



DARRYL ANDERSON CONSULTING PTY LTD
TOWN PLANNING & DEVELOPMENT CONSULTANTS

**ENVIRONMENTAL ASSESSMENT UNDER PART 3A OF THE ENVIRONMENTAL
PLANNING AND ASSESSMENT ACT, 1979 (AS AMENDED)
MAJOR PROJECT APPLICATION NO. 08_0034**

**PROPOSED 56 LOT SUBDIVISION, COMMERCIAL BUILDING
AND MANAGER'S RESIDENCE
AT LOTS 2 AND 3 DP 244652 URLIUP ROAD, BILAMBIL
(TWEED LOCAL GOVERNMENT AREA)**

PREPARED FOR:

JACKSON INTERNATIONAL PTY LTD

PREPARED BY:

DARRYL ANDERSON CONSULTING PTY LTD

AUGUST 2008

(REVISED JUNE 2009)

Suite 7, Corporate House
8 Corporation Circuit
Tweed Heads South NSW 2486

Ph: 07 55233611
Fax: 07 55233612
Email: admin@daconsulting.com.au

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**DRAFT ENVIRONMENTAL ASSESSMENT UNDER PART 3A
OF THE ENVIRONMENTAL PLANNING & ASSESSMENT ACT, 1979 (AS AMENDED)
APPLICATION NO. 08_0034**

EXECUTIVE SUMMARY

A Draft Environmental Assessment was submitted to the Department of Planning in August 2008. In November 2008, the Department of Planning completed a Test of Adequacy on the Draft Environmental Assessment and requested a response to a number of issues, including further consultations with key State Agencies. Following consultations with the relevant Agencies, the proposal was amended involving 57 lots (previously 62). In May 2009 the Department of Planning provided comments on the amended Draft Environmental Assessment. This revised Environmental Assessment (June 2009) addresses the amended proposal and responds to the comments of the Department of Planning.

Jackson International Pty Ltd has recently purchased a parcel of land at Bilambil with a view to developing the site for urban purposes. In summary, the project involves:

- The creation of 52 residential lots.
- The creation of one commercial lot (Lot 53).
- The creation of a public reserve (Bilambil Creek Foreshore, Lot 54).
- Creation of a public reserve (Bilambil Road, Lot 55).
- Creation of a Sewer Pump Station site (Lot 56).
- The erection of a general store and ancillary Manager's residence on the commercial allotment (Lot 53).
- Dedication of foreshore open space and revegetation of the area adjacent to Bilambil Creek.
- Creation of an easement for transmission lines 40m wide over the existing overhead transmission lines through the site adjacent to Hogans Road.
- Construction of the proposed roads within the subdivision to a sealed standard with layback kerb and gutter and street lighting.
- Provision of reticulated public water supply.
- Provision of reticulated public sewer.
- Construction of a sewer pumping station on the site and a sewer rising main from the site to the existing gravity sewer reticulation in Bilambil Heights approximately two kilometres to the east of the site.
- Re-landforming the site to achieve compliant road and allotment gradients.

The land is zoned 2(d) Village, has an area of 4.713 hectares and is bounded by Bilambil Road, Hogans Road, Urliup Road and Bilambil Creek. Subdivision of the land to create residential allotments of not less than 450m² is permissible in the 2(d) zone, as is the establishment of a general store.

The site has previously been used as a quarry and is in a highly degraded state with uncontrolled runoff discharging to Bilambil Creek. The site has also been previously used for the disposal of rubbish and for unauthorised motorbike riding. At present the disused quarry has a significant adverse impact on the landscape and scenic quality of the site in particular and the Village in general. Development of the site as proposed will achieve removal of noxious weeds and improve the visual quality of the locality as demonstrated by the Perspective Views at **Annexure 10** showing the site before and after development.

In particular, the proposal will achieve the objectives of the 2(d) Village zone by creating a range of lot sizes which optimises, rather than maximises, the site's yield. As a result, because of its design and scale the project will make a positive contribution to the character of the Village.

The village of Bilambil is located approximately seven kilometres west of Tweed Heads and approximately five kilometres south of the NSW/Queensland state border. The site has frontage to Hogans Road, Bilambil Road and Urliup Road and Bilambil Creek adjoins the site to the west. Site levels range from approximately RL 5m AHD adjacent to Bilambil Creek to approximately RL 26m AHD towards the centre of the land.

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The land has previously been used to stockpile road building materials and as a quarry and it is intended that the site will be land formed to accommodate the proposed subdivision lots. The existing quarry has a significant adverse impact on the scenic quality of the Village.

On 17 March 2008 the Department of Planning advised that the proposal is a Major Project and that Part 3A of the Environmental Planning and Assessment Act applies.

On 28 April 2008, the Department of Planning issued the Director General's Environmental Assessment Requirements for the project following which extensive investigations have been undertaken to identify the key site opportunities and constraints, as a result of which the development concept has been refined to include a buffer to Bilambil Creek, a reduced number of culs-de-sac, and limiting the retail component to a general store on proposed Lot 53.

No absolute constraints have been identified as a result of the investigations and consultations with Tweed Shire Council and Country Energy.

Adequate capacity is available in the local road network to accommodate the additional traffic likely to be generated and the existing public water supply reticulation also has adequate capacity to serve the proposed lots. Bilambil Village is not currently provided with a reticulated sewerage system and it is therefore proposed to construct a sewer pump station and sewer rising main to convey sewage to Council' nearest suitable reticulation system at Sewer Pump Station No. 2018 located in Gollan Drive, Tweed Heads West.

Relevant State Agencies have been consulted including Tweed Shire Council, Country Energy and the Northern Rivers Catchment Management Authority and their comments have been taken into account in preparing the Environmental Assessment.

If required it is proposed to arrange a public meeting at Bilambil Hall during the formal public exhibition period for the project. This will enable residents to raise any relevant issues and seek clarification on matters relating to the project prior to a final decision being made by the Minister.

In summary, the project is consistent with Tweed Shire Council and Department of Planning residential development strategies and complies with relevant statutory planning controls. It also reflects the site's key opportunities and constraints and achieves an urban design outcome which is consistent with contemporary planning principles and the desired future character of the Village as reflected in the 2(d) zone objectives.

1.0 BACKGROUND

1.1 Brief

The location and zoning of the site is shown on **Figure 1**.

Jackson International Pty Ltd has instructed Darryl Anderson Consulting Pty Ltd to prepare this Environmental Assessment Report to accompany a Major Project Application to the Department of Planning for a proposed residential subdivision and general store on the subject land. The proposal reflects the site's opportunities and constraints and is consistent with all relevant statutory planning considerations as demonstrated in this Assessment.

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Figure 1 – Site Location and Zoning

1.2 Project Team

The following consultants comprise the Project Team:

Plateau Nominees Pty Ltd (John Sherwood)

- Project Management

Darryl Anderson Consulting Pty Ltd

- Town Planning and Development Consultants
- Statutory Planning
- Environmental Assessment Report Compilation
- Bushfire Hazard Assessment

B & P Surveys Pty Ltd

- Survey

LVO Architecture

- Architecture

Campbell Leonard & Associates

- Engineering

Precise Environmental

- Contamination

James Warren & Associates Pty Ltd

- Flora and Fauna

Davies Heritage Consultants Pty Ltd

- Heritage and Archaeological

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CRG Traffic and Acoustical Consultants

- Noise
- Traffic

Border Tech

- Geotechnical
- Acid Sulphate Soils

Don Irving Andrew Gold Landscape Architecture

- Landscaping

Greenhill Consulting Services Pty Ltd

- Quantity Surveying

1.3 Director General's Environmental Assessment Requirements

The Director General's Environmental Assessment Requirements are contained in Table 1. The table indicates where each of the relevant matters is addressed in this Report.

A draft Statement of Commitments is contained at Section 8.9.

TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	
REQUIREMENT	SECTION
ATTACHMENT 1	
General Requirements	
The Environmental Assessment (EA) for the Project Application must include:	
1. An executive summary;	Page 7
2. An outline of the scope of the project including: <ul style="list-style-type: none">• any development options;• justification for the project taking into consideration any environmental impacts of the project, the suitability of the site and whether the project is in the public interest;• outline of the staged implementation of the project if applicable;	2.0 2.2 2.4 2.5
3. A thorough site analysis including constraints mapping and description of the existing environment;	3.0
4. Consideration of any relevant statutory and non-statutory provisions and identification of any non-compliances with such provisions, in particular relevant provisions arising from environmental planning instruments, Regional Strategies (including draft Regional Strategies) and Development Control Plans.	4.0 and 5.0
5. Consideration of the consistency of the project with the objects of the <i>Environmental Planning and Assessment Act 1979</i> .	6.0
6. Consideration of impacts, if any, on matters of National Environmental Significance under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> ;	7.0
7. An assessment of the potential impacts of the project and a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures to be implemented to minimise any potential impacts of the project;	8.0
8. The plans and documents outlined in Attachment 2 ;	See Attachment

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TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	
REQUIREMENT	SECTION
9. A signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading; and	1.4 and Annexure 1
10. An assessment of the key issues specified below and a table outlining how these key issues have been addressed.	8.0
Key Issues	
The EA must address the following key issues:	
1. Strategic Planning	
1.1 Justify the proposal with reference to relevant local, regional and State planning strategies. Provide justification for any inconsistencies with these planning strategies.	8.2
1.2 Demonstrate consistency with the Sustainability Criteria set out in the relevant Regional Strategy (including draft Regional Strategies).	8.3
2. Subdivision Design, Layout and Desired Future Character	
2.1 Demonstrate the consistency of the proposal with the character of existing development in terms of the village locality, street frontage, scale, building envelopes and future built form controls, aesthetics, energy and water efficiency and safety.	8.4.1
2.2 Demonstrate the consistency of the proposed subdivision design and layout with the <i>Coastal Design Guidelines for NSW, NSW Coastal Policy 1997</i> and SEPP 71 – Coastal Protection	8.4.2
2.3 Provide details of potential building envelope, built form and design quality controls and the means for implementing them	8.4.3 and Annexures 7 and 9
2.4 Provide details of any staging that demonstrates the lots will be released in an orderly and coordinated manner.	8.4.4
2.5 Identify the type of subdivision proposed across the site i.e. community, Torrens, strata. Provide a draft Community Management Statement if community or strata.	8.4.5
2.6 Outline the long-term management and maintenance of any areas of open space or conservation including ownership and control, management and maintenance funding, public access, revegetation and rehabilitation works and bushfire management.	8.4.6
2.7 Address appropriate subdivision layout/s (including the appropriateness of cul-de-sacs and battle-axe blocks) taking account of steep land (> 20%) and the need for vegetation clearing having regard to the Tweed Shire Council Development Control Plan 2007 – Section A5 - Subdivision Manual.	5.3 and 8.4.7
3. Visual Impact	
3.1 Address the visual impact of the proposal in the context of surrounding development in the village and relevant mitigation measures. In particular address impacts on the amenity of the foreshore, overshadowing of public reserves, loss of views from public places and cumulative impacts.	8.5

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TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	
REQUIREMENT	SECTION
4. Infrastructure Provision	8.6
4.1 Address existing capacity and requirements of the development for sewerage, water, electricity, waste disposal, telecommunications and gas in consultation with relevant agencies. Identify and describe staging, if any, of infrastructure works.	8.6
4.2 Demonstrate arrangements for existing or creation of any easements for services onsite.	8.6.8
4.3 Address and provide the likely scope of any planning agreement and/or developer contributions with Council/ Government agencies.	8.6.9
4.4 Demonstrate how the disposal of effluent will be achieved, in particular, the ability of allotments to be serviced without the provision of pumping stations.	8.6.2
5. Traffic and Access	8.7
5.1 Prepare a traffic impact study in accordance with Table 2.1 of the RTA's Guide to Traffic Generating Developments which addresses, but is not limited to the following matters: <ul style="list-style-type: none"> ♦ The capacity of the road network to safely and efficiently cater for the additional traffic generated; ♦ Access to and within the site with particular justification provided for the including the number of site access points to residential and commercial areas; ♦ Servicing and parking arrangements including internal traffic movement / hazards; ♦ Demonstrate that delivery vehicle (s) can access the delivery bay by providing manoeuvring templates for the design vehicle. ♦ Intersection site distances; ♦ Connectivity to existing developments; ♦ Impact on public transport (including school bus routes); ♦ Provision of access for pedestrians and cyclists to, through and within the site; and ♦ Identify suitable mitigation measures, if required to ensure the efficient functioning of the road network. 	8.7.1
5.2 In particular, the EA should demonstrate how issues associated with the capacity of Kennedy Drive at the Cobaki Bridge will be addressed.	8.7.2
6. Hazard Management and Mitigation	8.8
<i>Contamination</i>	
6.1 Identify any contamination on site including a detailed investigation of all materials deposited onsite and undertake appropriate mitigation measures in accordance with the provisions of SEPP 55 – Remediation of Land.	8.8.1
<i>Acid Sulfate Soils</i>	
6.2 Identify the presence and extent of acid sulfate soils on the site and, where relevant, appropriate mitigation measures.	8.8.2
<i>Bushfire</i>	
6.3 Address the requirements of <i>Planning for Bush Fire Protection 2006 (RFS)</i> .	8.8.3

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TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	
REQUIREMENT	SECTION
<i>Geotechnical</i>	
6.4 Provide an assessment of any geotechnical limitations that may occur on the site and if necessary, appropriate design considerations that address these limitations.	8.8.4
<i>Flooding</i>	
6.5 Provide an assessment of any flood risk on site in consideration of any relevant provisions of the <i>NSW Floodplain Development Manual (2005)</i> including the potential effects of sea level rise and an increase in rainfall intensity.	8.8.5
6.6 Consider the potential impacts of any filling on the flood regime of the site and adjacent lands.	8.8.6
7. Water Cycle Management	
7.1 Address and outline measures for Integrated Water Cycle Management (including stormwater) based on Water Sensitive Urban Design principles which addresses impacts on the surrounding environment, drainage and water quality controls for the catchment, and erosion and sedimentation controls at construction and operational stages.	8.9
7.2 Submit a Water Cycle Management Plan which demonstrates the means and adequacy of managing stormwater within the site, in particular detailing measures to show that the quality and quantity of stormwater from the developed site will not adversely affect the downstream receiving environment (SEPP 14 Coastal Wetland to the south of the development, Cobaki and Terranora Broadwaters) and the existing stormwater drainage patterns/regime.	8.9
7.3 Assess the impacts of the proposal on surface and groundwater hydrology and quality during both construction and occupation of the site.	8.9
7.4 Demonstrate how water will be re-used on-site (e.g. rainwater tanks, greywater recycling) and how the principles of Water Sensitive Urban Design will be incorporated into the development.	8.9
8. Heritage and Archaeology	
8.1 Identify whether the site has significance to Aboriginal cultural heritage and identify appropriate measures to preserve any significance in accordance with the <i>Draft Guideline for assessment of impacts on Aboriginal Heritage under Part 3A</i> . Aboriginal community consultation should be undertaken in accordance with DEC's <i>Interim Community Consultation Requirements for Applicants</i> .	8.10
8.2 Identify any items of European heritage significance and, where relevant, provide measures for the conservation of such items.	8.10
9. Flora and Fauna	
9.1 Outline potential impacts on aquatic and terrestrial flora and fauna and their habitats (within the meaning of the <i>Threatened Species Conservation Act 1995</i> and the <i>Fisheries Management Act 1994</i>).	8.11 and Annexures 15, 16 and 17
Assessment should be undertaken in accordance with the <i>Draft Guidelines for assessment of impacts on Threatened Species under Part 3A</i> . Provide measures for their conservation, where relevant.	8.11 and Annexures 15, 16 and 17

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TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	
REQUIREMENT	SECTION
9.2 Outline measures for the conservation of existing wildlife corridor values and/or connective importance of any vegetation on the subject land.	8.11 and Annexures 15, 16 and 17
9.3 The EA should address the impact of the proposal on the ecological significance of the Cobaki Broadwater, having particular consideration to the <i>Cobaki Broadwater Management Plan</i> .	8.11 and Annexures 15, 16 and 17
9.4 Address measures to enhance, protect and manage the Bilambil Creek riparian corridor and adjacent aquatic habitats, including the provision of appropriate buffers.	8.4.6, 8.11 and Annexures 15, 16 and 17
9.5 Where appropriate, create new opportunities for controlled public access for riparian and open space areas. Consider access for the disabled, where appropriate.	8.4.6, 8.11 and Annexures 15, 16 and 17
10. Noise	
10.1 Address potential noise impacts, in particular road traffic noise, for future residents and appropriate mitigation measures.	8.8.7 and Annexure 12
11. Agriculture	
11.1 Consider the Northern Rivers Farmland Protection project in relation to regionally significant farmland within 1 km of the site.	8.8.8
Consultation	
During the preparation of the Environmental Assessment, you should undertake an appropriate and justified level of consultation with the following:	9.0
<i>(a) Agencies or other authorities</i>	
<ul style="list-style-type: none"> • Commonwealth Department of the Environment, Water, Heritage and the Arts; • Tweed Shire Council; • Department of Environment and Climate Change; • Department of Primary Industries; • NSW Rural Fire Service; • Department of Water and Energy; • Roads and Traffic Authority; • Department of Lands; • Northern Rivers Catchment Management Authority; • Local Aboriginal Land Council/s and other Aboriginal community groups; and • Infrastructure providers 	9.1 9.2 9.3 9.4 9.5 9.6 9.7 9.8 9.9 9.10 9.11
<i>(b) Public</i>	9.12
Document all community consultation undertaken to date or discuss the proposed strategy for undertaking community consultation. This should include any contingencies for addressing any issues arising from the community consultation and an effective communications strategy.	
The consultation process, issues raised and how these have been addressed should be described in the Environmental Assessment.	
Deemed Refusal Period	
60 days	

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TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	
REQUIREMENT	SECTION
ATTACHMENT 2 – PLANS AND DOCUMENTS TO ACCOMPANY THE APPLICATION	
Plans and Documents of the Development	
The following plans, architectural drawings and diagrams of your proposal as well as the relevant documents will be required to be submitted for your application:	
1. The existing site survey plan is to be drawn to 1:500 scale (or other appropriate scale) and show: <ul style="list-style-type: none"> • the location of the land, the measurements of the boundaries of the land, the size of the land and north point; • the existing levels of the land in relation to buildings and roads; • location and height of existing structures on the site; and • location and height of adjacent buildings and private open space. 	Annexure 3 Annexure 3 Annexure 3 Annexure 3 Annexure 3
2. An aerial photograph of the subject site with the site boundary superimposed.	Annexure 4
3. A Site Analysis Plan must be provided which identifies existing natural elements of the site (including all hazards and constraints), existing vegetation, property dimensions, footpath crossing levels and alignments, existing pedestrian and vehicular access points and other facilities, slope and topography, natural features such as watercourses, rock outcrops, utility services, boundaries, orientation, view corridors and all structures on neighbouring properties where relevant to the application (including windows, driveways etc.).	Annexure 6
4. A locality/context plan drawn to 1:500 scale (or other appropriate scale) should be submitted indicating: <ul style="list-style-type: none"> • significant local features such as parks, community facilities and open space, water courses and heritage items; • the location and uses of existing buildings, shopping and employment areas; • traffic and road patterns, pedestrian routes and public transport nodes; and • The existing site plan and locality plan should be supported by a written explanation of the local and site constraints and opportunities revealed through the above documentation. 	Annexure 5
5. Subdivision plans are to show the following:- <ul style="list-style-type: none"> • the location, boundary dimensions, site area and north point of the land, and names of roads fronting the land; • title showing the description of the land with lot and DP numbers etc; • existing and proposed subdivision pattern including all measurements and sites areas of existing and proposed allotments; • location and details of all proposed roads and footpaths; • location of all structures proposed and retained on site; • cross sections of roads, including gradients, widths, road names, footpaths etc. • existing and proposed finished levels in relation to roads, footpaths and structures; • location and details of access points to the subdivision; • existing vegetation on the land and vegetation to be retained; 	Annexure 7

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TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	
REQUIREMENT	SECTION
<ul style="list-style-type: none"> location of services and infrastructure, and proposed methods of draining the land; any easements, covenants or other restrictions either existing or proposed on the site; type of subdivision proposed (Torrens, strata and/or community title). 	
<p>6. Architectural plans are to show the following:-</p> <ul style="list-style-type: none"> the location of proposed new buildings or works (including extensions or additions to existing buildings or works) in relation to the land's boundaries and adjoining development; floor plans of proposed buildings showing layout, partitioning, room sizes and intended uses of each part of the building; elevations and sections showing proposed external finishes, materials and heights; proposed finished levels of the land in relation to buildings and roads; building perspectives, where necessary to illustrate the proposed building; proposed parking arrangements, entry and exit points for vehicles, and provision for movement of vehicles within the site (including dimensions where appropriate); proposed landscaping and treatment of the land (indicating plant types and their height at maturity); proposed methods of draining the land; waste management; details of services – water, sewer, stormwater; provisions of access and facilities for people with a disability; cross sections of the structure and extent of cut and fill; proposed building materials and their finished colours; and, trees to be removed. 	Annexure 9
<p>7. Shadow Diagrams to show the potential impacts of overshadowing at winter solstice (June 21) and the equinox (March 21 and September 21) at 9.00 am, 12.00 midday and 3.00 pm.</p>	Annexure 9
<p>8. View analysis – artist's impression, photomontages, etc of the proposed development in the context of the surrounding development.</p>	Annexure 10
<p>9. BASIX – compliance details and relevant certificates.</p>	Annexure 26
<p>10. Stormwater Management Plan - illustrating the concept for stormwater management from the site and must include details of any major overland flow paths through the site and any discharge points to the street drainage system. Where an on-site detention system is required, the type and location must be shown and must be integrated with the proposed landscape design. Site discharge calculations should be provided.</p>	Annexure 19
<p>11. Landscape Plan – showing planting design and plant/tree species to be used, listing botanical and common names, mature height and spread, number of plants to be utilised in relation to the treatment of communal/public open space areas, footpaths, driveways and the public domain including details of street trees, furniture, signage, lighting and surface treatments (i.e. pavers).</p>	Annexure 8

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TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	
REQUIREMENT	SECTION
12. Erosion and Sediment Control Plan – plan or drawing that shows the nature and location of all erosion and sedimentation control measures to be utilised on the site	Annexure 19
13. Construction Management Plan – a plan which outlines traffic and pedestrian management during construction and management of impacts on amenity of adjoining properties and appropriate mitigation measures including noise, dust and sediment and erosion controls	Annexure 19
Specialist advice	
Specialist advice, where required to support your Environmental Assessment, must be prepared by suitably qualified and practising consultants in relation to issues including, but not limited to, the following: <ul style="list-style-type: none"> • Planning; • Engineering; • Flora and Fauna; • Bushfire; • Landscaping; • Geotechnical and/or hydro geological (groundwater); • Stormwater/drainage; • Urban Design/Architectural; • Contamination; and • Acid Sulphate Soil Management Plan. 	Darryl Anderson Consulting Pty Ltd CLA Consultants James Warren & Associates Pty Ltd Darryl Anderson Consulting Pty Ltd Donald Irving Andrew Gold Landscape Architects Border Tech CLA Consultants LVO Architecture Pty Ltd Precise Environmental Border Tech
Documents to be submitted	
<ul style="list-style-type: none"> • 1 colour copy of the Environmental Assessment for the Test of Adequacy, including one (1) set of A3 size plans (to scale); • 10 - 15 hard copies of the Environmental Assessment (once the EA has been determined adequate); • 10 - 15 sets of architectural and landscape plans to scale, including one (1) set at A3 size (to scale); • 1 copy of the Environmental Assessment and plans on CD-ROM (PDF format), not exceeding 5Mb in size (see below); and • If the Environmental Assessment is bulky and lengthy in volume, you will be required to package up each Environmental Assessment ready for distribution by the Department to key agencies. 	Noted
Electronic Documents	
Electronic documents presented to the NSW Department of Planning for publication via the Internet must satisfy the following criteria:- <ul style="list-style-type: none"> • All files must be no bigger than 5 Mb. • Large files of more than 5 Mb will need to be broken down and supplied as different files. 	Noted

1.4 Statement of Validity of this Environmental Assessment

This Environmental Assessment has been compiled by Darryl Anderson of Darryl Anderson Consulting Pty Ltd based on input from a number of other specialist consultants as identified in Section 1.2. Darryl Anderson certifies that the information contained in this Environmental Assessment is neither false nor misleading to the best of his knowledge (see **Annexure 1**).

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2.0 SCOPE OF PROJECT

2.1 Property Description

The land to which this Major Project Application relates is described as Lots 2 and 3 DP 244652 Uriup Road, Bilambil Road, Hogans Road, Bilambil Village. The total area of the site 4.713 hectares. The south western boundary of the site is formed by Bilambil Creek.

The project also involves the construction of a sewer rising main from a proposed sewer pump station in the south eastern corner of the site (on the corner of Hogans Road and Bilambil Road) to Sewer Pump Station No. 2018 located in Gollan Drive, Tweed Heads West.

The rising main route has been agreed to by Tweed Shire Council (see email from Peter Pennycuik Water and Sewer Systems Engineer, dated 11 November 2008), subject to the provisions in the draft Statement of Commitments at Section 8.9. A copy of the email is attached at **Annexure 30**.

2.2 Development Options

A number of options have been considered in refining the development concept for the site including the do nothing option. This option would not achieve the objectives of the 2(d) zone, and would be inconsistent with the Far North Coast Regional Strategy, 2006 – 2031 and Tweed Shire Council's Residential Development Strategy, 1991.

It would also result in an existing highly disturbed site remaining in its current state with its significant adverse visual impacts. Sediment and nutrient runoff would continue to discharge to Bilambil Creek in an uncontrolled manner and the provision of a public foreshore reserve, suitably rehabilitated, would not occur.

The provision of an affordable housing estate in an appropriately zoned area with all normal urban services would also be a lost opportunity.

The erection of a single dwelling house on each existing lot with an onsite sewerage management system has also been considered. This option does not optimise yields and does not achieve the target density of fifteen dwelling per hectare contemplated by the North Coast Urban Planning Strategy (Department of Planning 1995).

Similarly, the option would not be consistent with the 2(d) zone objectives and it would not achieve a sufficient commercial return to fund dedication of the foreshore area, rehabilitation of the site generally and revegetation of the Bilambil Creek foreshore in particular.

Consistency with the Far North Coast Regional Strategy 2006 – 2031, the North Coast Urban Planning Strategy 1995 and the Tweed Local Environmental Plan 2000 can be achieved by a conventional residential subdivision which optimises lot yields and enables site rehabilitation and Bilambil Creek foreshore rehabilitation.

A number of layout options have been considered and the preferred option achieves a balance between commercial considerations, statutory planning controls and Tweed Shire Council's urban design standards.

2.3 Description of Major Project Application

In summary, the project involves the following key elements:

- The creation of 52 residential allotments with areas ranging from 450m² to 691m².
- The creation of one commercial allotment (Lot 53).
- The creation of a public reserve (Bilambil Creek Foreshore, Lot 54).

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- Creation of a Sewer Pump Station site (Lot 56).
- The erection of a general store and ancillary Manager's residence on the commercial allotment (Lot 53).
- Dedication of foreshore open space and revegetation of the area adjacent to Bilambil Creek.
- Creation of an easement for transmission lines 40m wide over the existing overhead transmission lines through the site adjacent to Hogans Road.
- Construction of the proposed roads within the subdivision to a sealed standard with layback kerb and gutter and street lighting.
- Provision of reticulated public water supply.
- Provision of reticulated public sewer.
- Construction of a sewer pumping station on the site and a sewer rising main from the site to Tweed Shire Council Sewer Pump Station No. 2018 located in Gollan Drive, Tweed Heads West.
- Re-landforming the site to achieve compliant road and allotment gradients.
- The capital investment value of the project has been determined by Greenhill Consulting Services Pty Ltd (Quantity Surveyors) at \$2,405,000.00 (see **Annexure 2**).

The following **Figure 2** shows a perspective of the site post development.

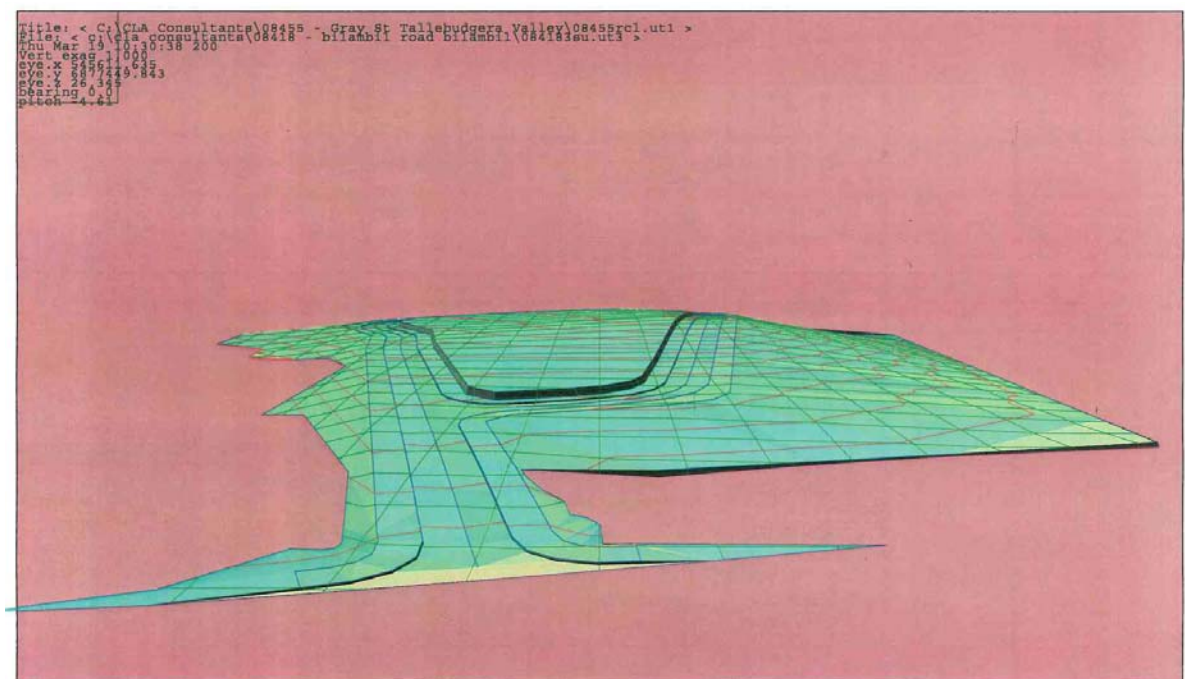


Figure 2 – Perspective of Site Post Development

Further details of the proposal are contained in the application plans and specialist reports contained in the annexures.

2.4 Justification for the Project and Public Interest

Detailed investigations have been undertaken on the site in relation to its geotechnical stability, contamination, flora and fauna, bushfire, character and amenity, servicing, requirement for buffers to Bilambil Creek, sewerage management, flooding, improved water quality in Bilambil Creek and the need for an easement over the existing overhead transmission line.

Reports and plans addressing these matters in detail are contained in the annexures or elsewhere in this Environmental Assessment.

Based on the investigations undertaken in relation to the above issues and subject to implementation of the measures identified in the Draft Statement of Commitments, it is concluded that the project will not give rise to any significant adverse impacts.

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The land is subject to relative constraints imposed by the overhead transmission line, flood prone land in the southern part of the site and the need to protect water quality in Bilambil Creek, however the preferred layout addresses these constraints and provides appropriate buffers by way of public reserves to the Creek and an easement over the transmission line.

In summary, the site is appropriately zoned and based on the reports contained in the annexures, it is concluded that the site is suitable for the project. Carrying out of the project would be consistent with the public interest in that it achieves implementation of the Tweed Residential Development Strategy 1991, the Far North Coast Regional Strategy 2006 – 2031 and Tweed Local Environmental Plan 2000.

