small local parks are proposed as shown. These will be managed as part of the Conservation Area but with careful, minor modification to permit inclusion of children's playground, picnic shelters and possibly small parking areas for beach access. This will be detailed along with access trails in Development Application stage.

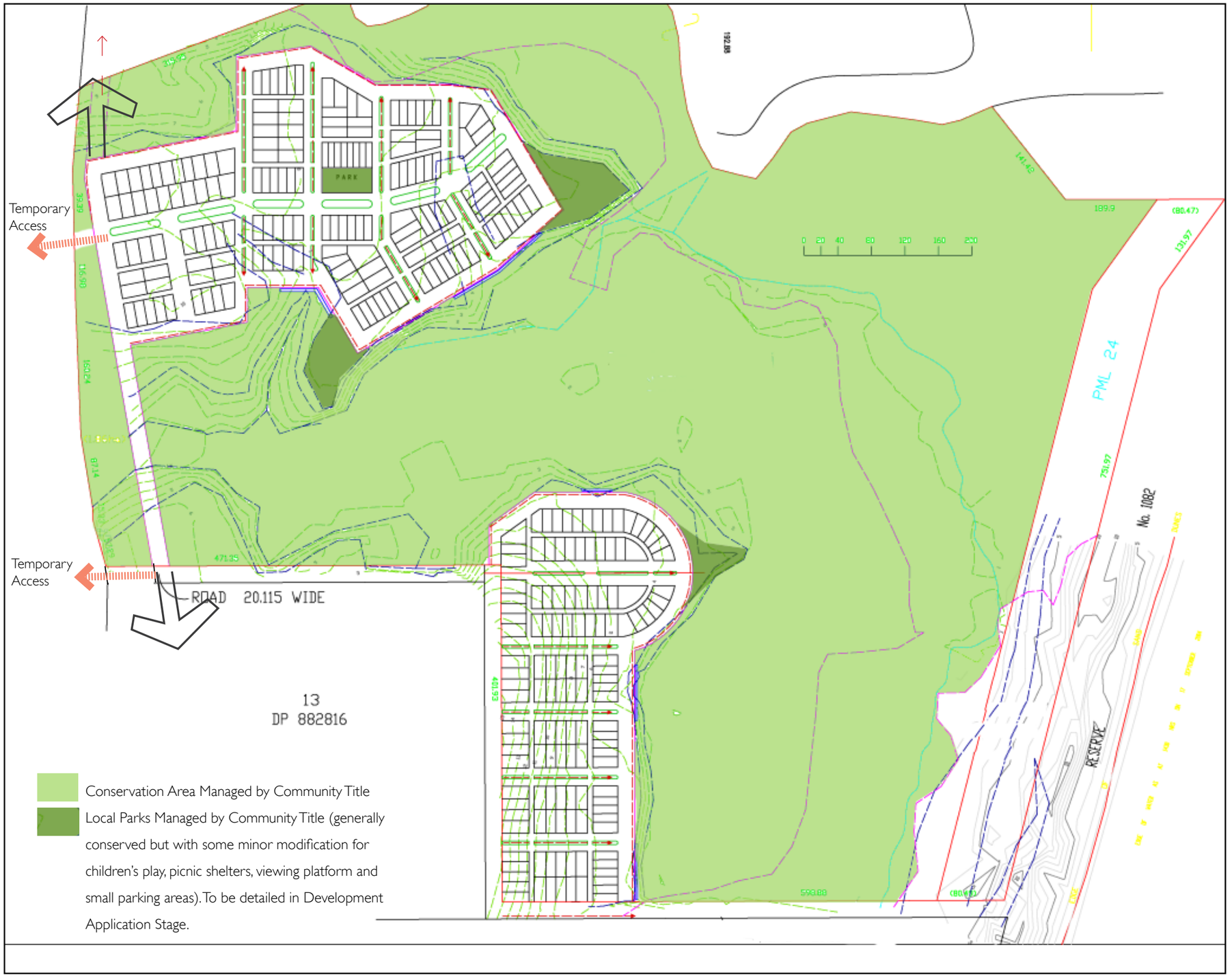

Fig 3-15: *Open space management areas*

3.8.4 Ecologically Sustainable Development (ESD)

3.8.4.1 The Principles of ESD

The *"objects"* of the *Environmental Planning & Assessment Act 1979 (EP&A Act)*, as defined in Section 5 of the Act, include inter alia encouragement of the application of the principles of Ecologically Sustainable Development (ESD) in the management and use of lands within New South Wales.

The *Protection of the Environment Administration Act 1991* (PoEA Act) states (in Section 6 of the Act) that *"ecologically sustainable development requires effective integration of economic and environmental considerations in decision-making processes"*. The Act identifies four "*principles and programs*", the implementation of which are indicated as facilitating the achievement of ESD.

