



Lot 66 in DP 551005 Moonee Beach
'Moonee Waters'

Proposed Residential Development and Conservation Reserve

Response to the Sainty Report
and
Justification of the 2007 Concept Plan

November 2007



Lot 66 in DP 551005 Moonee Beach
'Moonee Waters'

Proposed Residential Development and Conservation Reserve

Response to the Sainty Report
and
Justification of the 2007 Concept Plan

November 2007

Author: F Dominic Fanning	Version: 2.01	Date: 22nd November 2007
<p>© Copyright Statement</p> <p>This document and the intellectual material it contains are the property of Whelans InSites Pty Ltd. It may not be copied, reproduced or otherwise used, in whole or in part, other than in accordance with the express written permission of Whelans InSites.</p>		

**LOT 66 in DP 551005, MOONEE BEACH
'MOONEE WATERS'**

PROPOSED RESIDENTIAL DEVELOPMENT and CONSERVATION RESERVE

**RESPONSE to the SAINTY REPORT
and
JUSTIFICATION of the 2007 CONCEPT PLAN**

November 2007

TABLE of CONTENTS

PART A		INTRODUCTION & BACKGROUND
1	INTRODUCTION	1
2	BACKGROUND	1
2.1	The Subject Site and the Proposal	1
2.2	Information Base	3
2.3	Scope of this Report	3
PART B		REVIEW OF THE SAINTY REPORT
3	THE SAINTY REPORT	4
3.1	Basis of the Sainty Report	4
3.2	Conclusions of the Sainty Report	4
3.3	The Conclusions of This Report	5
4	ISSUES AND RESPONSE BASE	6
4.1	Issues Identified in the Sainty Report	6
4.2	The Basis of the Response in This Report	6
5	ENDANGERED ECOLOGICAL COMMUNITIES	7
5.1	The Gunninah 2006 Report	7
5.2	The Sainty 2006 Report	8
5.3	The 'Moonee Waters' Project	8
6	THE NEED FOR ENVIRONMENTAL BUFFERS	10
6.1	The Rationale for Buffers	10
6.1.1	Discussion in the Sainty Report	10
6.1.2	Considerations in This Report	10
6.2	Features and Functions of Buffer Zones	11
6.2.1	Physical Barrier to Human Encroachment	11
6.2.2	Protection from Storm Damage	12
6.2.3	Extent of Retained Habitat	12
6.2.4	Edge Effects	13
6.2.5	Enhancement of Environmental Services	13
6.3	Buffer Size	14
6.4	Conclusions	15
7	REGIONAL CONTEXT and SIGNIFICANCE of VEGETATION on the SITE	16
7.1	The Significance of Forested Land on the Site	16
7.2	The Importance of Vegetation on the Site	16
7.3	Role of the Site as a Nature Corridor	18
7.3.1	The Alleged Corridors Identified in the Sainty Report	18
7.3.2	The North-South Corridor	18
7.3.3	The East-West Corridor	19
7.3.4	The Reality of Corridors and the Proposed Development	20

8	THE CONCLUSIONS OF THE SAINTY REPORT	22
8.1	General	22
8.2	Conservation on the Subject Site	22
8.3	Balance Sheet	23

PART C		JUSTIFICATION OF THE REVISED 2007 CONCEPT PLAN
9	THE REVISED 2007 CONCEPT PLAN	25
10	POTENTIAL IMPACTS	27
11	IMPACT AMELIORATION AND ENVIRONMENTAL MANAGEMENT	29
12	MANAGEMENT REGIME FOR THE CONSERVATION AREA	30
12.1	General Management Protocols	30
12.2	Management Principles	30
13	IMPACT ASSESSMENT PURSUANT TO THE EP&A ACT	32
13.1	General Considerations	32
13.2	Impacts on the Natural Environment	32
13.3	Section 5A of the EP&A Act	33
13.4	Other Relevant Statutes and Planning Instruments	34
14	FISHERIES MANAGEMENT ACT 1994	36
15	RIVERS & FORESHORES MANAGEMENT ACT 1948	37
16	DRAFT MOONEE CREEK ESTUARY MANAGEMENT PLAN	38
16.1	Introduction	38
16.2	Objectives of the Draft Moonee Creek Estuary Management Plan	38
16.3	Strategies of the Draft Moonee Creek Estuary Management Plan	40
16.4	Conclusions	41
17	MOONEE PLANNING STRATEGY	43
17.1	Introduction	43
17.2	The Environmental Sustainability Strategy	43
17.3	Conclusions	44
18	MOONEE DEVELOPMENT CONTROL PLAN	46
18.1	Introduction	46
18.2	Impacts of the 'Moonee Waters' Development	47
18.3	Conclusions	47
19	DRAFT MID-NORTH COAST REGIONAL STRATEGY	50
19.1	Introduction	50
19.2	Environment and Natural Resources	50
20	NSW COASTAL POLICY 1997	51
20.1	Introduction	51
20.2	Relevant Strategic Actions	51
20.3	Conclusions	52
21	STATE ENVIRONMENTAL PLANNING POLICY NO. 14 – COASTAL WETLANDS	53
22	STATE ENVIRONMENTAL PLANNING POLICY NO. 44 – KOALA HABITAT PROTECTION	54
23	COFFS HARBOUR CITY KOALA PLAN OF MANAGEMENT	55

24	COFFS HARBOUR CITY VEGETATION STRATEGY	56
24.1	Background	56
24.2	Council Mapping of the 'Moonee Waters' Site	56
24.3	Assessment of Vegetation Values	56
25	ECOLOGICALLY SUSTAINABLE DEVELOPMENT	58
25.1	The Principles of ESD	58
25.2	The Precautionary Principle	58
25.3	The Principle of Intergenerational Equity	59
25.4	The Conservation of Biological Diversity and Ecological Integrity	60
25.5	Improved Valuation, Pricing and Incentive Mechanism	61
25.6	Conclusions	61
26	ENVIRONMENT PROTECTION & BIODIVERSITY CONSERVATION ACT 1999	62
26.1	Environment Protection & Biodiversity Conservation Act 1999	62
26.2	Bilateral Agreement & the Administrative Guidelines	62
26.3	The 'Moonee Waters' Concept Plan	63
26.4	Potential Impacts on Matters of National Environmental Significance	63
26.4.1	Listed Threatened Species and Ecological Communities	64
26.4.2	Nationally Threatened Plant Species	64
26.4.3	Nationally Threatened Fauna Species	65
26.4.4	Nationally Significant Ecological Communities	65
26.4.5	Migratory Birds	65
26.5	Conclusions	66
27	CONCLUSIONS	67
	BIBLIOGRAPHY	68

FIGURES

Figure 1	The 2007 Concept Plan for the 'Moonee Waters' project
Figure 2	Coffs Harbour City Council LEP 2000 Zoning
Figure 3	Subdivision design and individual allotments in the 'Moonee Waters' project
Figure 4	Ecological Constraints identified in the 2006 Sainty Report
Figure 5	Vegetation Mapping of the site by Gunninah/Whelans InSites
Figure 6	Areas of vegetation to be retained and to be removed
Figure 7	Aerial photograph of the coast around Moonee
Figure 8	Areas of cleared and highly cleared land at Moonee Beach
Figure 9	Alleged 'Wildlife Corridors' through the 'Moonee Waters' site
Figure 10a	The extent of 'vegetated links' through the 'Moonee Waters' site and surrounds
Figure 10b	Land ownership around the northern parts of the subject site at Moonee
Figure 11	Bushfire Protection Measures for the 'Moonee Waters' project
Figure 12	Stormwater Management Measures for the 'Moonee Waters' project
Figure 13	Endangered Ecological Communities and Threatened Species on the site
Figure 14	The 2007 Concept Plan superimposed over the Sainty constraints map
Figure 15	Moonee Creek Estuary Management Plan mapping
Figure 16	Moonee Planning Strategy mapping
Figure 17	Moonee Development Control Plan mapping
Figure 18	SEPP 14 Wetland on the 'Moonee Waters' site
Figure 19a	Relationship between the development precincts and the SEPP 14 Wetland
Figure 19b	The Southern Precinct, SEPP 14 Wetland and 20m and 50m setbacks

APPENDICES

Appendix A	Conservation Area Management Plan Principles
Appendix B	Matters Protected by the EPBC Act

**LOT 66 in DP 551005, MOONEE BEACH
'MOONEE WATERS'**

PROPOSED RESIDENTIAL DEVELOPMENT and CONSERVATION RESERVE

**RESPONSE to the SAINTY REPORT
and
JUSTIFICATION of the 2007 CONCEPT PLAN**

November 2007

PART A

INTRODUCTION AND BACKGROUND

1 INTRODUCTION

The site which is the subject of this *Report* (Lot 66 in DP 551005, Moonee Beach) is located to the immediate south of the township of Moonee, north of Coffs Harbour on the north coast of NSW (Figure 1). The subject site is bound by the Moonee township (to the north), a strip of public land containing the frontal dunes to the beach south of Green Bluff (to the east), privately owned and partially cleared land (to the south) and the Pacific Highway (to the west).

The subject site is currently substantially covered with native vegetation, although the northeastern corner has previously been mined and parts of the site had previously been cleared and/or used for long-term timber collection.

The site was zoned predominantly for tourist/residential purposes by Coffs Harbour City Council (CHCC) in 2000, following an extensive study and consultation program. The zoning by CHCC in 2000 identified 68% of the site (69.05ha) as suitable for consideration for development purposes, with just 32% of the site (32.95ha) being zoned for environmental protection purposes (Figure 2).

The current development concept for the site (the 'Moonee Waters' 2007 *Concept Plan*) is for a limited and carefully considered development on two portions of the site occupying only 22.88ha (or 22.4%) of the site (Figure 3). This constitutes just 33% of the currently approved and zoned development area on the subject site, and retains 73.4% of the site (74.9ha) as a dedicated and managed *Conservation Area* (Figure 3), albeit including three small 'pocket parks', pedestrian bicycle path infrastructure and limited bushfire protection areas.

2 BACKGROUND

2.1 The Subject Site and the Proposal

The subject site occupies a total area of approximately 102 hectares (ha). Pursuant to the *Coffs Harbour Local Environmental Plan 2000* (LEP 2000), various portions of the subject site (Figure 2) are zoned:

- *Residential 2E – Tourism* (occupying 69.05ha or 68% of the site); and
- *Environmental Protection 7A – Habitat and Catchment Protection* (occupying 32.95ha or 32% of the subject site).

On the 22nd of September 2004, the CHCC adopted the *Moonee Development Control Plan* (DCP) which classifies the whole of Lot 66 as "protected land", notwithstanding the zoning of approximately 68% of the subject site in LEP 2000 by CHCC for tourism development.

Subdivision and development of the subject site at Moonee Beach (Figures 1 and 3) is proposed pursuant to a *Concept Plan* which has been prepared for the site (Annand Alcock Urban Design - AAUD 2007) pursuant to the provisions of Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act). The current *2007 Concept Plan* has been amended from an earlier development design (as discussed below) subject to further discussions and the provisions contained in the *Director-General's Requirements* provided by the Department of Planning (DoP).

The initial proposal for the 'Moonee Waters' project (which had been reduced and distilled from earlier possible concept designs – see the *2007 Concept Plan* document) was provided to the DoP as a draft *Concept Plan* in 2006. That earlier *Concept Plan* also contemplated the development of two portions of the subject site (in the northwest and southwest) in a residential subdivision with a total of 378 residential allotments. The total area covered by that original subdivision design (including roads, parks and other features) was 25.94ha, with the Northern Precinct occupying an area of 16.64ha and the Southern Precinct an area of 9.3ha.

Subsequent to further consultation with various stakeholders, and detailed consideration of an ecological report to the DoP (see Part B of this *Report*), a revised *2007 Concept Plan* has been prepared which occupies a total of 22.88ha, or just 22.5% of the subject site (Table 1). The amended development design retains the two separate development 'villages' (the Northern and Southern Precincts), involving 14.15ha in the Northern Precinct and 8.73ha in the Southern Precinct. The total development proposal (Figures 1 and 3) now provides for 300 dwellings, and occupies just 22.5% of the subject site (or just 33% of the area which is currently zoned by CHCC for tourism development purposes).

As discussed in detail throughout this *Report*, the 'Moonee Waters' *2007 Concept Plan* also provides for a substantial *Conservation Area*, occupying approximately 74.9ha (or 73.4% of the subject site). That area constitutes more than twice the area identified by CHCC for conservation purposes as recently as 2000, and represents a significant contribution to biodiversity conservation. Further, as documented elsewhere in this *Report*, the management of that substantial conservation reserve is to be undertaken in perpetuity at no cost to the public purse (either CHCC or the state government).

Table 1 Areas of the development Precincts and the Conservation Area on the 'Moonee Waters' site (Figures 1 and 3).

Site Element	Area (hectares)	Proportion of Site
Northern Precinct (Lot 3)	14.15	13.9%
Southern Precinct (Lot 2)	8.73	8.6%
Total Development Area (Note 1)	22.88	22.5%
Conservation Area (Note 2)	74.9	73.4%
Balance of Lot 1 (Note 2)	4.22	4.1%
Total	102	100%

Note 1 The total development area proposed in the current *2007 Concept Plan* is 12% less than that proposed in the *2006 Draft Concept Plan* in response (in part) to the *Sainty Report*.

Note 2 Lot 1 occupies a total of 79.12ha, of which the majority is the dedicated Conservation area and the balance (in the southeastern corner) is to remain as community land zoned 2(e).

2.2 Information Base

The *Flora & Fauna Assessment Report* which was prepared by Gunninah Environmental Consultants¹ for the proposed development of the subject site at Moonee Beach (dated August 2006) is appended to the 2007 Concept Plan for the 'Moonee Waters' project (as Appendix A to that document). That *Report* has considered the extent, nature and condition of the subject site in great detail, and is based on a substantial empirical and personal database, as well as the information generated by others on the site and in the vicinity (see Bibliography).

The information on which the Gunninah *Report* is based includes:

- data and records contained in a variety of reports dating from 1989 in the Moonee area and on the subject site;
- a considerable number of site inspections and surveys undertaken by the author of this *Report* and by associates and colleagues over the last 5 years;
- the detailed surveys of the site to the immediate south for the North Sapphire development (Parker 2004); and
- comprehensive flora and fauna surveys undertaken on the site at different times (as detailed in the Gunninah 2006 *Report*).

The Gunninah 2006 *Report* (dated August 2006) replaces two earlier *Reports* which had been prepared by Gunninah Environmental Consultants for development concepts on the subject site (dated February 2005 and February 2006), and includes additional data derived from supplementary site investigations, and an assessment of issues and species raised by CHCC. The latest *Report* also incorporates data provided on request by Council, and followed discussions with Council and the Department of Environment & Climate Change (DECC)² regarding ecological issues.

The Gunninah 2006 *Report* has not been amended or modified to reflect the changes to the 'Moonee Waters' project reflected in the revised 2007 Concept Plan. Nevertheless, the conclusions contained in the Gunninah 2006 *Report* apply to the revised development concept. Indeed, the current project design would impose fewer impacts than those indicated in the 2006 Concept Plan, given the 12% reduction in the extent of the proposed development.

2.3 Scope of this Report

The scope and aims of this *Response & Justification Report* are:

- to critically assess the *Sainty Report* (Sainty & Associates 2006), including the information base on which that *Report* is founded, the assumptions and assertions stated, and the conclusions and recommendations contained within it (Part B of this *Report*);
- to critically review the constraints identified in the *Sainty Report* and to determine their validity and/or reasonableness (Part B of this *Report*);
- to provide additional consideration of the issues raised in the *Sainty Report* and to identify the measures which have been incorporated into the development design in response to the matters raised in the *Sainty Report*, including those which were established from the inception of the project (Part B and C of this *Report*);
- to document the revised 2007 Concept Plan for the subject site and to provide justification for the development footprint proposed (Part C of this *Report*); and
- to provide additional consideration of the various statutes and planning instruments and policies which are of relevance to the project (Part C of this *Report*).

¹ Gunninah Environmental Consultants is now *Environmental InSites*, part of *Whelans InSites*.

² The DECC was until recently the Department of Environment & Conservation, and incorporates the NSW National Parks & Wildlife Service.

PART B**REVIEW OF THE SAINTY REPORT****3 THE SAINTY REPORT****3.1 Basis of the Sainty Report**

The Department of Planning (DoP), as part of its assessment process under Part 3A of the EP&A Act, obtained advice from an environmental consultant (Sainty & Associates 2006) with respect to the draft (2006) *Concept Plan* for the 'Moonee Waters' development.

The '*Sainty Report*' (Sainty & Associates 2006) provides an assessment of the subject site and of the draft *Concept Plan*, and presents the opinions of Mr Geoff Sainty with respect to possible constraints on development of the subject site claimed or considered by Mr Sainty to arise from environmental matters (particularly flora and fauna issues).

The *Sainty Report* is based substantially on a review of existing information (including the *Flora & Fauna Assessment Report* of Gunninah Environmental Consultants) and a one-day inspection of the subject site by Mr Sainty and a colleague. In addition, the *Sainty Report* relies on the generic mapping of Scotts (2003) to identify alleged or purported "*wildlife corridors*" through the landscape. Whilst the Sainty team held discussions with government agencies, no discussions were held with the proponent or the consultants for the project.

The *Scope of Works* for the *Sainty Report* included:

- a review of available documentation on the ecological values of the subject site;
- the conduct of consultation with Coffs Harbour City Council (CHCC), the Department of Environment & Climate Change³ (DECC) and the Department of Natural Resources (DNR);
- the identification and mapping of "*high conservation value lands by onsite surveys with a differential GPS*". The "*high conservation lands*" were identified as including (but not necessarily limited to) SEPP 14 Wetlands and other wetlands, "*endangered ecological communities*" and buffer zones around such vegetation;
- the identification and mapping of "*lands suitable for environmental protection*"; and
- the identification and mapping of lands "*designated for future potential development areas*" on the subject site.

3.2 Conclusions of the Sainty Report

The *Sainty Report* provides a series of recommendations in respect to development of the subject site, and provides an "*environmental constraints and development potential map*" (Figure 4) which severely constrains and restricts the development possibilities on the site.

In particular, the *Sainty Report* recommends the refusal of any potential for development in the northwestern part of the subject site (*ie* the whole of the proposed Northern Precinct), and confines all development to a small and restricted portion in the southwestern corner of the site (approximately in the location of the Southern Precinct). This approach would yield only approximately 110 lots, and would occupy less than 8% of the subject site (Figure 4).

The approach which has been adopted by Sainty is considered by the author of this *Report*, and the principal author of the 2006 *Flora & Fauna Assessment Report* (Mr F Dominic Fanning), and also by the authors of the 'Moonee Waters' 2007 *Concept Plan*, as onerous, unjustified, unreasonable and excessive.

³ The DECC was created in March/April of 2007, and incorporates *inter alia* the Department of Environment & Conservation (DEC), which had consisted in part of the former NSW National Parks & Wildlife Service (NPWS). The *Sainty Report* predates that change and refers to the DEC.

It is particularly relevant to note that the approach expressed in the *Sainty Report* and the constraints proposed in that *Report* have been adopted on the basis of:

- a brief (one day) site inspection;
- a review of existing information (including the superseded Gunninah 2005 *Report*);
- the generic (and unsubstantiated) “wildlife corridors” purported to be present in the locality; and
- consultation with at least one government agency (the DECC) which has previously expressed clear and unequivocal opposition to the project (without the benefit of any detailed reporting, site survey or site assessment).

It is also relevant to note that the *Sainty Report* was prepared without the benefit of any consultation with the proponent or with those in the possession of the most substantial information base and the most comprehensive (by a considerable margin) experience of the subject site.

3.3 The Conclusions of This Report

It is the opinion of the author of this *Report* (Mr F Dominic Fanning) that the denial of development opportunities in the Northern Precinct and the restriction of development activities in the Southern Precinct, as recommended in the *Sainty Report*:

- represents an unreasonable and unnecessary constraint on development of the site as identified in the amended 2007 *Concept Plan* (as discussed in detail below);
- is not justifiable on biodiversity conservation grounds, or with respect to the relative conservation values of the various ecosystems and patches of vegetation on the subject site;
- is not justifiable in terms of the maintenance of real or imagined ‘wildlife corridors’;
- has not been justified in the *Sainty Report* on the basis of any objective analysis; and
- is reliant, in part at least, of a misrepresentation of an alleged (and unsubstantiated) “wildlife corridor” through parts of the site.

By contrast, the final ‘Moonee Waters’ project design, as documented in the 2007 *Concept Plan*, has been developed on the basis of the identification of areas of particularly high conservation value or significance on the subject site and the confinement of development activities to those portions of the site which are of lesser conservation value or significance. This approach has been based on extensive site surveys and information analysis, and has been vindicated by the listing of various plant communities as “endangered ecological communities” subsequent to the development design.

The ‘Moonee Waters’ project provides a moderate and reasoned development concept for the subject site, whilst achieving a substantial and significant biodiversity conservation outcome. In this regard, development of the two precincts identified in the 2007 *Concept Plan* for the ‘Moonee Waters’ project:

- concentrates development activities in the portions of the subject site which are of lower conservation value or significance;
- implements measures to protect significant plant communities and ecosystems, particularly those identified as “endangered ecological communities” on the TSC Act;
- maintains (and improves) broad ‘wildlife corridors’ across the subject site, which are significantly superior to any existing or likely corridors in the vicinity; and
- provides a financial base for the achievement of ‘best practice’ biodiversity conservation outcomes at no cost to the public purse and in perpetuity.