The proposal will also implement the Tweed Development Strategy 1996 and would be consistent with the Tweed 2024 Strategic Plan. It will achieve rehabilitation of a highly degraded site and facilitate dedication, at not cost to the community, of the foreshore area adjacent to Bilambil Creek and appropriate revegetation and embellishment of that area for public recreation purposes.

It will also provide affordable housing in an area which is appropriately zoned and serviced to meet the continuing demand for residential dwellings in the Tweed Shire. The Far North Coast Regional Strategy (Table 1, Page 27) indicates that a total of 51,000 new dwellings will be needed in the Far North Coast Region by 2031, of which 19,100 are to be provided within the Tweed Local Government Area. This project will contribute a relatively small but important number of dwellings towards that target, in accordance with the zoning of the land.

2.5 Staging

It is anticipated that the development will be carried out in two stages as follows:

Stage 1 creation of the 52 residential lots, dedication and embellishment of the public reserve, all new roads and infrastructure together with completion of bulk earthworks on the site to establish the final landform. Stage 2 will involve the construction of the general store.

3.0 SITE ANALYSIS

Regional Context

Bilambil Village is located in the far north coast region of New South Wales and within the Tweed Local Government Area. The New South Wales/Queensland border is located approximately five kilometres north of the Village and the coastal communities of Tweed Heads and Tweed Heads South are located approximately seven kilometres east of the Village.

The site's regional context is shown on the following **Figure 3**.

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Local Context

Bilambil Village is located approximately two kilometres west of the Bilambil Heights urban area. Bilambil Creek is the main topographic feature of the area. It meanders through the Village and is at its approximate tidal limit adjacent to the development site.

Bilambil Village is centred on the intersection of four roads (Bilambil Road, Urliup Road, Carool Road and Hogans Road) and extends over approximately 13.75 hectares in terms of the area of land zoned 2(d) Village.

The key land uses within the existing village of Bilambil include:

- Approximately fifteen dwelling houses.
- Bilambil Creek Retirement Village (caravan park containing approximately 25 sites).
- A public primary school.
- A public hall (located on the north eastern corner of the site).

- A service station, post office and convenience store.
- A public park (Prindable Park) adjacent to Bilambil Creek containing picnic shelters, playground equipment and landscaping.
- Bilambil sports fields comprising a turf cricket wicket, football fields (some floodlit), tennis courts, cricket practice nets, a licensed clubhouse and amenities building.

Access to the Village from the east (from the Pacific Highway) is available via Kennedy Drive, Scenic Drive and Bilambil Road all of which are two lane, sealed public roads with sufficient capacity available to accommodate the likely additional traffic to be generated.

Access is also available from Terranora Road in the south via Bilambil Road. Terranora Road links the Pacific Highway at Banora Point to the Tweed Valley Way at Tumbulgum and is a two lane, sealed road. Bilambil Road is also a two lane, sealed road. Urliup Road connects Bilambil Village to Murwillumbah via Dulguigan Road which is a two lane, sealed road. Dulguigan Road is also a two lane, sealed road with the exception of a two lane gravel section approximately 3 kilometres long. Murwillumbah is located approximately 20 kilometres to the west of Bilambil Village.

Land surrounding the Village is mainly used for grazing purposes.

The site's local context is shown on **Figure 4**.

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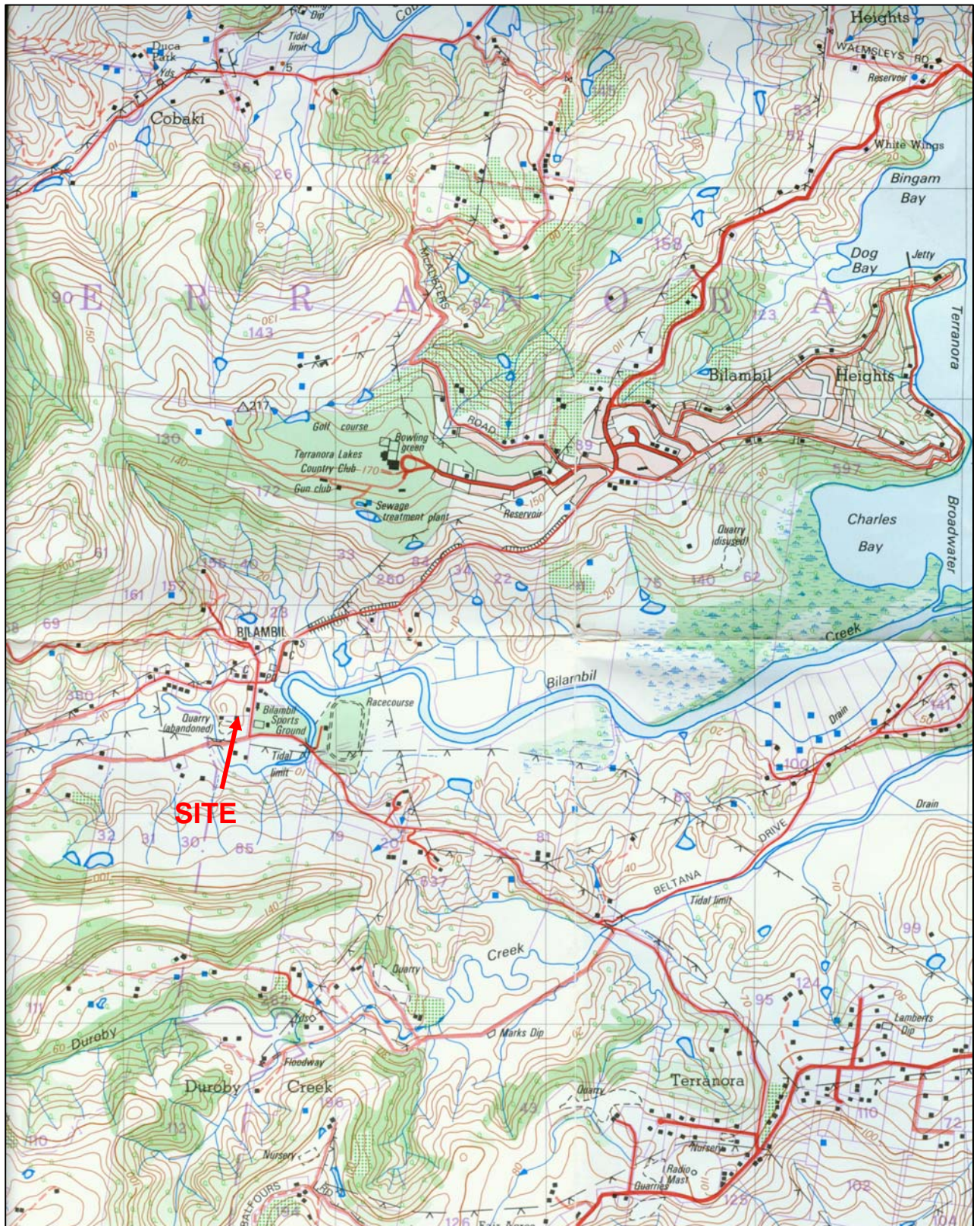


Figure 4 – Local Context

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Key land uses and their spatial relationship with the site are shown on the aerial photograph at Figure 5.



Figure 5 – Aerial Photograph

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Figure 6 shows a perspective of the site predevelopment.

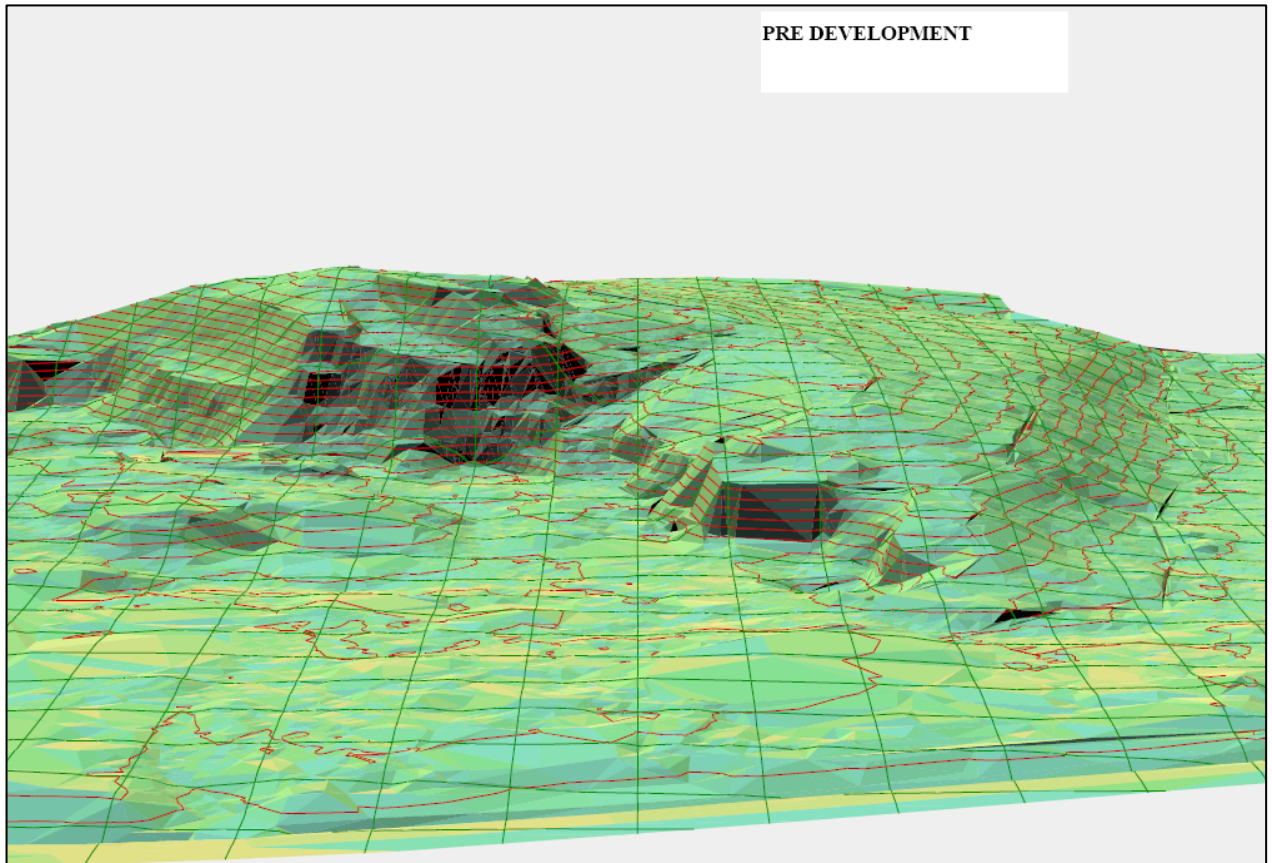


Figure 6 – Perspective of Site Predevelopment

Transport

Bilambil Village is serviced by school buses but the Village is not on a public bus route. The development site fronts Uriup Road, Hogans Road and Bilambil Road and Bilambil Road is a school bus route. When sufficient demand is generated, it is likely that the public bus route would comprise Bilambil Road which is immediately adjoining the eastern boundary of the site.

Infrastructure

Reticulated water supply is available in the Village with adequate capacity to serve the additional demand generated by the project. Reticulated public sewerage is not available in the Village and therefore it is proposed to construct a sewer pump station and sewer rising main to convey sewage to the public reticulation system at Gollan Drive, Tweed Heads West.

Overhead power is available to the site and Country Energy has advised that sufficient capacity exists. The reticulation within the new estate will be underground.

Overhead telephone cabling is available within the Village and it is proposed that the new reticulation within the estate will be provided underground.

Geology and Soils

The geology at the site is mapped at 1:100,000 as Palaeozoic Neranleigh-Fernvale Beds, comprising greywacke, argillite, quartzite, chert, shale, sandstone and greenstone (Geological Survey of Queensland – Murwillumbah Surface Geology 1:100,000, Sheet 9541, 1978).

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Morand (1994) describes the soil landscape at the site as Burringbar. The Burringbar soil landscape is described as high rolling to steep hills on metamorphics of the Neranleigh-Fernvale Group, with soil variations as follows:

- Shallow to moderately deep (<100cm), moderately well drained, stony grey earths on crests and some slopes;
- Deep (>100cm), moderately well drained, red podzolic soils on slopes of deeply weathered siltstone/mudstone/shale;
- Shallow (50-100cm), poorly drained yellow podzolic soils on slopes of quartzite/phyllite;
- Deep (>200cm), moderately well drained red earths on footslopes/lower slopes; and
- Deep (>150cm), imperfectly drained, stoney yellow podzolic soils on old coastline.

Vegetation

The previous use of the subject site, as a quarry, has removed the majority of the native vegetation. The subject site is highly disturbed and the majority of the land is infested with exotic weeds. Several of these weeds are listed as noxious. Some patches of forested vegetation occur along the property boundaries (Camphor laurel) and within the Riparian zone. Camphor laurel dominates in these areas but some elements of Riparian rainforest vegetation remain.

Five (5) vegetation communities and ninety-five (95) flora species were recorded on the site. The majority of flora species are exotic weeds. One (1) threatened flora species was recorded. The Rough-shelled bush nut (*Macadamia tetraphylla*) is listed as Vulnerable under the NSW Threatened Species Conservation Act (1974) and the Environmental and Biodiversity Conservation Act 1999.

A fauna survey and habitat assessment was carried out in conjunction with the flora survey. It is considered that due to the highly disturbed nature of this site, the suitability for native fauna is greatly reduced. One (1) amphibian species, the Common eastern froglet (*Crinia signifera*) and twenty one (21) bird species were recorded. No mammal or reptile species were recorded. After an assessment of habitat on the subject site and consideration of threatened species recorded in the local area, it is considered that ten (10) threatened fauna species may possibly occur on the subject site.

In total four (4) hectares of vegetation will be lost from the subject site, the majority of which will be from Community 5 – Low Closed Herbland which is comprised of exotic weed species.

The Cobaki Broadwater is located to the northeast of the site. The proposed development has the potential to impact on the Broadwater and the associated wetland vegetation communities. Stormwater runoff, from the proposed development, may also cause an increase in sediment, dissolved salts and general urban pollution and rubbish, unless appropriate mitigation measures are implemented.

The proposed development will not cause any fragmentation of habitat in the locality. The potential of fauna to move along Bilambil Creek, in the southern portion of the site, will not be adversely affected because this area of vegetation will be retained and rehabilitated.

Hydrology and Flooding

Bilambil Creek forms the western boundary of the development site. The Creek is at its approximate tidal limit at the site. Tweed Shire Council advise that the Q100 flood level at the site is RL 3.5m AHD. Site levels range from approximately RL 4m AHD at Hogans Road to approximately RL 26m AHD towards the centre of the site. The proposed residential lots will be located at a minimum of RL 4.4m AHD and earthworks are proposed on site to achieve a final landform compatible with the proposed subdivision layout. Minor filling of part of the land below RL 3.3m AHD is proposed comprising approximately 1350m² to a depth of 0.70m below the design flood level. It is anticipated that the volume of flood storage lost as a result of the development is approximately 470m³. It is anticipated that this volume will be compensated for by the orderly regrading of Lots 55 and 56.

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Ground Water

No subsurface seepage was noted during the investigation. The groundwater table was intercepted in the course of this investigation in BH 7 (2.8m below surface level) and BH 9 (3.0m below surface level) which correlates to approximately RL 1.0m. During high periods of rainfall it was indicative that high levels of surface water and runoff may occur on the site. Suitable drainage and diversion of all runoff into the stormwater reticulation systems, existing creek or roadways to prevent water ponding is necessary prior and during the construction of any proposed residential development. Appropriate silt drains and fences may be required to be installed around the perimeter of the site.

Climate

Predominant wind direction in the summer is from the northeast and in the winter is from the southwest.

Rainfall

Annual average rainfall for this area is 1722 mm. The monthly minimum of 60mm occurs in September and the monthly maximum of 270mm occurs in March.

Temperature

The November summer maximum is 30°C and the summer minimum is 15°C. In winter, the maximum in August is 23°C and the minimum in July is 5°C.

Cultural Heritage

Based on site observations and a review of the heritage listings in Tweed Local Environmental Plan 2000 and the North Coast Regional Environmental Plan 1988, there are no structures or other improvements with European Cultural Heritage values on the site.

In relation to Aboriginal Cultural Heritage, Davies Heritage Consultants have prepared an assessment report, a copy of which is contained at **Annexure 11**.

Generally this report has addressed the archaeological potential and cultural significance of the study area to Aboriginal people. It is important to note that archaeological sites (eg. stone artefact scatters, scarred trees, rock shelters, etc.) generally have cultural significance as such sites constitute evidence of prior occupation of the area by Aboriginal people and for this reason alone can be considered to have significance value. These values are irrespective of whether the site is *in situ*, disturbed or displaced. However, the likelihood of cultural sites being present has not been addressed. Besides topographical features there are other site types that are considered to have cultural significance. For example, some cultural site types relate to good food places or recent camping places (see Sub-section 8.2).

Background research has revealed that places of particular significance have not been recorded within the Project Area. Additionally, cultural sites were not recorded specifically within the Project Area during the Bundjalung Mapping Project (see Subsection 6.3), nor was the area identified as having a higher probability for the presence of such sites. Hence, it could be assumed that cultural sites are not present. Generally, however, cultural significance values cannot be fully dismissed without consultation with the relevant Traditional Owners. As noted by Bowdler (1983:30), "identification of sacred sites and sites of significance to Aboriginal people is of necessity a matter for Aboriginal people. No-one else can decide whether the fact of significance or the degree of that significance to an Aboriginal community, except members of that community".

The aim of this section of the report was to document information in relation to the social and cultural values including the spiritual, traditional, historical or contemporary associations and attachments which the study area may have for the Registered Stakeholder.

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However, as responses to the notification letters and advertisement were not received, there are no identified Registered Stakeholders for this Project.

Hence, although unequivocal assurance that sites with social and cultural values are not present within the Project Area cannot be provided, it is considered that the potential for such sites to be present is low.

Based on the above discussion, full assurance that cultural heritage will not be harmed by the proposed development cannot be provided. However, it is considered that based on prior land use activities, the lack of sites recorded on the AHIMS Database and the fact that the Project Area was not identified as a location of Cultural Significance or a location with a higher probability for containing sites of Cultural Significance by the Bundjalung Mapping Project and as there are no identified registered stakeholders for the project there is only a low to negligible potential for archaeological and/or cultural sites to be present. If archaeological sites were present they would not be *in situ*.

Acoustics

Potential sources of noise include traffic noise on the adjoining street network and infrequent events held at the adjoining Bilambil Hall (including amplified music) and the Bilambil Sports Club to the east of the site.

There are no other land uses in close proximity which would give rise to any significant sources of noise and the site is well clear of the Gold Coast Airport flight path. Details on the acoustic environment are contained in **Annexure 12**.

Bushfire

The site is mapped as bushfire prone land. Riparian vegetation communities adjacent to Bilambil Creek constitute the key bushfire hazard. Other surrounding land is either grasslands or managed lands (ie. urban roads and lawns). In accordance with the provisions of Planning for Bushfire Protection 2006, the narrow riparian vegetation can be treated as a rainforest thus requiring a 10m asset protection zone. This does not impose a significant constraint on the development potential of the land as the asset protection zone has been accommodated in the proposed road which separates the residential lots from the proposed revegetated foreshore reserve.

Landscape and Visual

In November 1995, Catherine Brouwer prepared the Tweed Shire Scenic Landscape Evaluation Report. That Report indicates that Bilambil Village is within Scenic Management Zone B.

Scenic Landscape Management Zone B is assigned to those areas where the similar combinations are not as critical as A, but the values are still highly significant to the maintenance of the scenic quality and landscape character of the Shire and locality.

In Zone B, landscape alterations are allowed but only if they have no visual dominance or alteration of scenic quality or landscape character. Alterations allowed as extensions of existing use without significantly changing the landscape character or as a minor landscape change. In the first two years the development may be apparent but not dominant and subsequently not apparent.

Clearly, the highly disturbed nature of the site and in particular the adverse visual impacts arising from the disused quarry detract from its landscape and scenic values. The proposed landforming changes and ultimate built form (including foreshore rehabilitation and landscaping of streets) are not considered to be inconsistent with Zone B requirements particularly in view of the fact that the site is zoned 2(d) Village under the Tweed Local Environmental Plan 2000 and the proposal will remove the unsightly former quarry. If the site is not developed in accordance with the current zoning the visually degrading quarry will remain indefinitely.

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Annexure 10 comprises a series of illustrative perspectives and photographs showing the site before and after development. Existing View A from Hogans Road shows the unsightly quarry face and Perspective View A shows the completed development form which clearly demonstrates that improved landscape and visual outcomes will be achieved.

View B is a close up of the quarry face which contrasts with Perspective View B showing the built form and significant improvements to the landscape and visual quality of the site.

View C shows the existing Bilambil Road streetscape looking in a southerly direction from the vicinity of the roundabout at Urliup Road/Carool Road and Perspective View C shows the final built form including landscaping and structures. Whilst the existing camphor laurel trees will be removed from the western alignment of Bilambil Road appropriate streetscaping trees will be provided to replace them and maintain a pleasant streetscape.

View D is an aerial perspective of the site and adjacent land which reflects the final built form and landscaping and also shows adjacent existing development including the Bilambil Creek Residential Village (caravan park).

In summary, it is submitted that the photographs and perspectives at **Annexure 10** demonstrate that the proposed development will result in significant improvements to the landscape and visual quality of the site.

Contamination

Broad acre land use

Broad acre contamination associated with the historical land use activities has not been detected. However, this is based on a low density systematic sampling pattern of surface soils across the site. Whilst the adopted sampling frequency of 25 sampling points is less than the recommended (EPA 1995) sampling frequency of approximately 53 sampling points for a site of 4.6 hectares, it is considered sufficient to determine the potential for significant broad acre contamination. This is because the reported results were consistently below the residential land use criteria and the material sampled was generally homogenous.

Arsenic was detected above the EIL of 20 mg/kg at four of the 25 sampling locations and the calculated 95% UCL (39 mg/kg) was also above the EIL. However, none of the samples exceeded the residential land use criterion of 100 mg/kg and the calculated 95% UCL for arsenic is less than the residential criterion.

Six of the 25 samples reported concentrations of total chromium above the chromium (VI) criterion of 100 mg/kg for residential land use. The six samples were re-analysed for total chromium, chromium (VI) and TCLP analysis. The total chromium concentrations were consistent with the results previously reported and none of the samples reported detectable concentrations of chromium (VI). Hence, the detected chromium species was considered to be chromium (III).

None of the chromium (III) concentrations exceeded the residential land use criterion of 120 mg/kg (12 %). The calculated 95 % UCLs for chromium (120 mg/kg & 585 mg/kg) are also less than the residential land use criterion of 120 g/kg for chromium (III). The calculated 95 % UCLs for chromium (120 mg/kg) is also less than the EIL of 400 mg/kg for chromium (III).

Three of the 25 samples reported concentrations of copper above the EIL of 100 mg/kg. However, the calculated 95% UCL (75 mg/kg) is below the EIL and none of the samples reported concentrations above the residential land use criterion of 1,000 mg/kg.

One of the 25 samples analysed for lead reported a concentration of 313 mg/kg, which is greater than the residential land use criterion of 300 mg/kg. The sample was re-analysed with a reported result of 58 mg/kg, which is below the criterion. The calculated 95 % UCL for lead (75 mg /kg) is also below the 300 mg/kg criterion.

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One of the 25 samples analysed for zinc reported a concentration of 312 mg/kg, which is greater than the EIL of 200 mg/kg. However, the calculated 95% UCL (105 mg/kg) is below the EIL and none of the samples reported concentrations above the residential land use criterion of 7,000 mg/kg.

Filled areas and stockpiled soil

The southern area of the site (adjacent to Hogans Road) has been subject to filling. Ten test pits were constructed across this area, with seven of the 10 pits containing fill material. It was indicated in the PSI that the source of the material was potentially from off-site. After examination of the recovered material, it is now considered that the fill material has been derived from within the bounds of the site. It is characteristically red-brown in colour which correlates with the natural material identified on the site. The texture of the material also correlates with the natural material which is predominantly medium to heavy clay.

One of the stockpile samples (S2) reported a concentration of total chromium (218 mg/kg) above the chromium (VI) criterion of 100 mg/kg for residential land use. The sample was re-analysed for total chromium, chromium (VI) and TCLP analysis. The total chromium concentration (246 mg/kg) was consistent with the result previously reported and no detectable concentration of chromium (VI) was reported for the sample. Hence, the detected chromium species was considered to be chromium (III). The chromium (III) concentration did not exceed the residential land use criterion of 120 mg/kg (12 %).

The sample recovered from Stockpile 2 (S2) also reported a concentration of copper (102 mg/kg) above the EIL of 100 mg/kg. The concentration is considered to be negligible and is below the residential land use criterion of 1,000 mg/kg. The material appears to have been derived from on-site quarry operations rather than from off-site sources.

One sample recovered from TP10 (0.3-0.6m) reported a concentration of nickel (329 mg/kg) above the EIL of 60 mg/kg. The concentration is below the residential land use criterion of 600 mg/kg. The calculated 95% UCL (184 mg/kg) is also below the residential land use criterion.

One sample recovered from TP4 (0.0-0.1m) reported a concentration of zinc (414 mg/kg) above the EIL of 200 mg/kg. The concentration is below the residential land use criterion of 7,000 mg/kg. The calculated 95% UCL (156 mg/kg) is below both the EIL and residential land use criterion.

Asbestos related impacts and the presence of waste materials

As discussed (Section 10.2.8), 15 soil samples recovered from the test pits were analysed for asbestos.

No asbestos fibres were identified in the samples, however a small fragment of fibrous cement sheeting recovered from TP6 (0.3-0.7 m) was found to contain chrysotile and amosite asbestos.

As this was the only fragment of asbestos identified during the DSI and as no asbestos fibres were identified in the corresponding soil sample (or any of the additional samples analysed), the potential asbestos impacts within the bounds of the site are likely to be negligible. Nevertheless, it is possible that the filled area contains more fragments of fibrous cement sheeting (potentially containing asbestos) that may not have been detected during the DSI. Subsequently, it is recommended that additional test pits be excavated either prior to or during the construction phase of the development. If asbestos and/or other potentially contaminating material and/or rubbish are identified in the test pits (general building waste was identified in TP6 & TP10 and engine parts in TP10), the effected material should be appropriately classified and removed to landfill. On-site capping is not acceptable for high-density residential sites.

In addition, prior to the site being redeveloped, all general waste, rubbish and disused building materials must be removed from across the site.

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Topography

Existing ground levels range from approximately RL 4m AHD at Hogans Road to approximately RL 26m AHD towards the centre of the site. Previous land uses include grazing, quarrying and stockpiling of soil and rock. The site is highly disturbed and contains a disused quarry and scattered vegetation including tall closed forest, mid high open forest, low open woodland, low closed herb land and includes one threatened species (*Macadamia tetraphylla*).

There are no structures on the land other than an overhead electricity transmission line located on the southern side of the site adjacent to Hogans Road. A transmission line easement 40m wide is proposed over the transmission line.

Electro Magnetic Field

HMC Environmental Consulting Pty Ltd has prepared a Preliminary Assessment of Potential Impact of Electric and Magnetic Fields from Overhead Powerlines.

In summary, that Assessment concludes that based on the literature research presented in this report, it is concluded that the expected exposure of the future occupants of the site to power frequency EMF is well below the permissible limit for occupational and general public exposure as set out in the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and ARPANSA draft Standard aimed at protection against established adverse health effects.

In line with the approach of "prudent avoidance", adopted by the Electrical Supply Association of Australia and its member supply authorities, it is recommended that:

1. The proposed dwellings be located outside a minimum 40m wide transmission line easement over the subject property, and as far as possible from the overhead power line; and
2. The electricity power supply and reticulation system for the proposed dwelling should be designed and installed to minimise human exposure to the power frequency electric and magnetic fields, as far as is practical and cost effective.

4.0 STATUTORY AND NON STATUTORY PROVISIONS

4.1 Threatened Species Conservation Act

The Flora and Fauna Assessment at **Annexure 15** addresses the Seven Part Test and State Environmental Planning Policy No. 44 and concludes that the proposed development will not have a significant effect and therefore a Species Impact Statement is not required. That report also recommends certain mitigation measures which are further addressed in Section 8.9 (Draft Statements of Commitments).

4.2 Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The Flora and Fauna Assessment at **Annexure 15** concludes that the proposed development does not give rise to a requirement for any approvals under the Commonwealth Environmental Protection and Biodiversity Conservation Act, 1999.

4.3 Native Vegetation Act 2003

Section 5 of this Act provides that the Act does not apply to land described in Part 3 of Schedule 1. Schedule 1, Part 3, Paragraph 14 provides that land within a zone designated "residential" under an Environmental Planning Instrument is excluded from the operation of the Act. The 2(d) Village zone is coloured pink on the Tweed Local Environmental Plan 2000 Zoning Map and is described by the numerical prefix "2" normally applicable to a residential zone. It is therefore considered that the 2(d) zone has the "*substantial character*" of a residential zone.

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Therefore, development consent or a Property Vegetation Plan are not required under this Act for the proposed clearing works within the site.

4.4 Tweed Local Environmental Plan 2000

Tweed Local Environmental Plan 2000 is the principal planning instrument controlling development within Tweed Shire generally and the subject land in particular. Under the provisions of this Plan, the land is zoned partly 2(d) Village.

The aims of the Local Environmental Plan are as follows:

"The aims of this plan are:

- (a) *to give effect to the desired outcomes, strategic principles, policies and actions of the Tweed Shire 2000+ Strategic Plan which was adopted, after extensive community consultation, by the Council on 17 December 1996, the vision of which is:*

"The management of growth so that the unique natural and developed character of the Tweed Shire is retained, and its economic vitality, ecological integrity and cultural fabric is enhanced", and

- (b) *to provide a legal basis for the making of a development control plan that contains more detailed local planning policies and other provisions that provide guidance for future development and land management, such as provisions recommending the following:*

- (i) *that some or all development should be restricted to certain land within a zone,*
(ii) *that specific development requirements should apply to certain land in a zone or to a certain type of development,*
(iii) *that certain types or forms of development or activities should be encouraged by the provision of appropriate incentives, and*

- (c) *to give effect to and provide reference to the following strategies and policies adopted by the Council:*

*Tweed Heads 2000+ Strategy
Pottsville Village Strategy, and*

- (d) *to encourage sustainable economic development of the area of Tweed compatible with the area's environmental and residential amenity qualities."*

Based on the Assessment at Section 4.11 it is concluded that the project is generally consistent with aim (a) relating to the Tweed 2000+ Strategic Plan and the subsequent Tweed Strategic Plan 4/24.

In addition, the project is consistent with aim (d) in the it achieves Council's urban land release objectives by providing additional housing choice to accommodate the continuing population growth within Tweed Shire.

The objectives of the 2(d) zone are as follows:

"2(d) Village

Primary objective

- *to provide for residential development and a full range of services and facilities traditionally associated with a rural village which is of a design and scale that makes a positive contribution to the character of the village."*

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The following table summarises the range of permissible uses in the 2(d) zone. The list is not exhaustive and reference should be made to the Local Environmental Plan for full details.

TABLE 2 – PERMISSIBLE USES		
USES	2(d) ZONE PERMISSIBILITY	COMMENTS
Dwelling Houses	Yes	Minimum 450m ² lot size applies.
Multi-Dwelling Housing	Yes	See TDCP 2007 Part A1 for density controls.
Shops	Yes	Item 2 use.
Commercial Premises	Yes	Item 2 use.
Recreation Areas	Yes	Items 2 use includes sports fields and playgrounds.
Environmental Facility	Yes	Includes environmental management and restoration of the Bilambil Creek foreshore. Permissible as an Item 1 use without consent.

