
RAINBOW BEACH
Preliminary Environmental Assessment & Identification of Issues
Open Space Corridor & Constructed Wetland

Prepared for
TIERNEY PROPERTY SERVICES – DEVELOPMENT MANAGER
ST VINCENTS FOUNDATION - LANDOWNER

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1.00 INTRODUCTION

A Concept Plan application seeking approval for a regionally significant urban development was recently lodged with the Department of Planning under the provisions of Part 3A of the Environmental Planning and Assessment Act 1979. This Concept Plan incorporates broad scale development for the site, including the establishment of a residential estate, village centre, school sites, eco-tourist site and open space corridor which includes a constructed wetlands and playing fields. The Concept Plan has been prepared in accordance with the adopted Port Macquarie - Hasting Council's Area 14 Structure Plan.

The Concept Plan has been identified as a Major Project as defined in State Environmental Planning Policy (Major Projects) 2005, as the site is located within the coastal zone, with approval being sought for the subdivision of residential land into more than 25 lots. The Concept Plan is also considered to be a Major Project as it is a development of regional significance for the purpose of residential and mixed use development, including regionally important community and educational facilities, with a capital investment value of more than \$50 million.

The subject Major Project Application for the open space corridor and constructed wetland is an integral component of the overall development of the subject land and is therefore considered to be a Part 3A matter in accordance with Section 75B (3) of the EP&A Act.

1.01 Purpose of this Document

The purpose of this document is to provide an overview of the proposed open space corridor and constructed wetlands development, in order to obtain the Director General's requirements for a Project Application under Part 3A of the Environmental Planning and Assessment Act 1979. The Director General's requirements will be used as a guide for the completion of a detailed environmental assessment for the subsequent Project Application.

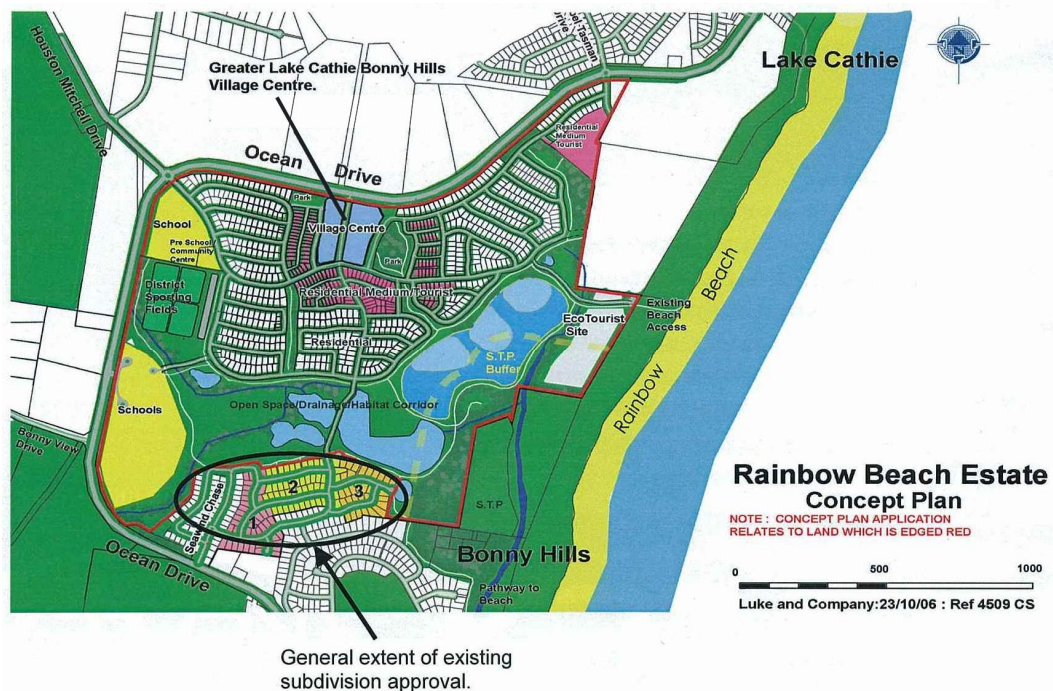
In order to assist with the efficient and effective assessment of the subsequent Project Application when submitted, this report provides an outline of the proposal, a brief discussion of planning provisions that are relevant to the project, as well as an outline of key environmental issues relevant to the proposal.

