

Environmental Assessment Report

Bulk earthworks, infrastructure and subdivision

Property:

Lot 3 DP 588206 Kanangra Drive,
Gwandalan

Applicant

Lakeside Living Pty Ltd

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1.0 Executive Summary

Approval for a 190 Lot subdivision of Lot 3 DP 588206 is sought by the land owners Lakeside Living Pty Ltd. Approval is sought as a Major Project under Part 3A of the Environmental Planning and Assessment Act (EPA) 1979. The subdivision will create 187 new residential lots.

The proposed subdivision has been designed in accordance with the planning principles identified for the site as a part of prior assessments of the site by the Independent Hearing and Assessment Panel. All roads in the proposed subdivision have been designed to comply with Wyong Councils standards. This Environmental Assessment (EA) Report addresses the broader environmental issues associated with the proposal.

This report provides the detail of the proposed Gwandalan subdivision. This report also details compliance with the planning provisions for the Gwandalan site as contained in relevant SEPP's, and policies.

A set of Director General Requirements (DGR's) has provided the basis of this assessment. The full text of the DGR's is contained at **Appendix B**. The table in Section 2.1 of this report details compliance with the DGR's.

The proposed development is a standard urban subdivision with design in accordance with Wyong Councils road requirements and lots consistent with Code SEPP requirements.

The proposed development area is some 18 hectares of a larger 26 hectare lot owned by Lakeside Living Pty Ltd. The 8 ha not proposed for urban subdivision is zoned 7(b) Scenic Protection under Wyong LEP 1991. The stormwater controls for the subdivision will be located on the adjoining 7(b) zoned land.

The subdivision area is generally suitable for urban development having few constraints other than the existing bushland, bush fire hazard and proximity to high conservation value lands. These constraints have been addressed through environmental offsets and subdivision design.

The site adjoins the Gwandalan public school. The needs of the school have been addressed by providing a bus route along the school boundary and by avoiding any residential development along the boundary.. A substantial set down/pick up area for pupils and buses will be created. The needs of adjoining conservation lands have been addressed by limiting development at the interface.

The subdivision has already received approval under the Commonwealth EPBC Act.

Assessment of all key issues for the site has resulted in a subdivision proposal consistent with strategic, community and environmental needs.

2.0 Introduction

This report has been prepared to meet the requirements for subdivision of the Gwandalan Site under the DGR's and the planning controls for the site..

2.1 COMPLIANCE WITH DGR's

Director Generals Requirements

<i>Director General's Requirement</i>	<i>Location in document</i>
EA must include:	
1.) Executive Summary;	An executive summary has been included within the Environmental Assessment Report. Please refer to Section 1 pages 4.
2.) Detailed description of project including:	A detailed description of the proposal has been provided. Please refer to Section 3 pages 8-9.
a.) Strategic justification for the project;	
b.) Alternatives considered;	Section 4.3.5
c.) Various components and stages of the project;	Sections 3.6 and 3.7
Consideration of Planning Polices	Consideration has been given to the relevant planning and statutory requirements. Please refer to Section 5 pages 16-25.
Draft statement of commitments	A draft statement of commitments has been prepared and is located at Appendix A.
Detailed conclusion	A detailed conclusion is provided at Section 7 pages 35-36.
Development contributions	Developer contributions have been considered. Please refer to Section 5.14 page 24.
Author statement	Please refer to Section 2.2 page 7.
Report from quantity surveyor	A report has been prepared by a quantity surveyor and is located at Appendix C.
KEY ASSESSMENT REQUIREMENTS	
Development control plan	A Development Control Plan for the site has been prepared and is located at Appendix L.

Subdivision	Subdivision Design Plans are located at Appendix J and a detailed description is provided in Section 3 pages 8-9 .
Transport and accessibility	Transport and accessibility is discussed in Section 6.3 page 27 and a Traffic Report has been prepared and is located at Appendix F .
Management and maintenance of Open space	Please see Section 6.4 page 27 .
Heritage	Heritage is addressed in Section 6.5 pages 27-28 and an Aboriginal Heritage Report has been prepared and is located at Appendix D .
Biodiversity	Biodiversity is addressed in Section 6.6 page 28 . An ecological assessment report has been prepared and is located at Appendix E .
Bush fire risk assessment	Bushfire has been addressed in Section 6.7 page 29 and a Bushfire Threat Assessment Report has been prepared and is located at Appendix G .
Flooding	Flooding is addressed in Sections 4:12 and 6.8
Geotechnical and Mine subsidence	Geotechnical and Mine Subsidence is addressed in Section 6.9 pages 29-30 . A Geotechnical report has been prepared and is located at Appendix I .
Ecologically sustainable development	Please see Section 6.10 pages 30-31 .
Drainage and stormwater management	Please see Section 6.11 pages 31-32 .
Contamination	Contamination is addressed in Section 6.12 page 32 and Appendix I .
Construction impacts	Construction impacts are addressed in Section 6.13 pages 32 – 33 .
Utilities and services	Utilities and services are addressed in Section 6.14 page 33 .
Mining activities	Mining activities are addressed in Section 5.8 page 21-22 .
Interface Issues	Interface issues are addressed in Section 6.15 pages 33-34 .
Developer contributions	Please see Section 5.14 page 24 .
Consultation	Please see Section 6.3 page 27 , Section 6.10 page 30 and Section 6.14 page 33 .

2.2 CERTIFICATE BY AUTHOR

Gwandalan Subdivision Environmental Assessment Report

Certificate by author

I certify that the information contained in this report is not false or misleading.

For and on behalf of ADWJohnson Pty Ltd.



Certified by Ian McNicol

Position: Senior Planner/Project Manager

Disclaimer

This report was prepared from information and material from a large range of sources. While checking has taken place it is not possible for ADWJohnson to independently verify that all information and materials used are correct, current, complete and accurate.

3.0 Description of Development

3.1 PURPOSE

The subdivision will provide residential development in the Gwandalan-Summerland Point area.

The need for residential subdivision of the land is identified in the Lower Hunter Regional Strategy (LHRS), the Central Coast Regional Strategy (CCRS) and the Wyong Residential Strategy (WRS). Subdivision will be by Torrens Title with roads dedicated to Council.

The subdivision design plans are located at **Appendix J** and landscape concept plan is located at **Appendix L**.

3.2 YIELD

The total number of lots created by the subdivision will be 190.

The subdivision will comprise 187 vacant residential lots plus 2 lots for reserves to be dedicated to Council. A residual lot is also created for the existing foreshore dwelling.

3.3 CHARACTER

The character of the subdivision will be detached low density residential in keeping with existing Gwandalan development.

3.4 INCOMING POPULATION

The incoming population is expected to be predominantly young families.

3.5 DESIGN

The subdivision design complements the location by respecting development on adjoining lands.

The guidelines and development standards contained in *Wyong DCP 66 – Subdivisions* have been applied to the proposal. Other design considerations include the NSW Coastal Design Guidelines, water sensitive urban design and the key planning principles for the site as identified by the Independent Hearing and Assessment Panel.

3.6 CONSTRUCTION

Construction will commence as soon as practicable after approval processes have been completed.

Construction will proceed as follows:

- i) clearing and site preparation for (ii) and (iii) and (iv);

- ii) civil works including:
 - earthworks & site regrading;
 - major drainage controls & infrastructure provision; and
 - bus route and roads.
- iii) release (a) of 38 new residential lots;
- iv) release (b) of 79 new residential lots;
- v) civil works release (c); and
- vi) release (c) of 70 new residential lots.