In summary, the proposed development is permissible in the zone and is consistent with the zone objectives, in that it will provide a modest scale general store (250m²) for new and existing residents and will result in a built form which optimises the site density. The project achieves a design and scale as would be expected given the minimum statutory lot size of 450m². The development is also consistent with Tweed Shire Council's Draft Urban Land Release Strategy (February 2008) in that it makes efficient use of existing urban zoned land, minimises urban sprawl and represents "infill" type development.

In addition, it is likely that when reticulated sewerage is provided to the whole of the Village, other existing allotments will also be subdivided such that lot yields are optimised based on the minimum lot size of 450m². The desired future character of the Village is largely driven by the minimum statutory lot size and the contemporary policy requirements to optimise yields and achieve efficient use of serviced zoned land to minimise urban sprawl and achieve sustainability principles. Having regard to the above it is submitted that the project makes a positive contribution to the character of the Village.

The following Clauses of the Plan are relevant to this application:

Clause 15 – Availability of Essential Services

All normal urban services are available to the site with the exception of reticulated sewer. It is proposed to install a sewer pump station and sewer rising main to provide a reticulated supply to each lot. It is considered that the existing services have adequate capacity to service the proposed development. Accordingly, it is considered that the proposal fully complies with this Clause. This issue is further addressed at Section 8.6.

Clause 16 – Height of Building

A three storey height limit applies to this site. The proposed retail building (two storey) complies and any future residential buildings on the proposed allotments will also comply with this requirement.

Clause 17 – Social Impact Assessment

In accordance with the provisions of this Clause and Tweed Development Control Plan 2007, Part A13 a Socio-Economic Impact Assessment would normally be required to accompany a Development Application. However, as this is a Major Project Application a Socio-Economic Impact Statement is not required. Nevertheless, information relating to social and economic issues is provided in this Environmental Assessment Report.

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Clause 19 – Subdivision General

This Clause provides that development consent is required to subdivide land. There are no applicable development standards for the subdivision of land in the 2(d) zone.

Clause 31 – Development Adjoining Waterbodies

TABLE 3 – DEVELOPMENT ADJOINING WATERBODIES	
CLAUSE	COMMENTS
<p>(1) Objectives</p> <ul style="list-style-type: none"> • to protect and enhance scenic quality, water quality, aquatic ecosystems, bio-diversity and wildlife habitat and corridors. • to provide adequate public access to waterways. • to minimise the impact on development from known biting midge and mosquito breeding areas. 	<p>The Bilambil Creek foreshore area will be rehabilitated and stormwater quality controls will be implemented.</p> <p>A foreshore public reserve will be dedicated as part of the project.</p> <p>Future dwellings will comply with Tweed Development Control Plan 2007, Part A6 – Biting Midge and Mosquito Control.</p>
<p>(2) This clause applies to land that adjoins the mean high-water mark (or the bank where there is no mean high-water mark) of a waterbody.</p>	<p>Bilambil Creek is not tidal adjacent to the site.</p>
<p>(3) Consent must not be granted to development on land to which this clause applies, within such distance as is determined by the consent authority of the mean high-water mark or, where there is no mean high-water mark, the top of the bank or shore of a stream, creek, river, lagoon or lake unless it is satisfied that:</p> <p>(a) the development will not have a significant adverse effect on scenic quality, water quality, marine ecosystems, or the bio-diversity of the riverine or estuarine area or its function as a wildlife corridor or habitat, and</p> <p>(b) adequate arrangements for public access to and use of foreshore areas have been made in those cases where the consent authority considers that public access to and use of foreshore areas are appropriate and desirable requirements, and</p> <p>(c) the development is compatible with any coastal, estuary or river plan of management adopted by the Council under the <i>Local Government Act 1993</i> that applies to the land or to land that may be affected by the development, and</p> <p>(d) the development addresses the impact of increased demand from domestic water supply on stream flow; and</p> <p>(e) the development addresses the likely impact of biting midge and mosquitoes on residents and tourists and the measures to be used to ameliorate the identified impact.</p>	<p>Council has not adopted a minimum setback but Council Officers have agreed to a nominal 20m buffer (see Annexure 24). However, following consultations with key Stage Agencies, the layout has been amended to provide for a nominal 50m foreshore buffer, including the proposed perimeter road 15m wide.</p> <p>Rehabilitation of the Bilambil Creek foreshore, implementation of water quality controls and translocation of the Rough Shelled Bush Nut will significantly mitigate impacts.</p> <p>Dedication of the foreshore area will facilitate public access from Hogans Road to Urliup Road.</p> <p>No Management Plans apply.</p> <p>No water will be drawn from Bilambil Creek.</p> <p>Future dwellings will comply with Tweed Development Control Plan 2007, Part A6 – Biting Midge and Mosquito Control.</p>
<p>(4) The consent authority may require as a condition of consent to any development that the following be carried out:</p>	

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TABLE 3 – DEVELOPMENT ADJOINING WATERBODIES	
CLAUSE	COMMENTS
(a) the rehabilitation of land adjoining the waterbed to create a vegetated riparian zone or wetland, (b) works to stabilise the bank or shoreline of a waterbed.	Rehabilitation is proposed. Stabilisation works are not required as there is no existing or likely bank erosion.
(5) In determining a distance for the purposes of this clause, the consent authority shall have regard to: (a) the preservation of the scenic quality of foreshores, and (b) minimising the risk of pollution of waterways, and (c) the protection of foreshore ecosystems, and (d) the intended or planned use for the foreshore.	Council has accepted a nominal 20m foreshore buffer (see Annexure 24) however, following consultations with key State Agencies the layout has been amended to provide for a nominal 50m foreshore reserve, including the proposed perimeter road 15m wide.

Clause 32 – Aircraft Noise

The site is not located on land within the 20 or higher ANEF contour and therefore this Clause is not applicable.

Clause 34 – Flooding

TABLE 4 – FLOODING	
CLAUSE	COMMENTS
(1) Objectives <ul style="list-style-type: none"> to minimise future potential flood damage by ensuring that only appropriate compatible development occurs on flood liable land. to minimise the adverse effect of flooding on the community. 	A very small part of the site adjacent to Hogans Road is flood liable.
(2) Where, in the consent authority's opinion, land is likely to be subject to flooding, then it must not grant consent to development on that land unless it has considered:	The adopted design flood level for the site is RL 3.5m AHD.
(a) the extent and nature of the flooding hazard affecting the land, and (b) whether or not the development would increase the risk or severity of flooding of other land in the vicinity, and (c) whether the risk or severity of flooding affecting the development could be reasonably mitigated, and (d) the impact of the development on emergency services, and (e) the provisions of Section A3 - Development of Flood Liable Land of <i>Tweed Development Control Plan</i> .	Approximately 1350m ² of flood liable land will be filled to create the residential lots but compensatory storage is provided by the retention pond. In view of the above no increase in severity is likely. See (a) above. All lots will be filled to a minimum of RL 4.4m AHD. See comments at Section 5.2.

This issue is further addressed at Section 8.8.5.

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Clause 35 – Acid Sulphate Soils

In summary, this Clause provides that a person must not, without development consent, carry out works on land shown as being Class 1, 2, 3, 4 or 5 land on the series of maps held in the office of the Council and marked Acid Sulphate Soil Planning Map.

Council's Acid Sulphate Soils Planning Maps indicate that the site does not contain Class 1, 2, 3, 4 or 5 land. Therefore, an Acid Sulphate Soils Management Plan is not required pursuant to this Clause. However Geotechnical investigations did reveal some Acid Sulphate Soils (**Annexure 18**) on the site and therefore an Acid Sulphate Soils Management Plan is required.

The Management Plan will accompany the Construction Certificate Application as the extent of excavation for services in the Acid Sulphate Soils affected area is minor. This issue is further addressed at Section 8.8.

Clause 39 – Remediation of Contaminated Land

See comments under State Environmental Planning Policy No. 55. This issue is further addressed at Sections 4.7 and 8.8.

Clause 39A – Bushfire Protection

The land is mapped as bushfire prone and accordingly compliance with the publication "Planning for Bushfire Protection 2006" must be demonstrated.

The following table addresses relevant provisions of Clause 46 of the Rural Fires Regulations, 2002.

TABLE 5 – CLAUSE 46 BUSHFIRE HAZARD ASSESSMENT CHECKLIST		
CLAUSE 46 REQUIREMENT	ASSESSMENT/ COMMENT	COMPLIANCE
46(1)(a) – Property Description	See Section 2.1	Noted
46(1)(b) – Classification of Vegetation for 140m from existing dwelling sites.	Refer to aerial photograph attached as Figure 3 . East Managed land, road 20m wide (Bilambil Road, two lane, sealed) and sports fields. South Managed land and road 20m wide (Hogans Road, two lane, sealed) and grazed pasture. Northwest Managed land zoned 2(d) Village. Southwest Managed land grazed pasture and narrow riparian vegetation. North Managed land and road 20m wide (Urliup Road, two lane, sealed).	Noted
46(1)(c) – Land slopes within 100m of the dwellings	East Level. South Level. Northwest Level. Southwest Level. North Upslope 6°.	Noted
46(1)(d) – Significant Environmental Features	The site does not contain any significant environmental features. The land is vacant and has been highly modified by quarrying operations.	Noted

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TABLE 5 – CLAUSE 46 BUSHFIRE HAZARD ASSESSMENT CHECKLIST		
CLAUSE 46 REQUIREMENT	ASSESSMENT/ COMMENT	COMPLIANCE
46(1)(e) – Threatened Species	No threatened species are likely to be significantly affected.	Noted
46(1)(f) – Aboriginal Relics	The site has been highly modified by quarrying and is unlikely to contain cultural relics (see Annexure 11).	Noted
46(1)(g) – Bushfire Assessment including methodology	Methodology involved an inspection of the site, a review of an aerial photograph and contour plans and assessment of the application plans against the publication Planning for Bushfire Protection, 2006.	Noted
Asset Protection Zones	Table A 2.5 requires the following separation distances: East Nil. South Nil. Northwest Nil on the basis that the land is managed grasslands and will ultimately be developed for urban purposes in accordance with the existing 2(d) Village zoning. Southwest The revegetated foreshore reserve would be appropriately classified as riparian rainforest. North Nil.	Yes
Water Supplies	Reticulated public water supply is available at the site.	Yes
Capacity of Public Roads	The site has access to the public road network via the proposed streets and existing perimeter roads comprising Hogans Road, Urliup Road and Bilambil Road. The roads in the vicinity of the site are two lane, sealed public roads which provide adequate capacity to accommodate fire fighting vehicles.	Yes
Two Way Access for Public Roads	See comments above.	Yes
Access Arrangements and Egress Arrangements from the site	Having regard to the low bushfire risk and the direct access to Urliup Road, Hogans Road and Bilambil Road, access and egress is considered to be adequate.	Yes
Adequacy of Bushfire Maintenance Plans and Fire Emergency Procedures	The proposed development has been designed to ensure that the entire site will be maintained as a low fuel area to minimise risks. An adequate reticulated water supply and appropriate egress from the site is available in the event of a bushfire. Given that the future occupants of the buildings will be long term residents who will be familiar with the locality there is no need for a specific management plan. Residents will follow instructions of RFS officers.	Yes
Building Construction Standards	It is considered that pursuant to Table A3.4 (PFBP 2006) the following construction standards are required: East Nil. South Nil. Northwest Nil.	Yes

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TABLE 5 – CLAUSE 46 BUSHFIRE HAZARD ASSESSMENT CHECKLIST		
CLAUSE 46 REQUIREMENT	ASSESSMENT/ COMMENT	COMPLIANCE
	Southwest 9 < 13 Level 3 13 < 19 Level 2 19 < 50 Level 1 > 50 No Requirement. North Nil.	
Sprinkler Systems and other Fire Protection Measures	No Bushfire sprinkler systems will be required.	Yes
46(1)(h) – Conformance with Chapter 4 of Planning for Bushfire Protection, 2001		Noted
Asset Protection Zones	Southwest 10m required for rainforests on flat grades. This will be provided by a 6m front setback within the allotments together with the 15m wide road reserve providing a total asset protection zone of 21m.	Yes
Perimeter Road or Fire Trail	Given the magnitude of the bushfire threat and the proposed road network a fire trail is not considered to be required. A perimeter road will be provided around all lots with the exception of Lots 1 to 3. A perimeter road is not required for these lots on the basis that the adjoining land to the west is managed grasslands and will ultimately be developed for urban purposes in accordance with the existing 2(d) Village zoning.	Yes
Public Road Access	The site has direct access to Uriup Road, Hogans Road and Bilambil Road and the proposed new streets.	Yes
Property Access Roads	Each lot will have frontage to and access from a new public road with sufficient capacity to accommodate fire fighting vehicles.	Yes
Fire Trails	A fire trail is not required in this instance.	Yes
Design	The design is considered suitable for this small site which has minimal bushfire threat.	Yes

In summary the Subdivision Layout and Design comply with the provisions of Planning for Bushfire Protection 2006. This issue is further addressed at Section 8.8.

Clause 44 - Development of Land Within Likely or Known Archaeological Sites

"(1)The consent authority may grant consent to the carrying out of development on an archaeological site that has Aboriginal heritage significance (such as a site that is the location of an Aboriginal place or a relic within the meaning of the National Parks and Wildlife Act 1974), or a potential archaeological site that is reasonably likely to have Aboriginal heritage significance only if:

- (a) it has considered an assessment of how the proposed development would affect the conservation of the site and any relic known or reasonably likely to be located at the site prepared in accordance with any guidelines for the time being notified to it by the Director-General of National Parks and Wildlife, and*
- (b) it has notified the Director-General of its intention to do so and taken into consideration any comments received from the Director-General within 28 days after the notice was sent, and*
- (c) it is satisfied that any necessary consent or permission under the National Parks and Wildlife Act 1974 has been granted."*

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No archaeological sites or potential archaeological sites have been identified on the land. The Cultural Heritage Report at **Annexure 11** concludes that the potential for cultural heritage sites is low.

"(2) The consent authority may grant consent to the carrying out of development on an archaeological site that has non-Aboriginal heritage significance or a potential archaeological site that is reasonably likely to have non-Aboriginal heritage significance only if:

(a) it has considered an assessment of how the proposed development would affect the conservation of the site and any relic known or reasonably likely to be located at the site prepared in accordance with any guidelines for the time being notified to it by the Heritage Council, and

(b) it has notified the Heritage Council of its intention to do so and taken into consideration any comments received from the Heritage Council within 28 days after the notice was sent, and

(c) it is satisfied that any necessary excavation permit required by the Heritage Act 1977 has been granted."

No known non Aboriginal sites of heritage significance have been observed on the development site or identified in the Tweed Local Environmental Plan 2000 or North Coast Regional Environmental Plan 1988.

Clause 45 - Development In The Vicinity of Heritage Items, Heritage Conservation Areas, Archaeological Sites or Potential Archaeological Sites

The consent authority must take into consideration the likely effect of the proposed development on the heritage significance of a heritage item, heritage conservation area, archaeological site or potential archaeological site, and on its setting, when determining an application for consent to carry out development on land in its vicinity.

No heritage items, heritage conservation areas, archaeological sites or potential archaeological sites exist on the development site based on the provision of Schedule 2 of Tweed Local Environmental Plan 2000; Schedules 1 and 2 of the North Coast Regional Environmental Plan 1988 and the findings of the Preliminary Cultural Heritage Assessment at **Annexure 11**. This issue is further addressed at Section 8.10.

4.5 North Coast Regional Environmental Plan 1988

Clause 15 – Development Control – Rivers, Streams and Wetlands

This Clause seeks to ensure that development proposals do not adversely impact on the water quality and habitat values of downstream water bodies.

The Stormwater Management Plan (**Annexure 19**) includes detailed measures for the control of water quality both during the construction and operational phases such that the objectives of this Clause are complied with.

Clause 32B - Coastal Lands

Relevant provisions of this Clause are addressed in the following table.

TABLE 6 – COASTAL LANDS	
PROVISION	COMMENT
<p>1) <i>"In determining an application for consent to carryout development on land to which the Coastal Policy applies, the Council shall take into account –</i></p> <p><i>a) The NSW Coastal Government Policy;</i></p> <p><i>b) The Coastline Management Manual; and</i></p>	<p>The Relevant matters for consideration in this Policy are addressed at Section 4.10 of this report.</p> <p>The land is not affected by coastal processes.</p>

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TABLE 6 – COASTAL LANDS	
PROVISION	COMMENT
c) <i>The North Coast Design Guidelines</i>	The key guidelines will be included in the design of the buildings, particularly in relation to the building form, cladding materials, solar access and energy efficiency.
2) <i>The Council shall not consent to the carryout of development which would impede public access to the foreshore area;</i>	The proposal will facilitate public access to the Bilambil Creek foreshore by dedication and embellishment of a public reserve for the full frontage of the site to the Creek.
3) <i>The Council shall not consent to the carrying out of development –</i> a) <i>On urban land at Tweed Heads, Kingscliff, Byron Bay, Ballina, Coffs Harbour or Port Macquarie, if carrying out the development would result in beaches and adjacent open space being overshadowed before 3 pm mid-winter (standard time) or 6.30 pm mid-summer (daylight saving time); or</i> b) <i>Else where in the region, if carrying out the development would result in beaches or waterfront open space being overshadowed before 4 pm mid-winter (standard time) or 7 pm mid-summer (daylight saving time)."</i>	Not applicable.

Clause 43 – Development Control – Residential Development

This Clause provides that consent to development for residential purposes shall not be granted unless the consent authority is satisfied that the density of the dwellings have been maximised without adversely affecting the environmental features of the land and that road widths are not excessive.

The proposed layout achieves 52 residential allotments which results in a yield of approximately eleven lots per hectare. The North Coast Urban Planning Strategy 1995 identifies a target yield of fifteen dwellings per hectare.

Without significantly impacting on landforms and the established character and amenity of the area and because of the State Agency requirements for a generous foreshore buffer and perimeter road, it is not feasible to achieve the target densities. Having regard to the site analysis contained in this report it is concluded that the proposed yields are optimal and consistent with this Clause.

Clause 66 – Development Control – Adequacy of Community and Welfare Services

This Clause provides that before granting consent for the subdivision of land intended for residential purposes the consent authority shall consider the adequacy of community and welfare services.

The site is conveniently located in relation to the town of Tweed Heads which provides for all necessary requirements in terms of community services and facilities. In addition, as indicated in Section 4.15 of this report, Council requires contributions to be paid in respect of a range of community facilities likely to be required by future residents.

4.6 State Environmental Planning Policy No. 14 – Coastal Wetlands

The land to which this Major Project application relates is not affected by the provisions of this State Environmental Planning Policy. The nearest mapped wetlands under the provisions of this Policy are located approximately 1000m to the east of the site.

Given the extensive buffers from the site to the mapped wetland and subject to implementation of normal water quality management measures (as proposed) the existing State Environmental Planning Policy No. 14 – Wetlands do not impose a significant constraint on the development potential of the site.

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4.7 State Environmental Planning Policy No. 55 – Remediation of Land

In summary, Clause 7 of this Policy provides that the consent authority must not consent to the carrying out of any development on land unless it has considered, among other things, whether the land is contaminated, based on a preliminary investigation of the land carried out in accordance with the Contaminated Land Planning Guidelines.

The Contaminated Land Planning Guidelines (Department of Urban Affairs and Planning, Environment Protection Authority, 1998) provide information relating to preliminary contamination investigations. In addition, Council has adopted a Contaminated Land Policy which contains details of the information required to be submitted with applications for development.

A Detailed Site Investigation has been undertaken (Precise Environmental, August 2008) a copy of which is attached at **Annexure 13**.

The Detailed Site Investigation conclusions are based on the information described in the report and appendices, and the conclusions should be read in conjunction with the complete report, including Section 1.4 - Limitations and Section 11 - Discussion.

A desktop site history and a site inspection were undertaken, which indicated that several potentially contaminating activities have been conducted on the site. The site has historically been used for cattle grazing and as a dairy. The site has also been used as a quarry to extract soil and rock since the early 1960s. Land filling has been conducted across the southern portion of the site and within localised areas associated with the quarry. Numerous soil/rock stockpiles are also present within the quarry area. The source of the fill material is unknown, however it is expected that the majority of the fill was derived from onsite.

A detailed soil sampling and analysis program was undertaken to determine if historical land use activities have caused land contamination and furthermore, to determine if the site is suitable (ie. in its current state) for residential use.

The DSI investigation targeted surface soils, soil stockpiles and the filled areas along the southern boundary of the site. Contaminants of concern across the broader site were heavy metals, OCPs & OPPs. Contaminants of concern for fill and stockpiles were heavy metals, OCPs, OPPs, PCBs, TPHs, BTEX, PAHs, phenolic compounds and asbestos.

The results of the assessment indicate the following:

- Broad acre contamination associated with the historical land use activities has not been detected. This is based on a low density systematic sampling pattern of surface soils across the site. However, the sampling frequency was considered sufficient to determine the potential for significant broad acre contamination that would restrict the site from being developed for residential use without appropriate management and/or remediation.
- With the exception of a small fragment of fibrous cement sheeting containing asbestos in Test Pit 6 and some general building waste (TP6 & TP10) and engine parts (TP10), no significant contamination was identified in the fill located across the southern portion of the site.

Based on the scope of work undertaken and the results obtained during the DSI, Precise Environmental considers that the site is suitable for residential use subject to the following additional work being undertaken (ie. as a condition of development approval):

1. A general site clean-up is required. This includes the removal of all general waste, rubbish and disused building materials that are present on the site.

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-
2. Additional test pits are to be excavated either prior to or during the construction phase of the development in the southern filled area of the site. If asbestos and/or other potentially contaminating material and/or rubbish are identified in the test pits (particularly in the vicinity of TP6 & TP10), the material must be excavated, stockpiled, classified and removed to landfill. This work is to be supervised by an appropriately qualified contaminated land consultant.

A report must be provided to Tweed Shire Council within fourteen days following completion of this work. No dwellings are to be constructed on the site until this work has been carried out to the satisfaction of the supervising Environmental Consultant and Tweed Shire Council.

4.8 State Environmental Planning Policy No. 71 – Coastal Protection

The land to which this Major Project application relates is within the coastal zone as defined under the provisions of this Policy and as the development involves a subdivision for more than 25 residential lots a Development Control Plan would normally be required pursuant to Clause 18 of the Policy. However, as Part 3A of the Act applies, a Development Control Plan is not required.

In addition, Clause 8 of the Policy requires various criteria to be considered in assessing any development application. The relevant matters for consideration in Clause 8 are addressed in Section 9.0.

4.9 State Environmental Planning Policy – Major Projects

Clause 6 of this Policy provides that development that, in the opinion of the Minister, is development of a kind described in Schedules 1 or 2, or described in Schedule 3, is State Significant Development, for which the Minister is the consent authority.

In correspondence dated 17 March 2008 the Director General, as delegate of the Minister, advised that the Minister has formed the opinion that the proposal is a project and that Part 3A of the Act applies.

4.10 NSW Coastal Policy 1997

The maps accompanying the Coastal Policy indicate that the site falls within the area to which the Policy applies.

Table 2 of the Coastal Policy contains a number of strategic actions relevant to development control. Section 9.2.2 of this Environmental Assessment Report addresses Coastal Policy provisions.

4.11 Tweed 2000+ Strategic Plan and Tweed Strategic Plan 4/24

Following lengthy community consultation, Tweed Shire Council adopted the Tweed 2000+ Strategic Plan in December 1996.

Insofar as the Tweed Strategic Plan 2004/2024 (adopted by Council September 2004) is concerned, Section 1 indicates that the Tweed 04/24 is a new whole of Shire whole of Council Strategy to replace the Tweed Shire 2000+ Strategic Plan prepared a decade ago. It sets forward directions for the next two decades and provides a framework for more detailed plans and policies. The previous Strategic Plan (Tweed 2000+) was heavily concerned with managing urban expansion. The Tweed 04/24 retains the framework of the Tweed 2000+ Strategic Plan but places greater emphasis on sustainability and locality planning.

The following table summarises and comments on the key provisions of this Strategic Plan.

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TABLE 7 – TWEED STRATEGIC PLAN 4/24		
ELEMENT	STRATEGY	COMMENTS
Sustainability	Retain the special character of the Tweed. Sustainability as an overarching, guiding principle for all decision-making. Introduce sustainability indicators and a new annual 'State of the Shire' report.	The project achieves sustainability objectives in that the highly degraded site will be rehabilitated, water quality improvements in Bilambil Creek will be facilitated and dedication and rehabilitation of the Bilambil Creek foreshore will also be achieved. Future dwellings will comply with BASIX and NatHERS requirements in terms of energy efficiency and water consumption.
Triple Bottom Line	Balance economic, social and environmental objectives. A leadership role for Council in tackling the full range of issues facing the Tweed.	It is considered that this project achieves the objectives of this element in that it will deliver a range of housing types to satisfy continuing growth and demand for dwelling houses in this locality. The project also incorporates contemporary environmental management and impact mitigation measures and ensures that all necessary social infrastructure is provided (or contributions in lieu paid) for a development of this type.
Community Values	Reflect the needs and values of the existing community. Safeguard quality of life and the character of towns and villages. Stability and consistency in policies and decision-making. Effective community involvement in planning.	The character of the existing area has been identified and the design, density and layout of the proposed subdivision are compatible with the existing and desired future character and urban form of the locality.
Economic Growth	A concerted program to generate more local jobs, tackle youth unemployment, offset the decline in rural industries, and balance the population mix by attracting residents in the 30-55 age groups. Link economic growth to education and to the Tweed's environmental quality.	The project will implement the Government's Far North Coast Regional Strategy and provide jobs during the construction and operational phase.
Environmental Quality	Continued improvements in environmental management, including establishment of a Regional Open Space System. Strengthen coastal zone management.	The development footprint will not significantly impact on existing areas of native vegetation and threatened species will also be conserved. Appropriate management measures are planned to mitigate potential adverse impacts and contributions will be paid by way of Section 94 towards the regional open space system. The project will facilitate rehabilitation of the Bilambil Creek foreshore and assist in achieving improvements in water quality.

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TABLE 7 – TWEED STRATEGIC PLAN 4/24		
ELEMENT	STRATEGY	COMMENTS
Water Resources	Conserve water resources. Maintain and improve water quality in rivers and estuaries. Complete Integrated Water Cycle Management Study and promote use of recycled and 'grey' water. Upgrade Clarrie Hall dam.	Stormwater management measures during both the construction and operational phases will be implemented to ensure that water quality objectives are achieved. An Integrated Water Cycle Management Plan also accompanies this application. Future dwelling houses will incorporate water efficiency devices including rainwater tanks.
Rural Change	A 'Rural Partnership' to address problems associated with the decline of rural industries. A Rural Settlement Strategy to guide rural subdivision and expansion of villages, consistent with protecting landscape values.	Not applicable.
Social Support	A new Social Plan. Greater emphasis on the needs of the elderly, disabled, youth and Indigenous people. A stronger framework for social planning and integrated provision of community services.	Development of this site as proposed is not inconsistent with Council's social objectives insofar as it implements the Tweed Residential Development Strategy 1991 and the Far North Coast Regional Strategy 2006-2031. It will provide a range of housing choices together with all normal urban infrastructure required by a project of this type.
Housing Affordability	New measures to provide more housing for both purchase and rental within the reach of lower and middle income groups.	The project involves a range of lot sizes to enable housing choice and greater affordability to be provided for prospective purchasers.
Urban Development	Implement current plans for urban expansion including Cobaki and Bilambil Heights. Complete assessments of Terranora 'Area E' and Kings Forest. Retain green belts or buffers between settlements.	The project is entirely consistent with this provision as it implements the current plans for urban expansion at Bilambil.
Land Use Structure Plan and Urban Design Framework	A new Structure Plan to set out more detailed proposals for urban and rural land use. Revised guidelines to promote the highest possible standards of urban and landscape design.	It is understood that Council has not completed this Structure Plan.
Infrastructure	A new Tweed Community Infrastructure Program and other measures to ensure adequate provision of infrastructure to both new and existing areas. Minimise the cost to government of servicing new development.	It is understood Council has not completed the new Community Infrastructure Program.
Locality Plans	Detailed plans for local areas prepared in conjunction with the community to guide physical, economic and social development, environmental management, infrastructure and services.	Council has commenced preparing some locality plans however the Bilambil area has not yet been commenced.

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TABLE 7 – TWEED STRATEGIC PLAN 4/24		
ELEMENT	STRATEGY	COMMENTS
Partnerships	Council to form partnerships with government agencies and other parties to tackle priority issues eg. Tweed Heads revitalisation. Expert Advisory Panels to help implement key components of the strategy	Not applicable.
Regional Links	Closer integration with planning for the Gold Coast and South East Queensland. Continued involvement with the Northern Rivers Region and Premier's Department coordination group.	Not applicable.
Council Management	Strategic Directions and Four Year Priorities to be pursued through Council's Management Plan and budget. Further adjustments where necessary to Council's organisation structure.	Not applicable.

4.12 North Coast Urban Planning Strategy, 1995

Under the provisions of this Strategy, the site is identified as a “committed urban area”. Development of the site for residential purposes is consistent with the provisions of this Strategy.

4.13 Tweed Shire Council Residential Development Strategy, 1991

The Bilambil Village is defined as “an existing urban area” under the provisions of this Strategy. Development of the site is also consistent with this Strategy.

4.14 Exhibited Draft Tweed LEP Amendment No. 21 – Vegetation Management

This Draft Local Environmental Plan was publicly exhibited from 8 December 2004 to 25 March 2005. In summary, the Draft Plan proposes to retain the current 2(d) zoning of the land. Council has not proceeded with the Draft Plan to date.

4.15 Section 94 Contribution Plans and Section 64 Contributions

On site casual open space will be dedicated and embellished in accordance with the standards in Tweed Development Control Plan 2007, Part A5 – Subdivision Manual. No site specific Section 94 Plans apply but the following Shire wide plans are relevant:

TABLE 8 – CONTRIBUTIONS (SECTION 94 PLANS)			
PLAN NO.	PLAN NAME	QUANTUM OF CONTRIBUTION (per lot)	PURPOSE
4	Tweed Road Contribution Plan	\$10940.00	This Plan enables the Council to collect contributions towards upgrading of the distributor road network to accommodate additional traffic resulting from population growth and urban expansion. The Works Program accompanying the plan includes Cobaki Parkway, Bilambil Connector Road, Scenic Drive Diversion, McAllisters Road, Piggabeen Road and Kennedy Drive. These roads relate to the development site and the project.