2.00 PROJECT DESCRIPTION

2.01 Project Context

The subject Major Project Application for the open space corridor and constructed wetlands sits within a broader Concept Plan application for the site. Under the provisions of Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act), Luke & Company Pty Ltd submitted a Concept Plan application to the Department of Planning in late November 2006. This Concept Plan, which incorporates the entire site, seeks approval for a residential estate, village centre, school sites, eco-tourist site, and open space corridor which incorporates a constructed wetland and playing fields. The Concept Plan has been prepared in accordance with the adopted Port Macquarie - Hastings Council's Area 14 Structure Plan. The open space corridor and constructed wetland is an integral component of the overall development of the subject land and thus may be considered a Part 3A matter in accordance with Section 75B (3) of the EP&A Act.

Figure 1. Rainbow Beach Concept Plan (Source: Luke & Company, November 2006)



2.02 Site Description and Location

The subject site includes part Lot 92 DP1078055, Lot 5 DP25886 and Lots 3 - 4 DP45956. Lot 92 forms the bulk of the site, with Lot 5 being the primary connection with Rainbow Beach. Lots 3 - 4 being former road reserves are small allotments. The total area of the site is approximately 180 hectares.

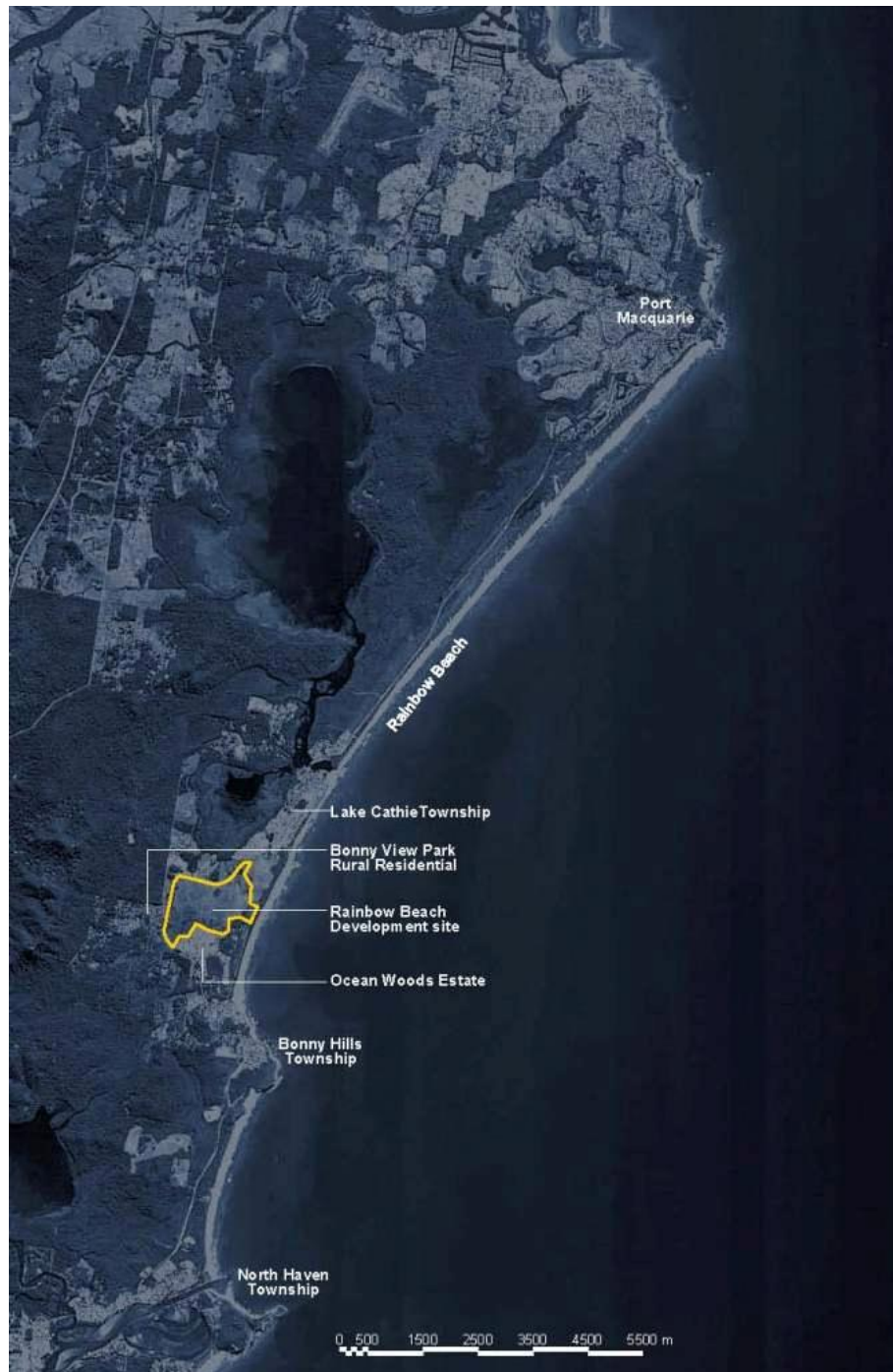
The subject land is located at Rainbow Beach approximately 18 km south of Port Macquarie and is situated between the coastal villages of Bonny Hills to the south and Lake Cathie to the north. The land is bound to the west by Ocean Drive, existing residential development to the immediate south and north, and coastal dunes and the Lake Cathie/Bonny Hills Sewerage Treatment Plant to the east.