4 ISSUES AND RESPONSE BASE

4.1 Issues Identified in the *Sainty Report*

The *Sainty Report* identifies a number of issues which either are or are asserted to be of significance or relevance to the proposed development on the subject site at Moonee. The *Sainty Report* addresses, or purports to consider, a variety of matters and issues, including:

- the listed "*endangered ecological communities*" present on the subject site;
- the "*need for environmental buffers to endangered ecological communities*";
- the "*regional context and significance of vegetation on the site*" including:
 - the alleged presence of a "*significant area of forested land*";
 - the "*importance of vegetation on the site and impacts of clearing*";
 - the alleged role of the subject site as a "*nature corridor*"; and
- the "*potential loss of nature corridor and habitat*" as a consequence of the 2007 Concept Plan for the site.

These primary issues, and the implications they have for the perceived development potential of the subject site, are addressed in the *Sainty Report*. The considerations of these matters, and the uncritical acceptance in the *Sainty Report* of the alleged "*regional and sub-regional corridors*" in the locality (Scotts 2003), result in recommendations in that *Report* for:

- the retention of all vegetation in the northern parts of the subject site for the provision of a purported and alleged "*subregional wildlife corridor*"
- the imposition of 50m "*environmental buffers*" from all wetlands and alleged sensitive ecosystems; and
- the restriction all development activities to the Southern Precinct of, and the retention of over 92% of the site for biodiversity conservation purposes (Figure 4).

4.2 The Basis of the Response in This Report

The review of the *Sainty Report* and its conclusions and recommendations, and the justification of the amended development design for the 'Moonee Waters' project (as detailed in the 2007 Concept Plan), which are contained within this *Report* (prepared by Mr F Dominic Fanning), are based on:

- a substantial quantum of empirically derived data on the subject site obtained by the author and his agents and employees over a considerable period;
- the data provided by other investigators on the subject site and in the general area;
- an intimate knowledge of the subject site gained by the author of this *Report* over a period of 5 years and resulting from at least 10 visits to the site;
- the history of the development design which on the basis of the ecological constraints has already been significantly reduced; and
- confirmation of the approach adopted by the author and the project team by the listing of "*endangered ecological communities*" on the subject site which conform almost exactly with the original identification of areas and ecosystems of high conservation value and constraint.

The general approach which has been adopted in generating the 2007 Concept Plan for the 'Moonee Waters' development has been one of obtaining an appropriate balance between development aspirations and biodiversity conservation outcomes, and of providing an appropriate financial basis for the management of the *Conservation Area* on the subject site in perpetuity. This approach achieves an outstanding biodiversity conservation outcome at no cost to the public purse, whilst providing for public access across a substantial portion of land and the maintenance of the biodiversity values of that land in perpetuity. These outcomes satisfy all statutory requirements (in terms of the desired results) and achieve the goals identified in the *Sainty Report*.

5 ENDANGERED ECOLOGICAL COMMUNITIES

5.1 The Gunninah 2006 Report

The *Flora & Fauna Assessment Report* prepared by Gunninah Environmental Consultants⁴ for the proposed development of the subject site at Moonee Beach (dated August 2006), which is appended to the *2007 Concept Plan* for the project, has considered the extent, nature and condition of the subject site in great detail. It is to be noted that the Gunninah 2006 *Report* is based on a substantial empirical and personal database, as well as the information generated by others on the site and in the vicinity.

The Gunninah 2006 *Report* replaces two earlier *Reports* prepared for development concepts on the subject site (dated February 2005 and February 2006), and includes additional data derived from supplementary site investigations, and an assessment of issues and species raised by Coffs Harbour City Council. The latest *Report* also incorporates data provided on request by Council, and followed discussions with the Council and the NPWS.

The Gunninah 2006 *Report* identifies 6 “*endangered ecological communities*” (as listed on the TSC Act at August 2006) on the subject site (Figure 5):

- stands of Swamp Oak Forest which conform to the *Final Determination* for Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions (SOFF) community;
- areas of Swamp Mahogany Open Forest and Swamp Paperbark/Swamp Mahogany/Swamp Oak Open Forest which mostly to conform to the *Final Determination* for the Swamp Sclerophyll Forest of Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (SSFCF) community. It should be noted that some of this vegetation type on the more elevated land may not constitute that community;
- the sedgeland vegetation which appears to conform to the *Final Determination* for the Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (FWCF) community. There is the possibility that this vegetation type is located on a coastal sand plain, and is thereby excluded from the FWCF community (see *Final Determination*). The vegetation on the subject site has been regarded as the FWCF community in this *Report* on a precautionary basis, however, and has been assessed in terms of s.5A of the EP&A Act on that basis;
- the areas of Tuckeroo Littoral Rainforest, Headland Brush Box and Brush Box Closed Forest which conform to the *Final Determination* for the Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions (LRF) community;
- the Mangrove Forest vegetation which is listed on the *Fisheries Management Act 1994* (FM Act), rather than on the TSC Act; and
- the areas of Saltmarsh which conform to the *Final Determination* for the Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions (CSM) community.

All of the “*endangered ecological communities*” which are or may be present on the subject site at Moonee Beach are located on the low-lying land and/or at the periphery of the subject land. It is important and significant to note that the listing of those communities as “*endangered ecological communities*” post-dated the generation of the basic constraints to development opportunities on the subject land at Moonee Beach by the proponent and by the project team. Those subsequent listings vindicate and validate the approach which had been adopted by the proponent, and which has determined the extent and location of the development footprints.

Those plant communities and vegetation types have been recognised from the outset of this project as being of high conservation value, and those areas had substantially been excluded from the proposed development area for the project. The original flora and fauna investigations for the project (Gunninah 2003) identified these communities as a significant constraint, and essentially excluded development opportunities in these parts of the site. The subsequent listing of those vegetation types as “*endangered*

⁴ Gunninah Environmental Consultants is now *Environmental InSites*, part of *Whelans InSites*.

ecological communities" vindicates and validates the approach which has been adopted for the 'Moonee Waters' project from the outset of the project.

5.2 The Sainty 2006 Report

The *Sainty Report* states that there are 3 "*endangered ecological communities*" on the subject site (Figure 4) "*which can be collectively described as Coastal Floodplain EECs*". The "*endangered ecological communities*" identified and mapped in the *Sainty Report* (2006) include:

- Swamp Sclerophyll Forest of Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (SSFCF);
- Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions (SOFF); and
- Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions (CSM).

It is noted that Sainty states (in Chapter 2.2 of his *Report*) that Gunninah "*have identified five Endangered Ecological Communities*" on the site (and lists those 5 communities). Conversely, in Chapter 3.1 of his *Report*, Sainty states that there are just "*three Endangered Ecological Communities*", and identifies the "*Source*" as (Gunninah 2006). The August 2006 *Gunninah Report*, in fact, identifies the five "*endangered ecological communities*" as listed above on the subject site, as well as the Mangrove Forest community, which is listed on the *Fisheries Management Act 1994* (FM Act).

The *Sainty Report* provides a map of the combined "*endangered ecological communities*" (Figure 4) which is similar (but not identical to) the mapping of ecological communities on the site by Gunninah (Figure 5). The Gunninah 2006 map is more accurate and should be preferred, as it is based on more than a one-day inspection of the subject site.

Nevertheless, there are only relatively minor differences between the overall extent of the mapping of the "*endangered ecological communities*" by Sainty and that of Gunninah (Figures 4 and 5).

5.3 The 'Moonee Waters' Project

The 'Moonee Waters' 2007 *Concept Plan* involves the retention of approximately 99% of the listed "*endangered ecological communities*" on the subject site (Table 2; Figure 6), and its enhancement and maintenance in perpetuity for biodiversity conservation purposes.

A detailed and comprehensive assessment of the relevant factors of Section 5A of the EP&A Act with respect to "*endangered ecological communities*" has been undertaken with respect to the proposed development of the land at Moonee Beach (Appendix 5 of the August 2006 *Gunninah Report*)⁵.

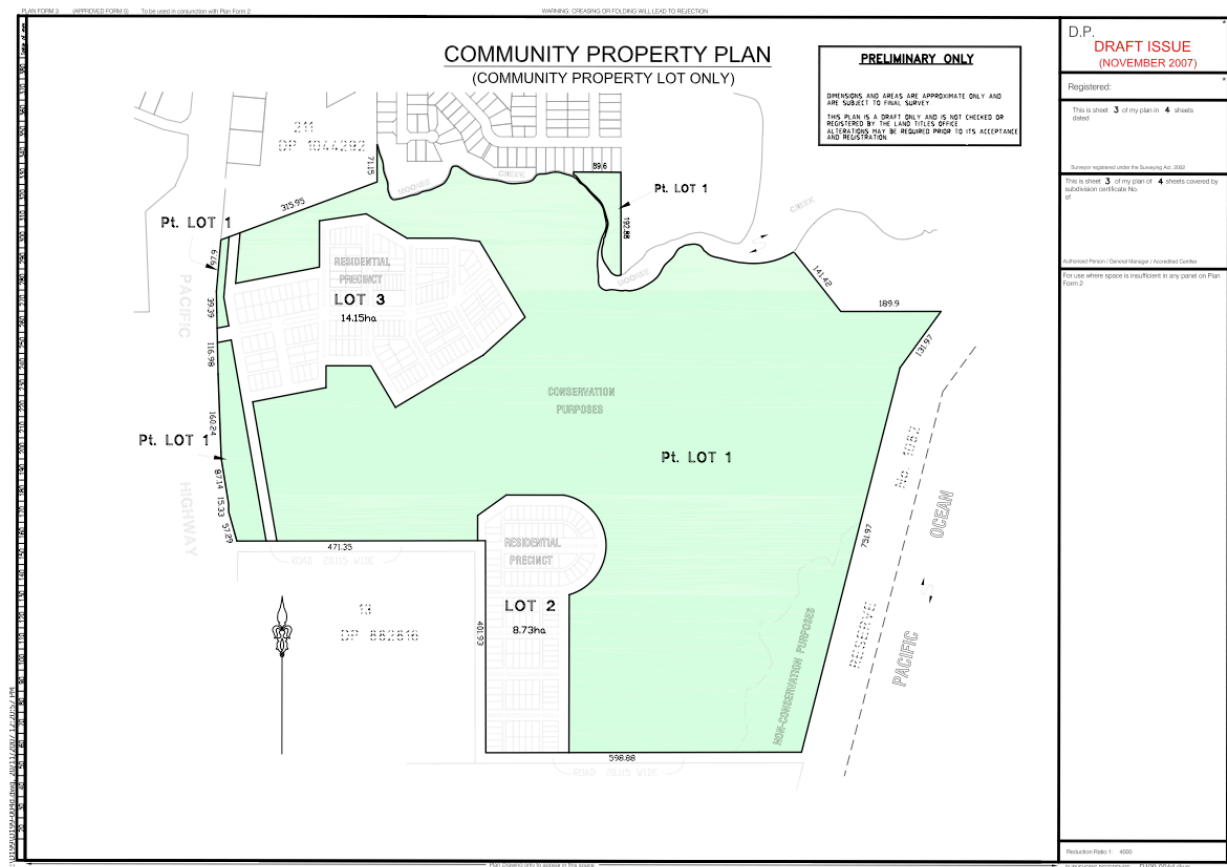
Given the extensive areas which have been devoted to biodiversity conservation within the subject land (occupying virtually all of the low-lying land on the site and the plant communities contained thereon), the proposed development is not "*likely*" to constitute a "*significant effect*" upon any such "*endangered ecological communities*".

Furthermore, the proposed development incorporates considerable and substantial measures for the management and protection of those communities, as discussed in detail in the *Flora & Fauna Assessment Report* (Gunninah August 2006). The majority of the subject land (approximately 75ha or

⁵ It should be noted that those s.5A Assessments of Significance applied to the earlier draft *Concept Plan*. The revised 2007 *Concept Plan* has further reduced the development footprint (by 12%), and therefore further reduces the impacts of the proposal on the natural environment.

73.4% of the site) is to be retained primarily for biodiversity conservation purposes⁶, and that area of the land occupies most of the low-lying parts of the site. Those areas contain the overwhelming majority of the stands of "*endangered ecological communities*" identified on the subject land, signifying the high conservation value of these portions of the site.

The proposed development incorporates, as an integral element of the project, the retention and maintenance of a substantial area of ecological communities and habitat on the site (approximately 75ha or 73.4%), of which small areas will be affected by bushfire protection, public park and pedestrian access activities. That approach constitutes a substantial and significant environmental benefit in the locality and region, and is a direct consequence of the proposed development.



⁶ A small proportion of the *Conservation Area* will be affected by *Asset Protection Zones*, three 'pocket parks' and pedestrian infrastructure. In all instances, however, the implementation of these elements of the project will be undertaken in a manner designed to maintain and protect biodiversity values, insofar as is possible.

6 THE NEED FOR ENVIRONMENTAL BUFFERS

6.1 The Rationale for Buffers

6.1.1 Discussion in the Sainty Report

The *Sainty Report* (2006) discusses the need for “*environmental buffers*” to the “*endangered ecological communities*”, and to wetlands and other vegetation, on the site, and briefly considers the size of “*environmental buffers*” in various circumstances.

The *Sainty Report* further 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). Sainty notes that due to a lack of research “*the size of a buffer for wetlands and other sensitive ecosystems in Australia should be determined on a case-by-case basis after site specific investigations (Winning 1997)*”.

That is precisely what has transpired with respect to the proposed development on the site at Moonee.

In Chapter 3.2, the *Sainty Report* recommends a 50m “*environmental buffer*” around “*endangered ecological communities*” on the subject site (Figure 4), without any justification or consideration of the impact amelioration measures and environmental management approaches adopted in the *2007 Concept Plan*. It is noted by Sainty, however, that the buffer “*can be reduced to 20m in some parts of a development to be made up elsewhere on the site depending on but not limited to the adjacent land use, elevation and slope*”.

6.1.2 Considerations in This Report

The author of this *Report* (Mr F Dominic Fanning) concurs that there is likely to be a need for “*environmental buffers*” to sensitive ecosystems or habitats where adjoining development or other land uses do not incorporate specific or appropriate measures to protect the adjoining natural environment. Under those circumstances, there is or there may be a need to absorb adverse impacts from the unsympathetic land use activities and to limit or control the imposition of adverse impacts (direct and indirect) on the adjoining environment. However, the need for “*environmental buffers*” generally is inversely proportional to the adequacy of management measures incorporated into the adjoining development.

The ‘Moonee Waters’ development *2007 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 and protected (approximately 99% of those communities), and are to be actively enhanced and managed in perpetuity primarily for biodiversity conservation purposes. The remainder of the *Conservation Area*, which contains plant communities and ecosystems which are not listed as “*endangered ecological communities*”, will be afforded the same protection.

Further, the development design incorporates a range of measures and design principles specifically intended to minimise impacts on the adjoining *Conservation Area*, including:

- the concentration of development in two portions of the site and the limiting of boundaries and edges;
- the concentration of development activities in vegetation of lower relative conservation value;
- the maintenance of broad vegetated links across the subject site to facilitate fauna movements (to whatever extent they currently occur) and to maintain habitat and vegetation linkages and connectivity;
- the provision of stormwater detention swales around the development areas to filter and manage stormwater and contaminant discharges, and to provide additional resources and fauna habitat;

- the provision of low impact fencing and features to identify the boundary between the development areas and the conserved vegetation, and the provision of educational signage throughout the site; and
- the management of vegetation within the APZs outside the development area in a manner which retains conservation values and which provides a “buffer” to the retained conservation lands.

6.2 Features and Functions of Buffer Zones

The *Sainty Report* (2006) states that a “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 “the environmental services provided by the nature reserve”.

The ‘Moonee Waters’ project and 2007 Concept Plan had considered the issues raised by the *Sainty Report* throughout the development design process and in the management approach to the Conservation Area on the subject site (which occupies approximately 73.4% of the land – a total of approximately 75ha).

Consideration of the individual issues raised in the *Sainty Report* with respect to the function of buffers, and their relevance to the ‘Moonee Waters’ project, is provided below.

6.2.1 Physical Barrier to Human Encroachment

The provision of a “physical barrier from [to] human encroachment” around the boundaries of the development area and/or around the subject site at Moonee (as proposed in the *Sainty Report*) is neither warranted nor (for the most part) feasible, at least within reason. The cost of providing such a barrier would be prohibitive, and it would be likely to do more harm than good with respect to protecting environmental values because of the damage which would be imposed on various habitats (particularly on the “endangered ecological communities”) by the erection of such a barrier to “human encroachment”.

Furthermore, development as proposed on the subject site at Moonee will provide a high degree of visual monitoring of the retained vegetation adjoining the development areas. Implementation of the *Management Plan* for the Conservation Area in perpetuity will also provide opportunities to identify areas where human encroachment is causing damage, and will provide the necessary resources to repair any such damage and to educate those responsible. Such measures are not currently part of management of the subject site, and could not be expected to occur without development as proposed on the site at Moonee.

The ‘Moonee Waters’ project has been designed to take advantage of the natural environment on the site, and to preserve and protect it in perpetuity. The establishment and maintenance of the Conservation Area (occupying approximately 75ha (or 73.4% of the site) is a significant feature of the project, and will be an important element in its promotion and marketing. Implementation of a dedicated *Conservation Area Management Plan* (CAMP) for the Conservation Area (Appendix A) is intended *inter alia* to involve local bushcare groups made up substantially of residents of the estate.

As noted above, the ‘Moonee Waters’ project will incorporate physical features which identify the physical edges of the Conservation Area, including bio-retention swales, bollards, low fencing and (where appropriate or deemed necessary) limited areas of exclusion fencing (eg for particularly sensitive features or species). Further, a range of educational signage is to be provided 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 educate both residents and visitors with respect to the environmental values of the *Conservation Area*. This approach is intended to confine and constrain human access to environmentally-sound constructed pathways, and to protect the retained ecosystems on the site.

None of these features would be provided in the absence of an approval for the 'Moonee Waters' project, and a significant reduction in the development opportunities would also constrain the ability to implement either the CAMP or the provision of measures to constrain human impacts. Given the approval of extensive development on the adjoining lands to the immediate south, there will undoubtedly be a significant increase in uncontrolled access through the subject site unless appropriate measures are implemented. Such measures are not likely to be implemented without the moderate and reasoned development of the site as proposed in the *2007 Concept Plan*.

6.2.2 Protection from Storm Damage

The *Sainty Report* states that the "buffer zones" will provide "protection [to the retained vegetation on the site] from storm damage", without specifying the degree of storm damage likely or the likelihood of "storm damage" being inflicted on the retained vegetation.

It is the opinion of the author of this *Report* that there is no need to provide any additional "buffers" along the edges of retained vegetation adjoining the development areas for "protection from storm damage" beyond or in addition to the APZ treatments which will immediately adjoin the development areas. The APZs themselves will *inter alia* protect the adjoining retained forest vegetation from any likely "storm damage", although major storm events (such as cyclones) would doubtless impose some damage on forests in the locality. That damage would occur irrespective of the presence of "buffers".

With respect to the proposed 'Moonee Waters' development:

- it is to be 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;
- there is no evidence, either on the subject site itself or on the adjoining land to the immediate south (where swamp forest communities abut open sedgeland or grassland vegetation), of any significant or even notable "storm damage" despite the total lack of any management regimes for these areas of vegetation or any "buffers" for that purpose;
- the band of retained forest within the APZs immediately adjoining the perimeter roads on the subject site will provide sufficient protection for the retained vegetation from potential storm damage, notwithstanding their modification for bushfire protection purposes;
- the retained vegetation adjoining the development areas on the site is generally at a somewhat lower elevation, and dwellings within the development will also 'absorb' some of the potential impacts on adjoining vegetation. The retained vegetation will thus be shielded to some extent from storms by the urban development itself; and
- most of the vegetation abutting the proposed development would not be exposed to the majority of storms which occur on this part of the NSW coast.

6.2.3 Extent of Retained Habitat

The *Sainty Report* (2006) recommends a substantial increase in the area of vegetation to be conserved on the site without any acknowledgement of the substantial benefits to be derived from the current proposal, and without any valid justification for the increase. Sainty proposes that there be no development in the Northern Precinct principally in order to preserve and protect a putative 'wildlife corridor' in this location, notwithstanding the constraints to fauna movements in this location. The relevance of the site for perceived or purported wildlife movements or "corridors" is addressed in detail below (Chapter 7.3).

The Moonee Waters' project involves the protection and management of approximately 75ha of "*natural habitat*", occupying approximately 73.4% of the subject site. This constitutes a substantial donation of private land for public use and for biodiversity conservation purposes at no cost to the public purse for either its provision or its ongoing maintenance. The extent of retained vegetation and habitat is well over double that identified by Council in its 2000 zoning of the subject site, and represents a ratio of 3 hectares of conservation land for every 1 hectare of development.

The *Conservation Area* on the subject site provides for the retention, enhancement and long-term protection of:

- in excess of 99% of the moist forest communities and all of the wetlands and watercourses on the subject site;
- approximately 47.5% of the Dry Blackbutt Forest community; and
- most of the appropriate and suitable habitat and resources for all of the threatened fauna species known to occur on the subject site and most of those which would be likely to occur on the site.

