

# ***Environmental Assessment***

## **Part 3A – EP&A Act, 1979**

No.156 Creek Street, Hasting Point – Walter Elliot Holdings P/L



# ***Certification Submission of Environmental Assessment (EA)***

***Under Section 75H of the Environmental Planning and Assessment  
Act 1979***

**Form**  
**Submission of**  
**Environmental Assessment (EA)**  
Prepared under the Environmental Planning and Assessment Act 1979

**EA prepared by**

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Kingscliff NSW 2487	

In respect of	Proposed Concept Plan for a Residential / Tourist Development
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Applicant name	Walter Elliot Holdings Pty Ltd C/- Planit Consulting
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Land on which development is to be carried out	Lot 156 DP 628026 Creek Street and Creek Street Road Reserve
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Proposed development	Proposed Concept Plans for a Residential / Tourist Development
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**Certificate**

I certify that I have prepared the contents of this Statement to the best of my knowledge:

It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.

Signature

name	Chris Sayer
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date	17 <sup>th</sup> February 2010
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## Reference Table: Director General's Requirements

DGR's General Requirements	Section of EA	Associated Appendix
<b>The Environmental Assessment for the Concept Plan must include:</b>		
1. An Executive Summary	EAI	
2. A Description of the Proposal	EA2 (Site and Surrounds Description) EA3 (Proposal Description)	Appendix C
3. A site analysis and description of the existing environment	EA2 & Figure 8	APPENDIX C
4. Consideration of statutory and non-statutory provisions.	EA4	
5. Consideration of Impacts on matters of national environmental significance under the Commonwealth Environment Protection & Biodiversity Conservation Act 1999.	EA4 Section 4.1.1	
6. Draft Statement of Commitments	EA7 Section 7.1	
7. Plans & Documents	Contained throughout the document to support relevant text.	Relevant Appendices for greater detail on individual technical aspects of the proposal.
8. A signed statement from the author of the EA	See page 3	
9. Table outlining where the key issues required to be addressed in this EA as required by the Director General are located within this EA Document.	See table below	

DGR's Key Issues	Section of EA	Associated Appendix
<b>1. Subdivision Layout, Desired Future Character &amp; Sustainability</b>		
1.1	Section 3 Generally - 3.1 & 3.2 Suitability - 3.3 Desired Future Character - 3.4 Sustainability - 3.5 Pedestrian/bicycle Movement - 3.2 Visual Impacts - 2.16	<b>Appendix G</b> – Visual impact Assessment
1.2		
1.3	Coastal Design Guidelines NSW - 4.7 SEPP 71 - 4.3.5	
<b>2. Water</b>		
2.1	Water Cycle Management Plan – 3.6	Engineering Impact Assessment Report (Under Separate Cover) – Section 8
2.2	Water Sensitive Urban Design 3.6.3, 4.6.3	Engineering Impact Assessment Report (Under Separate Cover) – Section 8 & 9
2.3	Dewatering – 3.11	
2.4	Tweed Coast Estuaries Management Plan – 3.6, 4.6.3	
<b>3. Flooding</b>		
3.1	Flooding Risk - 3.7	Engineering Impact Assessment Report (Under Separate Cover) – Section 6
3.2	Sections 3.7, 4.5.10, 4.6.2	Engineering Impact Assessment Report (Under Separate Cover) – Section 6
3.3	Highest Astronomical Tides - 3.7, 4.5.10	Engineering Impact Assessment Report (Under Separate Cover) – Section 6
<b>4. Flora and Fauna</b>		
4.1	Sections 2.10, 4.1.1	<b>Appendix I</b> – Terrestrial Flora and Fauna Report
4.2		<b>Appendix I</b> – Terrestrial Flora and Fauna Report
4.3	Mitigation – 5.5 (5.5.1 – 5.5.7), 7.1.7	
4.4		<b>Appendix I</b> – Terrestrial Flora and Fauna Report
4.5	Concept Plans found within Section 3 (Sheets 7.1 – 7.4 detail the Rehabilitation Plan)	<b>Appendix I</b> – Terrestrial Flora and Fauna Report
4.6	N/A. Under revised plans no boardwalks or paths cross any water ways.	
<b>5. Aboriginal and European Heritage</b>		
5.1	Section 3.9, 7.1.9	<b>Appendix J</b> – Cultural Heritage Assessment
<b>6. Contamination and Remediation of Site</b>		