Existing development on site is primarily concentrated in the southern section of the site and includes approximately 7 hectares of residential development known as Rainbow Beach Estate. Other works that are currently being undertaken, or have been recently completed in association with the residential development includes stormwater facilities, a cycle track and two small constructed wetlands.

In the past, the site has been the subject of construction works including landform modifications, artificial drainage lines and bulk earthworks, as well as the construction of a 7 hectare constructed lake located in the southern portion of the property. Excavated material from this water body was used to provide fill for the residential development located on the southern side of the lake.

Despite numerous past modifications on site, at present, the majority of the land remains undeveloped aside from 2 rural dwellings, and is used primarily for agricultural activities such as cattle grazing.

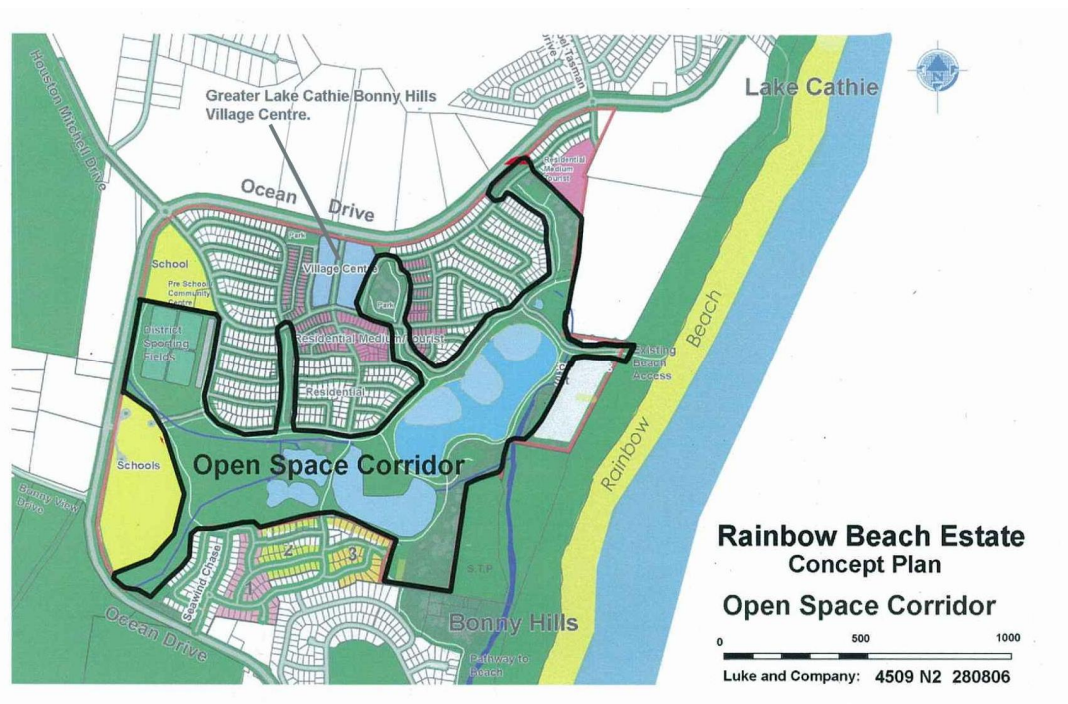
Figure 2. Location of Site



2.03 Proposal Description and Objectives

The Project Application involves the construction of an 84.7 hectare open space corridor including a 13 hectare constructed wetlands system for the purpose of stormwater management, recreation and flora / fauna habitat, playing fields, walkways, picnic areas and the like, and the conservation of existing remnant bushland vegetation. The application will also involve the deposition of approximately 430,000 m³ sand won from excavation works in the open space corridor onto future residential lots and playing fields. This fill is required in order to meet the yield outlined in Council's Area 14 