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TABLE 8 – CONTRIBUTIONS (SECTION 94 PLANS)			
PLAN NO.	PLAN NAME	QUANTUM OF CONTRIBUTION (per lot)	PURPOSE
5	Open Space Contributions (Structured)	\$780.00	This Plan enables Council to collect contributions for the acquisition and embellishment of structured open space (playing fields) where dedication and embellishment on site is not appropriate and not consistent with Council's normal policy, as is the case with this project.
6	Street Tree Planting in Residential Areas	\$297.00	This Plan enables Council to levy contributions towards the planting of street trees within the footpath adjacent to each residential allotment. Where street trees are planted by the proponent Council would normally allow a credit against the contribution.
11	Library Facilities	\$688.00	This Plan enables the Council to levy contributions towards the cost of upgrading and improving existing library facilities at Tweed Heads, Murwillumbah and Kingscliff.
12	Bus Shelters	\$26.00	This Plan enables Council to levy contributions towards the cost of constructing public bus shelters on roads and streets in accordance with normal Surfside Bus route requirements.
13	Eviron Cemetery/Crematorium Facility	\$131.00	This Plan enables Council to levy contributions towards the cost of providing and expanding the existing Eviron Cemetery and Crematorium facility to meet additional demand generated by population growth.
16	Emergency Facilities (Surf Lifesaving)	\$200.00	This Plan enables Council to levy contributions towards the cost of providing surf lifesaving facilities at various beaches throughout the Tweed Shire.
18	Council Admin Offices and Technical Support Facilities	\$1997.00	This Plan enables Council to levy contributions towards the cost of alterations and additions to the Council offices at Tweed Heads and Murwillumbah and the Council's Technical Support facilities (Works Depots) to meet the additional demand generated by growth.
22	Cycleways	\$352.00	This Plan enables Council to levy contributions towards the cost of providing cycleways in accordance with Council's Cycleway Strategy, throughout the Shire.
26	Shire Wide Regional Open Space (Structured)	\$2327.00	This Plan enables Council to levy contributions towards the cost of providing a new regional sporting facility at Arkinstall Park, to meet demand for active open space activities in addition to those normally require at sports fields (see Section 94 Plan No. 5)

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TABLE 8 – CONTRIBUTIONS (SECTION 94 PLANS)			
PLAN NO.	PLAN NAME	QUANTUM OF CONTRIBUTION (per lot)	PURPOSE
26	Shire Wide Regional Open Space (Casual)	\$855.00	This Plan enables Council to levy contributions towards the cost of regional casual open space such as beach foreshore areas, river foreshore areas and the like to meet the demand generated by growth, in addition to casual open space parks which might be dedicated and embellished on a particular development site.

Section 64 Headworks Contributions

Sewer

The current contribution is \$4972.10 per equivalent tenement. One equivalent tenement is nominally equivalent to one lot. The contributions are required to fund conveyance, treatment and disposal of sewerage generated by the project.

Water

The current contribution is \$10,346.90 per equivalent tenement. One equivalent tenement is nominally equivalent to one lot. The contributions are required to fund storage, treatment and conveyance of water supply required by the development.

4.16 Far North Coast Regional Strategy, 2006 – 2031

The Strategy was adopted by the Minister on 17 January 2007. The site is identified as existing urban on Sheet 1 of the Town and Village Growth Boundary Map contained in the Strategy. The project is therefore consistent with the Strategy.

4.17 Northern Rivers Farmland Protection Project

The final maps pertaining to this project identify the 2(d) zoned land on the subject site as "*committed urban uses and rural residential zones.*" **Figure 7** shows the spatial relationship between the subject land and the nearest area of mapped regionally significant farmland immediately adjoining the site to the south of Hogans Road and to the west of Bilambil Creek. The regionally significant farmland is currently used for grazing purposes and this has been the use for many years.

As the road, Creek and proposed foreshore reserve provide adequate buffers and given the existing and likely future agricultural uses of this land (ie. grazing) it is considered that the proposal is not inconsistent with the provisions of the Northern Rivers Farmland Protection Project.

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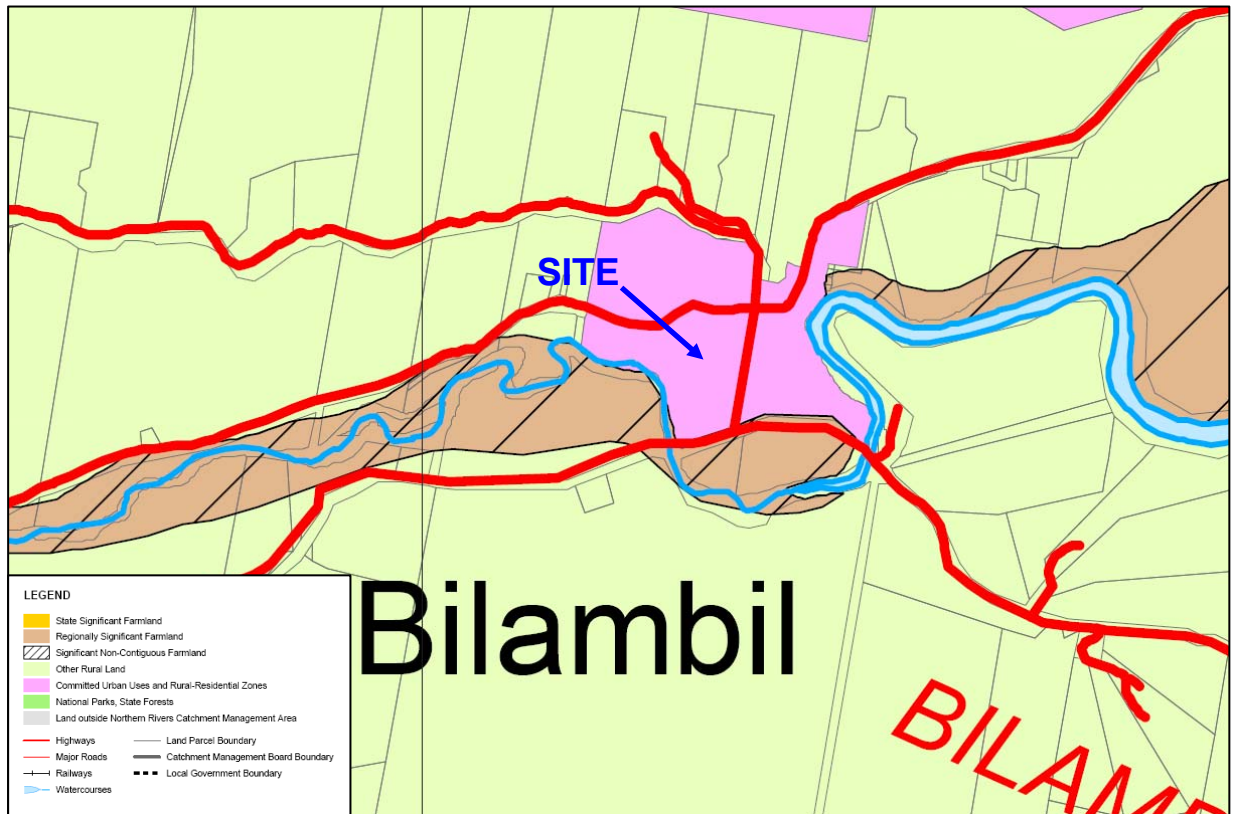


Figure 7 – Regionally Significant Farmland

4.18 Tweed Shire Urban Land Release Strategy (February 2008)

This Strategy was publicly exhibited in 2008 and was adopted by Council on 17 March 2009. The purpose of the Strategy is to, inter alia:

- Comply with the Far North Coast Regional Strategy requirement that Councils prepare a Growth Management Strategy prior to zoning further land for urban, commercial and industrial uses;
- Comply with the North Coast Regional Environmental Plan, 1988 (Clause 38) in relation to Council preparing an Urban Land Release Strategy to be agreed by the Department of Planning;
- Make provision for up to 2000 new residents in Tweed Shire per annum over the life of the Strategy.

The aims of the Strategy include, inter alia:

- To identify greenfield sites of suitable environmental characteristic, size and proximity to existing urban areas that warrant further detailed investigation for use as urban purposes;
- To reduce the underutilisation of urban land through piecemeal and adhoc development by requiring that each investigation area is the subject of a single Master Plan for the entire site.

The Strategy does not identify any potential urban release areas in the vicinity of Bilambil Village. At it's meeting on 17 March 2009 Council resolved that its preferred option is Option 11.3 in the Strategy which is summarised as follows:

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"Rely on Existing Zoned Areas and Increase the Density of Development in Key Urban Areas

This Option would see Council maintain the existing residential zoned lands subject to a review of residential density in key urban areas such as Tweed Heads Town Centre, Murwillumbah and Kingscliff through a process of Locality Planning."

Given that the land is currently zoned 2(d) and that zoning has applied for approximately 20 years, it is submitted that the proposal is consistent with the Strategy and Council's preferred option in that it will make optimum use of existing zoned land and minimise the need for rezoning of further greenfield sites to accommodate projected growth.

5.0 DEVELOPMENT CONTROL PLANS

5.1 Tweed Development Control Plan 2007, Part A2 - Site Access and Car Parking Code

The car parking rates specified by Tweed Development Control Plan 2007 for dwelling houses indicate that on site parking is to be provided in accordance with the following table:

TABLE 9 – CAR PARKING						
Land Use	Public Transport, Bus Stop Seating	Bicycle Parking	Delivery, Service Vehicle Parking (50% must be truck size)	Resident/ Visitor Parking	Staff Parking	Customer Parking
Dwelling House	Nil	Nil	Nil	1 per dwelling + provision for driveway parking for another vehicle	Nil	Nil
Shop	1/100m ² GFA shops over 500m ² GFA	2/100m ² GFA up to 100m ² and thereafter at 1/200m ² GFA	1/1500m ² GFA min 1, min 2 for supermarkets HRV		1/100m ² GFA	4.4/100m ² GFA

The size, design and shape of each of the allotments are such that compliance with this code requirement can be readily achieved in the design and construction of future dwellings on the proposed lots.

In accordance with Council's Site Access and Parking Code, the following car parking supply rate is applicable to the proposed retail development:

Shop

Customer Parking 4.4 spaces per 100m² GFA

Staff Parking 1 space per 100m² GFA

Dwelling 1 space, plus provision for driveway parking

Application of the above rates to the proposed retail development (250m²) yields an off-street parking requirement of 15 spaces as follows:

Shop

4.4 × 250/100 = 11 spaces

1 × 250/100 = 2.5 spaces

Dwelling = 1 space

TOTAL = 14.5 (15) spaces

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In order to support ESD and reduced car dependence principles, the Tweed Shire Council 'Site Access and Parking Code' allows a 20% reduction in car parking requirement stated above for staff and customer parking. It is considered appropriate to apply this 20% discount to the proposed shop and residence for the following reasons:

- The site is located within the heart of a small community and it is expected that many local residents will walk to the shop. It is expected that a large proportion of patrons will be from the new residential estate, and a direct pedestrian link is proposed to encourage residents to walk to the facility.
- The proposed shop is also located within easy walking distance of the caravan park and sporting fields.

Application of the 20% discount to the shop component yields a requirement of $14 \times 0.8 = 12$ spaces. The proposed plan of development contains a total of 12 parking spaces for the shop, plus 1 garage space for the residence and is therefore considered to satisfy Council's car parking requirements.

5.2 Tweed Development Control Plan 2007, Part A3 - Development of Flood Liable Land

Section A3.9 provides that the adopted design flood level for Bilambil is RL 3.5m AHD and the adopted minimum floor level for residential development is RL 3.8m AHD.

The proposed allotments will be filled to a minimum of the adopted design flood level as indicated on the application plans at **Annexure 7**. **Annexure 19** further addresses compliance with this Part in terms of development on flood prone land.

5.3 Tweed Development Control Plan 2007, Part A5 – Subdivision Manual

Section A5.3 of this Development Control Plan provides planning and design information relating to subdivisions.

Relevant provisions are addressed in the following tables.

TABLE 10 – SUBDIVISION REQUIREMENTS	
PROVISION	COMMENTS
A5.3.1 – Master Plans	
<p>The subject site is located within the coastal zone and involves more than 25 lots and therefore a Development Control Plan would normally be required under the provisions of State Environmental Planning Policy No. 71. However, as this is a Major Project to which Part 3A applies a Development Control Plan is not required under State Environmental Planning Policy No. 71.</p> <p>However, this Section of the Development Control Plan provides that a Master Plan is still required for more than 25 lots and, where the urban pattern (street and open space network, neighbourhood structure, etc.) is not determined by:</p> <ul style="list-style-type: none"> • Development and street/neighbourhood development patterns; or • An existing site specific section that determines the general street and neighbourhood layout. 	<p>As indicated on the Proposed Subdivision Plan at Annexure 7, the existing street network largely defines the urban pattern, as do existing zone boundaries and Bilambil Creek. Given the scale and nature of the development and as it is compatible with the existing neighbourhood structure it is submitted that a Master Plan should not be required in the circumstances of this case.</p>

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TABLE 10 – SUBDIVISION REQUIREMENTS	
PROVISION	COMMENTS
A5.3.4 – Subdivision Design	
Site investigation, survey and analysis	In preparing the proposed layout, all relevant site opportunities and constraints have been identified as reflected elsewhere in this Environmental Assessment Report and the subdivision layout proposed reflects those site opportunities and constraints.
Statutory and Council requirements	Integrated development provisions do not apply to Part 3A Major Projects.
Subdivision design trial layouts and optimisation	A number of layouts have been developed involving up to three cul-de-sacs, direct lot access to Bilambil Road and no access to Hogans Road. However, following consultations with Council Officers and having regard to geometric road standards and commercial considerations, the current layout is considered to achieve an appropriate balance between the site's opportunities and constraints and statutory planning controls particularly the requirement for a generous buffer to Bilambil Creek.
Pre-application consultation	As indicated in the consultation section of this Environmental Assessment Report, the matter has been discussed with Council's Development Assessment Panel on 25 January 2008 and a further meeting was held with Council Officers on 25 May 2008. Further discussions were also held with Council Officers on 12 June 2008 in relation to the Bilambil Creek foreshore buffer width.

Urban Design Guidelines and Development Standards

The following table summarises the key guidelines contained in this Section. In this regard it should be noted that Section A5.4.2 provides that in respect of infill subdivisions, they may be constrained by an existing urban structure that may make it difficult to comply with some of the urban design objectives and criteria in this Manual. Infill subdivisions will therefore be exempt from these requirements where their application is so constrained. This development proposal is an "infill subdivision" and there are constraints imposed by existing biophysical and cultural features which limit compliance in some cases.

Those constraints include:

- The site has three road frontages and direct vehicular access to Bilambil Road is not preferred by Tweed Shire Council;
- Bilambil Creek and the requirement for a generous foreshore buffer and perimeter road impose constraint;
- The existing overhead transmission line and requirement for an easement;
- The geometric shape of the development site and the existing urban structure of the village of Bilambil.

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TABLE 11 – DESIGN GUIDELINES	
PROVISION	COMMENTS
A5.4.3 – Physical Constraints	
In summary, this section provides that prior to detail Master Planning of a site, the physical constraints of the site must be identified, mapped and constraint issues resolved.	Constraints relating to slope, geotechnical stability, bushfire, contamination and threatened species have been identified in the various plans and annexures and the subdivision layout reflects those constraints and the site's opportunities.
A5.5.4 – Environmental Constraints	
Contaminated land.	Annexure 13 comprises a soil contamination assessment for the site. The report concludes that the site is suitable for the proposed residential development.
Landslip or subsidence.	Annexure 20 comprises a Geotechnical Report which concludes that the proposed subdivision is a suitable and feasible land use for the subject site in terms of geotechnical conditions.
Bushfire risk.	The Bushfire Assessment at Section 4.4 does not identify bushfire threats as an absolute constraint.
Threatened species, population or ecological communities or their habitats.	Annexure 15 comprises a Flora and Fauna Assessment addressing all relevant statutory provisions under the Threatened Species Conservation Act. The report concludes that the proposed development does not result in a significant effect and a Species Impact Statement is not required for the development.
Koala habitat.	The Flora and Fauna Assessment concludes that for the purposes of State Environmental Planning Policy No. 44 there is no requirement for a Koala Plan of Management. No Koala food trees were identified on site.
Significant vegetation.	The site contains five vegetation communities including tall closed forest, low open woodland, mid high open forest and low closed herb land as indicated on Figure 7 of Annexure 15 (Flora and Fauna Assessment). One threatened species being the Rough Shelled Bush Nut has also been identified on the site. It is proposed to translocate the threatened species and the Flora and Fauna Assessment indicates that the other communities are of generally low conservation value.
Landscape visual character.	This issue is addressed in Section 3.0 and Annexure 10 .
Acid Sulphate Soils.	See Annexure 18 and Section 4.4.
Heritage or cultural items of Aboriginal or European origin.	This issue is addressed in the Cultural Heritage Report at Annexure 11 .

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TABLE 12 – LAND FORMING	
PROVISION	COMMENTS
A5.4.5 – Land Forming	
A. General Criteria	
<p>1. Significant Natural Features</p> <p>Site regrading is not to take place on:</p> <ul style="list-style-type: none"> ♦ topographical features that are significant to the character of the site or locality. ♦ existing or natural watercourses with catchment areas of 100ha or more. ♦ riparian zones (see Table A5-5) associated with above. <p>2. External & Perimeter Issues</p> <p>(a) Cross Boundary Drainage;</p> <ul style="list-style-type: none"> ♦ Runoff from the subject land to other land shall not be significantly increased; ♦ Runoff from upstream or upslope of the subject land shall be conveyed unimpeded across the land; ♦ Public infrastructure in land to be regraded shall be preserved and if necessary for its continued viability be reconstructed to suit the new landform. Public infrastructure continuity shall be preserved at external boundaries. ♦ Alteration of the locations of cross boundary stormwater drainage/watercourse discharge should be avoided. If alterations are proposed, then the written agreement of all effected downstream landowners is required. <p>(b) Perimeter levels;</p> <p>Pre development levels must be preserved at external (perimeter) boundaries of a subdivision, preferably without the use of boundary (or within 3m of the boundary) retaining walls exceeding 1.2m in height. The application of this criteria may be varied in infill subdivisions in flood liable areas where there is general filling to provide flood immunity.</p>	<p>These matters are addressed in the Civil Engineering Report at Annexure 19.</p> <p>These matters are addressed in the Civil Engineering Report at Annexure 19.</p>
<p>B. Mass Landform Change Criteria</p> <p>1. Residential, includes residential subdivisions in Village, Urban Expansion and Rural Living zones.</p> <p>The proportion of a subdivision site (plan area) that contains cut or fill areas with finished surface levels that depart from natural surface levels by more than 5m shall not exceed 10%. Variations up to 15% of site area may be considered if such variations have a demonstrated environmental benefit (eg. avoidance of importing borrowed fill off site).</p> <p>2. Industrial, Business and Mixed Use Subdivision, includes industrial, business and mixed use subdivisions in Village and Urban Expansion zones.</p> <p>The proportion of a subdivision site (plan area) that contains cut or fill areas with finished surface levels that depart from natural surface levels by more than 8m shall not exceed 20%.</p>	<p>These matters are addressed in the Civil Engineering Report at Annexure 19.</p>

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TABLE 12 – LAND FORMING	
PROVISION	COMMENTS
A5.4.5 – Land Forming	
<p>For the purpose of this Section "subdivision site" includes the parcels of land created for private sale and formal parks, and does not include undeveloped areas, areas retained for environmental purposes, roads, or residual allotments. If a subdivision contains a mix of urban and rural/rural residential uses, the rural/rural residential areas must be excluded from the urban areas for the purposes of complying with this Clause.</p>	
<p>C. Shape/Surface Criteria</p> <p>1. Residential and Rural Living Subdivision, includes residential subdivisions in Village and Urban Expansion zones:</p> <ul style="list-style-type: none"> ♦ The finished landform shape (concave/convex, rolling, stepped etc) of the subdivision site should mimic existing and local surrounding natural topography. ♦ Except as provided in Note 1 below, no sharp changes of gradient (eg associated with batters or retaining walls) are permitted at or near inter lot boundaries or within lots. ♦ Batters and retaining walls are not permitted for the purpose of creating terraced lots. ♦ Sharp changes of gradient are permitted at road and public land boundaries. ♦ See Figure 4.2.2. <p>Note 1: A retaining wall or batter of maximum "combined height" (as defined in Section E) of 1.2m at or adjacent to inter lot boundaries may be permitted to ease lot gradients, where lot longitudinal or cross gradient would exceed 10% in the absence of such retaining wall or batter.</p> <p>2. Industrial, Business and Mixed Use Subdivision, includes industrial, business and mixed use subdivisions in Village and Urban Expansion zones:</p> <ul style="list-style-type: none"> ♦ Terraced lots with sharp changes of gradient associated with retaining walls or batters are permitted. <p>Sharp changes of gradient (ie. associated with batters or retaining walls) are permitted at or near lot, road and public land boundaries. Sharp changes of gradient are permitted within lots.</p>	<p>These matters are addressed in the Civil Engineering Report at Annexure 19.</p> <p>Not Applicable.</p>
<p>D. Plans Criteria</p> <p>Site regrading proposals must be accompanied by the plans specified in Development Design Specification D13 – Engineering Plans (Subdivisions) clause D13.03 5(a)</p>	<p>These matters are addressed in the Civil Engineering Report at Annexure 19.</p>
<p>E. Retaining Walls and Batters Criteria</p> <p>1. Definitions:</p> <p>"retaining wall" is defined as a structure required to retain soil, rock and other materials. It includes retaining and revetment structures as defined in clause 1.1 of AS 4078 - 2002.</p> <p>"batter" is defined as the sloping surface of artificial cuttings and embankments that have a gradient exceeding 25%. It excludes natural slopes.</p>	

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PROVISION				COMMENTS																																						
A5.4.5 – Land Forming																																										
<p>"Combined height" is defined as the vertical height difference at or adjacent to the boundary between top of batter or retaining wall and bottom of batter or retaining wall. Adjacent to a boundary includes any batters or retaining walls that lie either wholly or partly within a distance of 5m measured horizontally from the allotment boundary.</p> <p>2. Criteria</p> <p>(a) The combined height of retaining walls or cut/fill batters on an allotment boundary shall not exceed the following</p> <table border="1"> <thead> <tr> <th colspan="5">MAXIMUM PERMISSIBLE COMBINED HEIGHT OF RETAINING WALLS OR BATTERS</th> </tr> <tr> <th rowspan="2">Type of Subdivision</th> <th rowspan="2">Perimeter boundary of subdivision</th> <th colspan="3">Boundaries of lots created within subdivision</th> </tr> <tr> <th>Side and Rear Boundaries</th> <th colspan="2">Street Boundary</th> </tr> <tr> <td></td> <td></td> <td></td> <th>Above Street Level</th> <th>Below Street Level</th> </tr> </thead> <tbody> <tr> <td>Residential</td> <td>1.2</td> <td>1.2 see Note 1 of Table A5-3(C)(1)</td> <td>1.8</td> <td>2.4</td> </tr> <tr> <td>Industrial</td> <td>1.2</td> <td>5</td> <td>2.5</td> <td>5</td> </tr> <tr> <td>Business</td> <td>1.2</td> <td>5</td> <td>1.2</td> <td>2.4</td> </tr> <tr> <td>Rural Living</td> <td>1.2</td> <td>Nil</td> <td>1.2</td> <td>2.4</td> </tr> </tbody> </table>				MAXIMUM PERMISSIBLE COMBINED HEIGHT OF RETAINING WALLS OR BATTERS					Type of Subdivision	Perimeter boundary of subdivision	Boundaries of lots created within subdivision			Side and Rear Boundaries	Street Boundary					Above Street Level	Below Street Level	Residential	1.2	1.2 see Note 1 of Table A5-3(C)(1)	1.8	2.4	Industrial	1.2	5	2.5	5	Business	1.2	5	1.2	2.4	Rural Living	1.2	Nil	1.2	2.4	<p>These matters are addressed in the Civil Engineering Report at Annexure 19.</p>
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<p>(b) Where retaining walls or batters are utilised to create a level difference between adjacent allotments or an allotment and a road and the retaining wall is located in the lower allotment, the top of batter or top of retaining wall shall be located a minimum 0.5m horizontally from the boundary</p>																																										

TABLE 13 – STORMWATER MANAGEMENT	
A5.4.6 – Stormwater Runoff, Drainage, Waterways and Flooding	
PROVISION	COMMENTS
Water Sensitive Urban Design	This issue is addressed in Sections 8.1, 9.7 and the Stormwater Management Plan at Annexure 19 .
Erosion and Sedimentation Control	This issue is addressed in Sections 8.1, 9.7 and the Stormwater Management Plan at Annexure 19 .
Permanent Stormwater Quality Facilities	This issue is addressed in Sections 8.1, 9.7 and the Stormwater Management Plan at Annexure 19 .
Drainage (lawful point of discharge)	This issue is addressed in Sections 8.1, 9.7 and the Stormwater Management Plan at Annexure 19 .
Riparian Buffer Widths	Council Officers agreed to a nominal 20m riparian buffer to Bilambil Creek however, following consultations with key State Agencies, the layout has been amended to provide for a 50m buffer including a 15m wide perimeter road reserve.

The following table summarises the key principles applicable to urban structure.

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TABLE 14 – SECTION A5.4.7 – URBAN STRUCTURE	
Requirement	Compliance
No more than 15% of lots fronting cul-de-sac.	Complies – no cul-de-sac proposed.
Maximum cul-de-sac length 100m serving no more than 12 dwellings with clear view for full length of cul-de-sac.	Not applicable.
Linking access for pedestrians and cyclists.	Complies (see Layout Plans).
Bus route/stops should be located at an average spacing of 300 – 400m.	Bilambil Village is not on a current public bus route. Any future bus stop is likely to be in the vicinity of the existing public hall and all lots would be within 300m of this point.
Street design to achieve target street speeds.	Complies – width and alignment designed to discourage high speeds (see plans).
Cycleway network required.	Normal contributions under Section 94 Plan No. 22 will be applicable.
Dedication of environmentally sensitive areas.	See comments above in relation to dedication and revegetation of Bilambil Creek foreshore.
Casual parks – 1.13 hectares/1000 population (11.3m ² /person). Desirable minimum area 2500m ² – 4000m ² .	Complies – 52 lots equates to approximately 135 persons @ 11.3m ² /person = 1526m ² required. The proposed park to be embellished (part Lot 54) has an area of approximately 1530m ² and has a 30m road frontage. In addition, approximately 6694m ² of foreshore reserve (part Lot 54) will be dedicated and rehabilitated as public reserve. The total area of dedicated public reserve is 8224m ² , which complies with the desirable minimum requirement of 2500m ² . As recommended by Tweed Shire Council (see email from Seth Philbrook to Thomas Fitzgerald 23 April 2009) playground equipment will be located in the existing Bilambil Sports Fields rather than in the foreshore reserve.
95% of residences within 400m walking distance of casual parks.	Complies – all lots are within 400m walking distance (see Layout Plan).
Land form of casual park – slopes less than 8%.	Complies – see Annexure 15 .
Access from more than one local road.	Complies in part– park is accessible from a proposed road and Uriup Road.
Road frontage – 50% of perimeter.	Substantially complies (see plans). Minor variation is justified in the circumstances given the extent of foreshore reserve to be dedicated which has extensive frontage to Bilambil Creek and a proposed perimeter road.
Embellishment.	Complies – all necessary services will be provided including play equipment and landscaping in accordance with development design specification D14 – Landscaping Public Space.
Sports playing field – 1.7 hectares/1000 persons (structured or active open space).	Contribution in lieu is applicable in accordance with Section 94 Plan No. 5.
Minimum residential lot size of 450m ² and 10 x 15m building envelopes for dwellings.	Complies lots range from 450m ² – 787m ² . Indicative building envelope plans are at Annexure 9 .
Dual occupancy lots minimum 900m ² or 1000m ² for corner lots.	Not applicable.

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TABLE 14 – SECTION A5.4.7 – URBAN STRUCTURE	
Requirement	Compliance
Solar access – 70% of lots oriented from 340° to 20° or 70° to 120°.	Complies – approximately 80% of lots have predominantly north/south or east/west axes.
Generally rectangular shaped lots.	Complies – see application plans.
East – west lots must have a minimum width of 14m.	Complies – see plans, all lots generally 15m to 17m wide.
Each lot must have a 9m kerb frontage to accommodate a 3m driveway and a 6m parallel visitor car parking space.	All lots comply with the exception of Lots 30 and 32. It is therefore proposed to include a restriction as to use on these lots requiring the provision of a visitor car parking space on site (see Annexure 7).

TABLE 15 – SECTION A5-10 – SUBDIVISION INFRASTRUCTURE REQUIREMENTS			
Infrastructure Required	Where Required	Standard of Infrastructure	Comments
Sealed road frontage with kerb and gutter both sides	All lots for private occupation, community facilities lots and public open space lots	See Development Design Specification D1	Complies see Annexure 19 .
Landform			Generally complies see Annexure 19 .
Water Supply	All lots for private occupation, community facilities lots, sports fields, parks, play areas, other utility facilities (pump stations etc.)	See Development Design Specification D11	Complies see Annexure 19 .
Sewerage	As above	See Development Design Specification D12	Complies see Annexure 19 .
Electricity	As above	Must be underground and provided in accordance with suppliers and Australian standards. Verge service location is to comply with Development Design Specification D1	Complies – internal reticulation will be underground.
Telecommunications	All lots for private occupation, community facilities lots and sports fields. As required for other utility facilities)	As above, service must be such that standard connection is available to local/national/ overseas networks	Complies – telecommunication facilities will be provided underground.
Gas	Optional	As above	Not applicable.
Drainage system	Must provide Q100 local flooding immunity for all lots for private occupation and community facilities. Major/minor system required, roads public open space may (subject to other development standards) be used for Q100 overland flow paths. Must be equipped with stormwater treatment facilities to meet Chapter 3, PC7.15 standards	See Development Design Specifications D5 and D7.	Complies see Annexure 19 .

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TABLE 15 – SECTION A5-10 – SUBDIVISION INFRASTRUCTURE REQUIREMENTS			
Infrastructure Required	Where Required	Standard of Infrastructure	Comments
Flood Immunity	All lots for private occupation must have surface levels above the Q100 level for regional creek/river flooding. See section 4.26 of this chapter for public open space standards	See Section A3 - Development of Flood Liable Land for detailed requirements.	Complies see Annexure 19.
External Connections and/or upgrades	The subdivider must provide all external connections required to connect subdivision infrastructure and upgrade external infrastructure to cater for the additional subdivision load. See also D1, D5, D7, D11, D12		Complies see Application Plans and Annexure 19.

Dedication of Roads

Following a review of the draft Environmental Assessment dated August 2008, the Department of Planning requested the applicant to obtain confirmation that Council will accept dedication of the proposed roads. Based on an assessment of the draft Environmental Assessment, Council advised by email dated 17 February 2009 (**Annexure 27**) that:

"The proposed roads and intersection layouts are not strictly in accordance with Council Standards. However Council will accept the dedication of such infrastructure where provided in accordance with Council Standards."

Council's comments were based on the original draft Environmental Assessment. The layout has been changed and compliance with Council Standards has been achieved or alternatively minor variations are justified in this revised Environmental Assessment and Annexures. Clearly, it is unreasonable to expect Council to agree to dedication when it has not undertaken a detailed merit assessment of the final project application. Council should be requested to advise on dedication following assessment of the final Environmental Assessment Report and project application.

5.4 Tweed Development Control Plan 2007, Part A13 – Socio-Economic Impact Assessment

Section A13.5.1 of this Development Control Plan nominates development and land use types for which any application must be accompanied by a formal Socio-Economic Impact Assessment. Development for the purposes of a residential subdivision creating more than fifty lots is included in Section A13.5.1 and therefore a formal Socio-economic Impact Assessment is normally required.

As this is a Major Project Application, a Socio-Economic Impact Statement is not required.

6.0 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979 (AS AMENDED) OBJECTS

The following table (**Table 16**) identifies the objects of the acts and demonstrates how the project is consistent with those objects.