Given the substantial area which is to be dedicated primarily to conservation purposes (approximately 75ha of "*natural habitat*", occupying approximately 73.4% of the subject site), and the management of that land 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' 2007 *Concept Plan* as currently designed.

6.2.4 Edge Effects

The *Sainty Report* asserts that a 50m "*environmental buffer*" should be provided around the "*endangered ecological communities*" on the subject site *inter alia* to reduce "*edge effects*". The rationale for such "*buffers*" and their size has been addressed above.

The 2007 *Concept Plan* and the proposed long-term management of the *Conservation Area* on the 'Moonee Waters' site incorporate an array of measures to deal with "*edge effects*". The band of retained and modified vegetation within the APZs around the development precincts, as well as the stormwater bioswales 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. These measures are inherent in the development design and were incorporated precisely for the purpose of protecting (or 'buffering') vegetation in the *Conservation Area*.

The 'Moonee Waters' 2007 *Concept Plan* provides an appropriate and comprehensive resolution to the issue of "*edge effects*" which will or might be imposed on the conserved vegetation on the subject site. The proposed development has been particularly sensitive to the potential for the development and associated human activities to impose impacts along the edges of the retained vegetation, and includes measures designed specifically to limit and manage those potential impacts. The substantial additional "*environmental buffers*" recommended in the *Sainty Report* are neither warranted nor justified in the circumstances.

6.2.5 Enhancement of Environmental Services

The *Sainty Report* further suggests that the "*environmental buffers*" recommended would provide an "*enhancement to the environmental services provided by the nature reserve*".

Whilst perhaps true, that observation ignores the substantial contribution to biodiversity conservation already proposed in the 2007 *Concept Plan*, and the significant benefits to be derived from implementation of the CAMP for the *Conservation Area* (Appendix A). Given the extent of the

Conservation Area proposed on the subject site, and its management in perpetuity primarily for biodiversity conservation purposes at no cost to the public purse, there is no further requirement for any "enhancement to the environmental services" being provided.

The 'Moonee Waters' 2007 *Concept Plan* provides both for the permanent protection and 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" in the sense of the *National Parks & Wildlife Act 1974* (NP&W Act), although the level of active management and long-term maintenance which the 'Moonee Waters' *Conservation Area* will receive will exceed that afforded to most other conservation reserves in the general locality.

The current 2007 *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 dedicated conservation reserves in the region. It should be noted that this substantial contribution to the achievement of biodiversity conservation purposes in this locality, including the provision of public access and education, is to be maintained in perpetuity, at no cost to the public purse.

6.3 Buffer Size

The *Sainty Report* (2006) states that "due to lack of research, the size of buffer zones .. should be determined on a case by case basis". The *Sainty Report* further notes that landform, ecological attributes, climate threats and abutting land uses will influence the size of environmental buffers required or needed at any location. Whilst doubtless relevant to considering the requirement for 'buffers', this approach ignores the effects of active management on the need for buffers, and also totally ignores the proposed management of the *Conservation Area* on the 'Moonee Waters' site.

The *Sainty Report* recommends a 50m "environmental buffer" around the retained vegetation on the subject site to "reduce edge effects, allow for regeneration and protect key features such as nature corridor, remnant vegetation and significant habitat".

Whilst a buffer of that size may be necessary where development activities adjoining a *Conservation Area* are not sympathetic to the conservation requirements or where a development design has not been sensitive to the environmental features of the conservation lands, those circumstances do not pertain to the 'Moonee Waters' 2007 *Concept Plan*. The 2007 *Concept Plan* incorporates a range of measures designed specifically to avoid the requirement for a 50m buffer zone by appropriately managing and protecting retained vegetation and by avoiding, limiting and/or controlling the imposition of adverse impacts on the *Conservation Area*, as discussed above (see also the discussion in Chapter 8 of this *Report*).

The *Sainty Report* further requires that *Asset Protection Zones* (APZs) for bushfire protection purposes be located beyond the "environmental buffers" around the retained vegetation. Thus, having recommended (without proper or reasonable justification) an "environmental buffer" of 50m in width, the *Sainty Report* then requires the provisions of a further buffer to the buffer.

This approach is unreasonable and unjustified in these circumstances given:

- the considerable area of the subject site which is being dedicated primarily to biodiversity conservation purposes (approximately 75ha or 73.4% of the subject site);
- its appropriate management of that substantial area in perpetuity (at no cost to the public purse); and
- the implementation of appropriate measures within the 2007 *Concept Plan* to minimise or avoid adverse impacts from the developed areas on the natural environment.

6.4 Conclusions

The 2007 Concept Plan for the 'Moonee Waters' project has been designed to achieve the outcomes identified in the *Sainty Report* without the need for 50m buffers. The protection of sensitive vegetation within the substantial conservation reserve on the site is ensured by appropriate development design and by the management in perpetuity of the *Conservation Area*.

The 2007 Concept Plan incorporates:

- stormwater management features designed to prevent nutrient discharges into sensitive vegetation or into wetlands and watercourses. These features will also be planted out and managed to provide additional habitat for native flora and fauna;
- the provision of *Asset Protection Zones* principally within the development area. Where APZs are required in the *Conservation Area*, they are to be managed so as to maximise their biodiversity conservation values using minimum disturbance methods and weed suppression and control measures;
- confining human access through the reserve to dedicated paths and bicycle tracks; and
- managing human access around the development precincts and preventing uncontrolled access into the reserve.

7 REGIONAL CONTEXT AND SIGNIFICANCE OF VEGETATION ON THE SITE

7.1 The Significance of Forested Land on the Site

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

A review of aerial photography of this part of the coast (Figure 7), however, reveals that the subject site itself is not the "*single largest unit of forested land*" (emphasis added) along that part of the coast. There is no doubt that the subject site and the adjoining lands to the south and north (as a unit) do constitute a substantial tract of habitat and native vegetation. However, the subject site *per se* is not "*the single largest unit of forested land in the strip between Coffs Harbour and Woolgoolga*" as claimed in the *Sainty Report*.

Furthermore, the *2007 Concept Plan* for the subject site retains substantial and significant areas of forest and other habitats on the site, and maintains connectivity with vegetation to the south, north and west (Figure 8). 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 that it would be properly managed in perpetuity for the benefits of biodiversity conservation. Indeed, it can reasonably be anticipated that the absence of development activities, and the maintenance funding thus generated, the site would be subjected to ongoing disturbance and degradation.

In addition, the statement that the subject site, along with other lands in the immediate vicinity, "*offers a refuge for local wildlife during times of fire, drought or loss of habitat elsewhere*" is essentially meaningless. Any reasonably sized portion of vegetated land in the locality would provide the same habitat and resources. Presumably other portions of vegetated land in the vicinity would provide "*a refuge for local wildlife during times of fire*" in circumstances where the subject site has been affected by a large bushfire. Further, the fauna for which the subject site could reasonably be expected to constitute "*a refuge*" under the circumstances described in the *Sainty Report* are substantially those species identified in the *Sainty Report* as the "*more nimble species*".

7.2 The Importance of Vegetation on the Site

The *Sainty Report* 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*". Further, the *Sainty Report* states that the "*impacts of vegetation clearing can include*":

- fragmentation of habitats and/or vegetation;
- 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*".

In addition, The *Sainty Report* 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*".

Doubtless the removal of vegetation and habitats from the subject site will affect individuals of "*many taxa*" of native biota. However, that statement can be made with respect to the clearing of any native vegetation anywhere. Further, the 'Moonee Waters' project has considered the impacts of the removal of

vegetation (Gunninah 2006; this *Report*), and has been specifically designed to constrain adverse impacts to those portions of the site of lower conservation value and significance.

The 2007 *Concept Plan* for the 'Moonee Waters' development specifically addresses and acknowledges the adverse effects of the clearing of native vegetation and the 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 2007 *Concept Plan* also includes the retention and enhancement of approximately 75ha of native vegetation, and its management in perpetuity primarily 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 2007 *Concept Plan*.

In this regard, the design of the proposed development on the subject site has been cognisant of the potential impacts which will or theoretically could arise from development activities. From its initial conception, the 'Moonee Waters' development has incorporated specific measures and design features to limit, manage and control adverse impacts upon the natural environment.

The 2007 *Concept Plan* for the 'Moonee Waters' development includes:

- minimizing the potential fragmentation of vegetation and habitats by the retention and enhancement of broad bands of vegetation across the subject site, and by the deletion of development activities in parts of the site;
- ongoing management of all of the conservation lands (approximately 75ha) to ensure that invasive weed species are removed and controlled in perpetuity. It should be noted that this activity (*ie* the removal and control in perpetuity of weed species) is not likely to occur on the subject site without development as currently proposed;
- the management of development areas (the Northern and Southern Precincts) 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 to provide a buffer to the retained vegetation. The combination of that buffer, protection by dwellings in the development area, and the bio-retention swales around the development areas 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, which specifically addresses issues concerning "habitat degradation", "habitat subdivision", patch isolation and edge effects.

The overwhelming majority of the listed "endangered ecological communities" on the site (in excess of 99%) is to be retained and protected in perpetuity. In addition, approximately 16.39ha of the Dry Blackbutt forest community (or 47.5% of that present on the subject site) is to be retained within the *Conservation Area* and managed primarily for biodiversity conservation purposes in perpetuity. As is the case with other vegetation within the *Conservation Area*, that Dry Blackbutt community will be afforded a degree of protection and enhancement which is not currently available.

It is of note that the *Sainty Report* 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'".

The 2005 *Gunninah Report*, and comments contained within it, are of no relevance. That *Report* has been entirely replaced and superseded by the August 2006 *Gunninah Report*, which was prepared on the basis of additional survey and information, and which was provided to Mr Sainty for review. The August 2006 *Gunninah Report* does not make any comment with respect to the conservation status of the Dry Blackbutt Open Forest community as described in Fisher *et al* (1996).

7.3 Role of Site as a Nature Corridor

7.3.1 The Alleged Corridors Identified in the Sainty Report

The *Sainty Report* maintains that the subject site at Moonee “includes the coastline Regional Corridor and a small area of Key Habitat” identified in the Scotts (2003) and Scotts & Drielsma (2003) Reports, and that it also “includes a Sub-regional Corridor link to the Orara East State Forest west of the Pacific Highway” (Figure 9).

The *Sainty Report* asserts that the subject site is of significance in terms of:

- an alleged north-south “coastline Regional Corridor” which is said to be located through the eastern parts of the site; and
- an alleged east-west “Sub-regional Corridor link to the Orara East State Forest west of the Pacific Highway” through the site across the Pacific Highway and through the modified lands to the west of the Highway.

As acknowledged in the *Sainty Report*, these corridors “have been identified independent of planning legislation and structures” in two Reports (Scotts 2003; Scotts & Drielsma 2003) which specifically concentrated on ecologically matters and which ignored planning or land management issues. Whilst that approach may be claimed to have some benefits, on the basis of the considerations addressed below, the identification of those alleged “corridors” also:

- is clearly regional and ‘broad scale’ in concept, and includes cleared lands, major infrastructure, and existing residential and other urban areas (eg the eastern parts of the village of Moonee Creek, residential development along the coast at Sapphire Beach);
- appears particularly to ignore the presence of “formidable” artificial barriers as identified in the *Sainty Report* (eg the existing Pacific Highway and especially the future upgrade of the Highway); and
- appears to ignore the substantial natural breaks (such as Moonee Creek) which would preclude the overwhelming majority of native species from moving along the alleged north-south “corridor”.

Further, the *Sainty Report* admits that there is still considerable debate regarding “the role of wildlife corridors to ameliorate the impacts of habitat degradation, habitat subdivision and patch isolation”. Nevertheless, the *Sainty Report* maintains that “there is a plethora of literature arguing the need for corridors for their role for providing linkages in the landscape for biota”.

7.3.2 The North-South Corridor

The *Sainty Report* states that the subject site constitutes part of an alleged “coastline Regional Corridor” extending through the eastern parts of the site to the north and south (Figure 9). This ‘corridor’ had been identified and described in ecological reports which addressed the location of such features on a regional or sub-regional basis (Scotts 2003; Scotts & Drielsma 2003), but which did not undertake detailed ground-truthing of all of the corridors identified.

The alleged “coastline Regional Corridor” extends onto the land to the immediate south of the subject site (the approved North Sapphire development site) in two bands:

- along the coastal dune system (a band of vegetated albeit degraded land approximately 50m wide); and
- further south for a distance of approximately 300m, beyond which there is no native vegetation, and consequently no “corridor” (Figure 10a).

The subject site is therefore approximately at the southern limit of any purported “coastline Regional Corridor” at this location, other than along the frontal dune system (which provides a potential “movement corridor” for only a very limited suite of species).

Furthermore, the broad area of shallow estuarine habitats between the subject site and the Moonee Nature Reserve to the north would prevent the overwhelming majority of native species from moving from the subject site to the north or onto the site from the north. The function of the purported "*coastline Regional Corridor*" through the subject site, therefore, is limited to mobile fauna species (such as birds and bats), and is of essentially no relevance to any other native species.

On that basis, the subject site has only a very limited or confined function as a 'wildlife corridor', and is of essentially no relevance in this regard for most native fauna. Even for native flora species, only a limited number of species would be likely to have propagules capable of traversing that distance.

7.3.3 The East-West Corridor

The *Sainty Report* also states that the subject site "*includes a Sub-regional Corridor link to the Orara East State Forest west of the Pacific Highway*" (Figure 9). This 'corridor' had also been identified and described in the previous ecological reports (Scotts 2003; Scotts & Drielsma 2003).

In the first instance, it should be noted that the depiction of this 'corridor' in the *Sainty Report* (Figure 9) is misleading as it fails to include a major gap in the 'corridor' west of the Pacific Highway which is identified in the Scotts (2003) mapping. Even the Scotts (2003) depiction of that 'corridor' ignores other cleared land and the presence of the Pacific Highway.

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

Conversely (and significantly), the *Sainty Report* acknowledges that "*the Pacific Highway provides a formidable north-south barrier to some species and can result in wildlife fatalities*" (emphasis added) and that "*these effects may be compounded with the RTA planned upgrade of the Pacific Highway*". Nevertheless, the *Sainty Report* suggests that this "*formidable .. barrier .. can be addressed by measures such as roadside barrier fences with culverts, underpasses and rope crossings*" (emphasis added)⁷.

In this regard, it is of significance and relevance to consider that:

- the Pacific Highway in its existing condition is indeed (as described in the *Sainty Report*) a "*formidable north-south barrier*" to many species of native fauna;
- only the "*more nimble species*" (as described in the *Sainty Report*) would be capable of crossing the Pacific Highway (either in its existing condition or following the construction of a dual carriageway 4-lane freeway) other than by the use of culverts, bridges or rope crossings. The use of these features by wildlife to cross major infrastructure is at best haphazard, limited, and restricted to a small suite of species. At present, there are no rope bridges across the Pacific Highway, there are no dedicated fauna underpasses and the drainage culverts are largely unsuitable for travel by 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 significantly restrict opportunities for other than the "*more nimble species*" to cross the Highway. Other than as restricted to the specific locations of a few rope bridges, fauna underpasses and/or culverts (which will provide only extremely limited opportunities for a few "*nimble species*"), the upgraded Highway will substantially and significantly constrain fauna movements west from or east to the subject site; and

⁷

It should be noted that there is little or no evidence that such features provide any substantial or meaningful opportunities for other than a few mobile or "*nimble species*" to cross a road even of the size of the existing two-lane single carriageway Pacific Highway. There is little likelihood that most native fauna species (other than the "*more nimble species*" as identified in the *Sainty Report* and species which would be able to cross the Highway in any case) would utilise any such features.

- the existing nature of the lands to the west of the Pacific Highway at the location of the 'Moonee Waters' site (Figure 10a) already provides a significant constraint to fauna movements. The substantial extent of clearing has resulted in a highly fragmented landscape with only narrow bands of modified vegetation (many along roads or through yards or fields), with a high degree of modification and 'edge effects'.

There is no continuous band of vegetation westwards from the Pacific Highway to the Orara East State Forest (Figures 8 and 10a) and there are many disturbance features (such as dwellings, roads, fences, driveways, vehicles, pets and gardens). By contrast, the two bands of vegetation which are to be retained on the subject site (along the tributary to Moonee Creek on the northern side of the subject site and along Sugar Mill Creek) to facilitate the east-west movement of native fauna species are substantial, and have specifically been designed to provide real opportunities for habitat connectivity and fauna movements.

Lands to the north of the subject site at Moonee, along the northern tributary to Moonee Creek, is zoned *Environmental Protection* in the Coffs Harbour LEP 2000 (Figures 1.1 and 3.16A in the *2007 Concept Plan*). That zoning provides some protection for private land to the north of the subject site, facilitating the maintenance of the purported east-west corridor which includes both the northern parts of the subject site and some lands to the immediate north.

In addition to the zoning of lands along the Moonee Creek tributary (to the north of the subject site) for environmental protection, it is relevant to note that:

- most of the land to the north of the site is in the ownership of Coffs harbour City Council (CHCC) or the state government. Given the environmental concerns expressed by the CHCC and by several government agencies, it can reasonably be assumed that those lands would be managed for biodiversity conservation purposes;
- the site to the immediate northwest of the subject land (the Telpat Pty Ltd land – Lot 211 in DP 1044292) is currently the subject of a *Development Application* (DA), which includes *inter alia* the protection of a broad band of vegetation along the Moonee Creek tributary (conforming to that part of the land zoned for environmental protection purposes), immediately north of the subject land. This band of vegetation is to be managed for biodiversity conservation purposes and contributes to the east – west corridor across this part of the subject land; and
- implementation of the CAMP (Appendix A) and of the management measures on the site to the immediate northwest ensure the ongoing provision of an east – west 'wildlife corridor' through this part of the landscape (Figures 8, 10a and 10b).

7.3.4 The Reality of Corridors and the Proposed Development

It is the opinion of the author of this *Report* that the *2007 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. Indeed, the corridors proposed in the 'Moonee Waters' proposal are significantly wider and more substantial than any others either present or likely to be created in the immediate vicinity.

Whilst the concerns expressed in the *Sainty Report* regarding "nature corridors" and fauna movements are legitimate (in a theoretical sense at least), they have been appropriately addressed by the *2007 Concept Plan* for the proposed development at Moonee.

In this regard:

- the proposed 'Moonee Waters' development as detailed in the *2007 Concept Plan* will have no impact whatsoever on the "coastline Regional Corridor" which has been identified through the eastern parts of the site (Figures 8 and 10a);
- the proposed development will have no impact whatsoever on the "major area of Key Habitat (Moonee Beach Nature Reserve)" which has been identified by Sainty (by reference to previous *Reports* – Scotts 2003; Scotts & Drielsma 2003);

- the proposed development maintains broad east-west bands of vegetation across the site to its boundary with the Pacific Highway which have been designed and are intended expressly for the purposes of maintaining fauna movement corridors and habitat linkages to the west (Figures 10a and 10b). It is to be noted that the habitat corridors maintained on the subject site at Moonee are substantially broader than any such corridors west of the Pacific Highway (Figure 10a).

Furthermore, those habitat bands on the subject site are to be managed in perpetuity primarily for biodiversity conservation purposes. The same cannot be said of any vegetation on private lands to the west of the Pacific Highway at present nor is it likely that any such regime would be implemented on lands to the west of the Highway; and

- the *2007 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 or 73.4% of the site) and the putative habitat corridor extending to the west of the Pacific Highway and linking to the Orara East State Forest.

It is also of importance to note that there is no guarantee or certainty with respect to the retention, enhancement or maintenance of any purported "*nature corridors*" west of the Pacific Highway. Those alleged 'corridors' are considerably narrower than either of the habitat linkages to be maintained on the subject site (Figures 8 and 10a), and there is no mechanism in place (nor likely to be put in place) to ensure their maintenance, rehabilitation or long-term management.

Further, the constraints which are imposed currently, and which will be imposed to a greater extent by the upgraded Pacific Highway, severely restrict the value of any east-west habitat linkage for other than the "*more nimble species*" of native fauna (as noted in the *Sainty Report*).

The proposed 'Moonee Waters' development, as detailed in the *2007 Concept Plan*, provides both a design and the management (and funding) mechanisms to achieve the goals (identified in Scotts 2003 and Scotts & Drielsma 2003) with respect to the provision of corridors through the landscape.

8 THE CONCLUSIONS OF THE SAINTY REPORT

8.1 General

The author of this *Report* concurs with the *Sainty Report* that "*the property has many ecological attributes*". However, the claim by Sainty that the subject site "*effectively represents the single largest unit of forested land in the strip between Coffs Harbour and Woolgoolga*" is not supported by a review of the available aerial photography (see above).

Further, there are no provisions for the ongoing maintenance, protection or enhancement of vegetation on the site under current circumstances, and in the absence of a financial return by way of development as proposed on the site, there is no incentive for or likelihood of any such management. In addition, the conservation and management in perpetuity of approximately 75ha of native vegetation (approximately 73.4% of the site) at no cost to the public purse, which is an integral part of the *2007 Concept Plan*, will continue to provide "*one of the best natural vegetation sequences .. of the region*". That claim cannot be made of any other privately owned land in the locality (at least on this scale).