Structure Plan. The proposal will also encompass a strong environmental management element and will include a Vegetation Management Plan to describe the full restoration approach to the open space and associated water bodies and drainage lines. Figure 3 illustrates the extent of the open space corridor and constructed wetland in relation to the overall Concept Plan for the site.

Figure 3. Extent of Open Space Corridor (Source: Luke & Company, 2006)



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The proposed open space corridor and constructed wetland involves a variety of elements and has been formulated to meet the following functions:

- To reduce the impacts of stormwater pollution arising from the proposed future residential subdivision.
- To mitigate high flows passing through the site as a result of past modifications to the land.
- To provide an aesthetically pleasing and sustainable wetland and pond system that is integrated with other proposed uses on site and enhances the natural environment of the area.
- To provide appropriate elements of habitat consistent with a coastal wetland system and the original vegetation on site.
- To provide suitable material from the excavation of the artificial wetland to use as fill required for other parts of the site, so as the developable area and final yields meet Council's Structure Plan.
- To provide a sustainable, efficient artificial wetland system with a long term management program which is self-supporting and cost effective.

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Figure 4. Wetland Layout (Source: Luke & Company, November 2006)

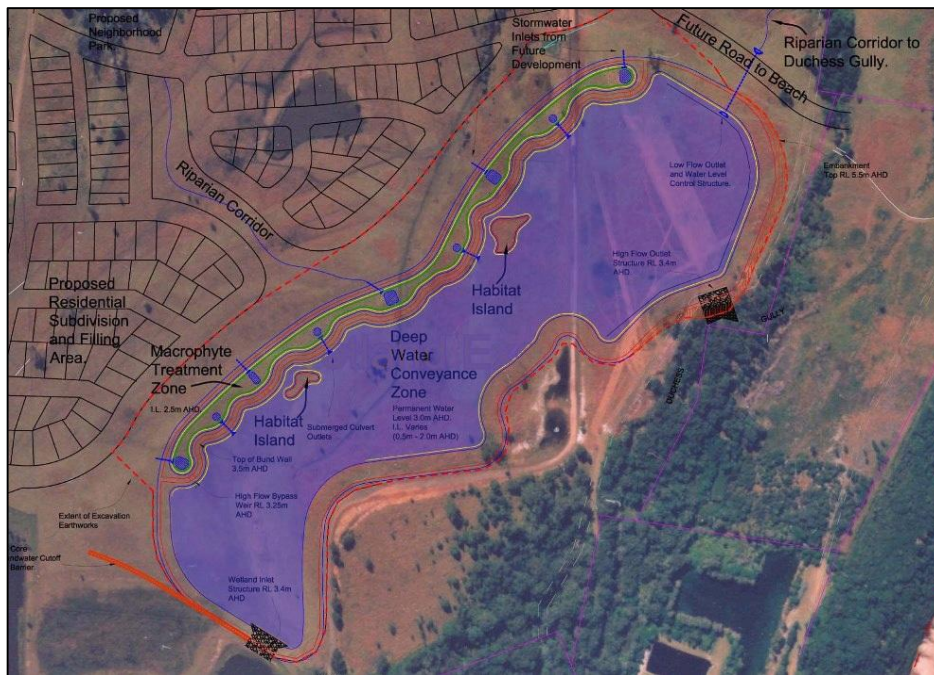
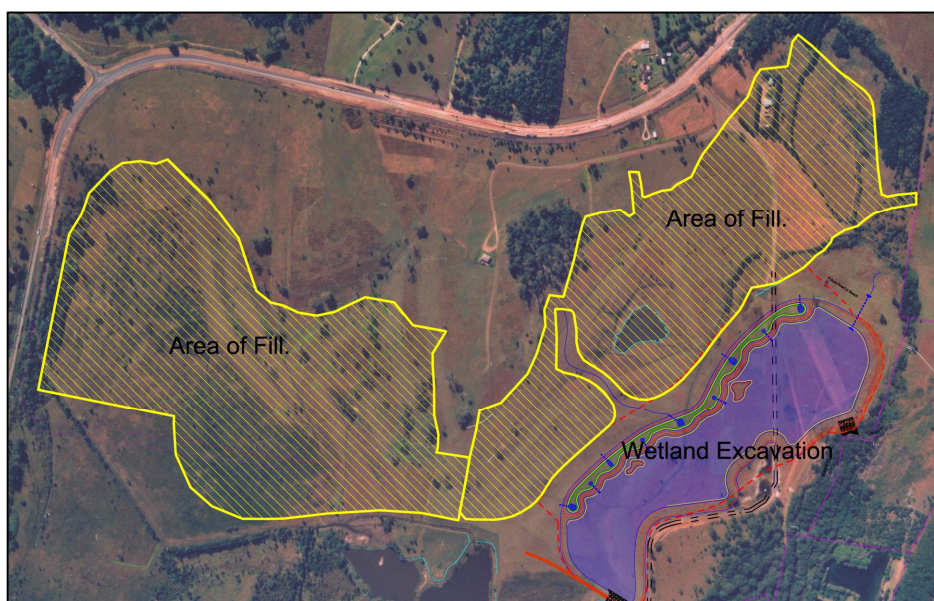