3.7 STAGING

The residential subdivision will be in three releases as shown in the site DCP.

3.8 LANDSCAPING

The proposed subdivision will house a residential community set amongst the tall native Scribbly Gums, Peppermint and native Apple trees on the shores of Lake Macquarie. As many trees as possible will be retained on existing lots, roadside settings, parklands and perimeter buffer zones to create a distinctive 'Gwandalan' character and integrate the development with the surrounding dry sclerophyll bushland. The landscape concept plan is provided in **Appendix L**.

3.9 ACCESS

Access to the proposed subdivision is provided for via three access points off Kanangra Drive. Two of these access points will allow for bus access to the subdivision.

3.10 CONSULTATION

The proposal has been subject to previous public exhibition on two occasions in January to March 2007 and September to October 2007. The second exhibition was notified to 28 public agencies and 3880 land owners. As the current proposal is essentially identical to that exhibited in late 2007, and subsequently approved, no formal consultation was undertaken for the current application.

4.0 Site Description

4.1 LEGAL

The development site is Lot 3 in DP 588206 and is owned by Lakeside Living Pty Ltd. There are no easements over the land.

4.1.1 Site area

The project application is over part of the site only. SEPP (Major Developments) applies to part of the site but not all of the Major Projects application area.

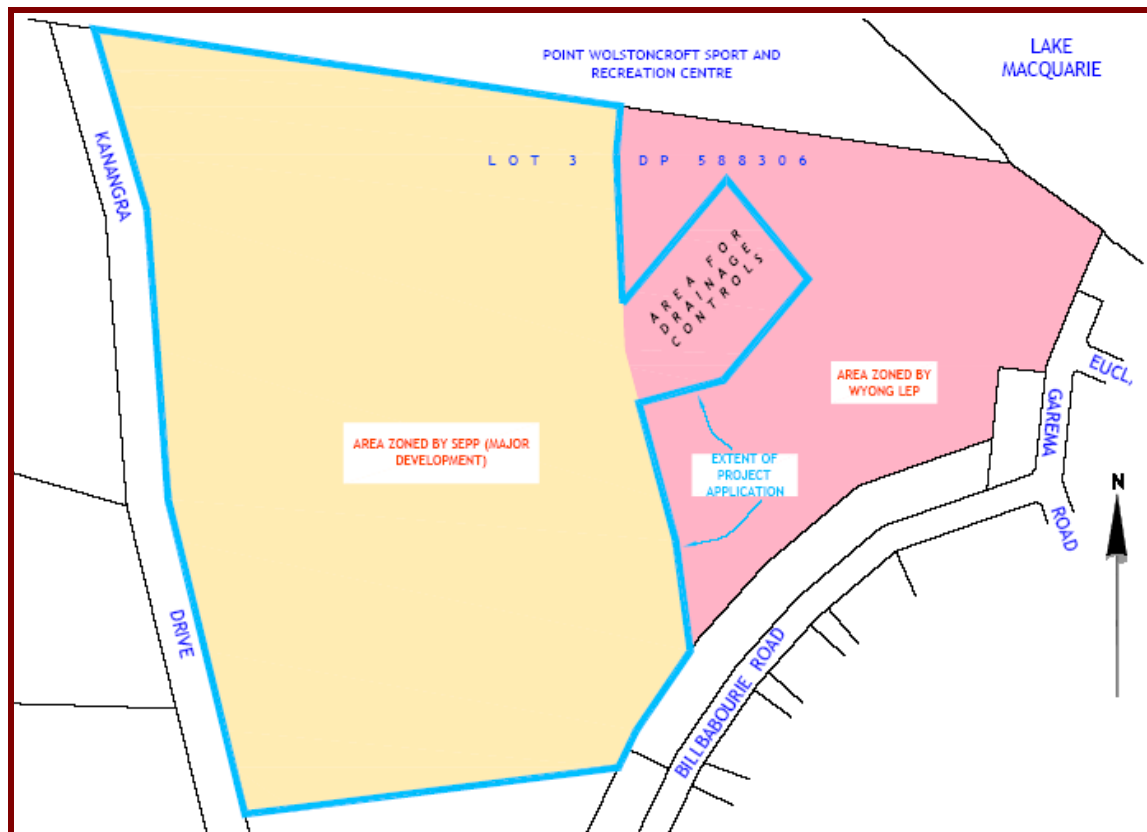


Figure 1 Site area for application as shown by blue border

4.2 LOCATION

The land is located on Kanangra Drive, Gwandalan in Wyong Shire Council's LGA.

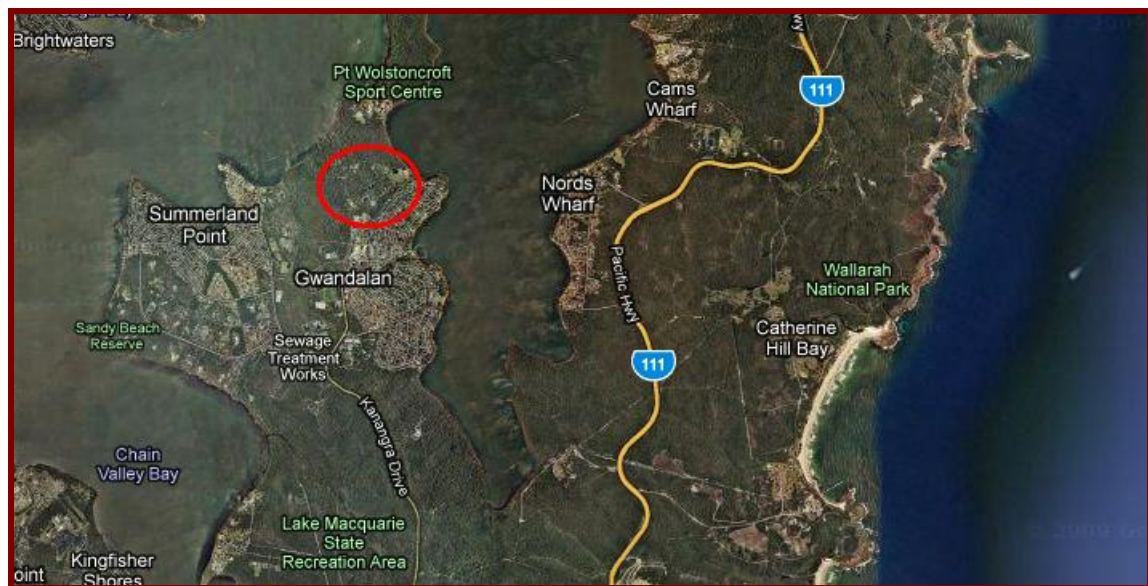


Figure 2: Locality Plan

4.3 HISTORY

4.3.1 Prior Development

The site has been partly developed. The site contains a caretakers dwelling, dams and orchard, fine trails and access to a dwelling on the foreshore. A high screen fence has been erected for the full length of the Kanangra Drive frontage.

4.3.2 Land Use

Approximately 30% of the site has been cleared, the remainder is disturbed bushland.

4.3.3 Heritage & Archaeology

There is a foreshore midden on Lot 3 in front of the existing dwelling.