Section 6 of the PoEA Act further states that "*Ecologically sustainable development can be achieved through the implementation of*":

- the precautionary principle - namely, that 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. In the application of the precautionary principle, public and private decisions should be guided by:
  (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
  (ii) an assessment of the risk-weighted consequences of various options,
- inter-generational equity - namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,
- conservation of biological diversity and ecological integrity - namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,
- improved valuation, pricing and incentive mechanisms - namely, that environmental factors should be included in the valuation of assets and services, such as:
  (i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,
  (ii) the users of goods and services should pay 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, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

3.8.4.2 The Precautionary Principle

The Precautionary Principle states that *"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"*. The 'Moonee Waters' development, as identified in the revised 2007 Concept Plan (Figure 3-9), has incorporated consideration of the Precautionary Principle in the creation of the overall concept design and in the application of water sensitive urban design principles and substantial biodiversity conservation activities as part of the proposal.

Section 6 of the POEA Act notes that *"in the application of the precautionary principle, public and private decisions should be guided by"*:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
(ii) an assessment of the risk-weighted consequences of various options,

Whilst the proposed development of the subject site at Moonee, as documented in the revised 2007 Concept Plan for the 'Moonee Waters' development does involve the removal of vegetation and the imposition of adverse impacts upon the natural environment by virtue of that activity, the project has taken into account the potential for "*serious or irreversible environmental damage*".

In this regard, the proposed development of the subject site at Moonee:

- has considered the ecological sensitivity and significance of different ecosystems, habitats and elements of the natural environment, and has identified those areas of lowest sensitivity or conservation value for the proposed development activities;
- has identified approximately 75% of the subject site as of higher conservation significance or value, and has proposed dedication of that land (approximately 73.4ha) primarily for biodiversity conservation purposes;
- has incorporated significant environmental protection measures into the development design to ensure that adverse impacts on the natural environment are minimized; and
- has proposed a mechanism for the management in perpetuity of the Conservation Area on the subject site primarily for biodiversity conservation purposes and for use by the general public

No "*measures to prevent environmental degradation*", appropriate to the proposed development at Moonee, have been postponed or precluded in development of the Concept Plan for the 'Moonee Waters' project. Indeed, both the development design and the incorporation of a range of environmental management and protection measures into the development have specifically and directly sought to minimize and avoid adverse environmental impacts, and particularly have sought "*to avoid, wherever practicable, serious or irreversible damage to the environment*".

With respect to the "*risk-weighted consequences of various options*", it should be noted that there is no imperative to properly manage the subject site under current circumstances, nor is there any incentive for the landowners to indulge in environmental management and protection activities on the subject lands. Indeed, the opposite is the case. There is no likelihood that the subject land would be afforded the necessary funds or management regime to ensure the protection of environmental values, or that any "*measures to prevent environmental degradation*", would be implemented in the absence of the proposed development.

By contrast, the proposed development of the less sensitive and significant portions of the subject land is designed inter alia precisely to generate sufficient funds to provide for the rehabilitation, protection, maintenance and long-term management of the Conservation Area on the subject site at no cost to the public purse. This approach will achieve both biodiversity conservation goals and reasonable (and very moderate) development opportunities on the subject site, and provides for significant biodiversity conservation benefits at no cost to the public purse and for the benefit of the public in general.

3.8.4.3 The Principle of Intergenerational Equity

The principle of inter-generational equity (as defined in the PoEA Act) requires "*that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations*").

This principle has also been addressed during development of the revised 2007 Concept Plan for the 'Moonee Waters' project.

In this regard, the proposed development of the subject site at Moonee:

- retains a substantial area (approximately 75ha) of vegetated land primarily for biodiversity conservation purposes;
- establishes a mechanism for the permanent protection, rehabilitation and management of that vegetation;
- provides appropriate infrastructure for the enjoyment of that Conservation Area by the public;
- improves the quality of vegetation within that area by removing areas of weed infestation and by controlling human access to prevent ongoing disturbance, and by implementing measures to rehabilitate disturbed or degraded portions of the Conservation Area; and
- avoids the imposition of additional cost on "future generations" with respect to the management and maintenance of that Conservation Area.

The Concept Plan creates benefit for both inter and intra-generational equity. The conservation enhancement and management of the proposed conservation area in perpetuity for the wider community and future generations and the proposed *"controlled"* access to the beach and other scenic and recreational assets is a gift to the local community and a legacy for future generations.

3.8.4.4 The Conservation of Biological Diversity and Ecological Integrity

The principle of the "conservation of biological diversity and ecological integrity" has been a foundation element of the design of the 'Moonee Waters' project. Determination of those areas of the subject site which are appropriate for development activities was based almost entirely on the consideration of biological diversity conservation issues, and the "conservation of biological diversity and ecological integrity" has been "a fundamental consideration" in the 'Moonee Waters' Concept Plan.