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TABLE 16 – ENVIRONMENTAL PLANNING AND ASSESSMENT Act OBJECTS	
OBJECT	COMMENTS
<p>(a) to encourage:</p> <ul style="list-style-type: none"> (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment, (ii) the promotion and co-ordination of the orderly and economic use and development of land, (iii) the protection, provision and co-ordination of communication and utility services, (iv) the provision of land for public purposes, (v) the provision and co-ordination of community services and facilities, and (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and (vii) ecologically sustainable development, and (viii) the provision and maintenance of affordable housing, and 	<p>The project is consistent with this objective in that Bilambil Creek foreshore land will be dedicated and revegetated and the relatively unconstrained area of the site zoned 2(d) will be developed.</p> <p>The land is zoned 2(d) Village and development of the land is consistent with the Far North Coast Regional Strategy and the Tweed Shire Residential Development Strategy.</p> <p>The existing overhead transmission line will be contained in an easement. Underground power and telephone services will be provided.</p> <p>The Bilambil Creek foreshore area will be dedicated and rehabilitated.</p> <p>A general store and embellished public park will be provided. Normal contributions for other community services and facilities will apply.</p> <p>The Bilambil Creek foreshore area which contains native species will be protected and rehabilitated. One threatened species of plant will be translocated to this area.</p> <p>Threatened species will be retained and protected.</p> <p>The layout provides for a range of lot sizes and is consistent with affordable housing objectives.</p>
<p>(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and</p>	<p>The Minister for Planning is the consent authority for this Major Project Application and Tweed Shire Council has been consulted in preparing this Environmental Assessment Report.</p>
<p>(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.</p>	<p>The application will be advertised and notified by the Department of Planning.</p>

7.0 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The Environment Protection & Biodiversity Conservation (EPBC) Act (1999) was passed by Commonwealth Parliament in June 1999 and came into force on 16 July, 2000. A person must not, without an approval under the Act, take an action that has or will have, or is likely to have, a significant impact on a matter of National Environmental Significance (NES).

These matters are listed as:

- (a) the world heritage values of a declared World Heritage property;
- (b) the ecological character of a declared Ramsar wetland;
- (c) a threatened species or endangered community listed under the Act;

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-
- (d) a migratory species listed under the Act; or
 - (e) the environment in a Commonwealth marine area or on Commonwealth land.

The Act also prohibits the taking, without an approval under the Act, of:

- (a) a nuclear action; or
- (b) an action in a Commonwealth marine area or on Commonwealth land that has or will have, or is likely to have, a significant impact on the environment.

An action includes a project, development, undertaking or an activity or series of activities. An action does not require approval if it is a lawful continuation of a use of land, sea or seabed that was occurring before the commencement of the Act. An enlargement, expansion or intensification of a use is not a continuation of a use.

The EPBC Act (1999) does not require Commonwealth approval for the rezoning of land. It does, however, suggest that when rezoning land, planning authorities should consider whether to allow actions that could significantly affect NES matters or the environment of Commonwealth land.

Matters of NES in NSW are:

- (a) Declared World Heritage Areas;
- (b) Declared Ramsar Wetlands;
- (c) Listed Threatened Species (Schedule 1 and 2 of Commonwealth Endangered Species Protection Act 1992);
- (d) Listed Ecological Communities in Queensland; and
- (e) Listed migratory species (JAMBA and CAMBA).

Occurrence of Matter of NES on Subject Site

Background

A Commonwealth Assessment will be required for proposed activities on the Subject Site if they affect a matter of NES. Matters of NES in NSW were identified in the previous section. There are no declared World Heritage Areas or Ramsar Wetlands in the locality, study area or Subject Site.

Listed Threatened Species

One (1) Commonwealth Threatened flora species Rough-shelled bush nut (*Macadamia tetraphylla*) was recorded on the Subject Site

One (1) Commonwealth Threatened fauna species, the Grey-headed flying-fox (*Pteropus poliocephalus*) is considered as a possible occurrence on the Subject Site.

Listed Ecological Communities

None of the ecological communities currently listed in the EPBC Act (1999) occur in the study area or wider locality.

Listed Migratory Species

Listed migratory species in Queensland are considered predominantly in the Japan- Australia Migratory Bird Agreement (JAMBA) and China-Australia Migratory Bird Agreement (CAMBA).

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Assessment against EPBC Act Principal Significant Impact Guidelines

Background

The Commonwealth DEH has prepared EPBC Act Policy Statements, including the EPBC Act – Principal Significant Impact Guidelines 1.1 (2005) which outline a self-assessment process to assist in determining whether an action should be referred to the Department for a decision on whether assessment and approval is required under the Act. The following sections assess the proposed development (the action) against these guidelines.

Critically Endangered and Endangered Species

Significant Impact Criteria

An action has, will have, or is likely to have a significant impact on a critically endangered or endangered species if it does, will, or is likely to:

- lead to a long-term decrease in the size of a population; or
- reduce the area of occupancy of the species; or
- fragment an existing population into two or more populations; or
- adversely affect habitat critical to the survival of a species; or
- disrupt the breeding cycle of a population; or
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline; or
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat; or
- interfere with the recovery of the species.

Assessment of Proposed Action

The Subject Site does contain habitat for populations of Endangered species listed in the EPBC Act (1999) however, a significant impact on such species will not be incurred.

Vulnerable Species

Significant Impact Criteria

An action has, will have, or is likely to have a significant impact on a vulnerable species if it does, will, or is likely to:

- lead to a long-term decrease in the size of an important population of a species; or
- reduce the area of occupancy of an important population; or
- fragment an existing important population into two or more populations; or
- adversely affect habitat critical to the survival of a species; or
- disrupt the breeding cycle of an important population; or
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline; or
- result in invasive species that are harmful a vulnerable species becoming established in the vulnerable species' habitat; or
- interferes substantially with the recovery of the species.

An important population is one that is necessary for a species' long-term survival and recovery. This may include populations that are:

- key source populations either for breeding or dispersal;
- populations that are necessary for maintaining genetic diversity; and/or
- populations that are near the limit of the species range.

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Assessment of Proposed Action

The Subject Site does contain habitat for populations of Vulnerable species listed in the EPBC Act (1999) however, a significant impact on such species will not be incurred.

Migratory Species

Significant Impact Criteria

An action has, will have, or is likely to have a significant impact on a migratory species if it does, will, or is likely to:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat of the migratory species; or
- result in invasive species that is harmful to the migratory species becoming established* in an area of important habitat of the migratory species; or
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of the species.

(* Introducing an invasive species into the habitat may result in that species becoming established. An invasive species may harm a migratory species by direct competition, modification of habitat, or predation.)

An area of important habitat is:

1. Habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, or
2. Habitat utilised by a migratory species which is at the limit of the species range, or
3. Habitat within an area where the species is declining.

Assessment of Proposed Action

A number of listed migratory species are known or likely to occur occasionally in the study area. The Proposed development will not remove, or damage important habitat for these species.

Wetlands of International Importance

Significant Impact Criteria

An action is likely to have a significant impact on the ecological character of a declared Ramsar wetland if there is a real chance or possibility that it will result in:

- areas of the wetland being destroyed or substantially modified, or
- a substantial and measurable change in the hydrological regime of the wetland for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland, or
- the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependant upon the wetland being seriously affected, or
- a substantial and measurable change in the water quality of the wetland for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health, or
- an invasive species that is harmful to the ecological character of the wetland being established in the wetland.

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Assessment of Proposed Action

No Wetlands of International Importance occur in the locality of the Subject Site.

Requirement for Commonwealth Referral

Based on the assessment provided above, Referral to the Commonwealth DEH is not required. The proposed action is unlikely to result in a significant impact on any matter of NES.

Requirement for Commonwealth Assessment

On the basis of the above assessment, it is concluded that Commonwealth Assessment is not required for the proposed development of the Subject Site.

8.0 ASSESSMENT OF POTENTIAL IMPACTS, KEY ISSUES AND DRAFT STATEMENT OF COMMITMENTS

The following sections address the key potential impacts, key issues and proposed mitigation measures. Appropriate management and mitigation measures are also contained in the Draft Statement of Commitments at Section 8.9.

8.1 Electromagnetic Emissions from Overhead Transmission Line

HMC Environmental Consulting Pty Ltd have prepared a Preliminary Assessment of Potential Impact of Electric and Magnetic Fields from Overhead Powerlines. In summary, that Assessment concludes that based on the literature research presented in this report, it is concluded that the expected exposure of the future occupants of the site to power frequency EMF is well below the permissible limit for occupational and general public exposure as set out in the International Commission on Non-ionizing Radiation Protection (ICNIRP) and ARPANSA draft Standard aimed at protection against established adverse health effects.

In line with the approach of "prudent avoidance", adopted by the Electrical Supply Association of Australia and its member supply authorities, it is recommended that:

1. The proposed dwellings be located outside a minimum 40m wide transmission line easement over the subject property, and as far as possible from the overhead power line; and
2. The electricity power supply and reticulation system for the proposed dwelling should be designed and installed to minimise human exposure to the power frequency electric and magnetic fields, as far as is practical and cost effective.

8.2 Strategic Planning

Section 4.0 of this Environmental Assessment addressed the consistency of the project with relevant local, regional and state planning strategies. In summary, the proposal is consistent with the Far North Coast Regional Strategy, the North Coast Urban Planning Strategy, the Tweed Shire Residential Development Strategy and other relevant policy documents.

8.3 Sustainability Criteria

The Far North Coast Regional Strategy 2006 – 2031 aims to manage the region's high growth rates in a sustainable manner. The Strategy identifies land within the *"existing urban footprint"* and proposed *"future urban release areas"*.

Appendix 1 of the Strategy contains the sustainability criteria which are normally applicable to development proposal for greenfield sites west of the coastal area and outside of the town and village growth boundaries. The subject land is within the *"existing urban footprint"* (ie. within the town and village growth boundaries) and is within the coastal area.

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As the site is already zoned for urban/residential purposes, the criteria are not strictly applicable, however for the sake of completeness (and as required by Item 1.2 of the Director General's Environmental Assessment Requirements) the following table demonstrates consistency with the sustainability criteria.

TABLE 17 – SUSTAINABILITY CRITERIA		
Threshold Sustainability Criteria for any proposed development site outside designated areas in regional strategies.	MEASURABLE EXPLANATION OF CRITERIA	COMMENTS
<p>1. Infrastructure Provision Mechanisms in place to ensure utilities, transport, open space and communication are provided in a timely and efficient way</p>	<ul style="list-style-type: none"> ♦ Development is consistent with the outcomes of Far North Coast Regional Strategy, any subregional strategy, regional infrastructure plan and relevant section 117 direction/s. ♦ The provision of infrastructure (utilities, transport, open space, and communications) is costed and economically feasible based on Government methodology for determining infrastructure development contributions. ♦ Preparedness to enter into development agreement. 	<p>The project is consistent with the Far North Coast Regional Strategy, the Tweed Shire Residential Development Strategy and the North Coast Urban Planning Strategy.</p> <p>All infrastructure required by the project will be funded by the developer.</p> <p>Yes, if required.</p>
<p>2. Access Accessible transport options for efficient and sustainable travel between homes, jobs, services and recreation to be existing or provided</p>	<ul style="list-style-type: none"> ♦ Accessibility of the area by public transport and/or appropriate road access in terms of: ♦ Location/land use – to existing networks and related activity centres. ♦ Network – the area's potential to be serviced by economically efficient transport services. ♦ Catchment – the area's ability to contain, or form part of the larger urban area which contains adequate transport services. Capacity for land use/ transport patterns to make a positive contribution to achievement of travel and vehicle use goals. ♦ No net negative impact on performance of existing subregional road, bus, rail, ferry and freight network. 	<p>The site is within the existing village of Bilambil and is zoned 2(d) Village. Access is available from three existing roads and Bilambil Road provides a suitable link to existing subregional facilities at Tweed Heads.</p>
<p>3. Housing Diversity Provide a range of housing choices\ to ensure a broad population can be housed</p>	<ul style="list-style-type: none"> ♦ Contributes to the geographic market spread of housing supply, including any government targets established for aged, disabled or affordable housing. 	<p>The project will provide a range of lot sizes and contribute towards providing the 19,100 dwellings identified as being required by 2031 in the Far North Coast Regional Strategy.</p>
<p>4. Employment Lands Provide regional/local employment opportunities to support the Far North Coast's expanding role in the wider regional and NSW economies</p>	<ul style="list-style-type: none"> ♦ Maintain or improve the existing level of sub-regional employment self containment. ♦ Meets subregional employment projections. ♦ Employment-related land is provided in appropriately zoned areas 	<p>Not applicable.</p>

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TABLE 17 – SUSTAINABILITY CRITERIA		
Threshold Sustainability Criteria for any proposed development site outside designated areas in regional strategies.	MEASURABLE EXPLANATION OF CRITERIA	COMMENTS
<p>5. Avoidance of Risk</p> <p>Land use conflicts, and risk to human health and life, avoided</p>	<ul style="list-style-type: none"> ♦ No residential development within 1:100 floodplain. ♦ Avoidance of physically constrained land, e.g. <ul style="list-style-type: none"> > High slope. > Highly erodible. ♦ Avoidance of land use conflicts with adjacent existing or future land use as planned under relevant subregional or regional strategy. ♦ Where relevant available safe evacuation route (flood and bushfire). 	<p>Filling of approximately 1350m² within the 1:100 year floodplain is proposed but compensatory storage is provided by the proposed retention pond.</p> <p>The land is not highly constrained by steep slopes and erodability, bearing in mind that it was previously used as a quarry and is currently in an unrehabilitated state.</p> <p>Adjoining uses to the west and south include grazing. Hogans Road and Bilambil Creek together with the proposed public reserve buffers provide a separation distance of 40m to 50m which is considered adequate to mitigate against potential conflicts between urban and grazing land uses.</p> <p>Evacuation routes are available to the higher land adjacent to Urliup Road via the proposed internal subdivision roads.</p>
<p>6. Natural Resources</p> <p>Natural resource limits not exceeded/ environmental footprint minimised</p>	<ul style="list-style-type: none"> ♦ Demand for water within infrastructure capacity to supply water and does not place unacceptable pressure on environmental flows. ♦ Demonstrates most efficient/suitable use of land <ul style="list-style-type: none"> > Avoids identified significant agricultural land > Avoids productive resource lands – extractive industries, coal, gas and other mining, and quarrying. ♦ Demand for energy does not place unacceptable pressure on infrastructure capacity to supply energy-requires demonstration of efficient and sustainable supply solution. 	<p>The project will be connected to the existing public reticulated system which provides adequate capacity.</p> <p>The site is not mapped as significant agricultural land.</p> <p>The former quarry on the site has reached the end of its economic life.</p> <p>Power supply is readily available to the site.</p>
<p>7. Environmental Protection</p> <p>Protect and enhance biodiversity, air quality, heritage, and waterway health</p>	<ul style="list-style-type: none"> ♦ Consistent with government-approved Regional Conservation Plan (if available). ♦ Maintains or improves areas of regionally significant terrestrial and aquatic ♦ biodiversity (as mapped and agreed by DEC). This includes regionally significant ♦ vegetation communities, critical habitat, threatened species, populations, ♦ ecological communities and their habitats. 	<p>Not applicable.</p> <p>Not applicable.</p> <p>Not applicable.</p> <p>The project includes translocation of one threatened species of plant together with dedication and rehabilitation of Bilambil Creek foreshore.</p>

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TABLE 17 – SUSTAINABILITY CRITERIA		
Threshold Sustainability Criteria for any proposed development site outside designated areas in regional strategies.	MEASURABLE EXPLANATION OF CRITERIA	COMMENTS
	<ul style="list-style-type: none"> ♦ Maintain or improve existing environmental condition for air quality. ♦ Maintain or improve existing environmental condition for water quality: ♦ Consistent with community water quality objectives for recreational water use and river health (DEC and CMA). ♦ Consistent with catchment and stormwater management planning (CMA and council). ♦ Protects areas of Aboriginal cultural heritage value (as agreed by DEC). 	<p>Permanent and construction phase stormwater management facilities will also be implemented to ensure that water quality in Bilambil Creek is maintained or improved.</p> <p>The proposal does not conflict with the Northern Rivers Catchment Action Plan.</p> <p>No cultural heritage issues have been identified.</p>
<p>8. Quality and Equity in Services</p> <p>Quality health, education, legal, recreational, cultural and community development and other government services are accessible</p>	<ul style="list-style-type: none"> ♦ Available and accessible services. > Do adequate services exist? > Are they at capacity or is some capacity available? > Has Government planned and budgeted for further service provision? > Developer funding for required service upgrade/access is available. 	<p>All normal urban services will be provided to the site by the developer and normal Tweed Shire Council contributions will be paid for offsite infrastructure.</p>

8.4 Subdivision Design, Layout and Desired Future Character

8.4.1 Existing Character of Bilambil Village

Bilambil Village is located approximately two kilometres west of the Bilambil Heights urban area. Bilambil Creek is the main topographic feature of the area. It meanders through the Village and is at its approximate tidal limit downstream of the development site. Bilambil Village is centred on the intersection of four roads (Bilambil Road, Urliup Road, Carool Road and Hogans Road) and extends over approximately 13.75 hectares in terms of the area of land zoned 2(d) Village. The key land uses within the existing village of Bilambil include:

- ♦ Approximately fifteen dwelling houses.
- ♦ Bilambil Village Retirement Village (caravan park containing approximately 25 sites).
- ♦ A public primary school.
- ♦ A public hall (located on the north eastern corner of the site).
- ♦ A service station, post office and convenience store.
- ♦ A public park (Prindable Park) adjacent to Bilambil Creek containing picnic shelters, playground equipment and landscaping.
- ♦ Bilambil sports fields comprising a turf cricket wicket, football fields (some floodlit), tennis courts, cricket practice nets, a licensed clubhouse and amenities building.

Access to the Village from the east (from the Pacific Highway) is available via Kennedy Drive, Scenic Drive and Bilambil Road all of which are two lane, sealed public roads with sufficient capacity available to accommodate the likely additional traffic to be generated.

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Access is also available from Terranora Road in the south via Bilambil Road. Terranora Road links the Pacific Highway at Banora Point to the Tweed Valley Way at Tumbulgum and is a two lane, sealed road. Bilambil Road is also a two lane, sealed road. Dulguigan Road is a two lane, sealed road with the exception of a two lane, gravel section approximately 3 kilometres in length. Urliup Road connects Bilambil Village to Murwillumbah via Dulguigan Road.

Murwillumbah is located approximately 20 kilometres to the west of Bilambil Village. Land surrounding the Village is mainly used for grazing purposes.

In summary, the proposed development is permissible in the zone and is consistent with the zone objectives, in that it will provide a modest scale general store (250m²) for new and existing residents. It will also result in a built form which optimises the site density and achieves a design and scale as would be expected given the minimum statutory lot size of 450m² and as reticulated sewerage will be provided. The development is also consistent with Tweed Shire Council's Draft Urban Land Release Strategy (February 2008) in that it makes efficient use of existing urban zoned land, minimises urban sprawl and represents "infill" type development.

In addition, it is likely that when reticulated sewerage is provided to the whole of the Village, other existing allotments will also be subdivided such that lot yields are optimised based on the minimum lot size of 450m². The desired future character of the Village is largely driven by the minimum statutory lot size and the contemporary policy requirements to optimise yields and achieve efficient use of serviced zoned land to minimise urban sprawl and achieve sustainability principles.

Issues relating to visual character, aesthetics and built form are further discussed in Sections 8.4.3 and 8.5.

A BASIX Certificate for the proposed dwelling on Lot 53 is attached at **Annexure 26**. Future dwellings on Lots 1 to 52 will also comply with BASIX requirements in relation to energy and water efficiency. Lot shapes, areas and orientation provide for flexibility in dwelling design to ensure that compliance can be achieved.

The subdivision design generally complies with the design principles contained in the publication "Crime Prevention and the Assessment of Development Applications" including provision of appropriate surveillance from the public domain (streets and open space), control of access via Hogans Road and Urliup Road only and appropriate definition of private and public property by landscaping and fencing.

8.4.2 Subdivision Design and Layout

The following tables demonstrate the consistency of the subdivision design and layout with the Coastal Design Guidelines for NSW, February 2003, NSW Coastal Policy 1997 and State Environmental Planning Policy No. 71 – Coastal Protection.

Table 18 – COASTAL DESIGN GUIDELINES		
PART	GUIDELINE	COMMENT
PART 1 – HIERARCHY OF SETTLEMENTS		
1.6 – New Coastal Settlements – Villages and Hamlets		
1	Relationship to the environment.	
(a)	New developments avoids areas of ecological value and respects setbacks between natural areas.	Riparian vegetation exists adjacent to Bilambil Creek. This vegetation will be protected within a public reserve and suitably rehabilitated.
(b)	Wildlife corridors, existing mature trees, rivers, streams, lakes and natural features are incorporated into greenspace networks, reserve areas, riverine and foreshore corridors.	Riparian vegetation exists adjacent to Bilambil Creek. This vegetation will be protected within a public reserve and suitably rehabilitated.

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Table 18 – COASTAL DESIGN GUIDELINES		
PART	GUIDELINE	COMMENT
(c)	Aboriginal and European places, relics and items are protected.	An Aboriginal Cultural Heritage Assessment has been undertaken and no relics or items of Aboriginal significance have been identified.
(d)	Foreshore and estuarine vegetation is protected.	A foreshore reserve will be dedicated and embellished adjacent to Bilambil Creek.
(e)	The potential disturbance to acid sulphate soils is managed.	Whilst the site is not identified on Council's Acid Sulphate Soils Planning Maps as containing acid sulphate soils, geotechnical investigations reveal that the site does contain some acid sulphate material in the low lying areas. Accordingly an Acid Sulphate Soils Management Plan will accompany the Construction Certificate Application.
(f)	Original native landscape is maintained and reinstated.	The revegetated riparian buffer to Bilambil Creek will reflect the original native landscape as indicated in the Rehabilitation Plans at Annexure 16 .
(g)	Waterways and coastal lakes are protected through water sensitive urban design and total cycle water management.	Appropriate stormwater management measures will be implemented both during the construction and operational phase to achieve improved water quality in Bilambil Creek. Details are contained in Annexure 19 .
(h)	Degraded natural areas are rehabilitated.	The riparian foreshore area adjacent to Bilambil Creek is highly degraded and this area will be rehabilitated and dedicated as public foreshore reserve.
(i)	Vegetation is maintained whilst managing asset protection areas for bushfire protection.	Riparian vegetation adjacent to Bilambil Creek will be maintained and rehabilitated.
(j)	Land swaps, community stewardship programmes, transferable development rights and voluntary conservation agreements provide opportunities to sensitively located development and protect ecosystems and views.	No land swaps are proposed however significant areas fronting Bilambil Creek and Hogans Road will be dedicated as public reserve and/or drainage reserve.
(k)	Native vegetation is preferred on public and private land.	Significant stands of native vegetation will be located on the proposed dedicated foreshore reserve.
(l)	Land is revegetated with species native to the local area.	As indicated in the Vegetation Rehabilitation Plan at Annexure 16 , appropriate native species will be used.
2	Visual Sensitivity	
(a)	Views to and along the foreshore aligned with streets.	A perimeter road is proposed parallel to the foreshore and the foreshore area will be suitably rehabilitated.
(b)	Views and vistas of the foreshore and natural features in or surrounding the site are aligned with public streets.	A perimeter road is proposed parallel to the foreshore and the foreshore area will be suitably rehabilitated.
3	Edges to the water and natural areas in new coastal settlements.	
(a)	In new coastal settlements the centre and surrounding residential areas are separated from the foreshore by a parkland or roadway or nature reserve.	As indicated on the Application Plans, a foreshore reserve will be dedicated and embellished adjacent to Bilambil Creek and a perimeter road will separate the urban development from the dedicated foreshore.
(b)	Setbacks from the coastal edge and other surrounding natural areas, such as reserves and lakes, respect environmental constraints and protect properties from coastal hazards.	The proposed dedicated foreshore nominally 50m wide will achieve the objectives of this requirement.
(c)	Public access along the foreshore is generally located on the boundary between public and private land and along streets.	Public access along the foreshore will be via the proposed perimeter road.

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Table 18 – COASTAL DESIGN GUIDELINES		
PART	GUIDELINE	COMMENT
(d)	Pathways through foreshore vegetation are restricted to ensure the ecological integrity is not degraded.	No pathways are proposed through the foreshore vegetation. Access to Bilambil Creek will be via Hogans Road and one pathway from the children's play area in the northern part of the site.
(e)	Foreshore vegetation is not removed to create views.	The proposed and existing foreshore vegetation will be located in a public reserve under the care, control and management of Council and therefore Council will be in a position to enforce any unauthorised vegetation removal.
(f)	Land is not filled to promote views.	Minimal filling of the low lying areas is proposed simply to achieve Council's minimum floor level in relation to the Q100 flood event.
4	Streets	
(a)	New coastal settlements have a street pattern similar to coastal hamlets or coastal villages. They present an ideal opportunity to provide a street pattern responding to the landform, views and permitting a high level of visual, pedestrian, cycle and vehicular permeability.	The proposed street networks reflect the Tweed Shire Council's Urban Design Principles and the site's opportunities and constraints and is generally compatible with the existing village of Bilambil.
(b)	The street pattern also: <ul style="list-style-type: none"> ♦ Creates public neighbourhood centres and a main street. ♦ Avoids privatised enclaves by providing direct access to the foreshore. ♦ Provides an interconnected and permeable street pattern. ♦ Responds to pedestrian and cycle distances and connects to a local and regional network. 	The proposed layout is consistent with this provision in that the proposed general store will be located on Bilambil Road which is a "main street" and the layout will connect Uriup Road and Hogans Road thus providing connectivity and permeability.
5	Buildings	
(a)	The pattern of land development within the settlement is designed to provide amenity.	The Subdivision Layout has been designed to optimise yields and enable energy efficient dwellings to be sited on each lot.
(b)	The settlement has a compact footprint to reduce landtake.	The proposed development is limited to that part of the site zoned 2(d) Village.
(c)	Blocks and streets are walkable and safe.	All proposed streets will be provided with lighting and will provide for walkable and safe neighbourhoods with surveillance from abutting properties.
(d)	The neighbourhood centre has commercial, retail, education and civic buildings and some shop top housing.	A general store is proposed on Bilambil Road and the village of Bilambil already contains a public school, registered club, sports fields and a general store/post office/service station.
(e)	Buildings address the street.	All buildings will have frontage to a public road and future dwellings can be designed to address the street.
(f)	Tourist developments integrate into the settlement street pattern and define the edge between public and private land.	Not applicable.
(g)	Lot sizes and configurations are designed to support a range of housing types that integrate into the street pattern and the location of functions throughout the settlement.	A range of lot sizes are proposed from 450m ² to 787m ² to facilitate a range of housing types throughout the settlement.
(h)	Residential areas consist of coastal cottages, detached and semi detached houses, town houses and terraces.	Future dwellings will consist of principally detached dwelling houses consistent with the established character and amenity of the village of Bilambil.
(i)	A diversity of lot and housing types are developed to accommodate various household sizes and types.	A range of lot sizes are proposed to provide prospective purchaser with choice in terms of future dwelling design.

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Table 18 – COASTAL DESIGN GUIDELINES		
PART	GUIDELINE	COMMENT
(j)	Buildings are designed to suit the climate and use environmentally sustainable building design and materials.	Future buildings will need to comply with BASIX and the provisions of Tweed Development Control Plan 2007, Part A1 – Residential and Tourist Code in relation to design standards.
(k)	Housing types optimise visual and acoustic privacy, integrate passive solar design principles, minimise water use and seek to achieve architectural distinction and excellence.	Future buildings will need to comply with BASIX and the provisions of Tweed Development Control Plan 2007, Part A1 – Residential and Tourist Code in relation to design standards.
6	Height	
(a)	Residential buildings are one to two storeys.	A three storey statutory height limit applies within the subject land under the provisions of Tweed Local Environmental Plan 2000. It is envisaged that future dwellings on each lot will be limited to one and two storeys having regard to the controls contained in Tweed Development Control Plan 2007, Part A1.
(b)	The neighbourhood centre or the main street has buildings up to two storeys.	The general store and manager's residence on proposed Lot 53 will not exceed two storeys.
(c)	Where visual prominence is not apparent three storey buildings may be appropriate.	The site is not visually prominent however this application does not propose any three storey buildings.
(d)	Heights are subject to place specific urban design studies. New development is appropriate to the predominant form and scale of surrounding development (either present or future), surrounding landforms and the visual setting of the settlement. Buildings avoid overshadowing of public open spaces, the foreshore and beaches in centres before 3.00pm midwinter and 6.30pm summer daylight saving time. Elsewhere avoid overshadowing of public open spaces, the foreshore and beach before 4.00pm midwinter and 7.00pm summer daylight saving time.	Future buildings will comply with the current statutory height limits contained in Tweed Local Environmental Plan 2000 and Tweed Development Control Plan 2007. No buildings proposed under this application will cause overshadowing of any existing public open space during the prescribed times.
PART 2 – DESIGN PRINCIPLES FOR COASTAL SETTLEMENTS		
2.1 – Defining the Footprint and Boundary		
Maintaining a Compact Development Footprint		
2	Strategies for development within a settlement centre occur through place-specific urban design plans and development controls. As a minimum this results in working with the existing settlement character to have regard for:	
a.	the public domain, open spaces, streets and heritage	The public domain at Bilambil is generally reflected in the existing playing fields on Bilambil Road, Prindable Park and the existing street network. The subdivision layout has been designed to be sympathetic with these existing public domain features.
b.	the subdivision, block, lot and street pattern and character	The subdivision layout and yield reflect the site's opportunities and constraints, Council's Urban Design Principles and the existing character and amenity of the village.
c.	views and visual setting	The site does not enjoy significant views and is not highly significant in terms of its visual setting.
d.	bulk, scale, height and building type	The design of the proposed general store and manager's residence is of a human scale compatible with existing structures within the village of Bilambil.
e.	extent and location of private open spaces	Private open space will be provided on each allotment in accordance with the provisions of Tweed Development Control Plan 2007, Part A1.

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Table 18 – COASTAL DESIGN GUIDELINES		
PART	GUIDELINE	COMMENT
	f. configuration of car parking and driveways	Future car parking and driveways will be provided on each lot in accordance with the provisions of Tweed Development Control Plan 2007, Part A2 – Site Access and Car Parking Code.
	g. setbacks from the street and from side and rear boundaries	Future buildings will comply with the setback requirements contained in Tweed Development Control Plan 2007, Part A1.
	h. landscaping	Future landscaping of each residential allotment will comply with the provisions of Tweed Development Control Plan 2007, Part A1. Landscaping of the proposed public reserve and the planting of normal street trees will be undertaken as part of the subdivision.
	i. materials and detailing of buildings.	Future dwellings will comply with Tweed Development Control Plan 2007, Part A1 in terms of materials and details of buildings and will also be compatible with the existing built form of the village.
2.2 - Connecting Open Spaces		
Design Guidelines for the Open Space Network		
1(a)	Locate and connect new and existing open spaces which protect and maintain nature reserves, conservation areas, parklands and environmental protection areas.	The proposed foreshore reserve will protect the Bilambil Creek riparian zone and will also link to Hogans Road.
7	Establish edge open spaces with street and pedestrian pathways. These are best located within the development footprint of the settlement rather than in an open space zone.	The proposed foreshore reserve will protect the Bilambil Creek riparian zone and will also link to Hogans Road.
8	Provide pedestrian and cycle access that: <ul style="list-style-type: none"> ♦ does not compromise the ecological values of high conservation areas ♦ connects important places throughout the settlement ♦ connects residential areas to commercial and retail locations without compromising the visual, aesthetic or ecological values of the foreshore. 	Cycleway and pedestrian access will be contained within the proposed road reserves. Contributions will be paid towards the regional cycleway network in accordance with Council's relevant Section 94 Contribution Plan.
9	Provide a variety of large and smaller open spaces to serve a range of different active and passive recreational roles, eg: <ul style="list-style-type: none"> ♦ playing fields; ♦ playgrounds and small pocket parks; ♦ walking and cycling connections; ♦ places and activities for people with physical disabilities. 	In accordance with the provisions of Tweed Development Control Plan 2007, Part A5 – Subdivision Manual, an area of 1500m ² of usable, embellished, casual open space will be provided on site. Contributions in lieu will be paid in respect of active open space playing fields.
2.3 – Protecting the Natural Edges		
Design Guidelines for the Natural Edge		
1	Define the key characteristics and functions of public spaces along the foreshore with particular regard for sites of significant social and cultural importance.	The foreshore open space is intended to provide an ecological buffer to Bilambil Creek, protect water quality and riparian vegetation. With the exception of the small area in the north western side which will be used for casual recreation purposes, the function of the foreshore reserve is principally ecological.
2	Maintain foreshore areas and setbacks in public ownership	The foreshore reserve will be dedicated to the public.
4	Provide pedestrian access to and along the foreshore with provision for those with less mobility.	Pedestrian access will be provided within the proposed perimeter road.