4.3.4 Previous Studies

A comprehensive range of studies has provided information on the development potential of Lot 104. The range of previous studies, in addition to the heritage work described above includes:

- Bushfire by Ecobiological 2006 and Barry Eadie, 2007;
- Ecological Constraints Report by Wildthing 2003 and HSO 2007;

- Drainage & Stormwater by Umwelt and Asquith & de Witt 2007;
- Geotechnical by RCA Australia;
- Aboriginal Heritage by ERM 2007; and
- Services, by Hyder Consulting 2003 and Asquith & de Witt Pty Ltd 2007.

4.3.5 Alternatives considered

There have been several previous iterations of the subdivision design. Initial designs were amended to comply with the DGRs. An early layout was rejected by the Independent Planning and Assessment Panel. Further subdivision layouts were adjusted to suit Panel requirements and final approval was given.

The current proposal apart from some minor adjustments is the same subdivision layout as previously approved.

4.4 ACCESS AND TRAFFIC

The existing access is off Kanangra Drive. The proposed access points will service the whole subdivision and will also be off Kanangra Drive. A traffic assessment report is included as **Appendix F**.

4.5 AIR & NOISE

No air and/or noise issues for the area have been identified.

4.6 DRAINAGE

Despite drainage lines being shown on topographical maps, there are no perennial watercourses on the site. The site comprises a small catchment and it appears there is insufficient flow to create a natural watercourse. There is riparian vegetation on the North East corner of Lot 3. Drainage on the site is via constructed dams and drains.

4.7 SLOPE/TOPOGRAPHY

Generally the site forms a basin sloping east towards the lake. Slopes are generally less than 5% and there are no significant topographic features. See engineering concept plans at **Appendix K**.

Lower parts of the site are part of the Lake Macquarie floodplain.

4.8 SOILS

Soils on the site are from the Doyalson landscape and are described in the Geotechnical Report. An acid sulphate management plan will be required for the constructed wetland.

4.9 FLORA & FAUNA

The site has been extensively studied and surveyed. The major vegetation types are established by RPS 2010 and are shown below, see **appendix E**.

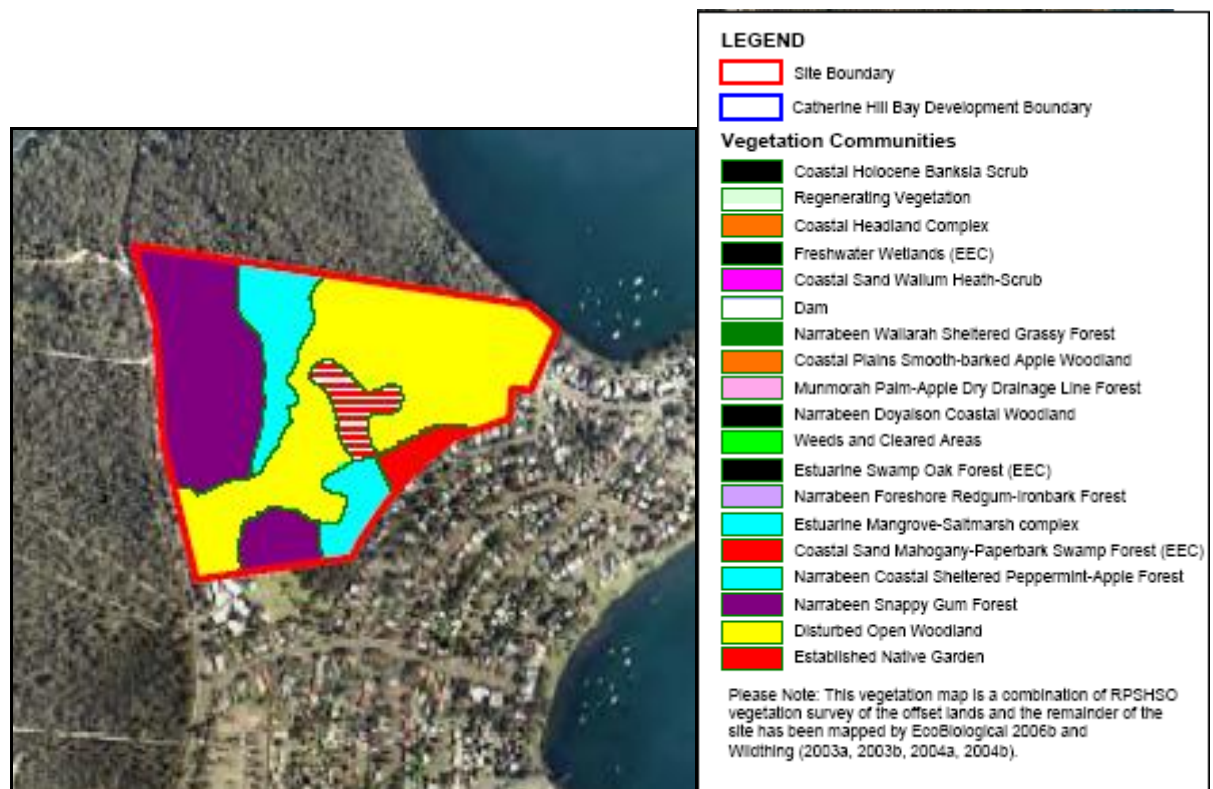


Figure 3: Extract from RPS Report 2010

The site is habitat for the threatened plant species *Tetratheca juncea*.

4.10 EASEMENTS

No easements affect the site.

4.11 SERVICES

Services advice for the proposed subdivision of the site has been provided by Wyong Council in regard to the proposed upgrading of water supply and sewerage infrastructure.

The following was advised by Wyong Council in March 2007:

A. Water Supply

The extension of 250mm water main along Kanangra Drive is required in conjunction with the commencement of this development as identified in Wyong Council DSP 12 in order to meet the fire fighting requirements. Council will not allow connection to the new 250 water main for servicing the proposed new lots. A rider main (100mm or 150mm) is to be constructed to service the new lots. The rider main will be part of the reticulation within the subdivision of Precinct 1A.

B. Sewerage

- *Up to 20 lots*

No upgrading of the existing sewerage infrastructure is required.

- *Above 21 lots*

Upgrade (E&M) works of SPS G1 is required.

- *Above 71 lots*

Upgrade of sewer gravity main "Line AA" in accordance with DSP 12 is required.

- *Above 146 lots*

Upgrade (E&M) works of SPS G2 and upgrade its Rising Main as identified in DSP 12 is required.

- *Any increase beyond 250 lots will entail the following additional work:*

- a. Upgrade the civil, electrical and mechanical works of SPS G1.
- b. Upgrade 240 metres of the Rising Main G1 from 150 mm to 200 mm pipe.
- c. Upgrade approximately 235 metres of the sewer gravity main of "Line AA" from 225 mm to 300 mm pipe in SPS G2 catchment area.

4.12 FLOODING

While part of Lot 3 DP 588206 is flood affected, this part is not proposed for new residential subdivision. Flooding is restricted to foreshore areas. The flood planning level for Lake Macquarie including the 100 year allowance for sea level rise due to climate change is 2.85 m AHD (from Lake Macquarie Sea Level Rise Preparedness and Adaptation Policy 2008).

Only a very small section of the subdivision area, along an existing drain is below 3 m AHD. Flooding and sea level rise are not significant issues for the site.