Future posited or potential crossing points of the Pacific Highway (once upgraded) adjacent to the subject site will be largely restricted to the watercourses and/or to a few rope or other fauna bridges, and would not be impeded by the proposed development of the Northern Precinct (Figures 1, 3, 8 and 10). In addition, there is a substantial area of cleared land and a great deal of fragmentation of habitat to the immediate west of the Highway at the location of the Northern Precinct (Figures 8 and 10), and any potential 'movement corridors' are restricted essentially to the existing watercourses.

Furthermore, the habitat corridors proposed across the subject site are substantially larger and more intact than any of those west of the Pacific Highway (Figures 8 and 10), and the *2007 Concept Plan* will facilitate their retention, protection, enhancement and management in perpetuity. That circumstance does not apply to the lands west of the Pacific Highway.

8.2 Conservation on the Subject Site

Despite the implications in the *Sainty Report*, there will be a substantial area of Dry Blackbutt Forest retained on the subject site (approximately 16.4ha or 47.5% 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 primarily 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.

The assertion in the *Sainty Report* that the "*proposed development will also destroy both Regional and Sub-regional Corridors and Key Habitats*" is simply incorrect.

The 'Moonee Waters' development as currently proposed in the *2007 Concept Plan* will have absolutely no impact on the purported coastline Regional 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 (nor indeed for any conservation reserves) in this vicinity.

The *Sainty Report* 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 comments elsewhere that the Highway represents a "*formidable barrier*" to fauna movements). The *Sainty Report* 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 (Figures 8 and 10).

8.3 Balance Sheet

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

- the retention of examples of all major habitat types and ecosystems within the conservation reserve on the subject site;
- the retention, enhancement and permanent protection of a substantial tract of land (approximately 75ha) as a *Conservation Area*, which will be available to the public and which will be managed in perpetuity at no cost to the public purse;
- the removal of weeds, rubbish and urban debris from the *Conservation Area*, and the implementation of a *Conservation Area Management Plan* (CAMP) for the control of weeds and the rehabilitation of damaged areas;
- permanent controls on human access through the majority of the site and the provision of educational signage;
- the provision of features 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.

The conclusions of the *Sainty Report* with respect to the draft *Concept Plan* for the 'Moonee Waters' development which had been provided at the time (late 2006) have been taken into account where appropriate. The 'Moonee Waters' project has subsequently been refined somewhat to reduce (by 12%) the total footprint, as indicated in the revised 2007 *Concept Plan*. However, it is the opinion of the author of this *Report* that the earlier (2006) *Concept Plan* had adequately and appropriately dealt with the conflicts (real or imagined) between development and conservation.

By contrast, the *Sainty Report* fails to justify the additional development constraints recommended, and does not appropriately address the *Concept Plan* or the consequences of constraining development on the site in several respects:

- confining the development area to that proposed by Sainty (less than 8% of the site) is unrealistic and unreasonable, given the substantial area of land which is proposed to be dedicated as a *Conservation Area* (approximately 75ha or 73.4% of the subject site);
- the concerns expressed in the *Sainty Report* with respect to 'wildlife corridors' and vegetated links are unfounded and inappropriate, and fail to acknowledge the restrictions to the purported 'corridors' that currently exist or the environmental values of the 'corridors' proposed on the site;
- a substantially smaller development than that which has been proposed in the revised 2007 *Concept Plan* (as recommended in the *Sainty Report*) would not be capable of providing sufficient funds for or incentive for the protection, enhancement and management in perpetuity of the *Conservation Area*. As a consequence, the financial burden for that ongoing management would most likely devolve to the Council or government agencies, and there would inevitably be an ongoing degradation of the conserved lands (as is the case currently in such areas);
- there is no incentive or statutory requirement for protection of the *Conservation Area* on the subject site under current circumstances; and
- the *Sainty Report* has failed to consider or take into account the substantial benefits which will be derived from dedication of the *Conservation Area* and its management in perpetuity primarily for biodiversity conservation purposes. It is the contention of the author of this

Report that the substantial environmental benefits which are derived from that approach (involving the protection and rehabilitation of 75ha of private land, and its management primarily for biodiversity conservation purposes at no cost to the public purse) considerably outweigh the losses that will be imposed by development of the site in the limited and reasonable manner proposed.



PART C**JUSTIFICATION OF THE REVISED 2007 CONCEPT PLAN****9 THE REVISED 2007 CONCEPT PLAN**

The revised 2007 *Concept Plan* for the 'Moonee Waters' development (Figures 1 and 3) incorporates:

- the location of urban development in the least ecologically sensitive and significant parts of the subject site, within vegetation which is predominantly not listed as an "*endangered ecological community*" (Figures 5 and 6);
- the conservation of approximately 75ha of the subject site for biodiversity conservation purposes including the overwhelming majority of the "*endangered ecological communities*" (98.99%) present as well as approximately half of the Dry Blackbutt open forest community (Table 2; Figure 6);
- the maintenance of broad 'wildlife corridors' through the site in both a north-south and an east-west direction (Figures 3 and 10);
- the management in perpetuity through a 'community title' management regime of the *Conservation Area* (involving the implementation of a dedicated and detailed CAMP) for benefit of the public and of local residents, to ensure that the substantial conservation reserve on the subject site is enhanced and maintained in a prime condition;
- the construction and maintenance of access paths and bicycle paths through the *Conservation Area* using sensitive construction methods to control human access throughout the conserved lands;
- the provision of bushfire protection measures principally within the development footprint, involving front yards, the peripheral road system and the peripheral stormwater drainage swales (Figure 11). Where APZs are located in the *Conservation Area*, they are to be managed sensitively (according to the CAMP – Appendix A) to maintain biodiversity conservation values; and
- the employment of Water Sensitive Urban Design principles based on the concept of total water cycle management (Figure 12) which includes:
 - the harvesting of rainwater for re-use;
 - the collection and filtering of stormwater;
 - the use of bioswales in road medians and around the perimeter of the subject development precincts to remove nutrients and contaminants (Figure 12); and
 - the controlled discharge of excess stormwater through the adjoining retained vegetation (Figure 12) to further manage and remove nutrients prior to discharge into the natural drainage system.

The revised 2007 *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 47.5% (16.4ha) of the Dry Blackbutt forest community is to be retained within the subject site (Figure 6).

The development 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 habitat connectivity for "*nimble species*" (birds, bats and insects) throughout the development estate.

The *Conservation Area* on the subject site (Figures 1 and 3) is not a formal "*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 primarily for biodiversity conservation purposes at no cost to the public purse, provides a balance to the establishment of a residential development in this location.

The subject site contains 15 major vegetation types (Table 2; Figure 5), although there are a number of sub-communities within those main community types. Of those, the majority are to be retained *in toto* (Table 2; Figure 5), and only 2 are to be significantly reduced in extent (one of which will be totally removed). Neither of those communities is regarded as of particular conservation significance, and nearly half of the major dry vegetation type (the Dry Blackbutt open forest) will be retained.

As noted in the *Flora & Fauna Assessment Report* for the project (Gunninah 2006), those plant communities of greatest conservation value and significance, have been the focus of the project design and have substantially been retained in the 2007 Concept Plan. The drier plant community types (none of which have been listed as "*endangered ecological communities*") were identified as the most appropriate for development activities. The subsequent listing of the swamp and wetland communities on the TSC Act, long after development of the concept design for the 'Moonee Waters' project, validates and vindicates the approach which has been adopted in the earlier Draft 2006 Concept Plan and in the subsequent revised 2007 Concept Plan (Figure 6).

The 'Moonee Waters' project, as detailed in the revised 2007 Concept Plan, includes:

- a modest and limited residential development on just 22.5% of the subject site;
- the retention, rehabilitation and permanent management of 74.9ha of the site; and
- the implementation of appropriate and 'state-of-the-art' development design and environmental management measures as integral elements of the proposal.

Table 2 The vegetation types or plant communities on the 'Moonee Waters' site, and the proportion of each community to be removed for development purposes and to be retained and rehabilitated in the Conservation Area.

Community	Total Area (ha)	% Removed	% Retained	EEC
Dry Blackbutt Open Forest	34.51	52.5	47.5	No
Flooded Gum Open Forest	0.917	5.2	94.8	No
Turpentine Open Forest	3.203	100	0	No
Coastal Red Gum Forest	0.151	0	100	No
Dry Forest Communities	38.63	55.3	44.7	
Swamp Paperbark/ Swamp Mahogany/ Swamp Oak Open Forest	41.173	1.1	98.9	Yes
Swamp Mahogany Open Forest	1.745	0	100	Yes
Coastal Riparian Open Forest	1.957	0	100	No
Swamp Forest Communities	44.875	1.01	98.99	
Brush Box Closed Forest	0.279	14.7	85.3	No
Foredune Complex	3.479	0	100	No
Headland Brush Box Rainforest	0.246	0	100	Yes
Littoral Rainforest	2.598	0	100	Yes
Mangrove/Saltmarsh	2.286	0	100	Yes
Sedgeland/Rushland	4.672	0	100	Yes
Other Communities	13.56	0.30	99.70	

10 POTENTIAL IMPACTS

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

- the removal of vegetation and fauna habitats and resources over approximately 23ha (22.4% of the subject site) within the Southern and Northern Precincts;
- an increase in the number of local residents on the site and in the immediate vicinity, with a concomitant increase in human activities throughout the site and in the locality;
- localized and limited increases in noise and light emanation, particularly around the periphery of the Southern and Northern Precincts; and
- the risk of contaminants or pollutants being discharged from the residential areas, particularly by way of stormwater discharges.

Conversely, the *2007 Concept Plan* for the subject site has recognised and accommodated those potential impacts by a variety of impact amelioration and environmental management measures including:

- limiting the removal of vegetation primarily to the 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 22.4% of the subject site (or just 33% of that zoned for residential purposes);
- incorporation of Water Sensitive Urban Design principles into the project to contain stormwater discharges and to control water quality;
- providing for the permanent rehabilitation and management of a substantial *Conservation Area* (of approximately 75ha) at no cost to the public purse;
- implementing measures to control human access through the *Conservation Area*;
- the retention within the *Conservation Area* of all of the major vegetation types present on the subject site including the overwhelming majority of the swamp forest communities and moderate areas of dry Blackbutt forest; and
- the provision of an integrated village housing type appropriate to the market and the coastal character of the site.

With respect to protecting the natural environment, the revised *2007 Concept Plan* includes a range of relevant environmental management and impact amelioration measures as integral and important elements of the 'Moonee Waters' development design:

- active management of vegetation at the edges of the development areas to retain both the canopy and a native understorey whilst providing appropriate bushfire protection (where necessary) and with a specific emphasis on weed control. These areas will also provide an environmental buffer to the retained lands immediately adjoining the development footprints;
- the placement of bioswales and other stormwater management features around the periphery of the subject site (Figure 12) which will be planted with native sedges, rushes and reeds, and which will 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, and further by the immediately adjoining vegetation down slope of the swales prior to the discharge of stormwater into the natural drainage system;
- 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;
- the provision of *Asset Protection Zones* (APZs) around the periphery of the development area which include the front yards of the residential lots and the peripheral road system, as well as the bioswale system around the development footprints (Figures 11 and 12);

- the provision of a human access management and control system around the development precincts involving appropriate fencing, as well as signage to encourage responsible use of the environment;
- the provision of environmentally sensitive and appropriately located walkways and bicycle paths through the *Conservation Area*; and
- the provision of a detailed and dedicated *Conservation Area Management Plan* (CAMP) for the *Conservation Area* (Appendix A), and of a mechanism for its implementation in perpetuity, including the involvement of local residents.

The revised *2007 Concept Plan* discussed in this *Report* does not conform to the constraints imposed in the *Sainty Report* in respect either of development areas or his recommended environmental buffers of 50m plus *Asset Protection Zones* (Figure 4). It is the contention of this *Report* that those constraints are excessive and unnecessary, and unreasonably limit the development opportunities on the subject site. Conversely, the development as proposed in the *2007 Concept Plan* satisfies the principle objectives of the *Sainty Report* whilst providing a reasonable and appropriate urban design.

With respect to the habitat and wildlife corridor issues raised by Sainty (2006) in considering the 2006 draft *Concept Plan*, 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 (Figure 10);
- the proposal maintains two broad east-west habitat and wildlife corridors through the site which will be managed in perpetuity for biodiversity conservation purposes (Figures 2 and 10). These are broader than the bands of vegetation (or 'corridors') west of the Pacific Highway; 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 not adversely affect any habitat or wildlife corridors which have been identified in this locality (Figures 8 and 10).

It is noted that the *Conservation Area*, which occupies approximately 75ha (or 73.4% of the site), is an integral and important part of the *2007 Concept Plan*. This substantial conservation reserve is to be dedicated primarily for biodiversity conservation purposes, and is managed in perpetuity at no cost to the public purse.

That approach can only be adopted by the extent of development currently proposed, and represents an unprecedented environmental benefit in this locality. In particular, the substantial management costs of a 75ha reserve are to be covered by a levee on the residents of the 'Moonee Waters' development, and implementation of the CAMP is ensured by the community title scheme proposed for the development (as detailed in the *2007 Concept Plan*). That approach would not be feasible with a smaller development footprint than the moderate and constrained development proposed in the revised *2007 Concept Plan*.

11 IMPACT AMELIORATION AND ENVIRONMENTAL MANAGEMENT

As noted above, the revised *2007 Concept Plan* for the 'Moonee Waters' development has incorporated a range of impact amelioration and environmental management measures as integral elements of the project. Significantly, the project design has been informed and determined by the ecological constraints of the site at all times since its inception, with the location of sensitive and high conservation value vegetation, habitats and species being determinative in establishing the appropriate locations for development opportunities.

Specific features of the impact amelioration and environmental management aspects of the revised *2007 Concept Plan* for the 'Moonee Waters' development include:

- the retention, protection, rehabilitation and management in perpetuity of 75ha of vegetated land (73.4% of the subject site) at no cost to the public purse;
- the confinement of development activities predominantly to the less ecologically valuable areas of vegetation on the site;
- the provision of a constrained and moderate development footprint which incorporates measures to protect the adjoining environment;
- the provision of a peripheral road system which provides a management edge between the development and the *Conservation Area*, and which provides appropriate bushfire management access;
- the incorporation of Water Sensitive Urban Design principles to ensure efficient use of water through the development and to avoid the imposition of adverse impacts on the adjoining retained vegetation;
- the use of a peripheral bio-retention swale system which provides both habitat for native fauna and part of the development's *Asset Protection Zones*;
- the avoidance of any piped discharge of stormwater into wetlands and watercourses. All excess stormwater will be discharged into the peripheral swales and ponds, and thence by overland flow through the adjoining vegetation and into the groundwater system and/or into the low-lying parts of the site (Figure 12);
- the sensitive management of those areas of vegetation in the 'fuel management corridors' along the roads (Figure 11) by the removal of all weeds, the careful removal of understorey and ground litter to obtain the required fuel loads, and the selective removal of trees as required in consultation with an ecologist;
- the provision of dedicated and sensitively located and constructed walkways and bicycle paths through the *Conservation Area*, as well as appropriate signage and local resident involvement in the management of the *Conservation Area*, to limit and control human impacts on the reserve; and
- the management of the *Conservation Area* in perpetuity by a Community Management Scheme funded by the residents of the 'Moonee Waters' development, and implemented by those residents, which ensures the permanent management of the *Conservation Area*, at no cost to the public purse, while permitting access to the public.

The approach which has been adopted in the revised *2007 Concept Plan* for the 'Moonee Waters' development constitutes an outstanding example of coastal development in a sensitive location, implementing 'best practice' principles, and achieving an excellent urban design and living experience within a well managed and substantial *Conservation Area*.

The *2007 Concept Plan* provides an appropriate and sensitive balance between development activities within a relatively small part of the subject site and biodiversity conservation values and aspirations. In addition to providing a 3:1 ratio between conserved vegetation and habitats on the subject site and development precinct, the 'Moonee Waters' concept provides for a mechanism for the generation of funds and for the application of those funds for the management, maintenance and rehabilitation in perpetuity of the *Conservation Area* on the subject site.

12 MANAGEMENT REGIME FOR THE CONSERVATION AREA

12.1 General Management Protocols

The majority of the subject site (approximately 75ha or 73.4%) is to be retained and managed in perpetuity primarily for biodiversity conservation purposes. The *Conservation Area* contained in Lot 1 (Figures 1, 3 and X) will be open to the public, and is proposed in the *2007 Concept Plan* to be managed through a 'community title' arrangement⁸ which ensures that the substantial reserve is managed to protect the valuable habitats and biota contained therein.

The *Conservation Area* will be managed by the implementation of a *Conservation Area Management Plan* (CAMP) of which the principles and objectives are provided in the attached *CAMP Principles* document (Appendix A). The CAMP is to be implemented by a *Community Association* as identified in the *Community Management Report* for the project (Whelans Insites 2007), and will be a self-funding management regime (unless the *Conservation Area* is ultimately dedicated either to Council or to the DECC – see footnote).

Small parts of the *Conservation Area* will be affected by the requirements for bushfire protection along the western and southern access roads, and for a short distance (<10m) immediately adjacent to the development precincts (Figure 11). However, in all instances, these areas are to be managed sensitively and in a manner which retains biodiversity values and which prevents the invasion of weeds or the loss of habitats and resources (see below).

12.2 Management Principles

Management of the *Conservation Area* through the CAMP (Appendix A) will include:

- a program of weed removal and ongoing suppression and control in identified locations throughout the *Conservation Area*;
- replanting regimes where necessary, particularly where there have been long-established areas of dense weeds and/or in previously mined areas (eg near Green Bluff);
- fencing of specific patches of the *Conservation Area* if necessary to protect certain species or habitats (eg populations of the Rusty Plum and/or Moonee Quassia);
- 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;
- the application of specific and dedicated management measures in the APZs contained within the *Conservation Area*;
- 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* (as discussed below); and

⁸ The proposal contained in the *2007 Concept Plan* is that Lot 1 (the *Conservation Area*) be retained in the ownership of the *Community Association*, formed of all lot owners in the 'Moonee Waters' development. Management of the *Conservation Area* will be guaranteed by the *Articles of Association*, and will be both enforceable and subject to an auditing process. Management of the *Conservation Area* would be in accordance with the *Conservation Area Management Plan* (CAMP), and would involve regular reporting to Council and the DECC.

It should be noted that the community title arrangement has been developed on the basis that neither Council nor the DECC would be prepared to accept dedication of Lot 1. In the event that dedication of that large area for conservation purposes is accepted (either by Council or DECC), the community title arrangements would be deleted from the project (although the CAMP would still be of value).

Excision of the 'local parks' and the *Asset Protection Zone* identified in the *Concept Plan*, and their management by the *Community Association*, may also be negotiated under these circumstances.

- the establishment of an ongoing monitoring and reporting regime to ensure that the *Conservation Area* is appropriately maintained and that problems are identified and rectified.

The CAMP for the 'Moonee Waters' *Conservation Area* (Appendix A) provides details of:

- the management regimes to be implemented at the boundaries between development precincts and the conserved vegetation;
- the areas of weed infestation and the measures to be employed to remove and to control weeds on a permanent basis;
- replanting and rehabilitation programs for selected areas, as necessary;
- the precise management regime within the APZs required within the *Conservation Area*;
- management of the stormwater treatment ponds and swales;
- the management program and objectives for the 'local parks' which are part of the *Conservation Area*;
- the construction procedures and ongoing maintenance regimes for pedestrian and bicycle paths and other public recreation facilities within the *Conservation Area*;
- the performance criteria to be achieved through implementation of the CAMP;
- a regime for incident and problem identification, analysis and rectification; and
- the annual monitoring and reporting regime for the CAMP.

The CAMP is intended to provide the permanent management regime for the *Conservation Area* on the subject site. It is based on the assumption that the site would be retained in private ownership, and that there is a need to provide a detailed and dedicated regime which ensures the protection of the natural environment. In the event that government agencies (local or state) are not prepared to manage the 75ha of the site for biodiversity conservation purposes, the CAMP provides a mechanism for the achievement of those goals.

As noted in detail in the revised *2007 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 purse. Enhancement and rehabilitation of that land, and its permanent management at no cost to the public purse, constitute a substantial environmental benefit arising from the revised *2007 Concept Plan* for 'Moonee Waters'.

13 IMPACT ASSESSMENT PURSUANT TO THE EP&A ACT

13.1 General Considerations

The potential impacts of the *2007 Concept Plan* for the 'Moonee Waters' development have been considered in detail in the *Flora & Fauna Assessment Report* which was prepared in respect of the *2006 Draft Concept Plan* (Whelans InSites/Gunninah 2006).

That *Report* documents the substantial array of investigations which have been undertaken on the subject site, addressed the impacts of the then (2006) draft *Concept Plan* on threatened and other native biota. The impacts of the revised *2007 Concept Plan* will be somewhat less than those associated with the earlier concept, by virtue of the reduced footprint in the latter *Concept Plan* (involving a reduction by 12% of the development footprint).

Through the whole development of the Plan including the identification of the areas for development activities, the 2007 Concept plan has taken into account the potential or likely impacts of the project on the natural environment in general and on threatened biota and their habitats in particular. The assessment of the impacts of the project includes consideration of the stormwater management measures (including the bio-retention swales), the APZ requirements of the project and the impacts of infrastructure and of the 'local parks' contained in the *Conservation Area*.