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Table 18 – COASTAL DESIGN GUIDELINES		
PART	GUIDELINE	COMMENT
8	Design and locate foreshore facilities such as car parks, toilet blocks and picnic areas to reduce their visual intrusion on the foreshore, view corridors and vistas.	The only facilities proposed within the foreshore will be children's playground equipment which will be sensitively designed and located and integrated into the landscaping of the area.
19	Set new development back from the foreshore edges of the ocean, lakes and other waterways to protect visual amenity and create opportunities for public access.	Residential dwellings will be setback approximately 50m from the high bank of Bilambil Creek.
20	The design of buildings and other structures adjoining the foreshore complements the function and character of the foreshore.	The future design of buildings will be sympathetic to the function and character of the foreshore.
21	Setbacks in public ownership wherever possible, allow opportunities for public access and have limited development including no roads, private allotments, infrastructure and retaining walls in these locations.	Public access through the foreshore reserve will be possible at appropriately designated access points.
2.4 – Reinforcing the Street Pattern		
Design Guidelines for Reinforcing the Street Pattern		
1	Building on the original and established street and block patterns in terms of the pattern of circulation, access to lots and uses.	The proposed street pattern reflects the site's key opportunities and constraints, Tweed Shire Council's Urban Design Standards and the objective of linking Uriup Road to Hogans Road to improve connectivity and permeability.
10	Reinforcing main streets as the commercial and social heart of the settlement	Bilambil Village does not have a main street per se, however Bilambil Road nominally serves this purpose and it is proposed to sight the general store fronting Bilambil Road.
14	Establishing a system of pedestrian pathways throughout the settlement and between settlements	Appropriate pathways will be provided within the subdivision in accordance with Tweed Development Control Plan 2007, Part A5.
2.5 – Appropriate Buildings for a Coastal Context		
Design Guidelines for Appropriate Buildings in a Coastal Context		
Build Form Guidelines for all Sites		
2	Reinforce the clarity of the settlement structure with new buildings that are appropriate in terms of location, uses, scale, height and site configuration.	Future dwellings to be erected on the allotments will be designed to comply with Tweed Development Control Plan 2007, Part A1.
3	Reinforce the desired future character of the settlement.	Future dwellings to be erected on the allotments will be designed to comply with Tweed Development Control Plan 2007, Part A1.
4	Consider the appropriateness of new buildings within the whole streetscape rather than each building as a stand-alone object.	In considering future Development Applications for dwelling houses on each individual allotment, Tweed Development Control Plan 2007 requires the applicant and the Council to have regard to the existing and proposed streetscape.
5	Maintain consistent street setbacks and street edge configurations.	Tweed Development Control Plan 2007 establishes consistent street setbacks.
6	Ensure buildings address the street by providing direct and on-grade entries to the street for residential, commercial and retail purposes.	Future dwellings will address the relevant streets as each lot has a frontage to a public road.
8	Protect views from public places and streets by maintaining consistent setbacks along streets and not placing buildings in view corridors.	No significant view corridors exist in the locality and views to the embellished foreshore area will be available via the perimeter road.
9	Protect local views and vistas throughout and surrounding the settlement from public places by relating new buildings to the topography, reducing heights to maintain views of the surrounding landscape and maintaining consistent height, bulk and scale with the street and local context	New buildings will be generally limited to two storeys in height and views from the public domain to Bilambil Creek and the embellished foreshore will remain available.

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Table 18 – COASTAL DESIGN GUIDELINES		
PART	GUIDELINE	COMMENT
11	Ensure development and neighbouring properties have: <ul style="list-style-type: none"> ♦ access to daylight ♦ access to natural ventilation ♦ visual privacy and acoustic privacy ♦ private open space ♦ a pleasant micro-climate 	There is no immediately abutting development other than the Bilambil Hall which is well buffered from the proposed adjoining allotments.
12	Achieving amenity relates to the design of individual buildings and, in particular to: <ul style="list-style-type: none"> ♦ building orientation depth; ♦ the size of the lot; ♦ open space location, size and connection with the inside of the building; ♦ car parking location and access; ♦ pedestrian access from the street; ♦ street edge configuration and building separation; ♦ mature trees, vegetation and soil areas. 	Future dwellings will be designed to comply with the provisions of Tweed Development Control Plan 2007, Part A1.
Built Form Design Guidelines for Specific Locations within a Settlement		
2	Ensure development (or redevelopment) on these sites is no bigger in scale, depth, floor space ratio, height and footprint than existing buildings on the site unless urban design control generates an alternative solution which responds to the site's significant characteristics and the desired future character of the area. This is particularly important for visually prominent sites such as headlands, cliff edges and prominent coastal ridges.	Future dwellings will be designed to comply with Tweed Development Control Plan 2007, Part A1 and to be sympathetic with the established character, amenity and built form of the village of Bilambil.
3	Create a public interface to the site and ensure development does not degrade the public nature of the site or the public open spaces adjoining or surrounding the site by: <ul style="list-style-type: none"> ♦ reinforcing public and active uses; ♦ setting development back a sufficient distance to ensure adjoining public open spaces are not effectively privatised; ♦ ensure building edges adjoining public spaces reinforce public uses along and within public land. 	Tweed Shire Council have advised that they do not prefer direct vehicular access to Bilambil Road from allotments fronting that road and whilst those allotments will have access from a new internal street they can nevertheless address Bilambil Road in their final design. The proposed layout provides an appropriate interface between the estate and the Bilambil Creek foreshore reserve including embellishment of the reserve and the provision of a perimeter road.
4	Mitigate overshadowing of public open space and the foreshore by applying the standard, no overshadowing before 4.00pm midwinter and 7.00pm summer daylight saving time.	No buildings proposed under this application will create overshadowing of public open space during the prescribed times.
5	Define the boundaries of the site with a public edge, such as pedestrian pathways, public laneways or public streets, that connect to the street hierarchy.	The boundaries of the site are all defined by public roads existing or proposed.
6	Ensure buildings have well articulated and scaled elevations.	Future dwellings will comply with Tweed Development Control Plan 2007.
Along the Settlement Edge		
1	Prevent the privatisation of public open space by ensuring development adjacent to the edge maintains public access. Generally the boundary between public and private land may be defined with pedestrian pathways, public laneways or public streets that connect to the street hierarchy. The transition from private to public uses should be designed to consider security and privacy for residential uses.	The proposed foreshore reserve will be bordered by a public road which provides a hard edge and will minimise the risk of privatisation of public open space. It will also assist with surveillance and management functions.

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Table 18 – COASTAL DESIGN GUIDELINES		
PART	GUIDELINE	COMMENT
3	Design buildings to address open spaces and edge roads.	Future dwellings will be designed to comply with Tweed Development Control Plan 2007 and to address this provision.
In Settlement Centres Adjacent to the Coastal Edge or the Foreshore Reserve		
1	Complement and co-ordinate the centre's hierarchy of built form with lower buildings adjacent to the foreshore and higher buildings away from the foreshore.	It is envisaged that one and two storey dwellings will be constructed within the estate.
2	Mitigate overshadowing of public open spaces and the foreshore by applying the standard no overshadowing before 3.00pm midwinter and 6.30pm summer daylight saving time.	No dwellings proposed under this application will overshadow the proposed public open space during the prescribed times.
3	Reinforce the visual amenity of public places and streets throughout the settlement by ensuring development does not build into important vistas or view corridors.	There are no important views or vistas within the estate however the rehabilitated Bilambil Creek foreshore will be protected and visually accessible via the perimeter road.
4	Create a public interface to the street and ensure development creates an edge to adjacent public open space by: <ul style="list-style-type: none"> ♦ reinforcing public and active uses especially on the ground floor of buildings adjacent to streets and public open spaces, either public or private on the ground floor; ♦ ensuring the ground floor of the building is level with the street. 	Public interface will be created to the foreshore area via a perimeter road and the development site is surrounded by public roads.
5	Where there is no existing street between the site and the coastal edge, define this boundary with a publicly accessible edge, such as pedestrian pathway, public laneway or public streets, connecting to the street hierarchy.	A public street will be provided adjacent to the proposed Bilambil Creek foreshore.
6	Ensure buildings have well articulated and scaled elevations.	Future dwellings will comply with Tweed Development Control Plan 2007.
7	Support building types that locate car parking at the rear of sites accessible from laneways or secondary streets or locate car parking under and in line with the building's footprint so that the ground floor has active street level uses.	Future dwellings will be designed to comply with Tweed Development Control Plan 2007, Part A1.

TABLE 19 – NSW COASTAL POLICY 1997		
STRATEGIC ACTION NO.	SUMMARY PROVISION	COMMENT
Natural Environment		
1.1.6	Voluntary conservation agreements.	Not applicable.
1.1.7	Seagrass, mangroves, saltmarsh and other wetland associated species.	A search of the Tweed Local Government Area showed no record of any threatened fish species. No mangrove, saltmarsh or other wetland associated species will be removed or impacted by the proposal.
1.2.3	Fish habitat modification or alienation.	As above.
1.2.5	Threatened Species Conservation Act.	A Seven Part Test Report has been completed (Annexure 15) which concludes that the proposed development is not likely to have a significant effect on threatened species.
1.3.1	EPA licensing of STP and other point source discharges.	Not applicable.

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TABLE 19 – NSW COASTAL POLICY 1997		
STRATEGIC ACTION NO.	SUMMARY PROVISION	COMMENT
1.3.2	Non-point source pollution.	Appropriate stormwater management measures will be implemented during the construction phase and the operational phase to ensure that water quality in Bilambil Creek is not diminished.
1.3.7	Waste water discharge limits.	Not applicable.
1.3.8	Contaminated stormwater.	Appropriate stormwater management measures will be implemented during the construction phase and the operational phase to ensure that water quality in Bilambil Creek is not diminished.
1.3.12	Vessel sewage pumpout facilities.	Not applicable.
1.3.13	Re-use of treated biosolids and effluent.	Not applicable.
1.4.5	Assessment of coastline development proposals.	Not applicable.
1.4.7	Assessment of estuarine development proposals.	The proposal includes the dedication and rehabilitation of the Bilambil Creek foreshore area.
Natural Processes and Climate Change		
2.1.3	Physical and ecological processes to be considered when assessing development applications.	All relevant issues are addressed in this Environmental Assessment Report.
2.1.4	Acid sulphate soils – environmental studies; DLWC mapping and EPA guidelines; requirement for EIS; monitoring and restoration works; management plans.	See Acid Sulphate Soils Assessment at Annexure 18 .
2.2.2	Sea level change.	All lots will be at a minimum of RL 4.4m AHD which is 0.9m above the Q100 flood level.
Aesthetic Qualities		
3.2.1	North and South Coast Design Guidelines and Guidelines for Tourism Development along the NSW Coast.	The proposed general store together with future dwelling houses will comply with the key design principles contained in the North Coast Design Guidelines.
3.2.4	Design and locational principles for development applications.	The development is not inconsistent with the key design and locational principles.
3.2.5	Siting of navigational aids, marine communication towers, warning signs and moorings.	Not applicable.
Cultural Heritage		
4.2.3	Coastal sites of Aboriginal heritage significance.	The Cultural Heritage Assessment Report at Annexure 11 concludes that the development is not likely to impact on items of Aboriginal cultural heritage.
Ecologically Sustainable Use of Resources		
5.1.11	Ecotourism developments and Guidelines for Tourism Developments Adjacent to Natural Areas.	Not applicable.
5.3.3	Aquaculture procedures, permits and guidelines.	Not applicable.
5.3.4	Development consent for mining.	Not applicable.
Ecologically Sustainable Human Settlement		
6.1.4	Canal estate developments.	Not applicable.
Public Access and Use		
7.1.5	Tourism development and public foreshore access.	Not applicable.

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TABLE 19 – NSW COASTAL POLICY 1997		
STRATEGIC ACTION NO.	SUMMARY PROVISION	COMMENT
7.2.3	Coastal developments and surf life saving facilities.	Not applicable.
7.2.4	Surf life saving facilities and Section 94 levies.	Contributions are applicable pursuant to Section 94 Plan No. 16.

TABLE 20 – STATE ENVIRONMENTAL PLANNING POLICY NO. 71 – CLAUSE 8 CONSIDERATIONS	
MATTERS FOR CONSIDERATION	COMMENT
a) The aims of this Policy set out in Clause 2.	The proposal is consistent with the aims of this Policy particularly as the site is not located in close proximity to the coastline. Bilambil Creek is at the upper reaches of its tidal limit adjacent to the site.
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.	Dedication of the Bilambil Creek foreshore will facilitate public access.
c) Opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability.	As above.
d) The suitability of development and its type, location and design and its relationship with the surrounding area.	The development is consistent with the zone objectives and is compatible with the existing and desired future character of the village of Bilambil.
e) Any detrimental impact that the 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.	The site is not located adjacent to the coastal foreshore.
f) The scenic qualities of the NSW coast, and means to protect and improve these qualities.	The site has limited scenic qualities particularly given the unrehabilitated quarry existing on the land. The final development will improve the overall aesthetics of the locality.
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 Flora and Fauna Assessment at Annexure 15 identifies appropriate means to manage and mitigate impacts on threatened species.
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	As above.
i) Existing wildlife corridors and the impact of development on these corridors.	No wildlife corridors exist in or adjacent to the site.
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 site is not subject to coastal processes.
k) Measures to reduce the potential for conflict between land based and water based coastal activities	No impacts are likely as Bilambil Creek is not navigable.
l) Measures to protect the cultural places, values, customs, beliefs and traditional knowledge of aboriginals.	No items of Aboriginal cultural heritage significance have been identified in the Preliminary Cultural Heritage Assessment at Annexure 5 .
m) Likely impacts of development on the water quality of coastal water bodies.	Subject to the implementation of water quality management measures as proposed no significant adverse impact on water quality is likely and indeed improvements are expected given that the site is in a highly disturbed state with uncontrolled runoff discharging direct to Bilambil Creek.
n) The conservation and preservation of items of heritage, archaeological or historic significance.	No items of European heritage or archaeological significance have been identified on the site.

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TABLE 20 – STATE ENVIRONMENTAL PLANNING POLICY NO. 71 – CLAUSE 8 CONSIDERATIONS	
MATTERS FOR CONSIDERATION	COMMENT
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.	Not applicable.
p) Only in cases in which development application in relation to proposed development is determined;	
i) The cumulative impacts on the proposed development on the environment;	No other known developments are occurring in this locality which would result in cumulative impacts.
ii) Measures to ensure that water and energy usage by the proposed development is efficient.	Normal water and energy saving devices will be installed in all future dwellings in accordance with BASIX requirements.

8.4.3 Built Form Controls

Building Envelope, Built Form and Design Quality Controls:

Lot Setbacks requirements have been indicated on the Site Lot Setback Overlay Plan drawing, and include the following minimum requirements:

- Street Setback – 6.000mm
- Side Setback (single level) – 0.900mm
- Side Setback (double level) – 1.500mm
- Rear Setback – 5.000mm
- Eaves Projection into Setback (single level) – 450mm maximum
- Eaves Projection into Setback (double level) – 600mm maximum
- Building Platform area – 15.000 x 10.000mm (refer dotted lines)

Built form has setback and design quality control minimum standards applying to each proposed dwelling along with Tweed DCP 2007, building height, building setback, building amenity, visual privacy, acoustic privacy, view sharing, natural ventilation, building orientation, building separation, external building elements, building floor space ratio, deep planting zone, fencing and landscape controls as defined.

Design Parameters for steep sloping sites, include the following:

- Cutting sited away from view side and masked by building.
- Fill not deposited on downhill side to obviate change in landform and to allow retention of hillside vegetation.
- Retention of existing vegetation outside of building envelopes, with retention of existing site slope outside of building envelopes.
- Retention of existing steep site slope by building designed to reduce earthworks within the building envelope.
- Building form and arrangement to follow site slope. Note – roof form options to allow variation in building elevation and style.
- Terracing of buildings used to achieve sympathy with landform and to reduce visual impact.
- Vehicle parking screened from view.

Design Quality Control has been implemented by minimum standards for building finishes and colours as follows:

- Lower level external walls – rendered masonry (sandstone colour) or selected face brick (sandstone colour);
- Upper level external walls – painted shadowclad, flat or groove profile (chalk colour) or rendered masonry (chalk colour) or selected face brick (sandstone colour);

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-
- Metal roof decking – Colorbond ‘custom orb’ profile (chalk or light green colour);
 - Metal gutter (150 x 75mm quad), fascia (150mm profiled), & downpipes (100mm diameter) – Colorbond (white / gull grey colour);
 - Window frames – aluminium powder coated (black colour);
 - Handrails and balustrading – aluminium powder coated (black colour).
 - Privacy screens to windows (45 x 20mm battens at 80mm centres in surround frame) – aluminium powder coated (black colour);
 - Front fences and side returns to building – rendered masonry base (sandstone colour) to 600mm high with powder coated aluminium pool fencing between 600mm to 1500mm high between masonry piers at 2400mm max. Centres; and
 - Side and rear fences – painted (sandstone colour) timber close spaced battens to max. 1800mm height.

Future dwellings will comply with the above requirements.

Annexure 9 contains Architectural Plans and a Setback Overlay Plan showing the proposed dwelling footprints on each lot and typical plans of dwellings which could be erected on the allotments. The Architectural Plans of the dwellings do not form part of this application. Rather, they are intended to demonstrate that compliant dwellings can be erected on each allotment and also to provide an indication of the final built form of the estate.

8.4.4 Staging

It is anticipated that the development will be carried out in two stages as follows:

Stage 1 creation of the 52 residential lots, dedication and embellishment of the public reserve, all new roads and infrastructure together with completion of bulk earthworks on the site to establish the final landform. Stage 2 will involve the construction of the general store.

The Major Project Approval should be structured to enable a Construction Certificate for Stage 1 to be issued for the subdivision component and a separate Construction Certificate for the Stage 2 building.

8.4.5 Subdivision Type

This project involves the creation of a conventional Torrens Title subdivision where the roads will be dedicated public roads and all water, sewer and drainage infrastructure will be vested in Tweed Shire Council.

8.4.6 Open Space Maintenance and Management

It is proposed to dedicate the Bilambil Creek foreshore area to Tweed Shire Council as a public reserve. The area will be appropriately revegetated and embellished prior to dedication.

At the end of the normal six months maintenance period, responsibility for maintenance and management will vest in Tweed Shire Council, subject to the provision of the Translocation Plan at **Annexure 17**.

Following a review of the Draft Environmental Assessment dated August 2008, the Department of Planning requested the applicant to obtain confirmation that Council will accept dedication of the proposed open space areas. Based on an assessment of the Draft Environmental Assessment Report, Council advised by email dated 17 February 2009 (**Annexure 27**) that the proposed open space is not accepted by Council. Council requires a minimum open space park in accordance with Section A5 of Council's DCP (minimum 2500m²) Table A5-8.2.1.

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It is manifestly unreasonable to require a minimum of 2500m² of embellished casual open space when there is no nexus between that requirement and the demand generated by the proposed subdivision. Based on the formula contained in Council's Development Control Plan, the proposed 52 residential lots generate a demand for approximately 1500m². As indicated in this Report and Annexures, that part of proposed Lot 54 to be embellished for casual open space purposes has an area of approximately 1530m² thus satisfying the formula requirement. In addition, a total of 8224m² of foreshore reserve will be embellished and dedicated to the public adjacent to Bilambil Creek. The total area is therefore well in excess of the 2500m² minimum and it should be noted the total area of foreshore open space and that part to be embellished for casual open space are contiguous and have frontage to the perimeter road.

Therefore, notwithstanding the Council's comments, we submit that the proposal is in fact compliant with Council's Development Control Plan.

In any case, it is unreasonable to require Council to accept the provision of open space as part of its normal Test of Adequacy in respect of a Draft Environmental Assessment Report. It is more appropriate that Council be requested to provide this advice when it has before it the complete and final Environmental Assessment Report and has completed a merit assessment.

The proposed foreshore dedication and rehabilitation will enhance and protect the Bilambil Creek riparian corridor by providing an appropriate buffer together with stormwater management measures.

At present, uncontrolled runoff from the highly disturbed site discharges direct to Bilambil Creek thus resulting in adverse water quality impacts. The proposed development incorporates stormwater management measures at both the construction stage and operational stage to ensure the water quality in Bilambil Creek is improved in accordance with Council's Urban Stormwater Quality Management Plan objectives. This issue is further addressed in Section 9.7. Full details of proposed stormwater quality management measures are contained in **Annexure 19**.

It is acknowledged that the amended layout does not provide for a 50m vegetated buffer as requested by the Department of Environment and Climate Change, however to do so would significantly reduce yields to the point where development of the site would not be feasible. Given that there is no Section 94 Contribution Plan authorising or requiring the dedication of a foreshore buffer and having regard to the circumstances outlined in the Vegetation Rehabilitation Plan at **Annexure 16** and the Flora and Fauna Assessment at **Annexure 15**, it is submitted that a 35m vegetated buffer will satisfactorily achieve the objectives of protecting riparian vegetation, bank stability and water quality within Bilambil Creek.

The Department of Primary Industries prefers a 50m buffer with perimeter road but the Department acknowledge that the amended layout achieves improved outcomes for fish and fish habitat. Considering this compromise the Department raises no objection to the proposal indicated in Amended Plan Reference T15337 dated January 2009.

8.4.7 Subdivision Layouts

Consistency with the Far North Coast Regional Strategy 2006 – 2031, the North Coast Urban Planning Strategy 1995 and the Tweed Local Environmental Plan 2000 will be achieved by a conventional residential subdivision which optimises lot yields and enables site rehabilitation and Bilambil Creek foreshore rehabilitation.

A number of layout options have been considered (and discussed with Tweed Shire Council) and the preferred option achieves a balance between commercial considerations, statutory planning controls and Tweed Shire Council's urban design standards.

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8.5 Visual Impact

There will be no Visual Impact of the proposal in the context of the surrounding development in the Village due to textural changes to the existing landform, the proposal will improve the amenity by the removal of the existing quarry and fill dump currently on the site and will improve the visual amenity of the Village by reducing the height of the existing land and levelling out slopes to existing surrounding roads and creek edge areas and therefore no mitigation measures will be required.

There will be no impact on the amenity of the foreshore due to the retention of the existing creek edge landform and flora as a landscaped buffer to proposed residential lots.

There will be no additional overshadowing of public reserves of the proposal due to the site's north / south orientation and that the proposal reduces the height of the existing land by textural changes to the existing landform and by levelling out slopes to existing surrounding roads and creek edge areas. The proposed residential buildings will not overshadow existing public reserves due to site and lot setbacks and maximum building height requirements along with site orientation.

There will be no loss of views from public places by the proposal due to textural changes to the existing landform.

Annexure 10 comprises a series of illustrative perspectives and photographs showing the site before and after development. Existing View A from Hogans Road shows the unsightly quarry face and Perspective View A shows the completed development form which clearly demonstrates that improved landscape and visual outcomes will be achieved.

View B is a close up of the quarry face which contrasts with Perspective View B showing the built form and significant improvements to the landscape and visual quality of the site.

View C shows the existing Bilambil Road streetscape looking in a southerly direction from the vicinity of the roundabout at Urliup Road/Carool Road and Perspective View C shows the final built form including landscaping and structures. Whilst the existing camphor laurel trees will be removed from the western alignment of Bilambil Road appropriate streetscaping trees will be provided to replace them and maintain a pleasant streetscape.

View D is an aerial perspective of the site and adjacent land which reflects the final built form and landscaping and also shows adjacent existing development including the Bilambil Creek Residential Village (caravan park).

In summary, it is submitted that the photographs and perspectives at **Annexure 10** demonstrate that the proposed development will result in significant improvements to the landscape and visual quality of the site.

8.6 Infrastructure

8.6.1 Water

Connection to Council's existing reticulated system located in adjacent streets is proposed. Council has advised that sufficient capacity exists within the existing Tweed water supply system.

Council Officers have advised by email to the Department of Planning dated 23 April 2009 that there are no significant issues relating to water supply subject to normal Section 64 contributions.

8.6.2 Sewer

Bilambil Village is not currently connected to Council's reticulated sewerage system.

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It is therefore proposed to construct a sewer pump station at the corner of Bilambil Road and Hogans Road together with a sewer rising main located within the Bilambil Road reserve to convey sewerage to the nearest available receiving manhole at Gollan Drive. Engineering details relating to the provision of sewer are contained in **Annexure 19**. On site effluent disposal is not proposed, all lots will be connected to the Council's public reticulated sewerage system.

Council has advised the provision of a suitable sewer outlet is problematic. The capacity of the Bilambil Heights sewer system is currently under review by Tweed Shire Council. The outfall requirements for this development are dependant on the results of this investigation. In order to provide surety to the development proposal, the Developer and Council have agreed a draft Statement of Commitments, specifying the worst case solution to the problem. Those commitments are reproduced as follows:

- The developer will construct a sewer pump station on the development site to the satisfaction of the Director of Community Services and Natural Resources.
- The developer will construct a Sewer Rising Main (SRM) from the new pump station to Sewer Pump Station (SPS) 2018 at Gollan Drive, including necessary odour control and septicity control facilities.
- In the event that the Sewer Network Analysis currently being undertaken by Tweed Shire Council determines that a connection point south west of Sewer Pump Station 2018 (closer to the development site) is feasible, the sewer rising main shall be connected to that point, to the satisfaction of the Director of Community Services and Natural Resources.
- On completion of the Sewer Network Analysis, and the subsequent identification of the appropriate connection point, the Developer shall provide to Tweed Shire Council for approval the proposed route for the construction of the required pipework. The alignment of the sewer rising main shall be located either in the road reserve or in easements on adjacent private land along the Bilambil Road section. The rising main may only be located in sections of the road reserve if the Director of Engineering and Operations determines that such location will not adversely impact on the stability, functionality and operation of the road. The Developer shall address such issues to the satisfaction of the Tweed Shire Council in association with the application for the issue of a Construction Certificate. The remaining sections of Gollan Drive SPS 2018 will not be via Scenic Drive but rather through a route to be agreed with Tweed Shire Council prior to the issue of a Construction Certificate to Councils SPS 2038 at the north eastern end of Peninsula Drive. Then via the foreshore of Terranora Broadwater parallel to Council's existing 300mm SRM to the northern end of Scenic Drive.
- Then finally to Gollan Drive SPS 2018 via road reserve to the satisfaction of the Director of Engineering and Operations.
- Detailed plans shall be provided with the Construction Certificate Application addressing slope stability within Bilambil Road and other areas as may be necessary, together with a Detailed Traffic Management Plan and the alignment of other future services in relation to construction of the sewer rising main.
- The developer will provide detailed plans as part of the Construction Certificate which will incorporate Reduced Inflow / Infiltration Gravity Sewers (RIGS) to Councils requirements.

The provision of sewerage services to the site will entail the construction of a pumping station, to be located on the corner of Hogans Road and Bilambil Road. The nearest point of connection available in the reticulation system is pump station SPS2038 in Peninsula Drive.

Council has advised however that, due to capacity issues, they are not able to approve connection to the reticulation system upstream of this pumping station.

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Council has confirmed however that the nominated point of sewage disposal for the development is Pump Station SPS2018 Gollan Drive. The anticipated route of the required rising main is shown on CLA Drawing 08418-010 in **Annexure 19**. It is not proposed to stage any of the external infrastructure provision.

It is proposed to provide sewerage services to a number of allotments by means of a low pressure pump system, such as the E one system or Mono PCC Eco 1-60 system. Details of the Mono system, including WSAA review, are given at Attachment 6 of **Annexure 19**.

8.6.3 Electricity

Connection of all lots to underground power is proposed. An existing overhead transmission line is located in the southern part of the site adjacent to Hogans Road. As indicated in **Annexure 19**, the site can be readily serviced from the existing reticulated electricity network.

8.6.4 Solid Waste

In accordance with contractual arrangements between Tweed Shire Council and Solo Waste, a waste collection service will be provided to each allotment via the proposed public road network.

8.6.5 Telephone Services

Connection of all lots to underground Telstra communications infrastructure is proposed. As indicated in **Annexure 19**, the site can be readily serviced from the existing Telstra network.

8.6.6 Gas

Reticulated gas is not available to Bilambil.

8.6.7 Roads

All new roads will be constructed to Council standards and dedicated as public roads. As indicated in **Annexure 27**, Tweed Shire Council will accept dedication of the roads when they are constructed to Council's standards.

8.6.8 Easements

Easements for water supply, sewer and drainage will be created where necessary benefiting Tweed Shire Council.

An easement 40m wide will also be created over the existing overhead transmission line. All easements and accompanying Section 88B Conveyancing Act Instruments will be submitted and approved with the Subdivision Certificate Application.

The Application Plans at **Annexure 7** show proposed easement locations on each lot.

8.6.9 Planning Agreements/Contributions

The developer will meet the cost of constructing all internal roads, water supply, sewerage, rising main pumping stations, underground telephone supply, underground power and open space embellishment. Normal Section 94 and Section 64 Contributions will apply as identified in Section 4.0. In the circumstances it is considered that a Planning Agreement is therefore not required.

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8.7 Traffic and Access

8.7.1 Traffic Impact Study

The subject site has frontage to Hogans Road, Bilambil Road and Urliup Road. The proposed plan of development includes a total of 56 lots including 52 detached dwelling allotments. A retail development is also proposed in the northeast corner of the site. The facility will comprise a General Store (250m²) with ancillary residence.

Access to the development is proposed to occur via a new intersection with Urliup Road and another with Hogans Road. Direct access to the retail facility is proposed off Bilambil Road. It is recommended that a Type BA right turning treatment be provided at each of these access locations in accordance with Austroads design standards. Some vegetation clearing will be required in order to achieve satisfactory levels of sight distance at each intersection point with Urliup Road and Hogans Road.

Urliup Road is an existing sealed road with a sealed width of approximately 6m. The road crest exhibits a substandard level of sight distance. The proposal anticipates the lowering of the existing crest by approximately 800mm in order to achieve the TSC sight distance standards. The orderly lowering of the road profile adjacent to the proposed intersection, coupled with the construction of the swales, and the reduction of the existing cut batter slope ensures that intersection sight distance standards are achieved.

Hogans Road is an existing sealed road with a seal width of approximately 6m. The road is essentially flat, although it does grade gently down to the causeway crossing Bilambil Creek. Survey reveals sight distance available of approximately 90m, in excess of the required standard. No other issues are anticipated in respect of this intersection.

Application of trip generation rates contained in the RTA *Guide to Traffic Generating Developments* indicate that the proposed development will not have any adverse impact upon the performance of the surrounding road network. With respect to impacts on Kennedy Drive, the Tweed Shire Council has confirmed that Major Project Application No. 08-0034 has been allocated capacity within the remaining Kennedy Drive capacity and therefore the project is consistent with Council's resolution.

The proposed retail development (General Store) will provide a loading bay suitable for the needs of a Small Rigid Vehicle. Given the size and nature of the proposed shop, it is considered that this will cater for the service vehicle needs generated by the development. Provision has also been made for a standard refuse collection vehicle to manoeuvre on the site such that it can access the bin storage area and exit the site in a forward gear

The proposed internal road network complies with all relevant requirements with respect to layout and geometry. The road network layout provides a "calm" traffic environment by minimising straight street sections and well spaced intersections.