4.13 BUSHFIRE

The land is identified as a bushfire prone area. Bushfire hazards exist to the north and west of the site. Appropriate Asset Protection Zones (APZ) have been incorporated into the subdivision design. See **Appendix G**.

4.14 URBAN CAPABILITY

There are no significant urban capability limitations. Those areas with limitations for urban development are outside the proposed subdivision area.

4.15 SCENIC QUALITY

No major scenic natural features are located on the land. The site is screened from view by the fence on Kanangra Drive.



Photo 1: View along Kanangra Drive looking north

4.16 SITE ANALYSIS

Site analysis reveals no significant subdivision constraints other than the existing bushland.

Features affecting subdivision design are:

- Adjoining primary school;
- Adjoining State Conservation Area;
- Access to Kanangra Drive;
- Adjoining residential; and
- Bushfire hazard.

5.0 Planning

This section briefly describes and assesses the planning controls that apply to the land.

5.1 ENVIRONMENTAL PLANNING & ASSESSMENT (EPA) ACT

The subdivision proposal is being assessed under Part 3A of the EPA Act. The assessment guidelines for the site, issued under Part 3A, are at Appendix B.

5.2 COMMONWEALTH EPBC APPROVAL

An approval under the EPBC Act for residential, retail and commercial purposes the “action” over 18 ha of land on the site (and 60 ha at Catherine Hill Bay) was granted on 27 February 2009 by the Minister for the Environment, Heritage and the Arts. The approval requires the action to be under taken “*generally as described in the final Catherine Hill Bay and Gwandalan Concept Plan.....including the dedication of lots 104, 105 and 107 as conservation area*” (“**Environmental Offset Land**”). The Environmental Offset Land dedications were the environmental offsets for the development (actions) at Catherine Hill Bay and Gwandalan. Even though the Concept Plan Approval for the site was declared invalid by the Court in 2009, the Environmental Offset Land dedications as environmental offsets have already taken place in accordance with the Concept Plan Approval.

5.3 SEPP INFRASTRUCTURE

Lead in infrastructure including water and sewer will be approved under Part 5 of the EPA Act. These works will need to be provided in accordance with Wyong Council DSP 12.

5.4 SEPP 55 REMEDIATION OF LANDS

The land use history of the Gwandalan site does not indicate any likelihood of contamination.

5.5 SEPP 71 COASTAL PROTECTION

The requirement to consider the SEPP arises from the DGRs. Coastal planning requirements for Gwandalan are met statutorily by clause 19 of SEPP (Major Developments) 2005, . However, the DGR’s specifically require assessment of the provision of SEPP 71. Clause 29 matters are addressed by consideration of SEPP 71.

Assessment under the aims of SEPP 71:

(a) to protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast, and

The proposal is set back over 100 metres from the Lake foreshore.

(b) to protect and improve existing public access to and along coastal foreshores to the extent that this is compatible with the natural attributes of the coastal foreshore, and

(c) to ensure that new opportunities for public access to and along coastal foreshores are identified and realised to the extent that this is compatible with the natural attributes of the coastal foreshore

Privately owned land leading into public foreshore has been dedicated to the public as part of the Environmental Offset Land dedication under the EPBC Act approval.. The public has gained ownership of approximately 1.8km of lake foreshore and 1.5 km of coastal foreshore as well as 8ha of headland, beach and rock platforms.

(d) to protect and preserve Aboriginal cultural heritage, and Aboriginal places, values, customs, beliefs and traditional knowledge, and

The offset areas include places of Aboriginal significance along the Lake Macquarie foreshore and a site on Middle Camp Beach has been placed in public ownership by the land dedications and will be managed by the NSW National Parks and Wildlife Service.

(e) to ensure that the visual amenity of the coast is protected, and

The dedication of coastal land including key areas of foreshore and headland, the Environmental Offset Land dedication under the EPBC Act approval, has ensured that visual amenity is protected. The site planning controls provide further protection. The set backs to Lake Macquarie assist in this regard.

(f) to protect and preserve beach environments and beach amenity, and

No significant change to beach environments and amenity are likely, due to the substantial development setbacks.

(g) to protect and preserve native coastal vegetation, and

This has been achieved by dedication of land.

(h) to protect and preserve the marine environment of New South Wales, and

Not directly relevant but proposed drainage controls will help prevent damage to marine and estuarine environments.

(i) to protect and preserve rock platforms, and

A significant area of rock platform has been dedicated as part of this proposal.

(j) to manage the coastal zone in accordance with the principles of ecologically sustainable development (within the meaning of section 6 (2) of the 6), and

The application of the Coastal Policy, BASIX and water sensitive urban design will all operate to give effect to the principles as will the proposed dedication of land.

(k) to ensure that the type, bulk, scale and size of development is appropriate for the location and protects and improves the natural scenic quality of the surrounding area, and

The proposed development has scale and bulk consistent with coastal villages as identified in the NSW Coastal design guidelines. Protection and improvement of the natural scenic quality of the surrounding area will be achieved through dedication and rehabilitation. The built form controls in the site DCP will adequately manage this issue.

(l) to encourage a strategic approach to coastal management.

This aim is achieved through compliance with the overall vision in the Lower Hunter Regional Strategy.

The matters for consideration under clause 8 of SEPP 71 are the following:

8(a) the aims of this Policy set out in clause 2,

See (a) to (l) above.

8(b) existing public access to and along the coastal foreshore for pedestrians or persons with a disability should be retained and, where possible, public access to and along the coastal foreshore for pedestrians or persons with a disability should be improved,

See (b) above.

8(c) opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability,

See (c) above.

8(d) the suitability of development given its type, location and design and its relationship with the surrounding area,

See (k) above.

8(e) any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore,

No development is proposed on the coastal foreshore, no overshadowing will occur and no views from public places will be lost.

8(f) the scenic qualities of the New South Wales coast, and means to protect and improve these qualities,

The location of the proposed subdivision is consistent with protection of scenic amenity.

8(g) measures to conserve animals (within the meaning of the Threatened Species Conservation Act 1995) and plants (within the meaning of that Act), and their habitats,

The Environmental Offset Land dedication protects a significant area of threatened species habitat and provides corridor linkages.

8(h) measures to conserve fish (within the meaning of Part 7A of the Fisheries Management Act 1994) and marine vegetation (within the meaning of that Part), and their habitats

There will be no direct effect on fisheries habitat. The site will have appropriate stormwater controls, Lake Macquarie will be protected by the proposed drainage controls.

8(i) existing wildlife corridors and the impact of development on these corridors,

Known corridors have been dedicated as public land.

8(j) the likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards,

The proposed development is located with significant setbacks to known hazards.

8(k) measures to reduce the potential for conflict between land-based and water-based coastal activities,

No development is proposed that would increase land and water recreation conflicts.

8(l) measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals,

See (d) above.

8(m) likely impacts of development on the water quality of coastal waterbodies,

There will be no significant effect. The site is to be seweraged and adequately drained.

(n) the conservation and preservation of items of heritage, archaeological or historic significance,

There are no known heritage items in the proposed subdivision area.

(o) only in cases in which a council prepares a draft local environmental plan that applies to land to which this Policy applies, the means to encourage compact towns and cities,

N/A

(p) only in cases in which a development application in relation to proposed development is determined:

(i) the cumulative impacts of the proposed development on the environment, and

The cumulative effects of traffic, impacts on services and impacts of development have been assessed. The development can be accommodated by expanded service networks and substantial environmental offsets have been made.