6.1	Section 2.12, 2.13, 3.10.3.11	Engineering Impact Assessment Report (Under Separate Cover) – Appendix B
6.2	Section 4.3.4	
6.3	Section 4.5.11	Engineering Impact Assessment Report (Under Separate Cover) – Appendix B
6.4		Engineering Impact Assessment Report (Under Separate Cover) – Appendix B
<b>7. Geotechnical</b>		
7.1	Section 2.13	Engineering Impact Assessment Report (Under Separate Cover) – Appendix E
<b>8. Bushfire</b>		
8.1	Section 3.1.2, 4.5.13	<b>Appendix H</b> – Bushfire Management Plan
<b>9. Traffic &amp; Access</b>		
9.1		Engineering Impact Assessment Report (Under Separate Cover) – Section 7
9.2	Section 3.13	Engineering Impact Assessment Report (Under Separate Cover) – Sections 7
9.3	Sections 3.1.3, 4.5, 4.5.1, 4.5.7	
<b>10. Riparian Corridor and Foreshore Access</b>		
10.1	Sections 3.14, 3.2	
10.2	Section 7.1.7	<b>Appendix I</b> – Terrestrial Flora and Fauna Report
<b>11. Provision of Public Service and Infrastructure</b>		
11.1	3.15	Engineering Impact Assessment Report (Under Separate Cover) – Sections 9, 10 & 11
<b>12. Earthworks and Filling</b>		
12.1	Section 3.17	Engineering Impact Assessment Report (Under Separate Cover) – Section 5
<b>13. Social Impact and Amenity</b>		
13.1	Section 6.1 – 6.3	<b>Appendix F</b> – Socio-Economic Assessment

**Review and Amendments Schedule – PLANIT CONSULTING PTY LTD**

Date		
Authors	CS	February 2010
Reviewer	AS	February 2010

Amendments

The content of this report was prepared for the exclusive use of the proponent for the purposes of seeking the consent of the Minister for concept approval of a Residential and Tourist Subdivision on the subject site and is not to be used for any other purpose or by any other person or corporation.

Planit Consulting Pty Ltd accepts no responsibility for any loss or damage suffered arising to any person or corporation who may use or rely upon this document.

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Planit Consulting Pty Ltd declares that it does not have, nor expects to have, a beneficial interest in the subject project.

**PLANIT CONSULTING PTY LTD<sup>®</sup>**  
**February 2010**

## Section EA i

### Executive Summary

#### The Proposal

This Environmental Assessment (EA) accompanies an application for Concept approval pursuant to Section 75M of the Environmental Planning & Assessment Act, 1979.

The subject development site comprises of one (1) property and is legally described as:

#### Property Description

Lot Number	Plan Number	Address	Area
Lot 156	Deposited Plan 628026.	No.32 Creek Street, Hastings Point	17.77 ha
<b>Total Area</b>			17.77 ha

The key elements of the proposal are shown below.

#### Proposal Description

Lot Number	Plan Number	Address	Area
Lot 156	Deposited Plan 628026.	No.32 Creek Street, Hastings Point	17.77 ha
<b>Total Area</b>			17.77 ha
<b>Details</b>			
<b>Total No. Lots</b>		41	
<b>Total 2(e) zone area (existing)</b>		7.02ha	
<b>Total development footprint inc. roads</b>		4.03ha	
<b>Total public open space</b>		0.51ha	
<b>Total rehabilitation area</b>		1.94ha	
<b>Total EEC removal (saltmarsh)</b>		1740m <sup>2</sup>	
<b>Total dedication area (environmental lands) ex. Public open space.</b> To be retained and monitored for environmental weed presence and removal as outlined in rehabilitation plan attached.		12.75ha	
<b>Open Space</b>		Provided	
<b>Public Open Space – Local Parks</b> TSC Requirement 1.13ha per 1000 population (assume 2.4 persons per allotment)		0.51ha  TSC Requirement equates to approx 1130m <sup>2</sup> (41 lots @ 2.4 persons per lot)	

<p>NB. Structured Open space will be addressed by way of monetary contribution.</p>	
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It is not proposed to stage the development.

The land upon which the subdivision is proposed is zoned 2(e) Residential Tourist under the Tweed LEP 2000, whilst the remainder of the site is zoned 7(a) Environmental Protection - (Wetlands and Littoral Rainforests).

Access to the site is provided from Creek Street which connects with Tweed Coast Road to the east.

The proposed subdivision will yield 37 residential allotments (including three larger allotments that have the potential for dual occupancy development), two (2) potential tourist allotments and two (2) allotments that are proposed to contain townhouse style small lot housing. Area Specific Development Controls have been developed and it is recommended that these be adopted within the Tweed DCP Section A1.

Creek Street is proposed to be upgraded and local roads to service the proposed lots are to be constructed. All power, telecommunications, water and sewer services and connections to existing services will be provided to service each of the proposed lots.

Rehabilitation of degraded areas of the site through revegetation using native species is proposed, along with the development of recreational open spaces and facilities within these spaces. A comprehensive pedestrian and cycle movement network shall be provided linking proposed allotments to open space areas and the existing movement networks within the local area. It is proposed that the open space areas of the site will be dedicated to Council upon completion of all subdivision works.