Figure 5. Proposed Area of Fill (Source: Luke & Company, September 2006)



3.00 PLANNING PROVISIONS

A number of NSW Acts and Regulations are relevant to the project, as well as numerous Environmental Planning Instruments, policies and guidelines.

The following list outlines the primary NSW planning controls that are relevant to the project:

- Environmental Planning and Assessment Act 1979
- State Environmental Planning Policy No. 71 - Coastal Protection
- State Environmental Planning Policy (Major Projects) 2005
- State Environmental Planning Policy No. 44 – Koala Habitat Protection
- North Coast Regional Environmental Plan 1998
- Hastings Local Environmental Plan 2001
- NSW Coastal Policy 1997

3.01 State Environmental Planning Policy No. 71 - Coastal Protection

SEPP 71 has been formulated to ensure that there is a clear development assessment framework for the Coastal Zone by providing a consistent and strategic approach to coastal planning and management and ensuring that development in the coastal zone is appropriately and suitably located.

The policy applies to developments within the 'coastal zone', which is defined by reference to coastal zone maps. The subject site has been identified as being within the coastal zone as it is one kilometre inland of the 'open coast' high water mark.

As stated in Clause 11 of the SEPP, development on land within the Coastal Zone is not to be carried out without the concurrence of the Minister.

3.02 State Environmental Planning Policy No. 44 – Koala Habitat Protection

The aim of SEPP 44 is to encourage the conservation and management of areas which provide habitat for koalas with a direction of establishing a permanent population over their present range and reverse the present trend of decline. The Policy applies to all Local Government Areas (LGA) listed in Schedule 1 of the SEPP, of which Hastings LGA is included. As outlined in Clause 6, as the subject site is more than 1 hectare in area, the policy is relevant to the site. Detailed flora and fauna investigations will be undertaken over the site in order to assess whether the provisions of SEPP 44 apply to the site.

3.03 North Coast Regional Environmental Plan 1998

The North Coast Regional Environmental Plan 1998 (NCREP) applies to the Hastings Local Government Area, including the subject land. The function of the NCREP is to provide a basis for new urban and rural development, with an emphasis on protection and management of the natural environment, coupled with efficient and attractive built environments. It is considered that the proposed development is consistent with the aims of the NCREP.

3.04 Hastings Local Environmental Plan 2001

Pursuant to Hastings Local Environmental Plan (LEP) 2001, the site is zoned 2(a1) Residential, while a portion of the site has recently be rezoned to 1(a1) Rural in order to formalise the buffer area surrounding the sewage treatment plant located to the south east of the site. Objectives of the 2(a1) Residential zone include identifying land suitable for residential purposes, ensuring the provision of services and facilities associated with residential land use, and to enable appropriate development. Constructed wetlands and open space areas are permissible with consent in both 2(a1) Residential and 1(a1) Rural zones. It is considered that the proposal is appropriate development within the zones.