The proposed road network and open space provisions facilitate safe and efficient travel paths for pedestrians and cyclists. Connectivity is optimised through minimal use of cul-de-sac streets. Passive surveillance of off-street pedestrian paths and open space areas is achieved by frontage housing adjacent to those facilities. The proposed road reserve width of 15 metres complies with Council requirements for Access Roads that carry up to 1,000 vehicles per day. It is estimated that the proposed roads will carry no more than 300 vehicles per day.

All of the proposed lots will be located within 200 metres walk of Bilambil Road. Safe and efficient pedestrian access to Bilambil Road will be facilitated via the proposed street network and dedicated pedestrian paths. It is concluded, therefore, that the proposed road network is not required to facilitate public bus access.

On site car parking will be provided for the proposed general store in accordance with Tweed Development Control Plan 2007, Part A2 (see Section 5.1).

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Each proposed allotment will have a minimum 9m kerb frontage to provide one on street car parking space for each lot with the exception of Lots 32 and 33. A restriction as to use will be created on these lots requiring the visitor space to be provided on site (see **Annexure 7**).

School buses service the Village of Bilambil however the Village is not currently serviced by a Surfside Buslines bus service. It is expected that when sufficient demand is achieved, potentially as a result of this proposed development, the existing service from Bilambil Heights could be extended to the Village.

8.7.2 Kennedy Drive Traffic Capacity

Council at its meeting on 9 June 2007 considered a report in relation to this issue and resolved as follows:

1. *Council adopts the revised level of service D equating to 24,650 vehicles per day on Cobaki Bridge at Kennedy Drive.*
2. *The current remaining spare traffic capacity (being 1506 vehicle trips per day) to be provided to future development west of Cobaki Bridge on a first in/first served basis.*
3. *No development is approved west of Cobaki Bridge when the remaining spare traffic capacity of 1506 vehicle trips per day are consumed.*
4. *With respect to Items 2 and 3 above, a review of traffic generation and development approvals to be undertaken in twelve months time."*

On 1 June 2009 Tweed Shire Council advised that the subject site is not located within the identified Kennedy Drive Catchment Area (see **Annexure 30**). Therefore Council's Resolution is not relevant to the project.

8.8 Hazard Management and Mitigation

8.8.1 Contamination

A Detailed Site Contamination Investigation has been undertaken by Precise Environmental (**Annexure 13**).

Based on the scope of work undertaken and the results obtained during the DSI, Precise Environmental considers that the site is suitable for residential use subject to the following additional work being undertaken (ie. as a condition of development approval):

1. A general site clean-up is required. This includes the removal of all general waste, rubbish and disused building materials that are present on the site.
2. Additional test pits are to be excavated either prior to or during the construction phase of the development in the southern filled area of the site. If asbestos and/or other potentially contaminating material and/or rubbish are identified in the test pits (particularly in the vicinity of TP6 & TP10), the material must be excavated, stockpiled, classified and removed to landfill. This work is to be supervised by an appropriately qualified contaminated land consultant.

A report must be provided to Tweed Shire Council within fourteen days following completion of this work. No dwellings are to be constructed on the site until this work has been carried out to the satisfaction of the supervising Environmental Consultant and Tweed Shire Council.

8.8.2 Acid Sulphate Soils

A Preliminary Acid Sulphate Soils Assessment is contained at **Annexure 13**. Whilst the site is not identified on Council's Acid Sulphate Soils Planning Maps as containing acid sulphate soils, geotechnical investigations carried out by Border Tech reveal that the site does contain some acid sulphate soils in the lower lying areas.

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Bore Holes 7, 8, 9 and 16 which are generally located adjacent to Bilambil Road and in the south eastern corner of the site indicate net acidity levels above the action criteria defined by ASSMAC of 18 moles H⁺/tonne. Accordingly the Assessment recommends that additional testing and treatment procedures be carried out for all disturbances below the existing surface levels on site in the vicinity of these Bore Holes. Minimal disturbance is required for service installation, however to ensure that potential impacts are properly managed, an Acid Sulphate Soils Management Plan will accompany the Construction Certificate Application.

8.8.3 Bushfire

The site is mapped as bushfire prone land. Riparian vegetation communities adjacent to Bilambil Creek constitute the key bushfire hazard.

Other surrounding land is either grasslands or managed lands (ie. urban roads and lawns). In accordance with the provisions of Planning for Bushfire Protection 2006, the narrow riparian vegetation can be treated as a rainforest thus requiring a 10m asset protection zone. This does not impose a significant constraint on the development potential of the land as the asset protection zone can be accommodated in the proposed perimeter road.

A Bushfire Assessment addressing the provisions of Planning for Bushfire Protection 2006 is contained in Section 4.4. In summary, the Assessment concludes that the project complies with relevant requirements.

8.8.4 Geotechnical

A Geotechnical Investigation (**Annexure 20**) for the proposed development was undertaken by Border Tech for the purposes of determining the suitability of the site for the proposed development. Field work and laboratory testing was undertaken to determine the characteristics of the site in terms of geotechnical conditions, geological origins, site preparation, preliminary foundation options, likely settlement and design surface movements.

Proposed earthworks on this site will consist of stripping, clearing, grubbing and bulk excavation works to form the road ways, building platforms, and park land areas. All areas investigated that require excavation to reduce existing surface levels exposed residual clays and weathered rock near the existing surface level. It therefore is assumed that this material will be used for structural fill in the low lying areas. The field work, laboratory results and knowledge of this material in similar areas indicate that the majority of sub-surface materials encountered are suitable for structural fill.

The earthworks are expected to have excess fill material estimated at approximately 19,060m² which will be suitable for clean fill to be disposed of off site.

Earthwork procedures should also include the following and be performed under Level 1 inspections.

Soils containing organic material will be required to be removed during earthworks. This material is not considered suitable for use as structural fill, but may be stockpiled and later used for topsoil;

Any depressions formed by the removal of vegetation, underground elements etc. should have all disturbed weakened soil cleaned out, backfilled and compacted with suitable fill in a controlled manner.

Where fill is to be placed, the exposed ground surface should be inspected to detect any soft or loose material. Loose soils, particularly loose surface clayey sands, should be compacted to the appropriate requirements or removed and replaced. Any weak, wet clays encountered should preferably be removed, or suitably treated insitu.

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Any insitu soils free of organic material and deleterious material may be used for structural fill provided the moisture content of the soils on placement approximates the optimum moisture content required for compaction. This may require conditioning to bring the soils to optimum. Where any plastic clay soils are removed and used for structural fill, difficulties in handling, placement and compaction may occur, particularly if the clays are over moist.

Material is to be placed in layers not exceeding 200mm loose thickness.

Non-sand material is to be compacted to achieve a minimum 95% Maximum Dry Density (MDD) based on standard compaction test for all building platform and 98% for commercial building platforms. Sand fill is to be compacted to achieve a minimum 70% density index based on standard compaction test.

Compaction is to be tested as per AS 3798 - 2007 Table 8.1 by a NATA accredited soils laboratory.

All standards above should be confirmed as to comply with the local Council requirements.

It is recommended that the placement of all structural fill material be inspected, tested and certified as per Level 1 requirements during the earthworks operations to ensure that all fill is placed in a controlled manner in accordance with AS 3798 – 2007 'Guidelines on Earthworks for Commercial and Residential Developments'.

The south-western portion of the site revealed existing fill material. This fill material has been placed recently and it is not clear if geotechnical testing and/or inspections were carried out during placement, therefore the fill material is considered to be uncontrolled in accordance with AS 2870 – 1996 'Residential Slabs and Footing – Construction'. It is not feasible at this stage to assess the compaction and quality of all fill material on this site. However from the borehole drilling it is noted that the fill material appears to be well compacted and may not require removal and replacement. It is recommended that this fill material be inspected during the stripping stage or alternatively a detailed investigation carried out on all areas containing fill material prior to earthworks commencing or cost estimations finalised.

Based on the above, it is concluded that the proposed subdivision is a suitable and feasible land use for the subject site in terms of geotechnical conditions.

8.8.5 Flooding

Parts of the site are subject to flooding in the Q100 event which is RL 3.5m AHD. All lots will be filled to a minimum of RL 4.4m AHD which provides well in excess of the normal freeboard required. Details relating to flooding are addressed in **Annexure 19**.

Council has nominated the design flood level consistent with the level of the 100 year ARI event. In this instance, that level has been nominated as RL3.500. Note that this level has been based on the historical flood level in the area. Calculated flood level, based upon the 36 hour duration flood in the Tweed Valley is approximately RL2.500.

It will be understood that the site is generally well above this level. A small area of the site (approximately 1,350m²) lies to a maximum depth of 0.700m below the design flood level. The area is generally constrained within the site, however it does extend to the Bilambil Road Reserve. The area is currently drained via the Bilambil Road table drain.

In accordance with accepted practice, the potential flood storage volume lost as a result of the filling is replaced by compensatory excavation associated with the construction of the detention pond. It is anticipated that the volume of flood storage lost as a result of the development is approximately 470m³. It is anticipated that this volume will be compensated for by the orderly regrading of Lots 55 and 56. Filling this area will not impact on any adjacent property.

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It is noted that the NSW Floodplain Development Manual 2005 refers to the appropriate Flood Planning Level as that defined by the Local Authority. As previously stated, this is the Q100 level. It is felt that the marginal quantity of filling required to achieve the proposed earthworks levels is not sufficient to warrant detailed investigation of potential impacts, particularly in the light of the compensatory earthworks proposed.

The final minimum level of the allotments has been set at RL4.400m AHD, 900mm above the nominated Q100 flood level.

The proposal satisfies the requirement for the provision of a high level evacuation route to land above the level of the probable maximum flood level (PMF). We are advised by Council that the PMF level has been assessed at RL5.5m AHD.

The Planning Scheme defines the High Level Evacuation Route as a road or footway whose entire length has a level of not less than the design flood level (ie the Q100 Flood Level) and which provides a route to enable people to evacuate to land above the PMF. Not only is the bulk of the development site above the PMF level, the stated requirements for an evacuation route are provided by the vehicular and pedestrian access to Carool Road, at the intersection of Bilambil and Urliup Roads at a level approximately 2m above the Q100 level.

The DECC Guidelines – “Practical Consideration of Climate Change” (Oct 2007) recommend that development proposals consider the impact of climate change on the particular development.

The Tweed Shire Council is currently in the process of investigating these impacts, including a “high” impact case with 0.91m sea level rise and 30% increase in rainfall intensity. Draft results of that study, specifically related to the 36 hour duration event indicate an impact of the order of 1.5m increase in the flood level at the Q100 event.

It is not considered appropriate to apply this impact to the historical flood level. Rather, the calculated impact should be superimposed on the calculated flood level. Thus in considering the impact of climate change, the anticipated flood level would increase from RL3.500 (historically based) to RL4.00 (Design Based). In this instance, the development is provided with a minimum freeboard of 0.40m.

8.8.6 Filling

A small area of the site comprising approximately 1350m² to a maximum depth of 0.7m below the design flood level will need to be filled. Filling of this area will not impact on any adjacent properties. Further details relating to filling are provided in Section 8.8.5 and **Annexure 19**.

8.8.7 Noise

Road Traffic Noise

Based upon ultimate traffic volumes on Bilambil Road, traffic noise levels are predicted to impact the proposed nearest building facade and recreation areas at levels above the external noise criterion; hence acoustic treatments are required.

For ground level building facade and recreation areas, we have recommended construction of 1.8m high acoustic barriers along the Bilambil Road frontage.

Lots setback from Bilambil Road will have traffic noise impacts lower than those presented. Traffic noise impacts will be lower due to greater separation distance from the road and physical screening provided by acoustic barrier and those buildings fronting the road.

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Further, noise impacts at first floor level facade at 90° to Bilambil Road of the lots fronting the road are predicted to be within 2 dB(A) of the noise criterion. As the average person cannot typically detect a 2 dB(A) variation in sound pressure level, such an exceedance is unlikely to cause annoyance and is considered an acceptable outcome. Hence, habitable rooms along first floor level facade at 90° to Bilambil Road (if first floor levels are constructed) of dwellings fronting Bilambil Road will not require acoustic treatments.

To achieve compliance with the internal noise criterion at noise affected first floor habitable rooms directly fronting Bilambil Road, provision of air conditioning or sealed mechanical ventilation is required to noise affected first floor habitable rooms (if constructed). The plant should not reduce the acoustic performance of the building shell.

Increases in traffic volumes on the local roads, from the proposed development, are predicted to increase road traffic noise levels by less than 2 dB(A), with the exception of Uriup Road. However, the $L_{Aeq\ 1hr\ daytime}$ level for Uriup Road, once the development is completed, is at 55 dB(A), which is the criterion for a Local Road within the New South Wales EPA 'Environmental Criteria for Road traffic Noise'. The $L_{Aeq\ 1hr\ daytime}$ levels for both Bilambil and Hogans Road are within 1 dB(A) of the relevant noise criterion for a Collector Road (60 dB(A)) and a Local Road (55 dB(A)) respectively.

We note that night-time hourly traffic volumes would be negligible, due to the size of the development; hence we have assessed daytime $L_{Aeq\ 1hr}$ levels only.

Onsite Commercial Activity Noise Impacts at Offsite Dwellings

Based upon the assumed source levels and recommended acoustic treatments, impacts at the nearest offsite dwellings to the north are predicted to be within 1 dB(A) the evening external noise criterion and the adopted internal limit of 45 dB(A) with the exception of waste collection and deliveries. As the average person cannot typically detect a 3 dB(A) variation in sound pressure level, a 1 dB(A) exceedance is unlikely to cause annoyance and is considered an acceptable outcome.

As waste collection and deliveries are only likely to occur once or twice per week, and are generally of short duration; such activities are unlikely to cause annoyance. To minimise annoyance we have recommended that such activities be limited to the daytime hours between 7am and 6pm

Impacts at the nearest dwellings to the east are predicted to generally be above the external criterion due to limited separation distance and limited opportunities for acoustic barriers. We note however that outdoor recreation areas at these dwellings are located on the eastern side of the dwellings, therefore providing physical screening of noise impacts from the proposed commercial activities.

Noise impacts inside the nearest eastern dwellings are predicted to be within 1 dB(A) of the adopted limit of 45 dB(A) with the exception of waste collection and car door closures. Furthermore, vehicles traversing Bilambil Road are predicted to impact these dwellings at approximately 63 dB(A) $L_{A10\ 18hr}$, which is above the predicted L_{A10} impact levels from the car door closures and waste collection at the general store.

Offsite and Onsite Commercial Activity Noise Impacts at Onsite Dwellings

With regards to the onsite residential dwellings impacted by onsite and offsite commercial activities; noise can be controlled to acceptable levels at indoor areas with upgraded glazing treatments at first floor level habitable rooms (if constructed) and the provision of air-conditioning or sealed mechanical ventilation. Given that waste collection and deliveries are likely to be infrequent occurrences and of short duration we have not based our building R_w requirements for onsite units on these impact levels.

As there should be an expectation of some noise if a person purchases a residential dwelling in a mixed use development, we submit that it is reasonable to allow noise control at the facades of the dwellings.

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Further, we have recommended construction of acoustic barriers to mitigate noise impacts at ground floor level building facades and recreation areas.

We have provided an indication of potential noise impact levels, and required acoustic treatments, of likely onsite mechanical plant; although the levels are merely a guide as no plant selections have yet been completed. For this reason, further more detailed assessment/s should be conducted upon determination of plant. Such assessments should be undertaken prior to Building Approval; and be conditioned within the Development Approval.

Construction Activity Noise

Based upon the assumed noise source levels, it is not possible to strictly comply with the “background + 15” criteria for all potential activities such as hammering, nor has any construction site within 200m of an existing residential premises ever complied with the criteria (assuming a noise limit of 54 dB(A), and an unobstructed line of sight from source to receiver).

The key to managing noise impacts is to ensure that all practical steps are taken to minimise noise from the site – if the residents adjacent are aware that the Builder is mindful of noise impacting upon their residential premises, they will tend to be less annoyed than if they feel no regard is made as to their amenity. Good communication is an important factor in managing noise from the site, as a good relationship between the Builder and the residents will further ensure that should an issue arise, it can be dealt with in a reasonable manner.

There are limited practical options for control of onsite activity noise, apart from the management principles listed in Section 6.3 of **Annexure 12**, above, but it must be noted that the recommended treatments are considered ‘best practice’ in terms of management of noise for building activities.

Further, it would be advantageous to keep surrounding residents and commercial operators abreast of the works progress; and give prior notice of any activities which may cause unexpected noise intrusion. In the unlikely event of a noise complaint, the complaint must be dealt with sensitively and respectfully, with the noise abated as soon as possible.

Overall, the proposed development will generally be within acceptable levels of the adopted criterion, subject to the acoustic treatments recommended in Section 6 of **Annexure 12** being integrated into the design and construction of the development.

In particular, Section 6.3 of **Annexure 12** recommends a number of measures to mitigate impacts during the construction phase. These measures include:

We recommend that the construction works observe the following treatments and principles to manage potential noise emissions to surrounding dwellings:

- Ensuring that works are strictly limited to 7a.m. and 6p.m. Monday to Friday, and 8am to 1pm on Saturdays.
- Trucks and equipment should not arrive or queue outside the site before 7a.m. and 6p.m. Monday to Friday, and 8am to 1pm on Saturdays.
- Onsite equipment should not be started before 7am on Monday to Friday and 8am on Saturday.
- Commence earthworks in the mornings as far from the residential premises as is possible.
- Truck and equipment speeds be limited to 20km/hr at the site.
- Truck and equipment speeds be limited to 40km/hr through residential areas surrounding the site.
- All reasonable and feasible acoustic treatments (i.e. residential mufflers and plant enclosures) should be installed and maintained (refer to AS 2436 – 1981 ‘Guide to noise control on construction, maintenance and demolition sites’).
- No alarm bells/paging systems should be used. Cordless telephones are a suitable substitute.
- Vehicles have a modified beeper installed (commonly termed a “croaker”, as they sound similar to a frog croak).

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- Drivers be instructed to operate equipment in a manner that does not generate unnecessary noise, through avoiding excessive revving, and avoidance of impact with solid objects.
- Maintenance of equipment. Regular maintenance of stationary and mobile equipment, including off-site vehicles. By maintaining equipment, noise emissions from older equipment will be similar to that of new equipment.
- Use and siting of equipment. By locating noisy equipment as far away from noise sensitive premises as is practical, distance separation will reduce potential noise impacts. Unloading building materials should be conducted as far away from noise sensitive premises as possible.
- Machines/equipment which discharge noise in a certain direction should be orientated away from residential properties to minimize noise annoyance.
- Machines/equipment should be turned off when not in use or throttled down to a minimum.
- All onsite roads be well maintained (no potholes) and levelled as required to minimise truck bounce as they move around the site.
- Drainage grating over trafficable areas be well secured to prevent them rattling when a vehicle traverses over the grate.
- Assign the task of managing noise emissions to a person (the 'responsible person') that is contactable at all times (e.g. 24 hours per day), and is likely to be present on-site most of the time that activity is occurring. This person would be responsible for handling noise complaints sensitively, and ensuring that work does not commence before the times specified above. The 'responsible person' should maintain a Noise Complaint Record, with an example recording form attached to this report.
- The 'responsible person' should also conduct regular observations of noise levels from the construction activities. Should any noise sources be identified as being able to be practically relocated further away from the residential area, the 'responsible person' should undertake to have the source relocated.
- Providing local residents with an indicative schedule of the works program, in particular, a clear notification of the times when new or noisy activities are to be conducted proximate to the residential premises. This notification should also include contact details of the 'responsible person' should residents wish to discuss the onsite activity.

It is intended that these measures will be incorporated into a Construction Noise Management Plan which will be prepared prior to the issue of a Construction Certificate (see Section 8.9).

8.8.8 Agriculture

The final maps pertaining to the Northern Rivers Farmland Protection Project identify the 2(d) zoned land on the subject site as "*committed urban uses and rural residential zones.*"

Figure 5 shows the spatial relationship between the subject land and the nearest area of mapped regionally significant farmland immediately adjoining the site the south of Hogans Road and to the west of Bilambil Creek. The regionally significant farmland is currently used for grazing purposes and this has been the use for many years.

As the road, Creek and proposed foreshore buffer provide adequate buffers and given the existing and likely future agricultural uses of this land it is considered that the proposal is not inconsistent with the provisions of the Northern Rivers Farmland Protection Project and will not impact on adjoining agricultural uses.

8.9 Water Cycle Management

At present, uncontrolled runoff from the highly disturbed site discharges direct to Bilambil Creek thus resulting in adverse water quality impacts. The proposed development incorporates stormwater management measures at both the construction stage and operational stage to ensure the water quality in Bilambil Creek is improved in accordance with Council's Urban Stormwater Quality Management Plan objectives. Full details of proposed stormwater quality management measures are contained in **Annexure 19**.

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A Stormwater Management Plan has been prepared in order to address the requirements of Tweed Shire Council's Stormwater Quantity and Quality objectives, in association with the application for Subdivisional Approval. There are two objectives for this Stormwater Management Plan.

The first is to ensure that the peak flows from the site during localised design storms will not result in any material adverse impact on the adjacent properties, both upstream and downstream. Thus the proposal is to demonstrate that the required works will not cause ponding on the upstream properties, nor will they result in an increase in peak flow rates. This objective is to be achieved for all rainfall events up to and including the Q100.

The second is to ensure that all runoff from the proposed site will comply with the Water Quality Objectives of Council, through proposing methodologies whereby stormwater runoff from the site may be treated to achieve those water quality objectives.

The site can be generally divided in to 3 separate catchments. The earthworks associated with the development will generally maintain this division, however the construction of the internal street will significantly alter the relative sizes of the original catchments.

Tweed Shire Council requires that stormwater runoff be discharged to a legal point of discharge, defined as a point on or adjacent to the development site, and (amongst other definitions) "a natural watercourse or waterway to which the site naturally drains". Accordingly, Bilambil Creek is nominated as the appropriate legal point of discharge. This has been confirmed by Council.

Tweed Shire Council has advised that there are no apparent issues related to the conveyance capacity of Bilambil Creek. Accordingly, it is not required to attenuate post development flow rates.

Tweed Shire Council has advised that the development does not trigger requirements for water quality improvement devices, in that the development does not have more than 50 allotments in a contributing catchment.

During the course of the construction, the following processes are expected:

- Bulk earthworks
- Detailed trim to final levels
- Haulage of fill to the site
- Underground Services construction

Management of stormwater runoff from the exposed earthwork surfaces will be based on containment, diversion and retention. At all stages of construction, current standards of building practices will be adhered to. These include:

- Placement of sediment fences where appropriate
- Vehicle shakedown to prevent suspended solids being exported from site and consequently into surrounding stormwater infrastructure
- Construction of temporary sediment ponds as required.

The installation of on site stormwater detention would mitigate any increase in peak flows generated as a result of the proposed development.

Through addressing stormwater quality at both the construction and operational phases of the development, deemed to comply water quality objectives will be met.

8.10 Heritage and Archaeology

Based on site observations and a review of the heritage listings in Tweed Local Environmental Plan 2000 and the North Coast Regional Environmental Plan 1988, there are no structures or other improvements with European Cultural Heritage values on the site.

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In relation to Aboriginal Cultural Heritage, Davies Heritage Consultants have prepared an assessment report, a copy of which is contained at **Annexure 11**.

Generally this report has addressed the archaeological potential and the cultural significance of the study area to Aboriginal people. It is important to note that archaeological sites (eg. stone artefact scatters, scarred trees, rock shelters, etc.) generally have cultural significance as such sites constitute evidence of prior occupation of the area by Aboriginal people and for this reason alone can be considered to have significance value. These values are irrespective of whether the site is *in situ*, disturbed or displaced. However, the likelihood of cultural sites being present has not been addressed. Besides topographical features there are other site types that are considered to have cultural significance. For example, some cultural site types relate to good food places or recent camping places.

Background research has revealed that places of particular significance have not been recorded within the Project Area. Additionally, cultural sites were not recorded specifically within the Project Area during the Bundjalung Mapping Project, nor was the area identified as having a higher probability for the presence of such sites. Hence, it could be assumed that cultural sites are not present. Generally, however, cultural significance values cannot be fully dismissed without consultation with the relevant Traditional Owners. As noted by Bowdler (1983:30), "identification of sacred sites and sites of significance to Aboriginal people is of necessity a matter for Aboriginal people. No-one else can decide whether the fact of significance or the degree of that significance to an Aboriginal community, except members of that community".

The aim of this section of the report was to document information in relation to the social and cultural values including the spiritual, traditional, historical or contemporary associations and attachments which the study area may have for the Registered Stakeholder. However, as responses to the notification letters and advertisement were not received, there are no identified Registered Stakeholders for this Project.

Hence, although unequivocal assurance that sites with social and cultural values are not present within the Project Area cannot be provided, it is considered that the potential for such sites to be present is low.

Based on the above discussion, full assurance that cultural heritage will not be harmed by the proposed development cannot be provided. However, it is considered that based on prior land use activities, the lack of sites recorded on the AHIMS Database and the fact that the Project Area was not identified as a location of Cultural Significance or a location with a higher probability for containing sites of Cultural Significance by the Bundjalung Mapping Project and as there are no identified registered stakeholders for the project, there is only a low to negligible potential for archaeological and/or cultural sites to be present. If archaeological sites were present they would not be *in situ*. The Department of Environment and Climate Change note that the Preliminary Assessment should include three tasks. A summary of the results of these three tasks are outlined in **Table 21**.

TABLE 21 – SUMMARY OF TASKS		
1	A description of the location and nature of the proposed development;	This information is provided in Sections 2.0; 3.0 and 7.0.
2	A description of any social and cultural values including the spiritual, traditional, historical or contemporary associations and attachments which the place or area has for the present-day Aboriginal community	Based on the lack of recorded sites on the AHIMS Database and information contained within "A Cultural Landscape Defined and Analysis of the Bundjalung Mapping Project as an aid to Aboriginal Cultural Heritage Management" (Fox pers. comm., 2008) there are no locations of cultural significance which contain Registered Sites and no locations with a higher probability for containing sites of Cultural Significance within the Project Area.

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TABLE 21 – SUMMARY OF TASKS	
3	<p>An assessment of which of the Aboriginal cultural heritage values that are known or likely to occur are likely to be directly or indirectly affected by the proposal</p> <p>There do not appear to Aboriginal cultural heritage values that will be directly or indirectly affected by the proposal.</p> <p>Under the <i>National Parks and Wildlife Act, 1974</i> (as amended)(Section 90) it is an offence to destroy, deface, damage or desecrate, or cause or permit the destruction, defacement, damage or desecration of, an Aboriginal object or Aboriginal place. Hence, at any time during the Project it is suspected that an Aboriginal object has been uncovered, the developer must immediately contact the Department of Environment and Climate Change (Planning and Aboriginal Heritage – North East) on (02) 66515946.</p>

Following completion of a Test of Adequacy in relation to the Draft Environmental Assessment dated August 2008, the Department of Planning requested further information in relation to the Preliminary Cultural Heritage Assessment carried out by Davies Heritage Consultants Pty Ltd. Davies Heritage Consultants Pty Ltd have provided the following responses to the issues raised by the Department.

a) Confirmation is required as to whether appropriate public notification/advertising has been undertaken as required by Part 3A guidelines.

Section 4 of the report clearly documents that appropriate public notification/advertising was undertaken. That is, the written notification was provided to:

- Tweed Byron Local Aboriginal Land Council (LALC);
- Registrar of Aboriginal Owners;
- Native Title Services;
- Tweed Shire Council; and
- Department of Environment and Climate Change.

In addition (and based on a list of Aboriginal community groups for the north coast / far north coast of New South Wales provided by the Department of Environment and Climate Change), written notification was also provided to:

- Tweed Shire Aboriginal Advisory Committee;
- Tweed Aboriginal Cooperative Society Ltd.;
- Nganduwal Descendants; and
- Gold Coast Native Title Group.

All the above notification letters were forwarded on the 2nd June, 2008.

A public notice was inserted in the Northern Star on Friday 6th June, 2008.

b) the report prepared by Davies Heritage consultants Pty Ltd acknowledges that it has not addressed “the cultural significance of the study area to Aboriginal people” (p.28) which is required by the Part 3A guidelines.

The above quote is lifted out of context from the first paragraph of Section 10 of the report; this paragraph is an introduction to Section 10 with the intention of stating that up to Section 10 the cultural significance had not been addressed – Section 10 attempted to address this issue.

The second paragraph of Section 10 states:
Background research has revealed that places of particular significance have not been recorded within the Project Area. Additionally, cultural sites were not recorded specifically within the Project Area during the Bundjalung Mapping Project (see Sub-section 6.3), nor was the area identified as having a higher probability for the presence of such sites.

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Hence, it could be assumed that cultural sites are not present. Generally, however, cultural significance values cannot be fully dismissed without consultation with the relevant Traditional Owners. As noted by Bowdler (1983:30), "identification of sacred sites and sites of significance to Aboriginal people is of necessity a matter for Aboriginal people. No-one else can decide whether the fact of significance or the degree of that significance to an Aboriginal community, except members of that community".

The aim of this section of the report was to document information in relation to the social and cultural values including the spiritual, traditional, historical or contemporary associations and attachments which the study area may have for the Registered Stakeholder. However, as responses to the notification letters and advertisement were not received, there are no identified Registered Stakeholders for this Project.

Hence, although unequivocal assurance that sites with social and cultural values are not present within the Project Area cannot be provided, it is considered that the potential for such sites to be present is low.

In Section 11 (Summary and Conclusion), the following statement is made:
.... it is considered that based on prior land use activities, the lack of sites recorded on the AHIMS Database and the fact that the Project Area was not identified as a location of Cultural Significance or a location with a higher probability for containing sites of Cultural Significance by the Bundjalung Mapping Project, there is only a low to negligible potential for archaeological and / or cultural sites to be present.

Table 1 Point 2 (Section 11): concludes:

Based on the lack of recorded sites on the AHIMS Database and information contained within "A Cultural Landscape Defined and Analysis of the Bundjalung Mapping Project as an aid to Aboriginal Cultural Heritage Management" (Fox pers. comm., 2008) there are no locations of cultural significance which contain Registered Sites and no locations with a higher probability for containing sites of Cultural Significance within the Project Area.

Table 1 Point 3 (Section 11) concludes:

There do not appear to be Aboriginal cultural heritage values that will be directly or indirectly affected by the proposal.

Hence, the Davies Heritage Consultants Pty Ltd report does not acknowledge that it has not addressed the cultural significance of the study area to the Aboriginal people – the issue was addressed and this is reflected in Section 10 and 11 of the report.

c) Have any results been received following the consultation with the Local Aboriginal Land Council and / or other Aboriginal community groups since the consultant's report was prepared in July 2008?

Responses have not been received from the Local Aboriginal Land Council and/or other Aboriginal community groups since July 2008.

8.11 Flora and Fauna

Annexure 15 comprises a Flora and Fauna Assessment of the site and development proposal.

The previous use of the Subject site, as a quarry, has removed the majority of the native vegetation. The Subject site is highly disturbed and the majority of the land is infested with exotic weeds. Several of these weeds are listed as noxious. Some patches of forested vegetation occur along the property boundaries (Camphor laurel) and within the Riparian zone. Camphor laurel dominates in these areas but some elements of Riparian rainforest are present.

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Five (5) vegetation communities and ninety-five (95) flora species were recorded after the site Survey. The majority of flora species are exotic weeds. One (1) threatened flora species was recorded.

The Rough-shelled bush nut (*Macadamia tetraphylla*) and this species is listed as Vulnerable under the NSW Threatened Species Conservation Act (1974) and the Environmental and Biodiversity Conservation Act 1999. One (1) regionally significant species, the White fig (*Ficus virens*), was also recorded (Sheringham & Westaway 1995).