(ii) measures to ensure that water and energy usage by the proposed development is efficient.

The village developments will have to comply with SEPP BASIX and water sensitive urban design principles including reuse as provided for in the concept plan.

5.6 SEPP BASIX

All residential buildings in the proposed development at Gwandalan will be subject to a BASIX assessment.

5.7 SEPP (MAJOR DEVELOPMENT) 2005

The site is a State Significant Site being listed in Schedule 3 of the SEPP.

SEPP (Major Development) Schedule 3 also zones the site and provides development controls.

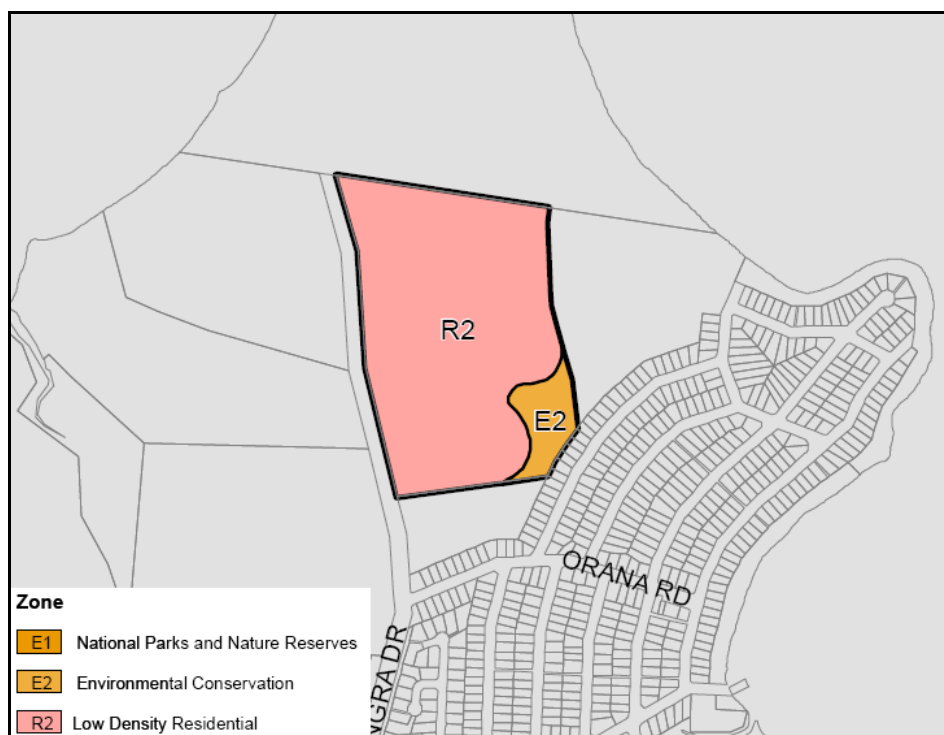


Figure 3: Extract of the site zonings under SEPP Major Development.

The SEPP provides a range of considerations to be addressed in approving subdivision and future development on the site. The SEPP includes detailed considerations for coastal development that replace SEPP 71 Coastal Protection.

Table 4: Site requirements for subdivision under Pt 14 Schedule 3 SEPP (Major Development)

Relevant Clause	Requirement
14 Subdivision	Consent required for subdivision
15 Building height	No new buildings proposed as part of this proposal
16 Exceptions to development standards part 3A projects	No exceptions sought
19 Development within the coastal zone	Lists matters to be addressed. See SEPP 71 comments
21 Preservation of trees	Approval required for tree clearing
22 Heritage conservation	There are no relevant matters of European heritage
23 State public infrastructure	Arrangements for the provision or contribution to certain infrastructure are required before subdivision
24 Public utility infrastructure	No approvals without adequate infrastructure arrangements in place
26 Land acquisition	Requires land dedications by the proponents (see draft statement of commitments)
29 Development Control Plan	A development control plan has been prepared for the site see Appendix L .

5.8 SEPP MINING & PETROLEUM

Part 3A of the SEPP lists matters for consideration with development applications. There are coal seams under the site.

Clauses 12, 14, 15 and 16 relate to approvals for mining and petroleum production but these are not relevant to the current proposal.

Clause 13 deals with the compatibility of proposed development within the vicinity of an existing mine. Clause 13 matters for consideration are:

a) i) *the existing and approved uses of land in the vicinity.*

The current mine is in the process of closure so no conflict with surface mining infrastructure or operations will occur.

a) ii) impact of a future extraction of materials.

The land is still under laid by coal seams with extraction potential. It is believed that the seams will be accessible from other sites should this be required in the future.

a) iii) ways in which the development may be incompatible with future extraction or recovery of materials.

As indicated under ii) there do not appear to be any significant impediments to future coal mining or resource exploration.

Development would reduce the potential for petroleum exploration by restricting area available for drilling but this would be unlikely to restrict any future, for example, gas extractions which could be accommodated locally.

b) Public Benefits

The Lower Hunter Regional Strategy indicates the area as being underlain by coal resources. Given that the collieries are closed, the public benefit of housing is not offset by any loss of resource extraction opportunities.

c) The measures proposed to avoid incompatibilities.

The proposal proposes to comply with the requirements of the Mine Subsidence Board which will ensure that any damage due to former mine activities will be manageable and future mining will not be unduly compromised.

5.9 CENTRAL COAST REGIONAL STRATEGY

The Central Coast Regional Strategy identifies the Gwandalan site for urban development. Development of the land will help meet the objectives for residential development, jobs and conservation identified in the Strategy.

The land is also identified as part of the North Wyong Structure Plan Area.

5.10 NSW COASTAL POLICY

The primary objective of the NSW Coastal Policy is to protect coastlines and beaches for the enjoyment of future generations and to ensure that coastal development is balanced, well planned and environmentally sensitive. The overriding vision is of an ecologically sustainable NSW coast.

The key themes of the policy set out some basic principles for development. While the focus is on conservation initiatives this does not mean that future urban development in coastal areas should be sterilised. In particular the policy promotes the need for local housing strategies to provide opportunities to

more efficiently use land. These opportunities can ensure that equity considerations are fulfilled by allowing more people to live in the coastal zone while preserving important environmental attributes.

Another key theme of the policy is ESD (Ecologically Sustainable Development). The principles of ESD provide guidance and an integrating role in the development of the policy. The policy states that ESD provides a framework for reconciling issues when necessary and making choices between competing demands for access to the resources of the coastal zone. The policy also states that ESD should be a guide to new development and resources exploitation in the coastal zone which balances human and ecological needs. Overall the ESD section of the policy advocates cautious, careful and well planned development. The precautionary principle is seen as an integrating mechanism rather than as advocating a no development approach.

The policy principles are to be read within the broader vision of the coast being a coastal environment which is preserved and enhanced for its natural and cultural values while also providing for the economic, social and spiritual well being of the community.

The proposed residential subdivision is consistent with the overall policy aims. The subdivision meets the design and locational provisions in Table 3 of Appendix C to the policy.

5.11 NSW COASTAL DESIGN GUIDELINES

The New South Wales Government has produced the Coastal Design Guidelines (CDG). The guidelines are to ensure that decision making about coastal development is approached on an urban design basis and is responsive to the character of a place. The guidelines seek to replace ad hoc decision making with a process more attuned to the character and environment of a place, with regard to social and economic factors.