As noted above, approximately 75% of the subject is to be conserved primarily for biodiversity conservation purposes, and will be managed and enhanced by virtue of the development proposal. Indeed, without the development proposed as identified in the revised 2007 Concept Plan for the site, there is no funding available (nor indeed is there any public funding likely) for the "conservation of biological diversity and ecological integrity" on the subject site at Moonee.

The areas of the subject site which are currently proposed for development activities have been determined primarily on the basis of biodiversity conservation values, with a focus being placed on those ecological communities and habitats which are of highest conservation value and are of the greatest sensitivity. That approach was initiated in 2003, and has been further refined within the revised 2007 Concept Plan.

Furthermore, the approach adopted in 2003 for the project has been subsequently corroborated as appropriate by the listing of a range of *"endangered ecological communities"* in those portions of the subject site which have been identified, by the proponent, for biodiversity conservation purposes. By contrast, those areas of the subject site which are proposed for development activities do not (for the most part) support any currently listed *"endangered ecological communities"* (again supporting the initial assessment by the proponent and its consultants – as expressed in the revised 2007 Concept Plan).

The proposed long-term management of the Conservation Area on the subject site (according to the Conservation Area Management Plan – CAMP) provides a mechanism for the permanent rehabilitation and maintenance of *"biological diversity and ecological integrity"* on the subject site. Furthermore, the current proposal, which involves a community title arrangement, provides for the appropriate funding for that permanent management at no cost to the public purse.

Given those considerations, the 'Moonee Waters' project, as identified in the revised 2007 Concept Plan, satisfies the third principle of ESD, being the *"conservation of biological diversity and ecological integrity"*.

3.8.4.5 Improved Valuation, Pricing and Incentive Mechanisms

The fourth principle of ESD involves the implementation of "*improved valuation, pricing and incentive mechanisms"* in the undertaking of development activities. This principle requires "that environmental factors should be included in the valuation of assets and services", and involves approaches such as:

- the *"polluter pays"* principle;
- the expectation that the *"full life cycle of costs of providing goods and services"* should be assessed and accommodated within a development concept; and
- that "environmental goals, having been established, should be pursued in the most cost effective way".

In this regard, it is to be noted that the proposed development of the 'Moonee Waters' project provides a range of *"valuation, pricing and incentive mechanisms"* by virtue of:

- the implementation of the Water Sensitive Urban Design principles;
- the implementation of a range of specific management regimes with respect to stormwater and water quality management and with respect to bushfire protection; and
- the establishment of a mechanism for the permanent management, maintenance and rehabilitation of the Conservation Area on the subject site at no cost to the public purse.

This approach provides an environmental benefit to the general public by virtue of the protection of the environment and the provision of infrastructure for access across and through the Conservation Area, which is funded by the development activities on the subject site, rather than by the broader public (by way of the expenditure of government funds).

The revised 2007 Concept Plan for the 'Moonee Waters' project thus satisfies the fourth element of the principle of Ecologically Sustainable Development.

3.8.4.5 Conclusions

The revised 2007 Concept Plan for the 'Moonee Waters' development has incorporated the principles of Ecologically Sustainable Development (ESD) both in the design of the proposed development and in the measures incorporated into the concept for its implementation and long-term management. The proposed development satisfies the principles of ESD by:

- limiting development activities to those portions of the site which are regarded as of lower conservation value or significance;
- identifying habitat and ecological communities of high conservation significance and providing for their conservation and management in perpetuity within a dedicated Conservation Area;
- incorporating into the development design appropriate features and elements of water sensitive urban design, bushfire protection and the provision of access to the natural environment in a controlled manner which also provides for ongoing education for residents and visitors; and
- provides a mechanism for the permanent management and funding of the Conservation Area on the site.

3.8.5 Development Area compared to Zoning and Environmental Constraints Analysis Plan

The LEP contemplates 71.72ha of 2(e) land. Proposed development area is 22.87ha, only 32% of the zoned area (see **Fig 3-16A** for drawing overlay).

The development area is generally outside "High Conservation Significance Area" described in Sainty Report (see **Fig 3-6** for original plan included in Sainty Report and **Fig 3-16B** for drawing overlay).