A fauna survey and habitat assessment was carried out in conjunction with the flora survey. It is considered that due to the highly disturbed nature of this site, the suitability for native fauna is greatly reduced. One (1) amphibian species, the Common eastern froglet (*Crinia signifera*) and twenty-one (21) bird species were recorded. No mammal or reptile species were recorded. After an assessment of habitat on the Subject site and consideration of threatened species recorded in the local area, it is considered that ten (10) threatened fauna species may possibly occur on the Subject site.

In total four (4) hectares of vegetation will be lost from the Subject site, the majority of which will be from Community 5 – Low Closed Herbland which is comprised of exotic weed species.

The proposed development layout will result in the loss of one (1) stem of the Threatened flora, Rough-shelled bush nut (*Macadamia tetraphylla*). Amelioration measures will ensure adequate protection of this specimen.

The proposed development will result in a minor loss of foraging, sheltering and breeding habitat for native fauna occurring in the locality.

The Cobaki Broadwater is located to the northeast of the Site. The proposed development has the potential to impact on the Broadwater and the associated wetland vegetation communities. Stormwater runoff, from the proposed development, may also cause an increase in sediment, dissolved salts and general urban pollution and rubbish.

The NPWS Key Habitats and Corridors database (NSWPS 2008) shows two habitat corridors within the locality of the site. The subject site itself occurs adjacent to the Bilambil Sub-regional Corridor which links McAllisters Road and Duroby Creek. Approximately 1.2 km to the northwest of the site lies the McPherson Range - Cobaki Regional Corridor which links Mt Tomewin and McAllisters Road.

The Subject Site is not part of the above corridors. The proposed development will not contribute towards a reduction in the overall effectiveness of the site as a corridor. Only very poor quality habitat will be lost from the proposed development. On the contrary, the Site will be improved as a fauna corridor after a Vegetation Rehabilitation Plan (JWA 2008b) is implemented to rehabilitate and revegetate the Riparian Zone along Bilambil Creek.

The proposed development will enhance natural environment through a Vegetation Rehabilitation Plan. The VRP will outline best practice for the removal of exotic weeds species (mostly Camphor laurel) and provide guidelines for the revegetation of the Riparian buffer zone.

One (1) stem of the Threatened species Rough-shelled bush nut was recorded within the development layout. A Translocation Plan for this specimen is recommended. Potential management of this specimen may include translocation into the Riparian buffer zone, where it can be managed and monitored in accordance with the Riparian Management Plan.

An Assessment of Significance was completed for the one (1) threatened flora species recorded, the Rough-shelled bush nut (*Macadamia tetraphylla*). It was concluded that if the appropriate amelioration measures (translocation in to Riparian buffer) are incorporated a Species Impact Statement is not required.

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An Assessment of Significance was completed for ten (10) threatened fauna species that were considered as a possible occurrence over time. The potential impact, from the proposed development, on the threatened fauna is not considered to be significant and a Species Impact Statement (SIS) is not required.

An Assessment of State Environmental Planning Policy No. 44 (Koala habitat) concluded that a Koala Plan of Management is not required.

An Assessment under the Fisheries Management Act concluded that the development will not have a significant effect and a Species Impact Statement is not required.

An assessment of the Environment Protection & Biodiversity Conservation (EPBC) Act (1999) was completed for one (1) listed flora species Rough-shelled bush nut and one (1) listed fauna species Grey headed flying-fox. The proposed development will not cause a significant impact on a matter of National Environmental Significance (NES) and hence Commonwealth approval is not required.

Bilambil Creek runs adjacent to the west boundary of the Subject site and flows into the Cobaki Broadwater to the north-east of the Site. The proposed development has the potential to impact on these water bodies the associated wetland vegetation communities within it in the following ways:

- Stormwater runoff from the proposed development may cause an increase in sediment, dissolved salts and general urban pollution and rubbish.
- Occupation of the Site may cause an increase in local populations of invasive pest species (e.g. rats, cane-toads, foxes) and invasive weeds.
- Residents of the Site may dump rubbish and garden wastes into or near the Creek encouraging pest species and allowing the release of weed species, parasites and diseases into the Broadwater.
- Domestic animals may predate on or disturb fauna within the Broadwater.
- Increased light and noise from the Site may disturb the more reclusive species, in effect increasing the penetration of edge effects into the Nature Reserve.
- Occupation of the Site may reduce the effectiveness of dispersal vectors and dispersal life-cycle stages of fauna and flora from the Nature Reserve to the nearest wetlands in the south-east.

The Proposed development will enhance the natural environment of the Subject Site through a Vegetation Rehabilitation Plan (VRP) (JWA 2009b). The vegetation along Bilambil Creek will be rehabilitated by facilitated natural regeneration and revegetation. The area will be restored to a Sub-tropical Riparian Rainforest community. Additionally, this will assist to stabilise the banks of Bilambil Creek reducing erosion preventing any flow on effects to the Cobaki Broadwater.

The proposed drainage reserve and retention pond located in the south west of the site should also be specifically designed to:

- (1) retain and slowly release stormwater runoff in Bilambil Creek; and
- (2) remove common pollutants such as sediment, bacteria, greases, metals, total suspended solids, phosphorous, nitrogen, and trash pollutants from the water before it flows into Bilambil Creek.

8.12 Draft Statement of Commitments

The following table comprises a Draft Statement of Commitments designed to manage and mitigate potential adverse impacts during the construction and operational stages.

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
1. Erosion and Sediment Control (Construction Phase)	1.1 Minimise the escape of wind-borne particles by complying with the Erosion and Sedimentation Control Plan prepared by Campbell Leonard & Associates (Annexure 19)	1.1.1 Minimise disturbance area 1.1.2 Promptly rehabilitate disturbed areas 1.1.3 Regularly water disturbed areas of the site	To ensure that air pollution does not exceed DECC standards	Ongoing during the construction phase	Any complaints to be recorded in the Complaints Register and valid claims to be acted on within one hour. Details to be provided in the monthly Compliance Report.
	1.2 Minimise mobilisation of sediments by complying with the Erosion and Sedimentation Control Plan, prepared by Campbell Leonard & Associates (Annexure 19)	1.2.1 Erect sedimentation fences, inlet filters, hay bale barriers and diversion drains. 1.2.2 The controls shall be maintained during the construction phase and defects liability period.	To ensure that water quality in receiving waters is not decreased in quality by sediment and nutrient loads	All sediment and erosion control measures to be in place prior to commencing site work or demolition.	Visual monitoring shall be carried out by the Project Manager on a weekly basis and after each storm event. Details to be contained in the monthly Compliance Report.
2. Permanent Stormwater Management	2.1 Ensure that water quality in Bilambil Creek is not diminished.	2.1.1 Install permanent water quality control measures in accordance with the Stormwater Management Plan prepared by Campbell Leonard & Associates (Annexure 19)	To ensure that water quality in receiving waters is not decreased in quality by sediment and nutrient loads	All permanent stormwater measures to be in place prior to the issue of a Subdivision Certificate.	Project Manager to ensure compliance.
3. Site Safety	3.1 Minimise risk of injury to contractors and employees.	3.1.1 The principal contractor shall prepare a Health and Safety Plan and submit the Plan to the Project Manager for approval. The contractor shall comply with the approved Plan.	To ensure that Occupational Health and Safety Act 2000, Occupation Health and Safety Regulation 2001 and relevant Codes of Practice are complied with.	Prior to commencing any work on the site.	Monitoring and reporting incidents to be recorded in the Incident Register and details to be included in the monthly Compliance Report. Work Cover to be notified in appropriate circumstances.
		3.1.2 The principal contractor shall prepare a Traffic and Pedestrian Management Plan for approval by the Project Manager.	To ensure that traffic and pedestrian management during the construction phase complies with the RTA Traffic Control Worksite Manual and AS1742.3	Prior to commencing work on site.	As above.

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
4. Acid Sulphate Soil	4.1 Minimise disturbance of acid sulphate soils by limiting excavations to approximately 2 metres in depth.	4.1.1 Comply with the provisions of the Acid Sulphate Soils Manual (ASSMAC, 1998) and the Acid Sulphate Soil Assessment prepared by Border Tech (Annexure 18) including the preparation of a Management Plan prior to work commencing.	To ensure that significant volumes of acid sulphate soils are not disturbed.	Prior to the issue of a Construction Certificate.	Project Manager to monitor excavation and address compliance in the monthly Compliance Report.
5. Contamination	5.1 Minimise disturbance of potentially contaminated soils by complying with the Detailed Site Investigation, Precise Environmental, (Annexure 13).	5.1.1 A general site clean-up is required. This includes the removal of all general waste, rubbish and disused building materials that are present on the site. 5.1.2 Additional test pits are to be excavated either prior to or during the construction phase of the development in the southern filled area of the site. If asbestos and/or other potentially contaminating material and/or rubbish are identified in the test pits (particularly in the vicinity of TP6 & TP10), the material must be excavated, stockpiled, classified and removed to landfill. This work is to be supervised by an appropriately qualified contaminated land consultant.	To ensure that any contaminated soil is suitably remediated.	Prior to erection of any permanent structures over the contaminated material.	Compliance to be addressed in the monthly Compliance Report.

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
6. Construction of New Building and Subdivision Works	6.1 Minimise noise, dust and vibration and amenity impacts by generally complying with the Construction Noise Management Plan and the Health and Safety Plan.	<p>6.1.1 The Contractor shall prepare a Construction Noise Management Plan in accordance with the recommendations contained in Section 6.3 of Annexure 12.</p> <p>6.1.2 The Contractor shall prepare a Construction Management Plan.</p>	<p>To mitigate adverse construction impacts.</p> <p>To designate suitable areas for a construction compound including workers' amenities and employee parking.</p> <p>Ensure that small areas only are disturbed at any one time and are promptly revegetated following completion of earthworks.</p> <p>Ensure that appropriate dust abatement measures are implemented during the construction phase including appropriate use of water carts.</p> <p>Ensure that vibratory compaction equipment is not used within 100m of existing dwelling houses.</p> <p>Prior to construction commencing ensure that an inspection of existing buildings adjacent to the construction site is completed and any existing faults are documented.</p> <p>Ensure that waste materials suitable for recycling are stockpiled and suitably disposed of.</p>	<p>During construction.</p> <p>Prior to the issue of a Construction Certificate.</p>	<p>Project Manager to address compliance in monthly Compliance Report.</p> <p>As above.</p>

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
7. Operational Noise	7.1 To minimise impacts on the amenity of the neighbourhood.	7.1.1 Comply with the recommendations contained in Section 6.2 of Annexure 12 . 7.1.2 Comply with the provisions of Section 6.1 of Annexure 12 .	To mitigate adverse amenity impacts.	Prior to the issue of a Construction Certificate and ongoing.	As above.
8. Comply with the Building Code of Australia Including Part J	8.1 Ensure that the design and operation of the building achieved energy efficiency and water efficiency requirements.	8.1.1 Comply with the Building Code of Australian Including Part J relating to Commercial Buildings	To achieve energy efficiency objectives.	Prior to issue of a Construction Certificate.	Project Manager to address compliance in monthly Compliance Report.
9. Landscaping and Embellishment	9.1 Soften the visual impact of the development and surrounding hardstand areas	9.1.1 Carry out site landscaping in accordance with the Site Landscaping Plan at Annexure 8 .	To soften the appearance of the development and hardstand areas and provide a more attractive pedestrian environment and car parking area.	Prior to the issue of a final Occupation Certificate for the building.	Project Manager to address compliance in monthly Compliance Report.
10. Traffic	10.1 To ensure that safe and efficient vehicular and pedestrian access is provided to the site.	10.1.1 Construct all proposed streets and pathways to Tweed Shire Council's standards. 10.1.2 Manage traffic during the construction phase in accordance with the Construction Management Plan prepared by CLA Consultants (Annexure 19). 10.1.3 Comply with the recommendations contained in the Traffic Impact Assessment Report (Annexure 21).	To comply with relevant standards.	Prior to the issue of a Subdivision Certificate.	Project Manager to address compliance in monthly Compliance Report.
11. Utilities	11.1 Protect existing utilities in an adjacent to the site.	11.1.1 Clearly mark the location of underground utilities with permanent markers. 11.1.2 Notify relevant utility authorities if any damage occurs.	To ensure that infrastructure is not damaged.	Prior to commencing construction.	Project Manager to address compliance in monthly Compliance Report.

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
		<p>11.1.3 Ensure that power, telephone, water and sewer reticulation is provided to each allotment in accordance with Tweed Shire Council's normal policies.</p> <p>11.1.4 Rehabilitate disturbed areas including public roads.</p>	<p>To ensure that appropriate services are provided to each new lot.</p> <p>To ensure that any damaged areas are repaired.</p>	<p>Prior to the issue of a Subdivision Certificate.</p> <p>Prior to the issue of a Subdivision Certificate.</p>	<p>Project Manager to address compliance in monthly Compliance Report.</p> <p>Project Manager to address compliance in monthly Compliance Report.</p>
12. Sewer	12.1 Connect to the existing Council sewerage reticulation system at Pump Station No. 2018 or an alternative location approved by Council.	<p>12.1.1 The developer will construct a sewer pump station on the development site to the satisfaction of the Director of Community Services and Natural Resources.</p> <p>12.1.2 The developer will construct a Sewer Rising Main (SRM) from the new pump station to Sewer Pump Station (SPS) 2018 at Gollan Drive, including necessary odour control and septicity control facilities.</p> <p>12.1.3 In the event that the Sewer Network Analysis currently being undertaken by Tweed Shire Council determines that a connection point south west of Sewer Pump Station 2018 (closer to the development site) is feasible, the sewer rising main shall be connected to that point, to the satisfaction of the Director of Community Services and Natural Resources.</p>	To ensure that all lots are connected to the reticulated sewerage system in accordance with the details contained in Annexure 19 .	Prior to the issue of a Subdivision Certificate.	Project Manager to address compliance in monthly Compliance Report.

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
		<p>12.1.4 On completion of the Sewer Network Analysis, and the subsequent identification of the appropriate connection point, the Developer shall provide to Tweed Shire Council for approval the proposed route for the construction of the required pipework. The alignment of the sewer rising main shall be located either in the road reserve or in easements on adjacent private land along the Bilambil Road section. The rising main may only be located in sections of the road reserve if the Director of Engineering and Operations determines that such location will not adversely impact on the stability, functionality and operation of the road. The Developer shall address such issues to the satisfaction of the Tweed Shire Council in association with the application for the issue of a Construction Certificate. The remaining sections to Gollan Drive SPS 2018 will not be via Scenic Drive but rather through a route to be agreed with Tweed Shire Council prior to the issue of a Construction Certificate to Councils SPS 2038 at the north eastern end of Peninsula Drive.</p>			

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
		<p>Then via the foreshore of Terranora Broadwater parallel to Council's existing 300mm SRM to the northern end of Scenic Drive. Then finally to Gollan Drive SPS 2018 via road reserve to the satisfaction of the Director of Engineering and Operations.</p> <p>12.1.5 Detailed plans shall be provided with the Construction Certificate Application addressing slope stability within Bilambil Road and other areas as may be necessary, together with a Detailed Traffic Management Plan and the alignment of other future services in relation to construction of the sewer rising main.</p> <p>12.1.6 The developer will provide detailed plans as part of the Construction Certificate which will incorporate Reduced Inflow / Infiltration Gravity Sewers (RIGS) to Councils requirements.</p>			
13. Flora & Fauna	13.1 Protect existing threatened species of flora and fauna.	<p>13.1.1 Comply with the Translocation Plan Macadamia tetraphylla (Annexure 17).</p> <p>13.1.2 Rehabilitate the Bilambil Creek foreshore area in accordance with the Vegetation Rehabilitation Plan (Annexure 16).</p>	<p>To avoid the loss of the existing Macadamia tetraphylla.</p> <p>To protect water quality in Bilambil Creek and bank stability by appropriate revegetation of the riparian zone.</p>	<p>Prior to the issue of a Subdivision Certificate.</p> <p>Prior to the issue of a Subdivision Certificate.</p>	<p>Project Manager to address compliance in monthly Compliance Report.</p> <p>Project Manager to address compliance in monthly Compliance Report.</p>

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
14. Cultural Heritage	14.1 Comply with the recommendations of the Preliminary Cultural Heritage Assessment.	<p>14.1.1 That no further cultural heritage assessments (e.g. site inspection; cultural heritage survey) of the Project Area are required;</p> <p>14.1.2 Workers employed on the project, particularly any jobs associated with initial vegetation clearance / topsoil stripping, should undergo a cultural heritage induction so that they are aware of the types of cultural heritage material that may be uncovered and the process to follow in the event that cultural heritage material is uncovered. The cultural heritage induction should be presented by a suitably qualified person;</p> <p>14.1.3 Should future activities associated with the development of Lots 2 and 3 DP 244652, Hogans, Urliup and Bilambil Roads, Bilambil, uncover anything which may be interpreted as Aboriginal in origin, work in the vicinity of the find should cease immediately and the developer should inform the Department of Environment and Climate Change (NSW), Coffs Harbour, as soon as possible, for discussion, negotiation and direction.</p>	To comply with Legislative requirements.	Prior to work commencing and ongoing.	Project Manager to address compliance in monthly Compliance Report.

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TABLE 22 – DRAFT STATEMENT OF COMMITMENTS – ENVIRONMENTAL MANAGEMENT, MITIGATION & MONITORING

Project Component	Environmental Outcome (Commitment)	Measure (Commitment)	Purpose of Measure	Timing for Completion	Monitoring and Reporting
		The provisions of the <i>National Parks and Wildlife Act of 1974</i> (as amended) state that it is illegal to damage, deface or destroy a relic without written permission of the Director of the Service. Those failing to report a discovery and those responsible for the damage or destruction occasioned by unauthorised removal or alteration to a site or to archaeological material may be prosecuted under the <i>National Parks and Wildlife Act 1974</i> , as amended.			
15. Geotechnical	15.1 Achieve a stable landform.	15.1.1 Comply with the recommendations contained in Section 8 of the Geotechnical Report at Annexure 20 .	Ensure that geotechnically stable lots and infrastructure are created.	Prior to the issue of a Subdivision Certificate.	Project Manager to address compliance in monthly Compliance Report.
16. Playground Equipment	16.1 Provide suitable play facilities for children.	16.1.1 Install appropriate playground equipment within the Bilambil Sports Fields adjacent to the site.	Ensure that suitable equipment is installed to the satisfaction of Council.	Prior to the issue of a Subdivision Certificate.	Project Manager to address compliance in monthly Compliance Report.

9.0 CONSULTATIONS

9.1 Commonwealth Department of the Environment, Water, Heritage and The Arts

Based on the Flora and Fauna Assessment at **Annexure 15** there is no requirement to refer the project to the Commonwealth Department under the Commonwealth Environmental Protection and Biodiversity Conservation Act. On 20 November 2008 Evelyn Ivinson of the Department of Planning advised that in view of the above there is no need to consult the Commonwealth Department.

9.2 Tweed Shire Council

Council's Development Assessment Panel was consulted on 25 January 2008 and a copy of the Minutes of that meeting is attached at **Annexure 22**.

Council Officers were further consulted on 15 May 2008 and a copy of the Minutes of that meeting is also attached at **Annexure 23**.

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Further consultations were undertaken with Council Officers on 12 June 2008 in relation to the Bilambil Creek foreshore buffer and a copy of Council's advice relating to that matter dated 30 July 2008 is attached at **Annexure 24**.

9.3 Department of Environment and Climate Change

On 28 November 2008 a letter was forwarded to the Department enclosing a copy of the Draft Environmental Assessment Report and relevant plans dated August 2008. On 5 December 2008 the Department responded. A copy of the Department's response is contained at **Annexure 28**. The following table identifies the key issues raised by the Department and includes an assessment of those issues.

TABLE 23 – DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE		
KEY ISSUES	DEPARTMENT'S COMMENTS	ASSESSMENT
Riparian Buffer to Bilambil Creek	50m riparian buffer required for catchments over 500ha.	<p>The catchment is in excess of 500ha. The original layout referred to the Department proposed a nominal 20m revegetated buffer as conditionally agreed to by Tweed Shire Council. However, in view of the comments by the Department relating to riparian buffer widths an amended layout showing a 50m buffer, including a 15m perimeter road, was emailed to the Department on 20 January 2009 (see Annexure 29).</p> <p>On 2 February 2009 the Department responded by email (see Annexure 29). In summary, the Department advised that the revised buffer proposal is more suitable than the original but it is still less than the DECC recommended configuration of a 50m vegetated buffer. However the DECC believes it is preferable to locate the perimeter road outside of the recommended 50m buffer.</p> <p>In addition the Department advised that if the proponent prefers to retain the currently proposed buffer configuration, we recommend that the Environmental Assessment (EA) include a justification for that, including information to address the issues raised in the above.</p> <p>It is acknowledged that the amended layout does not provide for a 50m vegetated buffer, however to do so would significantly reduce yields to the point where development of the site would not be feasible. Given that there is no Section 94 Contribution Plan authorising or requiring the dedication of a foreshore buffer and having regard to the circumstances outlined in the Vegetation Rehabilitation Plan at Annexure 16 and the Flora and Fauna Assessment at Annexure 15, it is submitted that a 35m vegetated buffer will satisfactorily achieve the objectives of protecting riparian vegetation, bank stability and water quality within Bilambil Creek.</p> <p>Water quality and stormwater management are addressed in Annexure 19. In summary, urban runoff will be appropriately managed to ensure that water quality objectives for Bilambil Creek are achieved.</p> <p>In the circumstances, it is therefore considered that the proposed amended layout and buffer arrangements are satisfactory.</p>

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TABLE 23 – DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE		
KEY ISSUES	DEPARTMENT'S COMMENTS	ASSESSMENT
Water Quality	To be addressed in the Environmental Assessment Report.	See Sections 8.0 and 9.7 and Annexures 16, 17, 18 and 19.
Threatened Species	To be addressed in the Environmental Assessment Report.	See Sections 7.0 and 9.9 and Annexures 15 and 16.
Aboriginal Cultural Heritage Assessment	To be addressed in the Environmental Assessment Report.	See Section 9.8 and Annexure 11.
Land Contamination	To be addressed in the Environmental Assessment Report.	See Section 9.6.1 and Annexures 13 and 18.

9.4 Department of Primary Industries

On 28 November 2008 a letter was forwarded to the Department including a copy of the Draft Environmental Assessment and plans. The Department responded by letter dated 17 December 2008, a copy of which is contained at **Annexure 28**. The following table summarises the key issues raised by the Department and an assessment of those issues.

TABLE 24 – DEPARTMENT OF PRIMARY INDUSTRIES		
KEY ISSUES	DEPARTMENT'S COMMENTS	ASSESSMENT
Adequacy of Buffers to Farmland	<ul style="list-style-type: none"> • Address Tweed Shire Council Policies. • Address <i>"Living and Working in Rural Areas, DPI December 2007"</i>. 	<ul style="list-style-type: none"> • Appendix E of Tweed Development Control Plan 2007, Part A5 – Subdivision Manual provides that the buffer required where pesticides are sprayed from aircrafts is 150m including a biological buffer of 30m. Given the long term urban zoning of the site (ie. 20+ years) location of existing houses (see Figure 4), aerial spraying on adjacent rural land is most unlikely. Therefore, it is submitted that a 150m buffer is not required. <p>Appendix E requires a primary buffer to address noise, dust and odour where the adjoining land use is grazing of 30m.</p> <p>The residential lots will be buffered from the agricultural land to the south by a proposed public reserve and the existing Hogans Road road reserve which is approximately 40m in width. Compliance is therefore achieved. The existing Bilambil Creek and the proposed dedicated foreshore reserve and perimeter road will provide a buffer from dwelling houses to the agricultural land to the west of Bilambil Creek in excess of 50m. This therefore satisfies Council's requirements.</p> <p>Table 6 of the publication <i>"Living and Working in Rural Areas"</i> provides for a recommended buffer between grazing land and residential areas/urban areas of 50m. For the reasons discussed above, it is considered that the 40m buffer provided by the proposed layout would be adequate, bearing in mind that future dwellings will be located further north than the southern boundary of proposed Lots 31, 32, 33 and 34. In effect, a buffer of approximately 48m is likely to be achieved.</p> <p>In addition, as noted above the buffer to the west is in excess of 50m and thus satisfies the requirements of this publication.</p>

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TABLE 24 – DEPARTMENT OF PRIMARY INDUSTRIES		
KEY ISSUES	DEPARTMENT'S COMMENTS	ASSESSMENT
Riparian Buffer to Bilambil Creek	In response to the Department's letter an email was forwarded to the Department on 20 January 2009 incorporating an amended layout with a 50m riparian buffer including a 15m road reserve. The Department responded by email dated 30 January 2009 and advised that the Department prefers a 50m buffer with perimeter road but the amended layout achieves improved outcomes for fish and fish habitat. Considering this compromise the Department raises no objection to the proposal indicated in Amended Plan Reference T15337 dated January 2009.	The amended Environmental Assessment Report is consistent with the Department's advice.

9.5 NSW Rural Fire Service

The Rural Fire Service were consulted (pers. comm. Corey Shackleton 22 May 2008) in relation to classification of the riparian vegetation adjacent to Bilambil Creek.

9.6 Department of Water and Energy

In the circumstances it is considered that the project does not give rise to any specific issues for the Department and therefore they have not been formally consulted in preparing the Environmental Assessment. A letter was forwarded to the Department on 28 November 2008 enclosing a copy of the Draft Environmental Assessment Report and plans dated August 2008. No response has been received.

9.7 Roads and Traffic Authority

As the site is not in close proximity to any arterial roads and given the need to consult the Roads and Traffic Authority and/or Tweed Shire Council or the relevant Traffic Committee during the assessment process no formal consultations have been undertaken with the Roads and Traffic Authority. On 20 November 2008 Evelyn Ivinson of the Department of Planning advised that in view of the above there is no need to consult the Roads and Traffic Authority.

9.8 Department of Lands

On 28 November 2008 a letter was forwarded to the Department of Lands together with a copy of the Draft Environmental Assessment Report and plans dated August 2008. The Department responded by letter dated 23 December 2008, a copy of which is contained at **Annexure 28**.

The following table summarises the issues raised by the Department.

TABLE 25 – DEPARTMENT OF LANDS		
KEY ISSUES	DEPARTMENT'S COMMENTS	ASSESSMENT
Riparian Buffer to Bilambil Creek	The Department recommended a 50m buffer to Bilambil Creek. In response to the Department's letter an email was forwarded to the Department on 20 January 2009 incorporating an amended layout with a 50m riparian buffer including a 15m road reserve.	The amended Environmental Assessment Report is consistent with the Department's comments and appropriate revegetation of the riparian foreshore is proposed together with stormwater management (see Annexures 16 and 19).

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TABLE 25 – DEPARTMENT OF LANDS		
KEY ISSUES	DEPARTMENT'S COMMENTS	ASSESSMENT
	The Department responded by email dated 2 February 2009 and advised that the Department continues to support a 50m vegetated creek buffer but acknowledges that the amended subdivision plan is a significant improvement and could provide a suitable buffer to Bilambil Creek subject to appropriate revegetation. The Department further advised that the road between the lots and Bilambil Creek is also strongly supported.	
Perimeter Road	Request consideration of perimeter road, stormwater management and water quality.	The amended layout provides for a perimeter road. Stormwater management and water quality are addressed in detail in Annexures 16, 17, 18 and 19.

9.9 Northern Rivers Catchment Management Authority

The Catchment Management Authority was consulted in writing on 30 June 2008 and their response dated 25 July 2008 is attached at **Annexure 25**.

In summary, the Catchment Management Authority advised that the proposal does not appear to conflict with or inhibit the achievements of any of the targets of the Northern Rivers Catchment Action Plan. Indeed, the Catchment Management Authority advised that the proposal may actually contribute towards achieving Biodiversity Target B2 by improving the vegetation of the existing habitat corridors along the riparian zone of Bilambil Creek.

In relation to whether or not approvals are required under the Native Vegetation Act, this issue is addressed in Section 4.3 of this Report. In summary, because the land is zoned 2(d) Village the provisions of the Native Vegetation Act in relation to approval requirements are not applicable.

The Catchment Management Authority also advised that the applicant should consider all issues outlined and discussed in the publication "North Coast Guide for Avoiding and Reducing Rural Land Use Conflicts and Interface Issues". In particular, the handbook "Living and Working in Rural Areas" is particularly relevant to managing the interface between urban and rural development and potential conflicts.

Table 6 on Page 90 of this publication provides a recommended minimum buffer width for primary industries and in respect of grazing of stock, a 50m buffer is recommended between residential areas and urban development and grazing areas.

On the southern side of the site, the subject land is zoned Rural 1(a) and is currently used for grazing purposes.

The proposed dwellings will be separated from the grazing area by a distance of approximately 45m (including Hogans Road) and the proposed allotments on the western side of the site adjoining land zoned Rural 1(a) which is also currently used for grazing will be separated from the grazing land by a distance of approximately 45m to 50m (including Bilambil Creek and the proposed foreshore public reserve).

Given that this is an existing 2(d) Village zoned site and this zoning has been in place for approximately twenty years it is considered that the proposed separation requirements will provide satisfactory buffers in the circumstances of this case.

The proposal is otherwise generally consistent with the requirements of this publication.

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9.10 Local Aboriginal Land Council

Indigenous consultation commenced with the proponent seeking to identify stakeholder groups or people wishing to be consulted about the project. The Interim Community Consultation Requirements (Department of Environment and Climate Change) were followed. Hence, written notification was provided to:

- Tweed Byron Local Aboriginal Land Council (LALC);
- Registrar of Aboriginal Owners;
- Native Title Services;
- Tweed Shire Council; and
- Department of Environment and Climate Change.

In addition, the Department of Environment and Climate Change provided a list of Aboriginal community groups for the north coast / far north coast of New South Wales.

A subset of groups for the Tweed area was selected from this list. Hence, written notification was also provided to:

- Tweed Shire Aboriginal Advisory Committee;
- Tweed Aboriginal Cooperative Society Ltd.;
- Nganduwal Descendents; and
- Gold Coast Native Title Group.

All the above notification letters were forwarded on 2 June, 2008. A public notice was inserted in the Northern Star on Friday 6 June, 2008.

The notification letters advised that the closing date for registration of interest was Monday 16 June, 2008 (ie. 10 working days); the closing date for responses to the advertisement was Friday 20 June.

No responses were received by the closing dates.

9.11 Infrastructure Providers

Tweed Shire Council and Country Energy have advised that there are no capacity constraints in their existing systems to accommodate the proposed development.

9.12 Public Consultations

No formal community consultations have been undertaken to date however it is intended, if required, to arrange and conduct a public meeting at the Bilambil Hall during the formal public exhibition process for the Major Project Application. This will enable stakeholders, residents and other interested parties to clarify any issues and provide comments on the project.

10.0 SUMMARY AND CONCLUSION

This Environmental Assessment Report identifies the site's key opportunities and constraints and evaluates the likely adverse impacts arising from the project. It also identifies proposed mitigation measures which have been incorporated into the Statement of Commitments which the proponent will adhere to in carrying out the project.

The Assessment does not reveal any significant adverse impacts which would give rise to the project not proceeding. Given that the site is zoned 2(d) Village under the provisions of Tweed Local Environmental Plan 2000 and that this zoning has been in place for approximately twenty years and as the project is entirely consistent with the Far North Coast Regional Strategy, the Tweed Residential Development Strategy, the North Coast Urban Planning Strategy and Council's Section 94 Contribution Plans, it is concluded that approval of the Major Project Application, subject to appropriate conditions, would be both sustainable and consistent with the public interest.

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