The Coastal Design Guidelines were incorporated into the Independent Hearing and Assessment Panel Key design Guidelines for the site. The recommendations have significantly influenced the zones and planning controls applied to the site. The recommendations also produced the subdivision layout shown in 5.15 below.

5.12 WYONG LEP

Under Wyong LEP 1991 the land was zoned 7(b) Scenic Protection and 7(e) Coastal Lands Acquisition.

The Wyong LEP is overridden by SEPP (Major Developments) which is the primary Environmental Planning Instrument for the site.

5.13 DEVELOPMENT CONTROL PLANS

Wyong DCP does not apply to this proposal. A DCP has been prepared in accordance with the provisions of SEPP (Major Development) as it applies to the site. Refer Appendix L.

Although subject to its own planning controls the proposed Gwandalan subdivision complies with the Wyong subdivision code.

5.14 SECTION 94 AND DEVELOPMENT CONTRIBUTIONS PLANS

The Gwandalan site is subject to the Gwandalan Section 94 contributions plan and the Wyong DSP for water and sewer services. Contributions will be required as conditions of approval.

The issue of contributions for both state and local government is dealt with in the Draft Statement of Commitments. The proponent will make contributions in accordance with identified requirements.

5.15 INDEPENDENT HEARING AND ASSESSMENT PANEL

The Independent Hearing and Assessment Panel made recommendations for the Gwandalan site in April 2007 with respect to a previous Concept Plan Application by the proponent in December 2006 which related to the site. Relevantly, the current proposal differs from the development considered by the Independent Hearing and Assessment Panel in the following key respects:

- the subdivision has been reduced in size by deleting what was originally stage 2.
- stage 2 included the foreshore area adjoining Lake Macquarie, and
- the subdivision has been redesigned

The following key planning principles for the Gwandalan site were recommended by the Independent Hearing and Assessment Panel in April 2007 for that previous application:

- Only the area now zoned under SEPP (Major Development) will proceed to subdivision.
- The subdivision design of the (now zoned) area shall... *“take account of the sites environmental and ecological attributes including (but not limited to):*
 - *existing water courses and drainage*
 - *integration with surrounding areas*
 - *location and retention of significant trees*
 - *occurrence of any endangered species;*
 - *proper road design and layout; and*
 - *the provision of public access to the water front.*

The proposal was amended to reflect the key design principles.

Figure 4 below shows the subdivision layout made in accordance with the IHAP key planning principles and recommended for approval by the Panel .

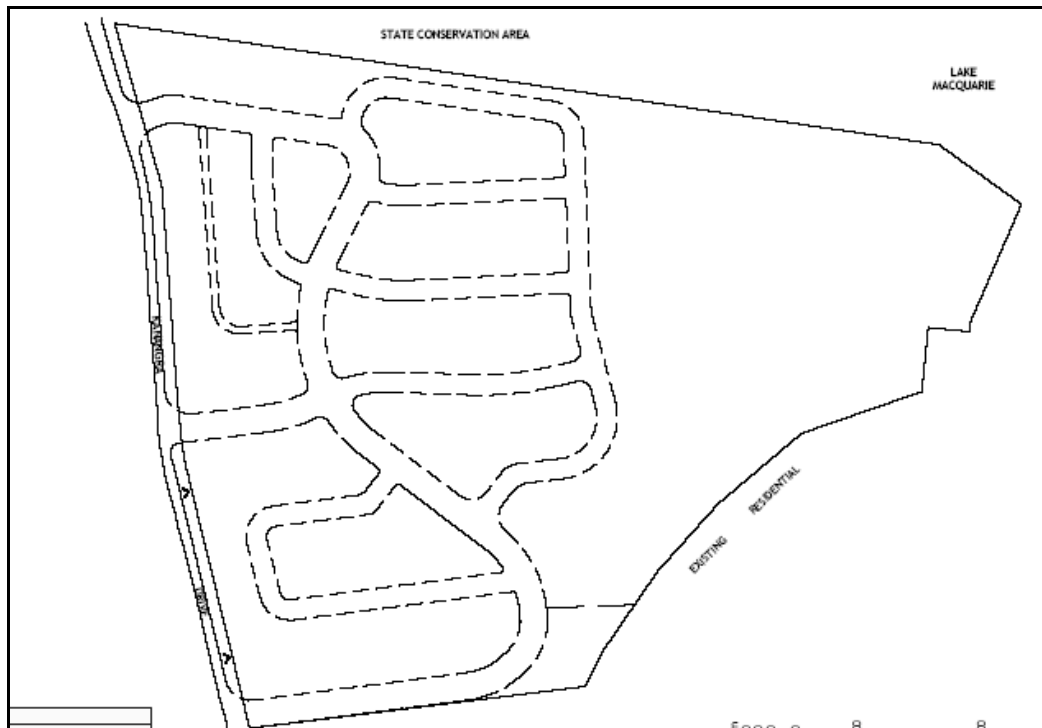


Figure 5: Previously approved subdivision layout responding to site planning issues

The subdivision layout shown above, with additional lanes and a fire trail on the northern boundary as recommended by the IHAP Final report in December 2007, has been adopted by the current proposal.

6.0 Assessment of Key Issues

The analysis and addressing of environmental issues is based on the Director General Requirements.

The background studies have informed the proposed design, management and mitigation measures.

The provides an overview of the subdivision while this Environmental Assessment and Draft Statement of Commitments identify the management and mitigation measures needed to ensure that both the short and longer term effects of the proposal are not significant.

6.1 SITE DCP GWANDALAN

The scope of a DCP for the site is determined by SEPP (Major Development). Clause 29 of Part 14 of Schedule 3 of the SEPP lists matters that must be included in a DCP for the site. In addition to Clause 29 matters there are site attributes and local circumstances which require consideration. Local and site considerations for the DCP include:

- The established environmental offsets for the project;
- Existing site development;
- Integration with the existing Gwandalan urban form;
- Proximity to the conservation area;
- Urban design and amenity; and
- Proximity to the primary school.

The site has few physical constraints being of low relief and located away from foreshore areas. Services are for the most part already in place.

There is on the site, some 10 hectares of bushland. As part of the proposal environmental offsets for the site have been negotiated (ie the dedication of the Environmental Offset Land). Although most of the bushland will be lost, the offsets cover the loss. Once the offsets are taken into account there are few constraints other than bushfire.

The Gwandalan site is proposed for subdivision only in the current proposal. Built form controls for future development on individual lots will be as provided for by the Code SEPP which provides for a range of development standards and the proposed site DCP.

6.2 SUBDIVISION DESIGN

A detailed lot layout is provided in the subdivision concept plan at **Appendix J**.

Detailed design plans including road drainage open space and pedestrian networks are included in the concept design plans.

A subdivision staging plan is included in the site DCP.

6.3 TRANSPORT AND ACCESSIBILITY

A Traffic Assessment has been being carried out by Halcrow Pty Ltd and is included as **Appendix F**.

All subdivision construction traffic will access the site via Kanangra Drive. No access through residential streets will be required.

The subdivision will generate additional traffic with potential traffic effects. The existing street network has the capacity to provide adequate service levels for the predicted traffic increases.

The internal street layout of the subdivision has been assessed and will function adequately and safely.