13.2 Impacts on the Natural Environment

Pursuant to Section 75R of the EP&A Act, Section 79C of the Act does not apply to projects which are subject to approval pursuant to Part 3A of the EP&A Act. Whilst the specific provisions of s.79C of the Act in respect of potential impacts on the natural environment do not apply, it is a requirement of the Part 3A approval process (and of the DGRs for the 'Moonee Waters' *2007 Concept Plan*) that the impacts of a development on the natural environment be addressed.

As noted above, the proposed development of the subject site at Moonee Beach will unavoidably involve the imposition of impacts upon the "*natural environment*". The site is largely covered by native forest, woodland and wetland vegetation, and development of the site will require the removal of some vegetation, and the displacement or loss of fauna from the development areas on the site.

However, the vegetation and the biota present within the proposed development precincts on the subject site are generally broadly distributed in the locality and region. The plant communities to be affected are of the lowest relative conservation value in relation to other vegetation on the site.

The majority of the significant and sensitive plant communities and areas of vegetation on the subject site have been identified for retention and protection in the development design. Those plant communities and ecosystems which have been identified as of the highest conservation value (*ie* those listed as "*endangered ecological communities*" on the TSC Act) are almost entirely contained within the *Conservation Area* identified in the *2007 Concept Plan* for the 'Moonee Waters' development. This approach also protects the most significant habitats and resources present on the site for native (including threatened) biota.

The impacts which will be imposed by development of the site as proposed are regarded as acceptable or appropriate given:

- the extent of those plant communities and ecosystems which are to be affected throughout the locality and region;
- the relatively small area of land to be affected compared to the total size of the subject site and the extent of vegetation in the locality;
- the concentration of development activities within the most common plant communities, and those of the lowest conservation significance (by reference to the TSC Act); and
- the protection of most of the subject land (approximately 73.4%), including the most significant and sensitive environments, in a substantial *Conservation Area* on the site, and

the management of that land in perpetuity, at no cost to the public purse, primarily for biodiversity conservation purposes.

The proposed development at Moonee Beach provides for an appropriate balance between urban development requirements and conservation goals in respect of the relevant considerations pursuant to the EP&A Act, as discussed at length above.

13.3 Section 5A of the EP&A Act

The TSC Act has modified the EP&A Act by, *inter alia*, including a requirement in Section 5A (s.5A) to determine "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*". The eight factors of s.5A "*must be taken into account*" by a consent or determining authority when considering a development proposal or *Development Application*, particularly in administering Sections 78, 79C and 112 of the EP&A Act.

Section 5A of the EP&A Act has recently been amended by the *NSW Threatened Species Amendment Act 2002* (TSAA Act) by modifying the factors which "*must be taken into account*" in determining "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*". The amended s.5A *Assessment of Significance* contains seven factors which "*must be taken into account*", replacing the eight factors which were included in the original s.5A *Assessment*.

In the case of those threatened species and endangered ecological communities known to occur on the subject site (Figure 13), it is concluded that there is not "*likely*" to be a "*significant effect*" as a result of the proposed development at Moonee Beach (Whelans InSites/Gunninah 2006). This conclusion is based on:

- the extent of vegetation to be reserved on the subject site itself (Figure 6);
- in particular with respect to "*endangered ecological communities*", the retention of the overall majority of those communities within the substantial *Conservation Area* on the subject site (Figures 5 and 6);
- the implementation of a community title and long-term management regime on the site to ensure that retained vegetation and the *Conservation Area* is appropriately managed primarily for biodiversity conservation purposes;
- the extreme unlikelihood of any "*viable local population*" of threatened species or the "*local occurrence*" of any "*endangered ecological community*" being "*placed at risk of extinction*"⁹ (emphasis added). In this regard, it is critical to note that a reduction in the extent of or in the numbers of, or in the extent of habitat of, threatened biota cannot be regarded as representing a threat of a "*risk of extinction*" (emphasis added);
- the retention of habitat and resources for all of the relevant threatened biota which have been recorded on the subject site (Figure 13) or which could reasonably be expected to occur on occasions;
- the small number of individuals of any species which would be likely to be affected by the proposed development;
- the extent of habitat in the locality which would provide for the viability and survival of any "*viable local population*" of the relevant threatened fauna and flora species; and
- the mobility of most of the threatened fauna species of relevance (Gunninah 2006).

A range of other threatened biota species could potentially occur on the subject site as individuals or in small groups on occasions. Consideration of s.5A of the EP&A Act (Whelans InSites/Gunninah 2006) with respect to those additional biota also indicates that the proposed development is not "*likely*" to

⁹ The term "*extinction*" means the complete obliteration of a species, population or community, requiring that the relevant biota ceases to exist *in toto* at a location. It is not sufficient that there be some reduction in numbers or extent of habitat, but that it is no longer present.

impose a “*significant effect*” on any of these “*threatened species .. or their habitats*” (Whelans InSites/Gunninah 2006).

It is not considered “*likely*” that a “*significant effect*” would be imposed by the subdivision and development of the subject site as proposed on any threatened biota or their habitats, on the basis of:

- the considerations discussed above;
- the detailed consideration of the relevant factors of s.5A of the EP&A Act contained in the *Flora & Fauna Assessment Report* for the ‘Moonee Waters’ project (Whelans InSites/Gunninah 2006); and
- the substantial extent of habitats and ecosystems which are to be retained on the subject site and managed in perpetuity for biodiversity conservation purposes.

The detailed s.5A *Assessments of Significance* for relevant threatened biota, contained in the *Flora & Fauna Assessment Report* (Whelans InSites/Gunninah 2006) was prepared on the basis of the earlier Draft *2006 Concept Plan* for the ‘Moonee Waters’ development. The revised *2007 Concept Plan* envisages a smaller development footprint, with a total reduction of 12% in the combined area of the northern and southern precincts compared to the *2006 Concept Plan*.

On that basis, the *Assessments of Significance* contained in the earlier *Flora & Fauna Assessment Report* are appropriate and relevant to the *2007 Concept Plan*. Indeed, the potential for a “*significant effect*” to be imposed upon any of the relevant threatened biota has been further reduced by the reduction in total extent of development activities proposed on the subject site.

13.4 Other Relevant Statutes and Planning Instruments

A substantial number of other statutes, planning policies and environmental planning instruments, both of the NSW state government and of Coffs Harbour City Council (CHCC), are of relevance in considering the implications of the *2007 Concept Plan* for the ‘Moonee Waters’ development project. Most of these policies, instruments and statutes have been addressed in some detail in the existing *Flora & Fauna Assessment Report* (Whelans InSites/Gunninah 2006) which was prepared in respect of the earlier draft *2006 Concept Plan*. However, the considerations with respect to that earlier *Concept Plan* remain of relevance with respect to the revised *2007 Concept Plan*, given that the latter *Plan* has identified a somewhat smaller development footprint than was the case in the *2007 Concept Plan*.

It is to be noted in particular that the draft *2006 Concept Plan* and the revised *2007 Concept Plan* involve development of only a small proportion of the subject site at Moonee, and both *Plans* include the retention, rehabilitation and management in perpetuity of the majority of the subject site. That *Conservation Area* (which totals approximately 75ha in area) is to be rehabilitated and maintained in perpetuity at no cost to the public purse, and will provide public access through the *Conservation Area* (on dedicated walkways and bicycle paths), again at no cost to the public purse.

Other relevant statutes, policies and planning instruments which are of relevance with respect to the ‘Moonee Waters’ project include:

- the *Fisheries Management Act 1994* (Chapter 14);
- the *Rivers & Foreshores Improvement Act 1948* (Chapter 15);
- the *Draft Moonee Creek Estuary Management Plan* (Chapter 16);
- the *Moonee Planning Strategy* (Chapter 17);
- the *Moonee Development Control Plan* (Chapter 18);
- the *Draft Mid-North Coast Regional Strategy* (Chapter 19);
- the *NSW Coastal Policy 1997* (Chapter 20);
- *State Environmental Planning Policy No. 14 – Coastal Wetlands* (Chapter 21);
- *State Environmental Planning Policy No. 44 – Koala Habitat Protection* (Chapter 22);

- the *Coffs Harbour City Koala Plan of Management* (Chapter 23);
- the *Coffs Harbour City Vegetation Strategy* (Chapter 24);
- the principles of *Ecologically Sustainable Development* (Chapter 25); and
- the *Environment Protection & Biodiversity Conservation Act 1999* (Chapter 26).

It is noted that the *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act) is Commonwealth legislation, and does not fetter the consent process at the state level. Further, the EPBC Act does not apply to paper subdivisions or *Concept Plans*, but is specifically directed to physical development activities. Consequently, the EPBC Act does not strictly apply to the revised 2007 concept Plan for the 'Moonee Waters' development.

Nevertheless, the *2007 Concept Plan* for the 'Moonee Waters' project has considered the implications of the EPBC Act for future development activities on the site (Chapter 26 of this *Report*). No "*matters of national environmental significance*" will be adversely affected to any significant extent by the proposed 'Moonee Waters' project. The project has been specifically designed *inter alia* to protect the natural environment in general, including the relevant matters with respect to the EPBC Act.

14 FISHERIES MANAGEMENT ACT 1994

The *Fisheries Management Act 1994* (FM Act) requires the protection of native fish species and their habitats. The Act provides protection for a range of fish habitats, both freshwater and estuarine, and through a range of associated policies and guidelines provides for the maintenance of fish passage along watercourses.

The *Development Concept* for the proposed development at Moonee Beach, and the environmental studies and advice which informed that *Development Concept*, are based on the premise of satisfying all of the requirements of the FM Act. The proposal does not involve any construction activities within the watercourses across the site, and the three road crossings (one at the northwestern corner of the site across the tributary of Moonee Creek, one near the western boundary across a tributary of Sugar Mill Creek, and the third across Sugar Mill in the southwest of the site) will be constructed so as to avoid any adverse impacts on fish habitats and to avoid any restrictions on fish movements.

Additionally, the water management regime for the proposal is designed to maintain water quality in the watercourses and to avoid altering flow regimes. Consequently, the proposed development will not adversely affect native fish species or their habitats, and will satisfy the aims and objectives of the FM Act.

In addition to the requirements of the FM Act itself, there are several relevant policies and guidelines promulgated by NSW Fisheries (which is part of the Department of Primary Industries-DPI) including:

- the *Policy and Guidelines for Aquatic Habitat Management and Fish Conservation* (NSW Fisheries 1999);
- the document *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003); and
- the *Policy and Guidelines for Fish Friendly Waterway Crossings* (NSW Fisheries 2003).

The proposed development activities at Moonee will ultimately require (although not in the first instance) the construction of bridge crossings over three watercourses:

- a bridge on the local access road (located along the current transmission line easement northwest of the Northern Precinct) over the northern tributary to Moonee Creek (in the northwestern part of the subject site);
- a bridge crossing along that same access road southwest of the Northern Precinct (over a small tributary of Sugar Mill Creek); and
- a bridge over Sugar Mill Creek on the southern boundary of the subject site (between the North Sapphire Beach development and the subject land on the Crown Road reserve).

There are no detailed bridge designs for any of these watercourses in the *2007 Concept Plan* for the 'Moonee Waters' development, as the *Concept Plan* is for the overall development footprints and conceptual subdivision designs. However, it is anticipated that any future roads and crossings of watercourses would be designed and constructed in a manner which conforms to the requirements of the FM Act and of the *Guidelines* and *Policies* noted above. In this regard, each of those crossings would be of a bridge construction or would use large culverts, and there would be specific design features to avoid impeding the movements of fish and other aquatic fauna and to avoid adverse impacts upon aquatic habitats in general.

It should be noted that the watercourses which would be affected by the 'Moonee Waters' development are already highly modified and degraded, and are subject to the adverse effects of weed invasion, nutrient discharge from unmanaged agricultural activities upstream and concentrations of flow as a result of the construction of the Pacific Highway. Development of the subject site as anticipated in the *2007 Concept Plan* would include measures to enhance, rehabilitate and upgrade those watercourses throughout the subject site.

15 RIVERS & FORESHORES IMPROVEMENT ACT 1948

The *Rivers & Foreshores Improvement Act 1948* (RFI Act) and the *Water Management Act 1997* establish a statutory basis for the protection of watercourses, rivers and lakes and their aquatic and riparian habitats throughout New South Wales.

Most of the RFI Act has been replaced by the *Water Management Act 1997*, except for Part 3A which requires (in certain circumstances at least) the approval of the relevant state government authority for works undertaken within watercourses or within "40 metres from the top of the bank or shore of protected waters". The relevant government authority is the Water Administration Ministerial Corporation, constituted by the *Water Administration Act 1986*, but the provisions of Part 3A of the RFI Act are administered by the *Department of Environment & Climate Change* (DECC). The relevant part of the DECC was until recently included in the Department of Natural Resources (DNR), and had previously been part of the Department of Land & Water Conservation (DLWC).

The requirements of the RFI Act do not apply to activities such as rezonings or subdivision designs, as these do not involve physical works on the site (although they do anticipate such activities). Further, Section 75R of the EP&A Act provides that there is no requirement for the provision of a Permit pursuant to Part 3A of the RFI Act for a project which is subject to approval pursuant to Part 3A of the EP&A Act.

Nevertheless, the *2007 Concept Plan* for the 'Moonee Waters' development has addressed the issues and concerns raised in the RFI Act, and in particular the need to maintain and rehabilitate aquatic and riparian habitats. In this regard, the proposed development:

- is set back from the watercourses on the site, and provides appropriate 'buffers' to and protection for all watercourses;
- incorporates 'state-of-the-art' water management measures designed *inter alia* to protect the adjoining environment and to maintain water quality and flow regimes; and
- incorporates a CAMP and community title arrangement¹⁰ for the management in perpetuity of the *Conservation Area* on the subject site, which includes the riparian zones on the site.

The *2007 Concept Plan* for the 'Moonee Waters' development provides a high level of protection for watercourses and "protected waters" as defined in the RFI Act. The three watercourse crossings which would ultimately be required for development of the site as currently proposed (see Chapter 16.6) will be constructed and designed in a manner specifically intended to minimise or avoid adverse impacts on the aquatic and riparian habitats present.

Future development of the 'Moonee Waters' project, as identified in the *2007 Concept Plan*, will require earthworks for crossings of watercourses at three locations on the subject site. However, none of the development activities in the Northern or Southern Precincts would be located in the immediate vicinity of any watercourses, and in any case the development concept incorporates design principles and measures specifically to avoid disturbance to or damage to watercourses throughout the site.

The implementation of the CAMP for the *Conservation Area* (which occupies 73.4% of the subject site) includes an array of measures specifically designed to enhance water quality and to improve all of the watercourses by the removal of debris, urban rubbish, dumped vehicles and weeds. All of the watercourses on the subject site at Moonee will be enhanced and improved as a consequence of the implementation of the *2007 Concept Plan*.

The CAMP includes specific measures to be implemented for the protection, enhancement, rehabilitation and maintenance of riparian vegetation within the site. In this regard, the areas of the tributary to Moonee Creek on the subject site which are currently subjected to high levels of degradation and disturbance will be protected and rehabilitated.

¹⁰ See comments and footnote contained in Chapter 12.

16 DRAFT MOONEE CREEK ESTUARY MANAGEMENT PLAN

16.1 Introduction

The Moonee Creek Estuary has been the subject of a study and the preparation of a Draft *Management Plan* (the Draft *Moonee Creek Estuary Management Plan* – MCEMP). The Draft MCEMP has not been adopted by Coffs Harbour City Council (CHCC) or any other government authority, but was prepared pursuant to the *State Rivers & Estuaries Policy* at the behest of the *North Coast Catchment Management Authority* (CMA).

The Draft MCEMP seeks to provide guidance to the management and use of the Moonee Creek Estuary including *inter alia* the environmental management and design of developments within the Moonee Creek catchment. The *Management Plan* contains an array of strategies and management options for the catchment and the estuary, including:

- strategy H – controlling and managing water quality from new developments;
- strategy J – protecting habitats and vegetation;
- strategy K – ensuring that developments are sympathetic to the environment; and
- strategy N – providing for wildlife corridors.

Whilst the Draft MCEMP has not been adopted or yet accepted, and is not currently being implemented, the *2007 Concept Plan* for the 'Moonee Waters' development has incorporated an array of measures which satisfy the strategies enunciated within the *Management Plan*. With one exception (discussed below), the 'Moonee Waters' development will satisfy all of the goals and objectives of the Draft MCEMP, and is designed to achieve the environmental management and biodiversity conservation outcomes identified within the *Plan*.

Strategy U of the Draft MCEMP is for the expansion of the Coffs Coast Regional Park by *inter alia* incorporating the whole of the subject site at Moonee Beach into that Park. However, there is no mechanism identified within the Draft MCEMP for acquisition of the subject land, nor is there any program identified for the long-term management of that land.

The *Management Plan* also identifies an alleged *Key Corridor* (by the DECC) through the subject site (Figure 15). However, this alleged corridor is clearly indicative and bears no relation to either the vegetation on the subject site, the constraints imposed by the Pacific Highway and other features, or the fragmented habitats to the west. Detailed consideration of the issues associated with 'wildlife corridors' is provided in Chapter 7 of this *Report*.

The *2007 Concept Plan* for the 'Moonee Waters' development envisages the retention of 75ha (73.4% of the land) in a *Conservation Area* which is to be managed in perpetuity pursuant to a dedicated CAMP and a community title arrangement. That approach will achieve the essence of Strategy U of the Draft MCEMP at no cost to the public purse, and does not require the voluntary donation of a substantial amount of land with no compensatory benefit to landowners. Similarly, there is no requirement for acquisition of the land by the public for its use for biodiversity conservation purposes.

16.2 Objectives of the Draft Moonee Creek Estuary Management Plan

The Draft MCEMP identifies a range of "*management objectives*" which have been "*formulated based on the values of the estuary and the issues/problems facing the estuary, as presented in the previous chapters*" of the *Management Plan*. As indicated in Chapter 4 of the Draft MCEMP, the management objectives "*aim to rectify the problems facing the estuary, whilst preserving and enhancing the estuary's inherent values*".

It is to be noted that the management objectives are not intended to prevent development opportunities generally within the Moonee Creek estuary but rather are directed to minimising impacts upon the natural environment and particularly on the estuary and its aquatic and riparian habitats.

The management objectives (14 in total) are based on 7 broad categories:

- the establishment and maintenance of water quality standards;
- reducing or limiting bank erosion and sedimentation;
- the protection and enhancement of ecology, ecosystems and biodiversity;
- ensuring that future development within the catchment "*considers the environmental sensitivity of Moonee Creek*";
- opportunities for human use of the Moonee Creek estuary;
- the protection of cultural heritage sites within the estuary; and
- ongoing improvement of knowledge and management mechanisms for the estuary.

Those objectives of the Draft MCEMP which are of ecological and/or environmental relevance to the 'Moonee Waters' project are considered below, with detailed analyses contained in the *2007 Concept Plan* for the project (AAUD 2007) and in the relevant expert documentation (Patterson Britten 2007; ABPP 2006; Environmental InSites 2007).

Objective 1 Reduce the level of pollutant and sediment loads entering Moonee Creek.

- The *2007 Concept Plan* will not increase sediment discharges from the development area into Moonee Creek given the development design and stormwater management regime, and will include rehabilitation activities along the Moonee Creek tributary which will reduce sediment discharges into the estuary.
- The stormwater management regime designed for the project will *inter alia* prevent the discharge of pollutants into the Moonee Creek estuary.

Objective 2 Ensure that the water quality is suitable for recreational uses and ecological function.

- The *2007 Concept Plan* incorporates specific measures to ensure the maintenance of water quality discharges from development areas on the site.
- Any future development of the site will be in accordance with the *2007 Concept Plan* and the commitments contained therein.

Objective 5 Ensure protection of existing habitats and fauna communities.

- The *2007 Concept Plan* provides appropriate protection for "*existing habitats and fauna communities*" by the retention and management, in perpetuity, of 73.4% of the site (74.9 hectares of natural habitats) in a dedicated *Conservation Area*.
- The 'Moonee Waters' project and *2007 Concept Plan* provides a certain and guaranteed mechanism for the "*protection of existing habitats and fauna communities*". There is no other current, or likely, process which would provide that guarantee, even if the site was purchased for conservation purposes.

Objective 6 Remove weeds and exotic species within bushland areas.

- Management of the *Conservation Area* as proposed in the *2007 Concept Plan* will ensure the removal of "*weeds and exotic species*" throughout the site.
- The *2007 Concept Plan* provides a certain and guaranteed mechanism for the removal of "*weeds and exotic species*".

Objective 7 Restore and protect an appropriate riparian buffer.

- The proposal ensures the protection and restoration of riparian buffers and other vegetation throughout the subject site.
- The proposed development is appropriately set back from the riparian habitats on the site.

- The *2007 Concept Plan* provides a certain and guaranteed mechanism for the restoration and protection of "riparian buffers".

Objective 8 *Future development to not place any additional stress on the estuary.*

- The *2007 Concept Plan* incorporates specific measures to ensure the maintenance of a range of measures specifically designed to avoid the imposition of "any additional stress on the estuary" at Moonee.