3.05 NSW Coastal Policy 1997

The primary vision of the Coastal Policy is to promote ecologically sustainable development in coastal zones in NSW. In order to realise this vision, a set of key goals have been identified including the protection, rehabilitation and improvement of the natural environment; understanding the importance of the natural processes and aesthetic qualities of the coastal zone; protecting and conserving cultural heritage; implementing integrated planning and management in order to ensure ecologically sustainable human settlement and resource use; and providing for appropriate public access and use of the coastal zone. The wetlands and open space corridor proposal will incorporate the vision of the Coastal Policy.

3.06 Other Legislation

The relevance of other legislation will be addressed in the detailed environmental assessment for the Project Application. This assessment will include, but not necessarily be limited to the following:

- Environment Protection and Biodiversity Conservation Act 1999;
- National Parks and Wildlife Act 1974;
- Protection of the Environmental Operations Act 1997;
- Rivers and Foreshores Improvement Act 1948;
- Water Management Act 2000;
- Coastal Protection Act 1979;
- Threatened Species Conservation Act 1995;
- Local Government Act 1993.

4.00 ENVIRONMENTAL ISSUES

A number of environmental issues have been identified as being of key significance to the environmental planning and assessment process for the subsequent Project Application. The following section briefly outlines and discusses these key issues. It should be noted that the discussions below are based on general observations and results of past investigations undertaken on site. The detailed assessment of these key environmental issues will be undertaken as part of the Project Application's environmental assessment.

4.01 Groundwater

A number of groundwater investigations have been undertaken over the site, primarily due to its close proximity to the Lake Cathie/Bonny Hill Sewage Treatment Plant, which is located to the southeast of the site. As a result of these investigations, 18 existing groundwater users have been identified, with uses varying from waste water disposal, domestic and stock water supplies.

Investigations over the site reveal that groundwater generally flows in a west to east direction, with some localised reversals within areas of influence of surface drainage lines. Borehole samples taken in the immediate vicinity of the proposed wetland indicate a groundwater level of approximately 3.4m AHD.

As the chemical composition of the groundwater tested was found to be within a suitable range (being approximately neutral to slightly acidic), it is considered that the existing groundwater is compatible with the proposed wetlands and open space development.

4.02 Acid Sulphate Soils

As outlined in Clause 26 of Hastings Local Environmental Plan 2001, a land class system has been developed in order to ensure that assessment of development which may create an acid sulfate hazard has been undertaken adequately. The subject site covers Class 2, 3, 4 and 5 land, which based on the proposed activity (which includes works being undertaken beyond 2 metres below natural ground level), requires a preliminary soil assessment in order to determine the specific extent of acid sulphate soils (ASS).

Testing undertaken during geotechnical investigations have identified well-defined layers containing ASS on the site. Results from the investigations show that ASS occurrence is at a depth of greater than 2.5m below natural ground surface, with the layer occurring between 2.0m AHD at the western shoreline of the proposed wetland to less than 1.0m AHD east of the proposed wetland. A comparison with borehole logs indicated that the water table is well above any ASS.

The mitigation of the impacts associated with ASS can be addressed through the design of the wetlands, including avoidance of the ASS prone areas and reburial techniques, thus avoiding problems associated with removal, storage, treatment and placement of ASS.

4.03 Archaeology

The northern section of the subject site falls under the administration of the Birpai Local Aboriginal Land Council, while the southern section is administered by the Bunyah Local Aboriginal Land Council. A survey of the northern portion of the site was undertaken in 1996 in order to determine whether Aboriginal cultural materials were present on the site, and if so, assess their significance and recommend appropriate conservation measures. A further study was undertaken in 2006 to extend this study further south to include the area of the proposed wetland and associated filling.

The 1996 survey recorded the presence of 169 stone artefacts at nine (9) separate locations within and surrounding the subject site, in addition to a small open campsite and a larger campsite being recorded in the general vicinity. More detailed assessment regarding the impacts of the proposal on Aboriginal cultural materials will be undertaken during the environmental assessment, in order to develop conservation measures where appropriate.