Previous consultation over traffic needs identified a bus route location that services both the local primary school and the proposed subdivision. The bus route runs along the northern boundary of the school, the road at bus route width provides a substantial lay-over area for school drop off and pick up.

The only public sites in the proposed subdivision are park areas. No specific provision for parking has been made for these areas as road frontages will provide adequate capacity.

Management and Mitigation

- Construction traffic will be limited to Kanangra Drive;
- Any damage to Kanangra Drive as a result of construction works will be made good; and
- Detailed design of the lay- over areas adjoining the school will be provided with CC plans.

6.4 MANAGEMENT AND MAINTENANCE OF OPEN SPACE

Only limited open space is proposed on the site as there is substantial open space such as playing fields elsewhere in the locality. It is proposed to dedicate the open space to Council for ongoing management.

Management and mitigation

- Open space will be embellished / revegetated as required prior to dedication to Council.

6.5 HERITAGE

There are no items of European heritage on or near the site. There are no items of European heritage listed for Gwandalan by Wyong LEP 1991.

An Aboriginal Archaeological survey found no significant sites or relics on the area of land to be developed. The only site found was on the foreshore outside the proposed development area. The 2007 report has been reviewed by RPS 2010 see **Appendix D**.

Mitigation and Management

- No specific heritage requirements have been identified.
- Monitoring of earth works will be under taken to ensure that the chance of damage to any aboriginal relics is minimised.

6.6 BIODIVERSITY

The site has been extensively studied with follow up surveys for a range of threatened plants and animals see **Appendix E**,

The site is habitat for the plant species *Tetratheca juncea* and as a result the proposal is a controlled action for the purposes of the Commonwealth EPBC Act. An EPBC Act approval has been given that covers the site. In accordance with the EPBC approval and assessment under the NSW / Commonwealth bilateral agreement, which addresses both the EPBC Act and NSW Threatened Species Act requirements, an environmental offset for the loss of vegetation on the site was made in 2008 (ie the dedication of the Environmental Offset Land). The offset was the dedication of 294 hectares of land including areas of outstanding conservation value.

The development of the site will require the clearing of approximately 12 hectares of land. Although the clearing has been offset it will still need to be managed appropriately. The timing and sequence of clearing should be consistent with minimising the effects on native fauna. Where possible significant trees should be retained in road reserves, lots and parks.

Other issues are the proximity to the State Conservation Area and drainage from the site to Lake Macquarie.

The EPBC approval requirements for the Gwandalan site are:

- Dedicate conservation lands (completed November 2008);
- Prepare site environmental management plan;
- Prepare a monitoring and management plan;
- Prepare a stormwater management plan; and

- Advise the Commonwealth of works commencement.

A part of the central area of the site was identified for open space in a previous approval. This area of open space has been retained for this proposal.

Management and Mitigation

- Environmental offsets already provided address biodiversity issues for the site;
- Drainage to adjoining land will be managed consistent with protection of natural systems including Lake Macquarie; and
- Comply with EPBC approval conditions.
- The construction environmental management plan for the works is to include a vegetation management plan
- Comply with the recommendations of the RPS 2010 report

6.7 BUSHFIRE RISK ASSESSMENT

A bushfire hazard assessment in accordance with the Planning for Bushfire Protection 2006 has been prepared by Barry Eadie 2010 see **Appendix G**.

There is a bushfire hazard to the west and north that requires Asset Protection Zones (APZs) of varying widths. Mostly the bushfire risk is addressed by perimeter roads that provide adequate bushfire APZ's.

All buildings within 100 metres of the bush fire threat will require construction in accordance with AS 3959.

Management and Mitigation

- APZ's will be incorporated into lots and appropriate management promoted through positive covenants and restrictions on title;
- Building construction standards where required will be noted as restrictions on title; and
- A bushfire trail has been provided on the northern boundary of the site.

6.8 FLOODING

Although parts of Lot 3 DP 588206 are flood prone, the area proposed for residential subdivision is above 2.85 metres AHD. The residential area is thus above known flood and sea level rise hazard areas.

The proposed stormwater detention and treatment is outside the proposed residential area and will not be adversely affected by flooding.

6.9 GEOTECHNICAL AND MINE SUBSIDENCE

A geotechnical study of the site has been undertaken (**Appendix I**). The site has a number of issues including erosion hazards and acid sulphate soils. There are no significant constraints to urban development of the site.

Mitigation and Management

- An acid sulphate management plan will be required for excavation in the proposed detention pond area; and
- Erosion and sediment controls will be required during construction.

Advice from the Mine Subsidence Board was sought as part of previous investigations. The advice was that residential development on the site in accordance with applicable construction guidelines was acceptable.

Mitigation and Management

- Dwellings on the site will need Mine Subsidence Board approval.

6.10 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The proposal is generally consistent with the principles of Ecologically Sustainable Development (ESD). The particular matters raised in the DGRS are:

- Commitment to ESD principles in design and construction; and
- Water reuse, waste minimisation, energy minimisation and reduced car dependency.

The original 4 principles of ESD can be expanded to 6 principles:

- Wise or sustainable use of natural resources;
- Integration of environmental and economic considerations for development;
- The precautionary principle;
- Inter and intra generational equity;
- Conservation of biodiversity and ecological integrity; and
- Internalization of external environmental costs.

ESD is a goal that can be pursued by applying these principles to the design and operation of development.

The subdivision proposal has integrated environmental, social and economic considerations by ensuring that any effects on high conservation values have been adequately offset. Within the South Wallarah Peninsula Site some 294 ha of environmental offsets has been provided.

No particular environmental threats have been identified as arising from the proposed developments. Nonetheless, there are significant management and mitigation measures proposed to protect the environment. The potential effects of the development are such that the likelihood of significant environmental harm is very low. No unacceptable risks of development over the proposed subdivision footprint have been identified.

Intra and intergenerational equity have been protected by the return of significant coastal land to public ownership as part of the offsets including protection of heritage values and protection of significant coastal views.

The environmental offset has provided for significant protection of biodiversity and ecological integrity.

The establishment of infrastructure and appropriate environmental management measures on the site will be the responsibility of the developer. Longer term costs will be borne by residents of the areas consistent with the polluter pays principle. The environmental offset dedication has been at no public cost. There will be significant cash contributions to both the State Government and Local Government for the provision of infrastructure.

The proposal is subject to a rigorous and public environmental assessment which ensures that issues and risks to the environment are appreciated and understood. Consultation with the community and public authorities has commenced and will continue as part of the assessment process.

The subdivision proposal has been prepared in keeping with the principles and practice of ESD.

A commitment to ESD principles in design has been achieved through the implementation of urban design principles such as walkable subdivision, water sensitive urban design and the provision of a local bus route.

A commitment to ESD principles in construction will be made through the preparation and implementation of a construction environmental management plan (CEMP) incorporating matters including erosion and sedimentation controls, noise, waste management and site access and safety.

Water reuse and efficiency will be incorporated into subdivision development through SEPP BASIX. Waste minimisation will be achieved through the CEMP.

Energy minimisation will be achieved through good construction management and the application of SEPP BASIX to development of subdivision lots.

Reduced car dependency will be encouraged through the provision of bus routes and walkable subdivision design. Clear pedestrian linkages are provided to the local school and the local cycle path network.

Management and Mitigation

- Preparation and implementation of CEMP for construction work; and
- Application of SEPP BASIX to assessment of future site development.