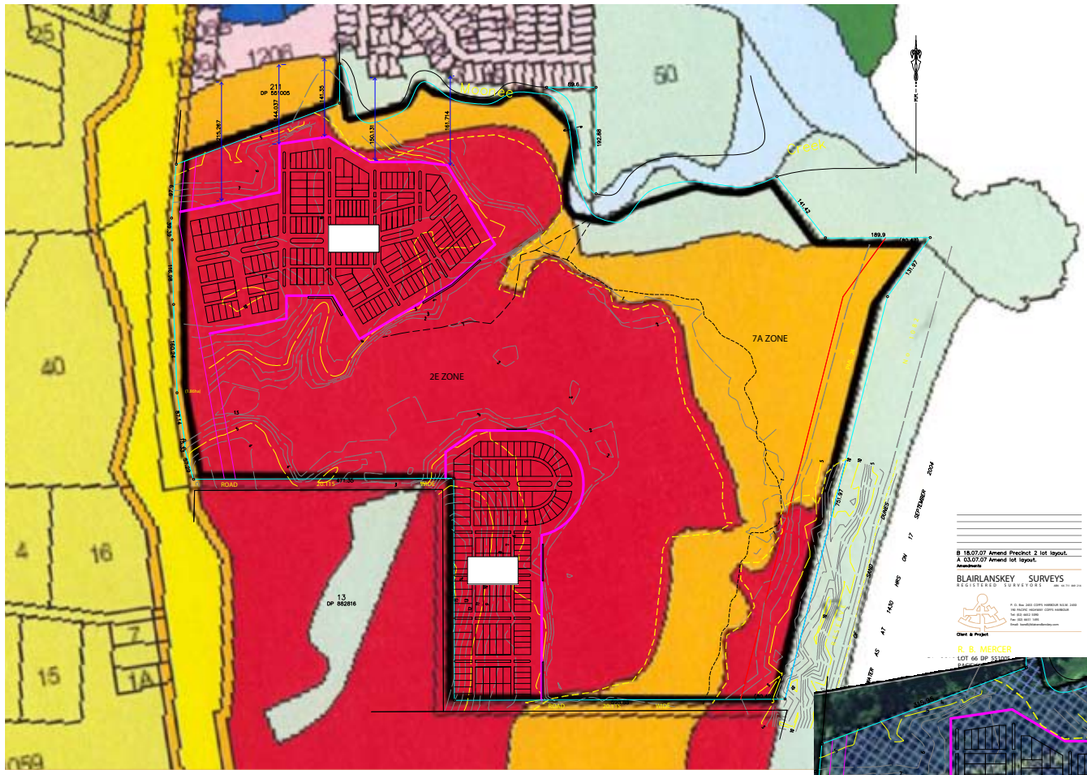

Fig 3-16A: *Development Areas compare to Zoning*

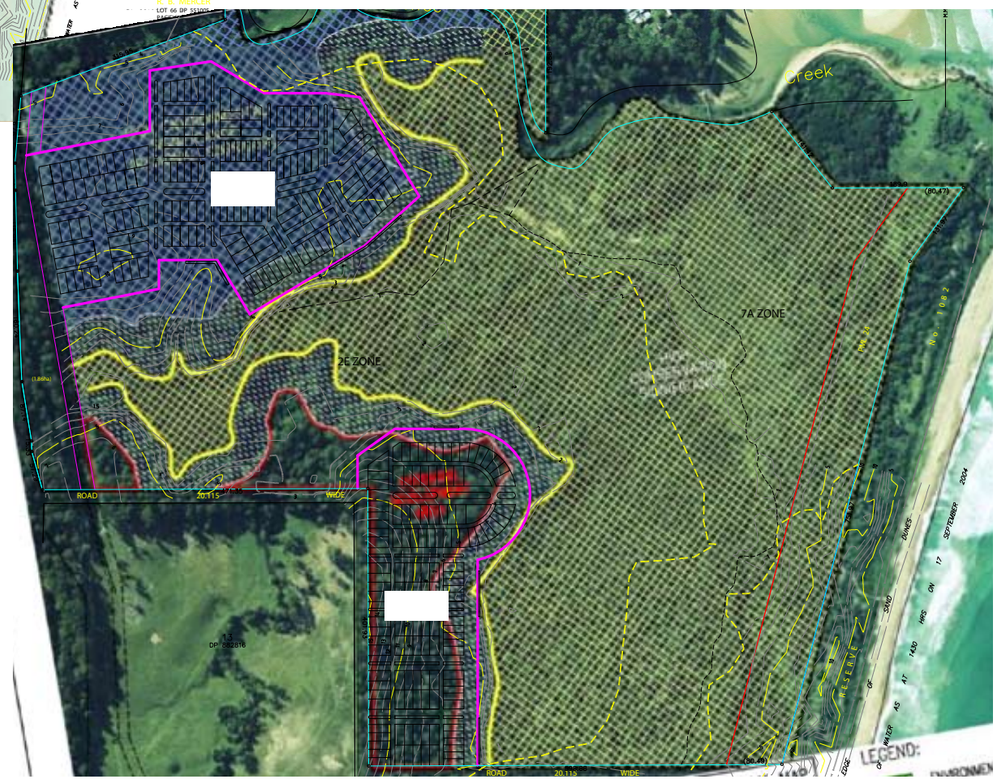

Fig 3-16B: *Development Areas compare to "Environmental Constraints Analysis" map by Sainty*