Objective 11 *Provide sufficient and appropriate public access and facilities at appropriate locations.*

- The 'Moonee Waters' *2007 Concept Plan* provides for "public access and facilities" by the proposal for the construction and maintenance of public walkways and bicycle paths through the *Conservation Area*.
- The proposal provides for "public access" and use of 75ha of the site, none of which is currently available for such uses (being private land). Any current public use of the site is illegal and constitutes trespass.

Objective 13 *Ensure ongoing consultation with all stakeholders of Moonee Creek.*

- Whilst the landholders of the subject site are very willing to be involved, they have not been 'consulted' on any of the proposals considered in the draft MCEMP regarding the subject lands.

16.3 Strategies of the Draft Moonee Creek Estuary Management Plan

The Draft *Moonee Creek Estuary Management Plan* (MCEMP) includes a number of specific strategies which have been identified for achieving the objectives of the *Management Plan*.

The 24 individual management strategies, described in detail in Chapter 6 of the Draft MCEMP (Table 3), deal with a variety of tasks (immediate, short-term and medium-term) and with a range of issues and objectives relating to administration, planning, further investigations, community education, on-ground works and monitoring of the estuary.

Of those 24 strategies, six are of particular relevance or note in terms of ecological and environmental management issues with respect to the 'Moonee Waters' *2007 Concept Plan*. The implementation of those strategies, or of measures within the development design to satisfy those strategies, and the objectives of the Draft MCEMP, are identified in the relevant documentation attached to the *2007 Concept Plan* for the 'Moonee Waters' project.

Strategy I *Prepare planning policy for new urban development restricting flows and pollutants for up to the 1 in 2 year rainfall event.*

- The stormwater management regime for the *2007 Concept Plan* has been specifically designed to prevent changes in stormwater discharges from the site.
- The proposal also involves design principles specifically intended to control and manage pollutant discharges from the development area.

Strategy J *Protect existing habitats, vegetation stands and foreshore buffers.*

- The retention and long-term management of 73.4% of the subject site, as detailed in the *2007 Concept Plan*, achieves the goals of Strategy J of the Draft MCEMP.
- It is noted that there is no other current, or likely, process which would provide for the long-term protection of "existing habitats, vegetation stands and foreshore buffers" throughout the site.

Strategy K *Ensure future urban developments are compassionate to the environment and foster a bond between future residents and the natural environment.*

- The *2007 Concept Plan* achieves the goals of Strategy K by the implementation of a Community Title regime on the site, and by the promotion of community involvement in the management program.

Strategy L *Adopt WSUD and integrated total water cycle management for new developments.*

- The *2007 Concept Plan* incorporates the principles of 'Water Sensitive Urban Design' (WSUD) and includes the approach of "total water cycle management".

Strategy N *Ensure wildlife corridors are catered for within plans and future proposals.*

- The *2007 Concept Plan* provides broad habitat 'corridors' through the site.
- The 'corridors' incorporated in the *2007 Concept Plan* are substantially broader and less fragmented than those on the lands to the west of the Pacific Highway (Figures 8 and 10).
- The area identified as an alleged *Key Corridor* (by the DECC) through the subject site is clearly indicative (Figure 15) and bears no relation to either the vegetation on the subject site, the constraints imposed by the Pacific Highway and other features, or the fragmented habitats to the west.

Strategy U *Extension of the Coffs Coast Regional Park to other important habitat areas.*

- The *2007 Concept Plan* achieves the goals of Strategy U by the dedication of 73.4% of the site primarily to conservation purposes.
- That dedication and the permanent management of the *Conservation Area* on the site will contribute in a substantial and significant manner to the Coffs Coast Regional Park.
- Indeed, the commitment to management of the *Conservation Area* on the subject site exceeds the likely management regime which will be applied in the Regional Park adjacent to the subject site (given government fiscal constraints).

It is also to be noted that the remaining strategies of relevance contained in the Draft MCEMP are satisfied by the 'Moonee Waters' *2007 Concept Plan*. The 'Moonee Waters' project provides both the opportunity to achieve those strategies and the mechanisms by which the aims and objectives of the Draft MCEMP can be achieved.

16.4 Conclusions

The 'Moonee Waters' development concept, as detailed in the *2007 Concept Plan* (AAUD 2007), represents an environmentally sensitive response to development opportunities on the subject land. The approach to development of the site which has been adopted (involving the retention of 73.4% of the subject site in a *Conservation Area*) provides an outstanding opportunity to satisfy the objectives of the Draft *Moonee Creek Estuary Management Plan* (MCEMP).

In addition to satisfying concerns with respect to the potential for direct and/or indirect impacts upon the Moonee Creek estuary in its development design, the *2007 Concept Plan* incorporates a range of impact amelioration and environmental management measures (particularly with respect to stormwater management, potential contaminants and weed control) which will achieve the outcomes being sought for the Moonee Creek estuary in the Draft MCEMP.

Further, the commitment of the project to the retention, protection, enhancement and management in perpetuity of 74.9ha (or 73.4%) of the subject site as a conservation reserve represents a unique contribution on private lands to the management, maintenance and enhancement of the environmental qualities of the Moonee Creek estuary, as outlined in the Draft MCEMP.

Table 3. The strategies identified in the Draft *Moonee Creek Estuary Management Plan* for achieving the objectives of the *Plan*.

Ref.	Strategy Description	Option
<u>To commence implementation immediately (within 6 – 12 months, i.e. before June 2007)</u>		
A	Organise community-based volunteers for on-ground works	EM-2
B	Revegetation of foreshores and other degraded areas	Ecol-9
C	Undertake audits and improve existing septs and on-site sewage systems	WQ-2
D	Maintain an active management committee incorporating a range of representatives	EM-1
E	Water quality monitoring for environmental health and public safety	WQ-1
F	Undertake monitoring of biological indicators for environmental health	Ecol-10
G	Identification and protection of cultural heritage sites	Herit-1
<u>To commence implementation in the short term (within 1 – 3 years, i.e. before June 2009)</u>		
H	Rural subdivisions to not concentrate on-site sewage disposal	CD-1
I	Prepare planning policy for new urban development restricting frequent floods.	CD-3
J	Protect existing habitats, vegetation stands and foreshore buffers	Ecol-3
K	Ensure future urban developments are compassionate to the environment	CD-4
L	Adopt WSUD and integrated total water cycle management for new development	CD-6
M	Establish vegetated buffers, not to be used for urban stormwater or fire management	CD-2
N	Ensure wildlife corridors are catered for within plans and future proposals	CD-5
O	Disseminate information regarding Aboriginal heritage and traditional use	Herit-2
P	Regeneration of Green Bluff Reserve, including weed and exotics removal	Ecol-2
Q	Stabilise eroding foreshores using physical structures, where necessary	BS-1
R	Discuss with RTA flooding and impacts of culverts under the Highway	BS-4
<u>To commence implementation in the medium term (within 3 – 5 years, i.e. before June 2011)</u>		
S	Raise community awareness regarding estuary condition and importance of SIMP	Ecol-6
T	Discourage active recreation in Moonee Creek	EU-4
U	Extension of Coffs Coast Regional Park to other important habitats	Ecol-8
V	Provide limited formal access points to the estuary	EU-2
W	Improve agricultural land management practices through education	WQ-4
X	Encourage private conservation agreements through incentives	Ecol-11

17 MOONEE PLANNING STRATEGY

17.1 Introduction

The *Moonee Planning Strategy* states as its objectives:

- “to provide an overall plan for the area”, being the coastal area of Moonee and Sapphire between Crystal Drive in the south and Skinners Creek in the north; and
- “to encourage quality development whilst being sympathetic to the natural environment”.

The *Planning Strategy* identifies three categories of specific strategies:

- economic sustainability – which deals with the number of dwellings and additional residents, the supply of services, retail and commercial development strategies and the funding of works by developers;
- social sustainability – which deals with community facilities, pedestrian paths and cycleways, road systems, playing fields, children’s playgrounds and neighbourhood parks; and
- environmental sustainability – which deals with requirements for buffer areas and requirements in development designs for perimeter roads, bushfire *Asset Protection Zones*, water quality targets and acoustic design.

It is noted that the *Moonee Planning Strategy* identifies the subject site (which the ‘Moonee Waters’ development is to take place) *in toto* as “protected land” (Figure 16). There is no justification provided in the *Moonee Planning Strategy* (nor in the any other documentation prepared by Council) for that designation over the whole of the subject site, and that approach constitutes an unreasonable impost on the landowners.

By contract, the ‘Moonee Waters’ development proposal (as detailed in the *2007 Concept Plan*) provides an appropriate and reasoned response to environmental constraints, and involves the dedication of 73.4% of the subject site primarily for biodiversity conservation purposes. Furthermore, the ‘Moonee Waters’ development concept provides a funding base to provide for the ongoing management of that conservation reserve at no cost to the public purse. Designation of the whole of the subject site as “protected land” does not provide any means of generating income for its long-term maintenance nor is there any mechanism identified for the acquisition of that land and the provision of adequate compensation to the current landowners.

17.2 The Environmental Sustainability Strategy

The environmental sustainability strategies of the *Moonee Planning Strategy* include six items (or specific strategies) for implementation of the overall planning strategy for Moonee. The *2007 Concept Plan* for the ‘Moonee Waters’ project has been designed and incorporates a range of specific measures intended to satisfy the goals of the *Moonee Planning Strategy*, particularly with respect to environmental sustainability and the protection of biodiversity.

Item 1 Identified buffer areas for water quality protection shown on the Masterplan are to be dedicated as development occurs.

- The *Masterplan* does not identify any “buffer areas” on the subject site which are to be dedicated for this purpose (Figure 16).
- Conversely, the *Masterplan* does identify the whole of the subject land as “protected land” without offering any means of acquisition of the lands or compensation of the landowners.
- The *2007 Concept Plan* for the ‘Moonee Waters’ project incorporates measures to ensure “water quality protection” at no cost to the public purse (as opposed to dedication of ‘buffers’ which will be an ongoing maintenance burden).

- In addition, the water quality treatment elements of the project (particularly the peripheral bio-retention swales and treatment ponds) are to be managed to provide additional habitat for native biota.

Item 2 Perimeter roads shall be provided that separate urban development from protected areas.

- The 2007 Concept Plan for the 'Moonee Waters' project incorporates perimeter roads around both proposed development areas (Figures 1 and 3).

Item 3 The provision for bushfire Asset Protection Zones shall not involve the clearing of native vegetation within Conservation Areas.

- The Asset Protection Zones (APZs) detailed in the 2007 Concept Plan project utilise the perimeter roads, the external stormwater swales and the front yards of allotments (ABPP 2006).
- No additional "clearing of native vegetation" around the two development precincts is required (other than as described below and as detailed in the CAMP – Appendix A).
- The management of understorey (by shredding, raking and/or small burns) is required along the main access roads to the development precincts (Figure 11). However, that management will maintain a native understorey (Appendix A).

Item 4 Development is to demonstrate achievement of water quality targets specified in Council's Urban Stormwater Management Plan.

- The 2007 Concept Plan for the 'Moonee Waters' project incorporates measures to ensure compliance with Council's Urban Stormwater Management Plan (Patterson Britten 2007 Report).

Item 5 Acoustic design will ensure highway traffic noise does not exceed acceptable levels within dwellings.

- Acoustic design details are not appropriate at the Concept Plan stage for the 'Moonee Waters' project.
- However, this requirement can be satisfied at the detailed design stage (see the approved development to the immediate south – the North Sapphire project).

Item 6 A landscaped buffer is to be provided between the highway and residential areas, designed to incorporate essential service corridors, and associated access.

- The 2007 Concept Plan for the 'Moonee Waters' project incorporates a vegetated buffer between the Northern Precinct and the Pacific Highway.
- The north – south access road through the western parts of the site will "incorporate essential service corridors" and provides the appropriate access.

17.3 Conclusions

The 2007 Concept Plan for the 'Moonee Waters' project incorporates design elements, as well as specific environmental impact amelioration and environmental management measures, which are designed to achieve the goals and objectives of the Moonee Planning Strategy.

In particular, the specific strategies and goals of environmental sustainability and of biodiversity conservation are achieved by the 2007 Concept Plan by virtue of:

- dedication of 73.4% of the subject site primarily for biodiversity conservation purposes as a dedicated and permanently managed Conservation Area;

- the implementation of water sensitive urban design principles to ensure the maintenance of water quality and to avoid the direct discharge of stormwater from any development area into the watercourses either on the subject site or in the vicinity;
- the implementation of a *Conservation Area Management Plan* (CAMP) which ensures the protection and enhancement of natural habitats which are to be retained throughout the subject site (involving 75ha of vegetated land); and
- the appropriate implementation of bushfire protection measures within the *Conservation Area*, as detailed in the CAMP (Appendix A).

As noted elsewhere within this *Report*, the *2007 Concept Plan* for the 'Moonee Waters' project provides a moderate development proposal which will generate sufficient funds (and local community involvement) to ensure the maintenance of a substantial private conservation reserve at no cost to the public purse. This outcome will not be achieved by any mechanism documented in the *Moonee Planning Strategy*. There is no mechanism by which the subject site would be likely to be acquired for "protection".

Further, there is no likelihood that sufficient funding would be provided by any level of government or government agency for the rehabilitation of the subject site or for its management in perpetuity. Even if such funding were to be made available (for which there is no precedent), that commitment would detract from other relevant environmental management activities (eg proper rehabilitation and management in perpetuity of the Regional Park along the coast and on Green Bluff)

18 MOONEE DEVELOPMENT CONTROL PLAN

18.1 Introduction

The Moonee *Development Control Plan* (DCP) was adopted by Coffs Harbour City Council (CHCC) and came into force on the 22nd September 2004. The Moonee DCP applies *inter alia* to the subject site at Moonee on which the 'Moonee Waters' development is proposed (Figure 17).

The Moonee DCP provides a number of objectives with respect to environmental sustainability, being:

- "development is to protect and maintain natural bushland and native habitats and archaeological values of the landscape";
- "development is to be free from environmental risk hazard associated with flooding, acid sulphate soils, urban capability, noise and bushfire hazard"; and
- "development is to lead to improved water quality to ensure a health estuary for natural systems, residents and tourists".

The Moonee DCP further provides a series of strategies including *inter alia* a *Natural Environment Strategy* which includes 15 items (quoted *verbatim* below)

- Exclude urban development from within 100m of Moonee Creek, 50m of Skinners Creek, and from within 20m of all other creeks, to protect riparian vegetation and maintain water quality, and provide habitat linkages.
- Exclude urban development from within 50m of State Environmental Planning Policy No 14 Coastal Wetlands.
- Eliminate adverse impacts of development on upon the aesthetic, recreational and ecological value of the food plain (the 1 in 100 year flood extent).
- No development is to occur within 100m of any osprey nest, access roads may encroach within 100m, but no closer that 70m.
- All high and very high value vegetation identified by Council's Vegetation Strategy within 100m of the Solitary Islands Marine Park is to be protected.
- All high and very high value vegetation identified by Council's Vegetation Strategy with a low level of disturbance is to be protected.
- Known Wallum Froglet habitat is to be protected.
- Map 4 identifies land considered to be subject to significant constraints requiring protection (Figure 17 of this *Report*).
- All potential Wallum Froglet habitat areas are to be investigated to accurately map actual habitat.
- Exclude from development, areas of potential high water table where there is likely to be adverse impacts on groundwater or surface water quality.
- Map 5 identifies land requiring detailed assessment to determine its sustainability for development.
- All areas to be protected are to be dedicated to Council as development occurs.
- Land identified as containing regionally significant land is to be protected. Long-term management is to be in accordance with Council's Vegetation Strategy.
- A minimum 40m-separation area is to be provided between areas to be protected and future housing areas to ensure adequate bushfire protection is able to be provided without the need remove protected vegetation.
- Any areas that are undeveloped due to the affect of the 40m separation area are to be added to the land to be detected.

18.2 Impacts of the 'Moonee Waters' Development

A number of elements of the *Natural Environment Strategy* identified in the Moonee DCP conflict with the revised *2007 Concept Plan* for the 'Moonee Waters' development project. Most of these issues are dealt with in detail in other Chapters of this *Report* (Table 4), and additional comments are provided in Table 4 with respect to the Moonee DCP *Natural Environment Strategy*.

Of particular relevance is the failure of the Moonee DCP to provide any mechanism or justification for the dedication of land to Council for biodiversity conservation or other environmental reasons, and the failure to provide a mechanism for the acquisition or long-term management of areas identified for protection.

In particular, the Moonee DCP identifies the whole of the subject site at Moonee as "*protected land*" (Figure 17). As noted elsewhere in this *Report* (particularly Chapters 17 and 24), the CHCC has provided no justification for identification of the subject site as of high conservation value or as requiring dedication as "*protected lands*". In addition, there is no financial incentive for the landowners to provide that land for biodiversity conservation purposes, and Council provides no mechanism by which the lands would either be acquired or be managed in even the short-term.

By contrast, the 'Moonee Waters' development, as identified and detailed in the revised *2007 Concept Plan*, both provides for the dedication of approximately 75% of the subject site (approximately 73.4ha) as a *Conservation Area* primarily for biodiversity conservation purposes (Figures 1, 2a and 2b), and provides a mechanism for the management and funding in perpetuity of that *Conservation Area*. In addition, the *Concept Plan* provides for public access through the *Conservation Area* and for the provision of educational materials to promote the biodiversity values of the site.

The reality is that there are no sufficient funds available from Council, nor is there any likelihood of funds being made available from the State Government, to achieve those objectives. In effect, implementation of the Moonee DCP and dedication of those lands to Council would result in their long-term degradation, a failure to provide sufficient resources to maintain or rehabilitate those lands, and a failure to provide controlled and properly designed and managed public access across the land.

18.3 Conclusions

The Moonee DCP, whilst containing a range of laudable concepts and ideas with respect to biodiversity conservation and the protection of vegetated lands in the Moonee area, fails utterly to provide any appropriate mechanisms for either the dedication of lands for biodiversity conservation or for their long-term management, rehabilitation and maintenance. There is no mechanism by which the Moonee DCP can be expected to be implemented.

By contrast, the proposed 'Moonee Waters' *2007 Concept Plan*:

- provides for the dedication for approximately 75% of the subject site (73.4ha) primarily for biodiversity conservation purposes in a dedicated *Conservation Area*;
- establishes a dedicated and detailed *Management Plan* for that *Conservation Area* to provide for its rehabilitation, protection and maintenance in perpetuity;
- provides a mechanism for funding of the *Conservation Area Management Plan* (CAMP) in perpetuity at no cost to the public purse;
- provides for public access and education across and through the *Conservation Area*; and
- provides for an appropriate, balanced and moderate level of development in those portions of the subject site regarded as of lower biodiversity conservation value.

The Moonee DCP provides no such mechanisms or opportunities, and would result in ongoing degradation of the subject site and the loss of its biodiversity conservation values in the long-term. As noted elsewhere in this *Report*, there is no likelihood that any level of government or any government agency would provide the funding required to fully rehabilitate and manage the subject land in perpetuity. By contrast, the *2007 Concept Plan* provides a mechanism for the achievement of biodiversity conservation outcomes in perpetuity at no cost to the public purse.

Table 4 Clauses in the *Natural Environment Strategy* of the Moonee DCP, and application of the matters contained in the *Strategy* to the 'Moonee Waters' 2007 Concept Plan.

DCP Clause	Response	Reference
Exclude urban development from within 100m of Moonee Creek, 50m of Skinners Creek, and from within 20m of all other creeks, to protect riparian vegetation and maintain water quality, and provide habitat linkages.	<ul style="list-style-type: none"> No development is proposed within these 'required' setbacks. In any case, the <i>Concept Plan</i> ensures the protection of water quality, riparian vegetation and habitat linkages (whilst the DCP provides no such certainty). 	<ul style="list-style-type: none"> Figures 1 and 2a. <i>Stormwater Management Report</i> (Patterson Britten 2007).
Exclude urban development from within 50m of State Environmental Planning Policy No 14 Coastal Wetlands.	<ul style="list-style-type: none"> There is no requirement in SEPP 14 for a 50m setback. The Southern Precinct is within 50m of the SEPP 14 Wetland, but includes measures specifically designed to avoid adverse impacts on the Wetland. 	<ul style="list-style-type: none"> Figures 19 See Chapter 21 of this <i>Report</i>.
Eliminate adverse impacts of development on upon the aesthetic, recreational and ecological value of the flood plain (the 1 in 100 year flood extent).	<ul style="list-style-type: none"> There will be no adverse impacts on the 1:100 year floodplain. 	
No development is to occur within 100m of any osprey nest, access roads may encroach within 100m, but no closer that 70m	<ul style="list-style-type: none"> No development is proposed within 100m of the known Osprey Nest, but the access road to the southern precinct is 50 - 60m from the nest. 	<ul style="list-style-type: none"> Figure 13.
All high and very high value vegetation identified by Council's Vegetation Strategy within 100m of the Solitary Islands Marine Park is to be protected	<ul style="list-style-type: none"> No development is proposed within 100m of the Solitary Islands Marine Park. 	
All high and very high value vegetation identified by Council's Vegetation Strategy with a low level of disturbance is to be protected.	<ul style="list-style-type: none"> There is no justification for the designation of those vegetation values on the subject site. The <i>2007 Concept Plan</i> provides full justification of the development concept. 	<ul style="list-style-type: none"> Chapters 24 of this <i>Report</i>. Detailed throughout this <i>Report</i>
Known Wallum Froglet habitat is to be protected	<ul style="list-style-type: none"> There is no "known Wallum Froglet habitat" on the subject site. The Wallum Froglet is not a relevant issue. 	<ul style="list-style-type: none"> The <i>Flora & Fauna Assessment Report</i> (Gunninah 2006)
Map 4 identifies land considered to be subject to significant constraints requiring protection.	<ul style="list-style-type: none"> There is no justification for the constraints identified in the DCP on the subject site. The <i>2007 Concept Plan</i> provides full justification of the development concept. 	
All potential Wallum Froglet habitat areas are to be investigated to accurately map actual habitat.	<ul style="list-style-type: none"> There is no "potential Wallum Froglet habitat" on the subject site. The Wallum Froglet is not a relevant issue. 	<ul style="list-style-type: none"> The <i>Flora & Fauna Assessment Report</i> (Gunninah 2006)

Table 4 continued

Clauses in the *Natural Environment Strategy* of the Moonee DCP, and application of the matters contained in the *Strategy* to the 'Moonee Waters' 2007 Concept Plan.