6.11 DRAINAGE AND STORMWATER MANAGEMENT

Site studies have been undertaken by Asquith & de Witt 2007 and ADWJohnson 2010. The ADWJ report is included in **Appendix H**.

Most of the site drains through a series of dams to a large pond and then through the harbour to the lake.

A constructed wetland within the site is proposed as part of the treatment train.

Water sensitive urban design principles have been used in preparing the approach to water management.

The proposed water management includes water reuse through provision for rainwater tanks on all lots as an integral component of the management system.

The water system has been designed to avoid impacts on surface waters, particularly Lake Macquarie, and ensure that the local hydrological processes, including groundwater are affected as little as possible.

Management and Mitigation

- Implement water management measures in accordance with the ADWJohnson report 2010.
- Preparation of a Soil and Water management plan to control run off during construction in accordance with Landcom guidelines.
- Provide drainage and sediment controls as the first step in Stage 1 construction.

6.12 CONTAMINATION

The site land use history indicates no likelihood of contamination. Confirmation of the site status is provided at **Appendix I**.

Management and Mitigation

- No requirements identified.

6.13 CONSTRUCTION IMPACTS

Clearing and cut and fill will be required to establish the services roads and lots on the site. The details are shown on the design plans. The proposal has been designed to balance cut and fill thereby avoiding export and import of materials.

A Construction Environmental Management Plan will be prepared for the subdivision works.

Likely construction impacts include clearing of vegetation, ground surface disturbance, dust, noise and traffic.

Management and Mitigation

- Implement a balanced cut and fill subdivision plan;
- Preparation of a CEMP for the subdivision addressing matters including:
 - Erosion and sediment controls;
 - Traffic controls;
 - Site safety and security;
 - Site facilities;
 - Waste management;
 - Acid sulphate soils;
 - Fire safety; and
 - Site storage.

6.14 UTILITIES AND SERVICES

The site is addressed as part of the Development Servicing Plan for the Gwandalan District (DSP 12).

Water and sewer services are available to the land. A 150 mm water main fronts the site. A sewer pump station is located just outside the site on the Lake Macquarie foreshore. The subdivision can drain to this station.

Consultation with Wyong Council and the Gosford Wyong Water Supply and Sewer Authority has identified the additional work needed to service the site.

An additional water main will be needed to adequately provide water to the site.

Staged upgrading of sewer infrastructure will be required. This will be in accordance with Wyong DSP 12.

Electricity and telecommunications infrastructure will be provided as additions to existing networks.

Management and Mitigation

- No specific mitigation measures are required;
- Connections into the existing networks will be done to the satisfaction of relevant authorities; and
- Infrastructure Developer Contributions will be made as required to the relevant local authorities.

6.15 INTERFACE ISSUES

The site adjoins the Point Wollstoncroft recreation camp which is part of Lake Macquarie State Conservation Area (SCA). The specific management objectives for the SCA are:

- protection of visual and aesthetic qualities;
- conservation of biodiversity;
- promotion of community involvement in management; and
- provision of sustainable recreation opportunities.

The proposal will introduce an increased local population which has the potential to affect conservation of biodiversity through increased use. Offsetting this is the proposed dedication of lands that will provide additional areas of land specifically for conservation.

The subdivision design provides a mostly natural interface to the SCA through either the extended road reserves or asset protection zones.

The EPBC approval for the site also covers monitoring requirements.

Management and Mitigation

- Positive covenants will be placed on the titles of land immediately adjoining the SCA ensuring that management on the perimeter is consistent with the conservation values of adjoining land.
- There will be no encouragement of access to the SCA.
- Prepare an interface monitoring and management plan in accordance with the EPBC approval.

7.0 Project Justification and Conclusion

The development of the Gwandalan site will provide high quality housing outcomes, enhanced community facilities, improved pollution control and environmental protection.

7.1 PUBLIC BENEFITS

The proposed development compliments and is fully consistent with both the Lower Hunter and Central Coast Regional Strategies.

The Gwandalan subdivision is part of an overall proposal that provides for urban development and the securing of a green buffer between the Central Coast and the Lower Hunter. The green buffer has been a strategic planning goal since the 1980's. The development will also comply with relevant SEPPs, the principles of the Coastal Policy and the NSW Coastal Design Guidelines.

Environmental offsets for the development have been provided as part of a dedication of 294 ha of land for conservation purposes (ie the dedication of the Environmental Offset Land).

All sites will use water sensitive urban design to protect water quality and will provide SEPP BASIX compliant housing thereby making a contribution to sustainable development.

The Gwandalan site has been identified as an area for urban land release since 1987. In effect, this Project Application realises a long term urban development objective for the land.

The development of Gwandalan is in the public interest. It accords with all relevant planning strategies, provides enhanced public access to coast and foreshore through related environmental offsets, will enhance community facilities and services, through contributions and will lead to the creation of a large area of conservation reserve to meet a key conservation priority of the region.

The proposed subdivision is consistent with and meets Council requirements and is consistent with the capability and suitability of the site.

7.2 SITE CAPABILITY

No matters have been identified that indicate the site lacks the capability to support the proposed subdivision. Areas identified as having insufficient or doubtful capability have not been proposed for subdivision.

All relevant matters have been addressed. There are no environmental hazards that significantly affect the site. There are no particular problems with soils, vegetation, drainage or slope. The effects on vegetation and biodiversity conservation values have been addressed through environmental offsets.

All essential services are available to the site.

7.3 SITE SUITABILITY

The land use relationships in the immediate area have been examined, there are no potentially significant conflicts between adjoining land use and the subdivision layout as proposed.

Construction of urban subdivision is now subject to a high standard of environment controls that are readily accepted by the development and produce no unacceptable long term effects on the environment.

The site assessments and studies needed to prepare the subdivision proposal provide high level certainty as to site outcomes and the predictability of mitigation and management effectiveness for the site.

A Construction Environmental Management Plan (CEMP) addressing the subdivision works will be required. The EMP can incorporate all relevant requirements and the management controls identified in the site specific studies. As such the CEMP will provide a suitable vehicle for ensuring that subdivision works are carried out to the required standards.

7.4 COMPLIANCE WITH DGRS

The proposal complies with all the matters raised in the DGRs. No non –compliances have been identified.

The proposal is consistent with DGRs, the considerations required by relevant SEPPs and the planning instrument for the site under SEPP (Major Development) 2005.

7.5 CONCLUSION

The proposed subdivision is consistent with the DGR's and is unlikely to result in any significant environmental effects.

The proposal will help meet housing and conservation needs identified in the Central Coast Regional Strategy.

The environmental offsets associated with the proposal, which and already been made, have returned substantial areas of coastal foreshore to the public and provided for biodiversity conservation.

The subdivision will be consistent with existing development in Gwandalan.

Appendix A

Draft Statement of Commitments

Appendix B

Director General's Requirements

Appendix C

Quantity Surveyors Report

Appendix D

Aboriginal Heritage Assessment

Appendix E

Ecological assessment report including EPBC approvals

Appendix F

Traffic Assessment

Appendix G

Bushfire Threat Assessment

Appendix H

Water quality and drainage

Appendix I

Geotechnical and Contamination review

Appendix J

Subdivision Plan

Appendix K

Engineering concept plans

Appendix L

Landscape concept plans

Appendix M

Site DCP