4.04 Flora and Fauna

In the past, the site has been the subject of various works including land clearing resulting in much of the site being clear of significant vegetation. Previous flora and fauna assessments undertaken on the site have concluded that conservation values of the land were low with no recovery potential. No endangered flora and fauna species were identified within the site and it was not considered likely that they would occur in the future due to the absence of suitable habitat on the site. More detailed flora and fauna assessments will be undertaken during the environmental assessment, in order to evaluate flora and fauna classifications, and implement conservation measures where appropriate.

It is considered that the formalisation of the open space corridor including the constructed wetland, will assist in regenerating the site to be more in line with its original characteristics, and improve habitat for native flora and fauna.

4.05 Surface Water and Flooding

Stormwater enters the site via several multi-cell box culverts located in the western and south western quadrants of the site. The water then flows easterly across an alluvial plain and constructed lake system, discharging directly to the south arm of Duchess Gully. Duchess Gully is a watercourse, the lower reaches being semi tidal, which separates the eastern boundary of the site from the Rainbow Beach frontal dune. The creek is a collector for all surface runoff from the site and discharges to the south across Rainbow Beach. Investigations show that as a result of past construction works undertaken on site, the natural flow path of stormwater has been modified.

As a result of modifications to the historic flow of Duchess Gully, one of the primary objectives of the proposal is to reinstate this flow path with appropriately modified flow volumes and create an approximation of the former landform prior to settlement.

5.00 DELIVERABLES

In order to address the planning considerations and environmental issues outlined above, it is proposed that the Project Application for the open space corridor and constructed wetlands will consist of the following documents:

Environmental Assessment (EA)

- EA Report including:
 - Detailed description of the project
 - Consideration of all relevant planning legislation
 - Assessment of all environmental issues
 - Consideration of alternatives
 - Justification for the project

Vegetation Management Plan (VMP)

- VMP describing the restoration approach to the open space area and associated waterbodies and drainage lines and will include:
 - Bushfire Setbacks for the proposed vegetation communities from the proposed residential areas
 - Connectivity issues for corridors within and beyond the site
 - Mosquito risk hazard assessment
 - Seed collection strategies and plant propagation requirements
 - Extent of restoration and description of communities proposed
 - Opinion of Probable Cost for restoration works and long term maintenance
 - Action Plan
 - All physical reporting that has been undertaken on the subject site
 - Proposed ongoing monitoring
 - Weed control
 - Habitat creation and retention for Wallum Froglet and any other identified endangered ecological community
 - Feral animal management strategies
 - Vegetation establishment regime
 - Fish stocking
 - Long term maintenance advice

Open Space Concept Design

- Open Space Concept Design including detailed plans, sections and elevations showing:
 - Relationships to surrounding land uses
 - Various plant communities proposed as part of the restoration strategy
 - Extent and type of finished surfaces
 - Pathway layout and hierarchy
 - Feature structures and elements
 - Typical cross sections through every different landscape type and association
 - Indicative Plant lists
 - Typical detail plans
 - Character images
 - Sketch details of all feature elements
 - Wetland design and drainage corridor configuration
 - Consolidated A3 Open Space design report describing items raised above

6.00 CONCLUSION

This report has been formulated in order to provide an overview of the Rainbow Beach open space corridor and constructed wetlands proposal, and a brief examination of the planning implications and key environmental issues associated with the proposal. This report will be submitted to the Department of Planning in order to obtain the Director General's requirements for a Project Application under Part 3A of the EP&A Act.

The Project Application will be consistent with the Concept Plan currently being considered by the Minister under Part 3A, which seeks concept approval for the open space corridor and constructed wetlands, amongst a variety of other uses. In accordance with Section 75B(3) of the EP&A Act, the subject Major Project Application for the open space corridor and constructed wetland is considered to be a Part 3A matter.

The Director's requirements will assist in the completion of a detailed environmental assessment of the proposal. The environmental assessment of the proposal will address all planning and environmental elements discussed in this report, along with any additional matters required by the Department.

REFERENCES

Luke & Company Pty Ltd, November 2006, *Concept Plan Application*

Luke & Company Pty Ltd, 2006, *Rainbow Beach Estate Concept Plan – Open Space Corridor*

Luke & Company Pty Ltd, September 2006, *Constructed Wetlands Excavation and Filling Envelopes Plan*

Preliminary Environmental Assessment & Identification of Issues