DCP Clause	Response	Reference
Exclude from development, areas of potential high water table where there is likely to be adverse impacts on groundwater or surface water quality.	<ul style="list-style-type: none"> The areas identified as of potential high water tables on the subject site are inconsistent with the topography of the land. The proposal addresses water quality issues and provides mechanisms for its protection. 	• <i>Stormwater Management Report</i> (Patterson Britten 2007).
Map 5 identifies land requiring detailed assessment to determine its sustainability for development.	<ul style="list-style-type: none"> Detailed assessment of ecological and riparian issues is provided in Gunninah (2006) and in this <i>Report</i>. The <i>2007 Concept Plan</i> provides full justification of the development concept with respect to ecological water quality and stormwater issues. 	
All areas to be protected are to be dedicated to Council as development occurs.	<ul style="list-style-type: none"> There is no mechanism for the acquisition of the subject land by Council. There is no mechanism for the maintenance and rehabilitation of the subject land by Council, nor is there any likelihood that Council would be able to dedicate the funds required. 	
Land identified as containing regionally significant land is to be protected. Long-term management is to be in accordance with Council's Vegetation Strategy.	<ul style="list-style-type: none"> There is no justification for the identification of "regionally significant land" in the DCP. There is no mechanism for the acquisition of the subject land by Council. There is no mechanism for the maintenance and rehabilitation of the subject land by Council, nor is there any likelihood that Council would be able to dedicate the funds required. 	
A minimum 40m-separation area is to be provided between areas to be protected and future housing areas to ensure adequate bushfire protection is able to be provided without the need remove protected vegetation.	<ul style="list-style-type: none"> There is no justification for the provision of a 40m separation between development areas and retained vegetation. The <i>2007 Concept Plan</i> provides full justification of the development concept including the extent of APZs and the permanent sympathetic management of the APZs. 	• <i>Bushfire Report</i> (ABPP 2006).
Any areas that are undeveloped due to the affect of the 40m separation area are to be added to the land to be detected.	<ul style="list-style-type: none"> There is no requirement for this provision of the DCP. Council is not likely to provide sufficient funding to properly manage this area. 	

19 DRAFT MID-NORTH COAST REGIONAL STRATEGY

19.1 Introduction

The Draft *Mid North Coast Regional Strategy*, prepared by the Department of Planning (DoP), provides a planning approach and settlement strategy for the Local Government Areas (LGAs) of the mid-north coast of NSW (the Clarence Valley, Coffs Harbour, Bellingen, Nambucca, Kempsey, Port Macquarie-Hastings, Greater Taree and Great Lakes LGAs).

The primary purpose of the Draft *Mid North Coast Regional Strategy* “is to ensure that adequate land is available and appropriately located to accommodate the projected housing and employment needs of the region’s population of the next 25 years. The draft strategy also places limits on growth in some areas where the value of environmental/cultural assets and natural resources is high”.

The Draft *Mid North Coast Regional Strategy* addresses a range of planning and environmental issues and matters including *inter alia* environmental and natural resources, as well as economic development and employment growth, settlement character and design, the provision of services and regional transport, and natural hazards and cultural heritage.

19.2 Environment and Natural Resources

With respect to the environment and natural resources, the Draft *Mid North Coast Regional Strategy* notes that “there are approximately 600,000 hectares of conservation reservations making up twenty percent of the area of the region”. These include National Parks, State Forests and some private lands, and are located both on the ranges (on the western side of the mid-north coast region) and along the coast.

The Draft *Mid North Coast Regional Strategy* also notes that the region’s “estuaries, rivers, floodplains and wetlands are of immense environmental value, providing a variety of habitats for many aquatic and terrestrial organisms. Estuaries and rivers are popular places for a wide variety of active and passive recreational pursuits as well as being the basis of the state’s valuable commercial fishery activities”.

The *Regional Strategy* “supports the maintenance and enhancement of the region’s biodiversity” and notes that:

- “urban development will be directed away from areas of known or likely conservation importance”;
- “where development, including new land release, may impact on biodiversity it will be designed to minimise impacts or provide offsets by protecting and enhancing the long term viability of priority vegetation and habitat corridors, as well as rehabilitating degraded priority areas”; and
- “the values and functions of riparian corridors, coastal wetlands, lakes, estuaries and fishery habitats will also be protected”.

Whilst much of the Draft *Mid North Coast Regional Strategy* is to be implemented by the creation of *Local Environmental Plans* by Councils to facilitate achievement of the goals and objectives of the *Regional Strategy*, the issues raised in the *Strategy* have been taken into account in the development design for the 2007 Concept Plan for the ‘Moonee Waters’ project. In this regard:

- dedication of 73.4% of the subject site primarily for biodiversity conservation purposes as a dedicated and permanent managed *Conservation Area*;
- the implementation of water sensitive urban design principles;
- the management in perpetuity of 75ha of vegetated land on the site, including all of the wetlands and watercourses; and
- the protection of major vegetated corridors through the site.

20 NSW COASTAL POLICY 1997

20.1 Introduction

The objective of the 1997 NSW Coastal Policy (the 'Coastal Policy'), as identified in the *Foreword* to the Policy, is "to protect and conserve the coast for future generations" and to co-ordinate the management of the NSW coast through the range of organisations that have a role in coastal management at the present.

The Coastal Policy "has a strong integrating philosophy based on the principles of ecologically sustainable development (ESD)" and "represents an attempt by Government to better co-ordinate the management of the coast by identifying, in a single document, the State's various management policies, programs and standards as they apply to a defined coastal zone".

It is to be noted that the Coastal Policy is not designed or intended to constrain or prevent development activities along the NSW coast. In this regard, the Policy has adopted nine goals which involve a commitment to:

- "protecting, rehabilitating and improving the natural environment of the coastal zone";
- "recognising and accommodating the natural processes of the coastal zone";
- "protecting and enhancing the aesthetic qualities of the coastal zone";
- "protecting and conserving the cultural heritage of the coastal zone";
- "providing for ecological sustainable development and use of resources";
- "providing for ecological sustainable human settlement in the coastal zone";
- "providing for appropriate public access and use";
- "providing information to enable effective management of the coastal zone"; and
- "providing for integrated planning and management of the coastal zone".

The Coastal Policy also provides a comprehensive suite of "Strategic Actions" which are intended to implement the nine goals of the Coastal Policy. Those Strategic Actions which are of relevance to the 'Moonee Waters' Concept Plan (AAUD 2007) are considered below.

20.2 Relevant Strategic Actions

Action 1.1.7 Wetland associated species conserved and managed by effectively implementing existing controls

- The 2007 Concept Plan conserves and enhances wetlands and associated species through the majority of the site.
- Approximately 73.4% of the site is to be retained and managed in perpetuity primarily for biodiversity conservation purposes.

Action 1.1.8 Continuation of SEPP 14 – Coastal Wetlands

- The 2007 Concept Plan protects the SEPP 14 Wetland on the site.

Action 1.1.11 Regional open space networks/corridors (including water areas) should be used to protect natural habitats and environments

- The 2007 Concept Plan has been designed specifically to retain and maintain corridors across the subject site.
- The 'Moonee Waters' project provides for the management of those corridors in perpetuity at no cost to the public purse.

Action 1.2.7 Threatening processes (clearing, noxious weeds) identified for coastal species in accordance with Threatened Species Conservation Act 1995, and controlled

- Management of the majority of the site (the 74.9ha of the *Conservation Area*) provides a program for the removal and ongoing management of threatening processes, including noxious weeds.

Action 1.3.5 Contaminants in marine life monitored – ensure biodiversity and human health not threatened

- The project incorporates specific measures to protect the aquatic and wetland habitats on the site and in the vicinity.

Action 1.4.1 Research into wetland rehabilitation and management

- The 'Moonee Waters' project provides for the long-term rehabilitation and management of wetlands on the site at no cost to the public purse.

Action 1.4.7 Development proposals in or adjacent to estuaries

- The *2007 Concept Plan* is specifically designed to protect aquatic and estuarine habitats and features.

Action 1.5.1 Involve the community in protecting and rehabilitating natural areas

- The long-term management of the *Conservation Area* would include a program of involving members of the local community in rehabilitation and management of the *Conservation Area*.

Action 5.2.1 Management planning approaches implemented to ensure sustainable development, use of natural resources, and environment protection

- The *2007 Concept Plan* provides for "sustainable development" and facilitates the appropriate "use of natural resources".
- The 'Moonee Waters' project also provides for a very high level of "environmental protection" throughout the site.

Action 5.2.5 Programs on the protection and restoration of wetlands will continue

- There are no such plans in place on the subject site, but the *2007 Concept Plan* conserves and enhances wetlands and will involve the implementation of such plans.

20.3 Conclusions

Nothing in the *2007 Concept Plan* for the 'Moonee Waters' project contravenes the *NSW Coastal Policy 1997*. The policy is specifically intended to implement environmental protection and enhancement measures.

The "Moonee Waters" development has been designed and incorporates measures specifically intended to achieve the goals and objectives of the *NSW Coastal Policy 1997*. The project will both protect the natural attributes of the coastal zone and contribute in a positive manner by the dedication of 75ha of vegetated land primarily for biodiversity conservation purposes, and its management in perpetuity at no cost to the public purse.

21 STATE ENVIRONMENTAL PLANNING POLICY NO. 14 – COASTAL WETLANDS

State Environmental Planning Policy No.14 – Coastal Wetlands (SEPP 14) provides a set of detailed maps of wetlands which have been identified along the coast of NSW pursuant to the *Policy*. The *Policy* requires that activities within the SEPP 14 Wetlands (including clearing, construction of levees, draining or filling) can only be undertaken “with the consent of the Council and the concurrence of the Director”. In addition, Clause 7(2) of SEPP 14 provides a number of matters which “shall be taken into consideration” by the Director of the DoP in “considering whether to grant concurrence”.

The *2007 Concept Plan* for the ‘Moonee Waters’ development does not involve any activities within or immediately adjacent to the SEPP 14 Wetland (SEPP Wetland #319) which is located in the eastern parts of the subject site (Figures 18, 19a and 19b). Furthermore, the proposal involves the implementation of a comprehensive stormwater management regime which is designed particularly to protect watercourses and wetland habitats and to avoid adverse impacts upon water quality or habitats within the SEPP 14 Wetland.

The stormwater management system detailed in the *2007 Concept Plan* for the ‘Moonee Waters’ development has been specifically designed *inter alia* to protect the SEPP 14 Wetland (and other wetlands and watercourses on the subject site) by:

- the capture of stormwater throughout the development and its treatment in bio-retention swales within the two development precincts;
- the use of a peripheral system of bio-retention swales and treatment ponds to remove sediment and nutrients prior to the discharge of stormwater runoff;
- the avoidance of piped stormwater discharges throughout the project (which could result in erosion and nutrient concentration issues); and
- the discharge of excess stormwater during high rainfall events as sheetwash or overland flow from the peripheral bio-retention swales and treatment ponds. These discharges will pass through the adjoining vegetation and soak into the ground and/or recharge the wetlands and swamp forest communities.

There is no requirement in SEPP 14 for the provision of any setbacks from or “buffers” to SEPP 14 Wetlands. Nevertheless, the overwhelming majority of development on the ‘Moonee Waters’ project is located at greater than 200m from the designated SEPP 14 Wetland. Only the southeastern corner of the southern precinct is located within 20m (approximately)¹¹ of the wetland, and that for only a distance of a few metres (Figure 19b).

Further, as noted elsewhere in this *Report* (Chapter 6), the concept of “buffers” has, as a fundamental assumption, that activities on lands adjacent to wetlands (or other identified high conservation value areas) would be inimical to the maintenance of biodiversity conservation values. In that regard, the requirement for a “buffer” to a wetland or other conserved land is inversely proportional to the appropriateness of the management of the activities on the adjoining lands.

The proposed ‘Moonee Waters’ *2007 Concept Plan* does not involve development activities within the SEPP 14 Wetland on the subject site other than the provision of boardwalks and educational signage (which would be located and designed subject to negotiation with the DECC). Further, the stormwater management elements of the proposed development are specifically designed to avoid the imposition of adverse impacts upon wetlands, swamp forest communities and other native vegetation adjacent to the development precinct, including the SEPP 14 Wetland on the site. Given the approach which has been adopted in the *2007 Concept Plan*, there is no requirement for any additional “buffers” to the SEPP 14 Wetland.

¹¹ It should be noted that the maps of SEPP 14 Wetlands are at 1:25,000, and are therefore inherently inaccurate when applied on individual sites and where making measurements over tens of metres. The precise relationship between the SEPP 14 Wetland boundary and the proposed development footprint is therefore uncertain, but the *2007 Concept Plan* is designed and intended to avoid impacts (both direct and indirect) on the SEPP 14 Wetland on the subject site.

22 ENVIRONMENTAL PLANNING POLICY NO. 44 – KOALA HABITAT PROTECTION

State Environmental Planning Policy No. 44 - Koala Habitat Protection (SEPP 44) aims to protect the Koala and its habitat by incorporating matters for consent authorities to consider during the assessment of relevant DAs. In particular, SEPP 44 contains definitions of “*potential koala habitat*” and “*core koala habitat*” to be applied in consideration of developments within Local Government Areas (LGAs) listed on Schedule 1 of the *Policy*.

The Coffs Harbour LGA is listed on Schedule 1 of the *Policy* as an area to which SEPP 44 applies, and the subject site is of relevance to SEPP 44 because it exceeds 1 hectare in area.

Schedule 2 of SEPP 44 provides a list of tree species recognised in the SEPP as food trees utilised by the Koala. Tree species listed on Schedule 1 which are present on the subject site include the Swamp Mahogany, Forest Red Gum and Tallow-wood. However, the relevant tree species do not constitute more than 15% of the tree canopy over the subject site at Moonee Beach, and the site consequently does not constitute “*potential koala habitat*”, as defined in SEPP 44⁵.

Consideration of the matters in SEPP 44 is an iterative process, wherein Clause 8 of the SEPP (determining whether a site constitutes “*core koala habitat*”) only applies where the land has been determined to constitute “*potential koala habitat*”, pursuant to Clause 7 of the SEPP. On the basis that the subject site does not constitute “*potential koala habitat*” (as noted above), the site cannot constitute “*core koala habitat*” pursuant to SEPP 44⁶.

On the basis of recent observations and data, and of the historical data available (Gunninah 2006), there has been some limited but relatively recent use of the site by Koalas, albeit at low density. However, the infrequency of records and the low and apparently occasional use of the site suggests that there is no “*resident population*” of Koalas on the site. Nevertheless, it does appear that the subject site provides some limited or peripheral habitat for Koalas in the locality.

Given the absence of a “*resident population*” of Koalas, as defined in SEPP 44, the subject site at Moonee Beach does not constitute “*core koala habitat*” as defined in SEPP 44. In any case, as noted above, the site is not “*potential koala habitat*” and therefore cannot be “*core koala habitat*”.

Furthermore, there would be no requirement for the preparation of a site-specific *Koala Plan of Management* (KPoM) pursuant to SEPP 44 for the site, because CHCC has adopted a KPoM for the whole LGA (see Chapter 23), which, by default, applies to the subject site.

It is also of particular relevance to note that the *2007 Concept Plan* for the ‘Moonee Waters’ development incorporates measures specifically intended *inter alia* to retain, enhance and protect habitat and resources for Koalas throughout the site. The overwhelming majority of Swamp Mahoganies are to be retained, and other food trees will also be preferentially retained and/or planted at appropriate locations. The establishment and maintenance in perpetuity of the 75ha *Conservation Area* on the site will also benefit the Koala (to the extent that this species uses the subject site), and the broad corridors through the site will facilitate movements of Koalas (should they use the site for this purpose).

⁵ SEPP 44 defines “*potential koala habitat*” as “*areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component*”.

⁶ SEPP 44 defines “*core koala habitat*” as “*an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is females with young) and recent sightings of and historical records of a population*”.

23 COFFS HARBOUR CITY KOALA PLAN OF MANAGEMENT

The *Koala Plan of Management* (KPoM) for the Coffs Harbour City LGA provides a *Management Plan* for Koalas which applies across the whole LGA to satisfy the requirements of SEPP 44.

The KPoM of CHCC has mapped most of the site at Moonee Beach (excluding the eastern parts) as *Secondary Habitat* for the Koala (see *Flora & Fauna Assessment Report 2006*). That mapping, however, is at a coarse scale, and:

- includes substantial areas of vegetation which are of only limited value for the Koala (eg vegetation dominated by the Blackbutt); and
- excludes areas of high value Koala foraging resources (including the favoured Swamp Mahogany).

In any case, despite the limited evidence for Koala use of the site, most of the preferred foraging habitat for Koalas on the subject site will be retained within the extensive areas of conserved and protected lands. The majority of the subject site is to be retained as a conservation reserve, and most of the preferred food trees for the Koala are located within this portion of the site. In particular, the overwhelming majority of areas of the Swamp Mahogany will be retained across the site.

Consequently, the proposed development at Moonee Beach, as detailed in the *2007 Concept Plan*, satisfies the aims and objectives of the Coffs Harbour *Koala Plan of Management*.

The management actions identified in the Coffs Harbour City KPoM with respect to "*Secondary Koala Habitat*" states that consent should not be granted "*to the carrying out of development on areas identified as secondary koala habitat which will remove*" certain tree species (Tallow-wood, Swamp Mahogany, Flooded Gum, Forest Red Gum or Small-fruited Grey Gum) "*unless the development will not significantly destroy, damage or compromise the value of the land as koala habitat*". Further, the KPoM requires that development proposals "*will not result in significant barriers to koala movement*", that the relevant tree species are either "*retained, where possible*" or are "*used in landscaping where suitable*", and that roads and vehicle speeds are designed with Koalas in mind.

As noted above, the 'Moonee Waters' site is not of significance for Koalas, and appears to be only used on occasions and at a low intensity by this species. On that basis, strict application of the requirements with regard to "*Secondary Koala Habitat*" identified in the Coffs Harbour City KPoM are excessive and unreasonable, and development of the site as proposed in the *2007 Concept Plan* would not compromise its use by Koalas.

In any case, the 'Moonee Waters' development as documented in the *2007 Concept Plan* will not "*significantly destroy, damage or compromise the value of the land as koala habitat*". As noted above, the subject site is not of significance for Koalas at present, and appears to be little used by this species. Furthermore, the project will retain, enhance and protect habitat and resources for this species, and increased Koala use of the site would be welcomed.

The *2007 Concept Plan* for the 'Moonee Waters' development includes a program to retain the overwhelming majority of habitat and foraging resources which would be likely to be utilised by Koalas, and provides for the long-term management and protection of those habitats.

24 COFFS HARBOUR CITY VEGETATION STRATEGY

24.1 Background

The *Coffs Harbour City Vegetation Strategy* identifies a range of habitat and conservation values on land along the coastal portions of the Coffs Harbour LGA. The *Strategy* is intended to “provide a clear and consistent framework for the conservation and management of native vegetation, consistent with the principles of Ecologically Sustainable Development, within the Coffs Harbour Local Government Area giving consideration to social, economic, agribusiness, environmental and cultural interests”.

The *Strategy* envisages the preparation and implementation of *Local and Regional Conservation Area Management Plans* as part of the implementation of its goals, and the provision of a *Vegetation Conservation Development Control Plan* (DCP) and relevant amendments to the *Coffs Harbour Local Environment Plan 2000* (LEP 2000).

24.2 Council Mapping of the 'Moonee Waters' Site

Most of the subject site at Moonee Beach has been mapped by Ecograph (ecological consultants to the Vegetation Study Working Group of CHCC) as vegetation of *High Value* or *Very High Value* (CHCC 2003). However, the estuarine habitats in the northern part of the subject site are mapped as only of *Medium Value* (see *Flora & Fauna Assessment Report 2006*), in contrast to their values as expressed in the *Draft Moonee Creek Estuary Management Plan*.

The mapping of areas of vegetation with various ecological status categories by Ecograph (2002) is based on the broad-scale vegetation mapping of Coffs Harbour LGA (Fisher *et al* 1996), and the application of a matrix of ecological attributes to the various areas of vegetation.

There are, however, some concerns with the criteria which had been applied by Ecograph (2002) in terms of their breadth and compatibility with other conservation criteria applied on a state-wide and nation-wide basis. In addition, the criteria have failed to provide any reasonable means of differentiation between plant communities within a large site such as the subject site at Moonee Beach. Consequently, it is not possible, using those criteria, to differentiate between the various levels of ecological constraint or ecological value which apply to different plant communities and ecosystems on the subject site.

This concern is evident in the fact that those plant communities on the subject site listed as “*endangered ecological communities*” on the TSC Act are not accorded a higher status (in terms of the mapping by Ecograph 2002) than plant communities which are not listed as “*endangered ecological communities*”, and which are consequently of lesser ecological or conservation concern. The Dry Coastal Blackbutt open forest community is clearly not of the same conservation value as the various listed swamp forest communities. However, in the *Vegetation Strategy* mapping it has been accorded the same conservation status.

24.3 Assessment of Vegetation Values

In order to determine the appropriateness of development on lands such as the subject site at Moonee Beach, it is necessary to assess the relative conservation values of the various plant communities present both within the site and in a local or regional context. The proposed 'Moonee Waters' development on the subject site, as detailed in the *2007 Concept Plan* (AAUD 2007), has been designed to retain those habitats and vegetation types which are regarded as of the highest conservation significance, including the recently listed “*endangered ecological communities*” (see above). Development of the site is largely to be undertaken within vegetation which is better conserved and which is not regarded as of state conservation significance.

As discussed in some detail in the *Flora & Fauna Assessment Report* (Whelans InSites/Gunninah 2006) and in the *2007 Concept Plan* (AAUD 2007), the original approach to assessing the development potential of the subject site at Moonee Beach involved the identification of environmental and biodiversity conservation constraints on the site. In this regard, the low-lying swampy and wetland vegetation was identified in 2002 as of the highest conservation value and significance, and was determined to constitute

a substantial and significant constraint to development opportunities. Notwithstanding the zoning of a substantial proportion of that vegetation for residential purposes by CHCC in LEP 2000, it was determined from the outset that essentially all of the low-lying portions of the site should be excluded from development activities.

The validity of this approach was corroborated and confirmed by the designation of most of those swamp forest and wetland plant communities by the NSW Scientific Committee as "*endangered ecological communities*" on the TSC Act in 2004. By contrast, the Dry Blackbutt Forest and associated communities were not considered for listing as, and have not been listed as, "*endangered ecological communities*" on the TSC Act.

In terms of the relative conservation values of vegetation and plant communities on the subject site at Moonee Beach therefore, the proposed development has sought to retain and protect those communities of higher conservation value and greater biodiversity significance. By contrast, the vegetation which is to be affected by the proposal is of lower conservation value, although that vegetation obviously still has some biodiversity conservation values.

It is to be noted that the *Vegetation Strategy* is not a prohibition on development activities within lands which are appropriately zoned. In this regard, substantial portions of the subject site were re-zoned or confirmed in their residential and tourist zoning categories in LEP 2000. The *2007 Concept Plan* (AAUD 2007) for the site has not sought to maximise development possibilities. Rather, the current development proposal for 'Moonee Waters' has sought to achieve an appropriate balance between development rights and expectations and conservation goals and responsibilities.

25 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

25.1 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 requires the effective integration of economic and environmental considerations in decision-making processes. 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 maximize benefits or minimize costs to develop their own solutions and responses to environmental problems.

25.2 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* (Figures 1 and 3), 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.

25.3 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*.

25.4 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*".

25.5 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*.

25.6 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.

26 ENVIRONMENT PROTECTION & BIODIVERSITY CONSERVATION ACT 1999

26.1 Environment Protection & Biodiversity Conservation Act 1999

The *Commonwealth Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act) aims:

- “to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance”; and
- “to promote the conservation of biodiversity”.

Pursuant to the EPBC Act, any action which “has, will have, or is likely to have a significant impact on a matter of national environmental significance” is defined as a “controlled action”, and will require approval from the Minister for the Environment.

The matters of “national environmental significance” listed under the EPBC Act are:

- World Heritage properties;
- wetlands protected by international treaty (the Ramsar Convention);
- nationally listed threatened species and ecological communities;
- nationally listed migratory species protected under international agreements;
- nuclear actions; and
- the environment of Commonwealth marine areas.

Under Section 68 of the EPBC Act, “a person proposing to take an action that the person thinks may be or is a controlled action must refer the proposal to the Minister for the Minister’s decision whether or not the action is a controlled action”. However, a person proposing to take an action that the person thinks is not a “controlled action” may also refer the proposal to the Minister for the Minister’s decision, whether or not the action is a “controlled action”.

26.2 Bilateral Agreement & the Administrative Guidelines

The EPBC Act provides a mechanism for assessing the environmental impacts of activities and developments, where “matters of national environmental significance” may be affected by the proposed activities. It is intended that the environmental assessment and approval process required by the Commonwealth government ultimately be delegated to individual states through the development of *Bilateral Agreements* between the relevant state and the Commonwealth government. In the interim, “matters of national environmental significance” which may be affected by a development or activity are to be assessed by the Commonwealth Minister for the Environment, through Environment Australia.

A set of “Administrative Guidelines” has been prepared by Environment Australia for implementation of the EPBC Act in the period until bilateral agreements with state governments are established. The *Guidelines* are provided to assist the proponent in determining whether an action should be referred to the Minister for the Environment for a decision on whether approval is required. In particular, the *Guidelines* include a set of criteria “for determining whether an action has, will have, or is likely to have a significant impact on a matter of national environmental significance”.

The NSW state government and the Commonwealth government have entered into a *Bilateral Agreement* (signed by the state government in January 2007), which provides for the consideration of potential impacts on “matters of national environmental significance” pursuant to the NSW assessment processes. The *Bilateral Agreement* between the two governments “provides for the accreditation of the New South Wales environmental impact assessment processes (set out in Schedule 1) to ensure an integrated and coordinated approach for actions requiring approval from both the Commonwealth (under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999) and the State of New South Wales. This agreement will therefore enable the Commonwealth to rely primarily on the New South Wales assessment processes set out in Schedule 1 in assessing actions under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999”.

Implementation of the *Bilateral Agreement* envisages the provision of *Guidelines* and protocols for the

assessment (using state procedures) of "*matters of national environmental significance*" identified in the EPBC Act. In the absence of a formal assessment process using the *Bilateral Agreement*, this *Report* has assessed the likely impacts of the 'Moonee Waters' project pursuant to the existing set of "*Administrative Guidelines*" prepared by Environment Australia for implementation of the EPBC Act.

26.3 The 'Moonee Waters' Concept Plan

It should be noted at the outset that the 'Moonee Waters' development as documented in the *2007 Concept Plan* does not constitute an "*action*" as defined in the EPBC Act, as no physical activities are involved in the proposal. Consequently, the *2007 Concept Plan* is not subject to formal consideration pursuant to the EPBC Act at this stage. Nevertheless, this *Report* provides consideration of the relevant issues on the basis of the proposed future development works.

The *Online Database* of items of "*national environmental significance*" provided by Environment Australia was accessed with respect to the proposed 'Moonee Waters' development. A number of items were identified within an area of approximately 25km² around and including the subject site at Moonee:

- 43 threatened species;
- 45 migratory (terrestrial and wetland) fauna species;
- 64 marine protected fauna species;
- 13 whales and other cetaceans; and
- a number of "*other matters protected by the EPBC Act*" (Appendix B).

Of these, however, many of the "*matters of national environmental significance*" are of no relevance to the proposed development at Moonee given:

- the proposed development on the subject site at Moonee involves terrestrial habitats (particularly dry forest communities), at some distance from any marine or estuarine environments;
- the proposal incorporates a range of measures specifically designed and intended to avoid or minimize adverse impact upon estuarine and marine habitats by appropriate stormwater quality controls and the management of and control of human access through the substantial conservation reserve on the subject site;
- potential impacts which could arise on habitats for marine species (such as cetaceans, pelagic birds and species typical of beaches); and
- the substantial *Conservation Area* on the subject site (occupying approximately 73.4ha) will retain, protect and enhance habitats and resources for essentially all of those species which could potentially utilize the site as part of a larger migratory home range.

26.4 Potential Impacts on Matters of National Environmental Significance

It is the opinion of the author of this *Report* that the proposed 'Moonee Waters' development is not "*likely*" to constitute a "*controlled action*". It is not "*likely*" that the proposed development would impose a "*significant impact*" on any of the "*matters of national environmental significance*" identified above because:

- most of the subject site is to be conserved for biodiversity conservation purposes, and managed in the long-term to ensure the provision of habitat, ecosystems and resources for those threatened biota listed on the EPBC Act known or likely to occur in the immediate vicinity (including species such as the Swift Parrot, Regent Honeyeater, Tiger Quoll, Grey-headed Flying Fox and Moonee Creek Quassia);
- the concentration of development activities within areas which are of lower biodiversity conservation value and significance and the retention of the overwhelming majority of more sensitive and significant ecosystems and communities;

- the implementation of a dedicated *Conservation Area Management Plan* for the rehabilitation, enhancement and management in perpetuity of the *Conservation Area* on the subject site;
- the retention of habitats and suitable resources for migratory species identified on the EPBC Act (such as the White-bellied Sea Eagle, White-throated Needletail, Rufus Fantail, Regent Honeyeater and the migratory wetland bird species);
- the application of appropriate development design and environmental management features (particularly with respect to bushfire protection and stormwater management and control, to ensure that adverse impacts are not imposed upon the natural environment beyond the development footprint) other than extremely minor impacts immediately adjacent to the development precincts.

Nevertheless, the proposed 'Moonee Waters' development could potentially (theoretically at least) impose minor impacts on some of the "*matters of national environmental significance*" identified above, depending on particular aspects of the proposal and its operation:

- individuals of some of the listed threatened bird and mammal species known to occur in the locality (see Appendix B); and
- individuals of some migratory species (terrestrial and wetland species and migratory marine birds) and some avifauna species protected under international agreements; and
- the Split Solitary Island Marine Reserve and the Moonee Beach Nature Reserve, although this possibility has been specifically recognised and addressed in the water cycle management elements of the project.

The proposed development will not have a "*significant impact*" on any World Heritage properties and does not involve any nuclear actions.

26.4.1 Listed Threatened Species & Ecological Communities

A total of 43 flora and fauna species listed as "*nationally threatened species*" listed on the EPBC Act have been recorded in the locality (an area of 25km² around and including the subject site) of the proposed 'Moonee Waters' development (Appendix B).

The potential for the proposed development to impose a "*significant impact*" on any listed threatened species is considered to be extremely low, given:

- the retention of substantial areas of habitat and resources relevant to those threatened biota known or likely to occur on the subject site within the extensive conservation reserve;
- the high mobility of most of the threatened fauna species identified on the EPBC Act which might be of relevance to the subject site; and
- the provision of a comprehensive *Management Plan* of the *Conservation Area* to ensure its protection, rehabilitation, and maintenance in perpetuity primarily for biodiversity conservation purposes.

26.4.2 Nationally Threatened Plant Species

The only nationally threatened flora species which has been recorded on the subject site at Moonee is the Moonee Creek Quassia. This species has been recorded along the banks of the tributary to Moonee Creek which forms the northern boundary of the subject site and/or is located within and/or to the immediate north of the subject site.

The Moonee Creek Quassia has been identified as a species of particular conservation concern and significance in the development of the revised *2007 Concept Plan* for 'Moonee Waters' project, and specific measures are identified in the CAMP for the *Conservation Area* on the subject site for the protection of this species, enhancement of its habitat and its long-term survival at this location.

Given those considerations, it is more likely that the Moonee Creek Quassia will benefit from the proposed development by the implementation of the CAMP and the funding of that management regime.

26.4.3 Nationally Threatened Fauna Species

A number of threatened fauna species, as listed on the EPBC Act, have either been recorded on the subject site at Moonee or in the vicinity. These species have been considered in detail in the previous *Flora & Fauna Assessment Report* for the project (Gunninah 2006), and their survival on the subject site is ensured by the substantial *Conservation Area* which is to be retained and protected on the subject site.

Species identified in the locality on the EPBC Act website (Appendix B) include:

- two bird species recorded from the subject site or vicinity which would utilize the site on a seasonal basis and for which substantial resources will be retained within the *Conservation Area* (the Swift Parrot and Regent Honeyeater);
- two bat species known to occur on the subject site or in the locality for which substantial resources will also be retained, protected and enhanced within the *Conservation Area* (the Large-eared Pied Bat and Grey-headed Flying Fox). It should be noted that both of these species are wide-ranging and highly mobile and are not considered likely to be reliant on resources contained within those portions of the subject site proposed for development activities; and
- the southeastern mainland population of the Tiger Quole, which could utilize a range of forested habitats within the subject site (although there is no evidence for the presence of this species on the site despite substantial investigations).

In all instances, the extent of suitable habitat and resources to be retained within the conservation area on the subject site, and protected in perpetuity, would ensure that the species are able to continue using the site to the extent that they currently do so.

26.4.4 Nationally Significant Ecological Communities

No vegetation communities listed as "*nationally significant ecological communities*" listed on the EPBC Act have been recorded in the locality (Appendix B).

26.4.5 Migratory Birds

A number of migratory bird species known to occur in the vicinity of the subject site (Appendix B), and the wetlands present provide suitable seasonal habitat for many of the migratory wetland bird species listed. The migratory bird species are listed under the following three categories referred to in the Environment Australia *Online Database*:

- terrestrial species covered by the provisions of the EPBC Act;
- wetland species covered by migratory provisions of the EPBC Act; and
- species covered by marine provisions of the EPBC Act.

As noted above, the 'Moonee Waters' site contains suitable wetland and extensive habitat for several migratory bird species listed on international agreements between the Australian Commonwealth Government and Japan (JAMBA) and China (CAMBA).

The substantial swamp forest, wetland and sedgeland habitats in the low-lying parts of the subject site at Moonee, including the swamp forest communities, provide a variety of resources and habitat features of relevance for those species listed on JAMBA and CAMBA. There is no likelihood of a "*significant impact*" being imposed upon any nationally listed migratory bird species known or potentially present on the subject site or in the locality given:

- the substantial *Conservation Area* proposed as part of the development concept;
- implementation of the comprehensive CAMP for that *Conservation Area*, and the consequent enhancement and protection of habitats and resources in the long-term;
- the low likelihood of any such species relying on those habitats and resources that are proposed removal and modification as part of the revised *2007 Concept Plan* for the 'Moonee Waters' project. It is not likely, therefore, that any migratory species or their habitats would be adversely affected to a significant extent by the proposed development at Moonee.

26.5 Conclusions

Whilst the *2007 Concept Plan* for the 'Moonee Waters' development does not constitute an "action" as defined in the EPBC Act, and the current proposal is therefore not subject to consideration pursuant to the EPBC Act, this *Report* has considered the relevant issues with respect to biodiversity conservation and impacts raised in the EPBC Act. The *Report* provides a consideration of the likely impacts of future development as contemplated in the revised *2007 Concept Plan*, and provides an assessment of the likely or otherwise of a "significant impact" to be imposed upon any "matters of national environmental significance".

It is the opinion of the author of this *Report* that the development of the 'Moonee Waters' site as documented in the revised *2007 Concept Plan*, would not impose a "significance impact" upon any "matters of national environmental significance", given the development design (which has concentrated development activities into the areas of least environmental value) and the preservation of a substantial proportion (approximately 75%) of the subject site within a *Conservation Area*. The dedication of approximately 73.4ha of the site primarily for biodiversity conservation purposes, and the incorporation of 'best practice' management measures and design features within the two development precincts proposed, will ensure that significant adverse impacts are not imposed upon the natural environment in general, or upon those "matters of national environmental significance" identified in the EPBC Act in this general locality.

27 CONCLUSIONS

The revised *2007 Concept Plan* for 'Moonee Waters' development incorporates:

- the location of urban development in the least sensitive and least significant parts of the subject site, within vegetation which is not listed as an "*endangered ecological community*";
- the conservation of approximately 75ha of the subject site primarily for biodiversity conservation purposes including the overwhelming majority of the "*endangered ecological communities*" present as well as approximately half of the Dry Blackbutt open forest community;
- the maintenance of broad 'wildlife corridors' through the site in both a north-south and an east-west direction;
- the management of the *Conservation Area* in perpetuity, by the implementation of a dedicated *Conservation Area Management Plan* (CAMP) through a 'community title' management regime, for benefit of the public and of local residents, and to ensure that the substantial conservation reserve on the subject site is enhanced and maintained;
- the construction and maintenance of access paths and bicycle paths through the *Conservation Area* to control human access throughout the lands;
- the provision of bushfire protection measures primarily within the development footprint involving front yards and the peripheral road system; and
- the employment of Water Sensitive Urban Design principles based on the concept of total water cycle management which includes:
 - the harvesting of rainwater for re-use;
 - the collection and filtering of stormwater;
 - the use of bioswales in road medians and around the perimeter of the subject development to remove nutrients and contaminants; and
 - the controlled discharge of excess stormwater through the adjoining retained vegetation to further manage and remove nutrients prior to discharge into the natural drainage system.

As discussed in detail throughout this *Report*, the 'Moonee Waters' *2007 Concept Plan* provides for a substantial *Conservation Area*, occupying approximately 74.9ha (or 73.4% of the subject site). That area constitutes more than twice the area identified on the subject site for biodiversity conservation purposes by CHCC as recently as 2000, and represents a significant local and regional contribution to biodiversity conservation.

Further, as documented elsewhere in this *Report*, the management of that substantial conservation reserve is to be undertaken in perpetuity at no cost to the public purse (either CHCC or the state government). That approach constitutes a substantial and significant environmental benefit in the locality and region, and is a direct consequence of the proposed development.

The revised *2007 Concept Plan* for the 'Moonee Waters' development presents a realistic, reasonable, appropriate and achievable balance between environmental and conservation objectives and reasonable development expectations. The development area identified in the *2007 Concept Plan* is moderate and conservative in its extent and in the potential impacts to be imposed, and applies ESD principles in its biodiversity conservation outcomes. Furthermore, the revised *2007 Concept Plan* is both justifiable in terms of its treatment of potential 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.

F Dominic Fanning
Director – *Environmental InSites*

BIBLIOGRAPHY

- CHCC. 2003. *Coffs Harbour City Vegetation Strategy*. Coffs Harbour City Council, Coffs Harbour.
- Clancy GP. 1989. *Moonee Flora & Fauna Survey. Study Area 1*. Coutts Crossing, NSW.
- Clancy GP. 1990. *Moonee Flora & Fauna Survey. Study Area 2 & 3*. Coutts Crossing, NSW.
- Clancy GP and VA. 1998. *Moonee Flora & Fauna Survey. Moonee Release Area*. Coutts Crossing, NSW.
- Fisher M, Body M and Gill J. 1996 *North East Vegetation Surveys. The Vegetation of the Coffs Harbour City Council LGA*. Report prepared for Coffs Harbour City Council.
- Griffith S. 1993. *Conservation Status of Coastal Plant Communities in Northern New South Wales*. NSW National Parks & Wildlife Service, Hurstville.
- Gunninah. 2006. *Lot 66 in DP 551005, Moonee Beach. 'Moonee Waters' Residential Development & Conservaion Reserve. Flora & Fauna Assessment*. Gunninah Environmental Consultants/Environmental Insites, Sydney.
- Hager TC and Benson JS. 1994. *Review of the Conservation Status of Vegetation Communities in New South Wales. Part 3: Assessment of the Conservation Status of Forest Plant Communities in Northern New South Wales*. Report to the Australian Heritage Commission.
- Milford H B. 1999. *Soil Landscapes of the Coffs Harbour 1:100,000 Sheet Map*. Department of Land and Water Conservation, Sydney
- NPWS. 1994. *Flora of NSW Forests. North East Forests Biodiversity Study Report No. 4*. NSW National Parks & Wildlife Service, Hurstville.
- NPWS. 1995. *Vertebrates of Upper Northeast New South Wales*. NSW National Parks & Wildlife Service, National Resources Audit Council.
- NPWS. 2000. *Threatened Species of the Lower North Coast of New South Wales*. NSW National Parks & Wildlife Service, Hurstville.
- Parker P. 2004. *North Sapphire Beach Flora & Fauna Survey*. Peter Parker Environmental Consultants, Broken Head.
- Patterson Britton. 2005. *Mercer Land, Moonee Beach. Subdivision DA. Water Management Report*. Patterson Britton & Partners, North Sydney.
- Sheringham P and Westaway J. 1995. *Significant Vascular Plants of Upper North East New South Wales. Report prepared for the Department of Urban Affairs & Planning*.
- Smith AP, Andrews SP, Gration G, Quin D and Sullivan B. 1995. *Coffs Harbour/Urunga Management Area EIS. Supporting Document No. 4*. State Forests of NSW, Sydney.
- State Forests. 1995. *Environmental Impact Statement for the Proposed Forestry Operations in the Coffs Harbour and Urunga Management Areas*. State Forests of NSW, Sydney
- Walker J and Hoskins MS. 1990. *Vegetation*. In McDonald RC, Isbell RF, Speight JG, Walker J and Hopkins MS (eds). *Australian Soil and Land Survey Field Handbook*. Inkata Press, Melbourne.
- Yarranbella Environment Services. undated. *Ecological Development Assessment Lot 66 DP 551005, Moonee Beach*.