### Land Use and Capability

With the exception of a recently constructed dwelling house, the site is currently vacant and has intermittently been used for grazing of horses in recent years. At some period in the 1980's, a portion of the site was cleared of vegetation and dredged for the use of local sand.

In 2003, the Council undertook a detailed Local Environmental Study over the land. This study resulted in the amendment of zoning designations and resulted in a net loss of 2(e) zoned land and a proportionate increase in environmentally protected lands. This study, a copy of which is attached, also discussed in some detail the need to adopt a flexible approach to the implementation of buffers.

The present degraded area of cleared land containing grasses and scattered trees can be largely attributed to this activity. This area is located to the north and centre of the site and includes the area that will contain all of the proposed allotments.

The remainder of the site contains vegetation associated with the riparian zones of both Cudgera and Christies Creeks along with some areas of woodland associated with the hills contained within the Cudgen Nature Reserve. The vegetation in these areas is proposed to be maintained and enhanced through rehabilitation.

The area of degraded land is capable of accommodating the proposed subdivision in line with various legislative requirements and is considered to be capable of accommodating

the proposal without causing any significant detrimental impacts to the natural environment of the site and the catchments of Cudgera and Christies Creeks.

### **Flooding**

The proposal requires filling depths of generally between 0.5m and 2m across the area of the site that is proposed to contain the proposed allotments and road network. This fill will bring the level of this area of the site to a minimum of 2.4m AHD with an average level after filling of 2.8m.

In regard to the site itself, the highest astronomical tide for the site is RL 1.14m AHD. The proposed filling of the site to a minimum of 2.4m AHD would mean the site would not be affected by tidal inundation. All buildings proposed to be erected on the site will be required to have an adopted minimum floor level of 3.1m AHD in accordance with the provisions of Section A3 of the Tweed DCP.

A Flood Analysis has been carried out and the report concludes that the proposed fill on the site slightly increases upstream levels of Cudgera and Christies Creeks. This minor variation in flood levels is not considered to cause significant impacts in terms of water surface elevation or change in inundated land area that would increase possible damage or nuisance to adjacent properties.

### **Water**

A detailed Water Cycle Management Plan outlining the methods proposed for the management of onsite stormwater and the maintenance of required levels of water quality is presented in the Engineering Impact Assessment Report. This report also demonstrates how techniques of water sensitive design have been considered and would be implemented, particularly with regard to on site water retention. During the consideration of stormwater management, the Tweed Coast Estuaries Management Plan 2004 – 2008 for Cudgen, Cudgera and Mooball Creeks was consulted and the proposed Water Cycle Management Plan is considered to meet the recommendations of this document.

### **Riparian Corridor and Foreshore Access**

The western, southern and eastern portions of the site are dominated by existing riparian vegetation and surround that area of the site that has been previously degraded. The application is proposing the rehabilitation of significant areas of degraded land adjacent to existing riparian vegetation. This is proposed to be achieved through revegetation of these areas using local native species. This will increase the width of the vegetated riparian zone improving water quality to the creeks and enhancing wildlife corridors.

Behind this riparian corridor and at the interface with the proposed development footprint are two (2) proposed recreational open spaces (park areas) which will contain turfed areas with shade trees, seating and children's play facilities. The interface between the roads / proposed allotments and the remainder of the site will see the construction of a pedestrian/cycle trail linking to existing paths. This would enable a complete movement network from the proposed open space areas to those existing open spaces located to the south of Hastings Bridge and along the banks of Cudgera Creek. The proposed open space areas within the site will be provided with recreational facilities including, shelters and barbeque areas.

## Flora and Fauna

Some threatened species have been identified as possibly occurring within the surrounding vegetated areas of the site, with none being found, or expected to occur, within the previously disturbed areas of the site. Following a detailed ecological assessment of the site, four (4) endangered ecological Communities have been mapped within the site. In this regard, only a small portion of a saltmarsh community is proposed to be disturbed. Significant compensatory rehabilitation of this community is proposed within the site.

Rehabilitation and revegetation measures proposed will provide improved flora and fauna links, additional food resources for identified threatened species, improved opportunities for breeding, better water quality from overland flow through increased areas of riparian vegetation and other benefits associated with visual screening and local amenity.

## Bushfire Management

The subject property is in part located within a bushfire prone area as per Tweed Shire Council's Bushfire Prone Lands Map. The subject site is constrained by Vegetation Category 2 bushfire prone land and associated buffer zones to Vegetation Category 1 and 2.

The proposal incorporates a perimeter link road and facilities promoting emergency alternative access.

## Archaeology

A heritage assessment focusing on both Aboriginal and non-Aboriginal heritage has been carried out, with no areas of concern identified. Recommendations stemming from the investigations undertaken include that in the unlikely event that any cultural material is exposed during earthworks operations, works that disturb soil or subsoils will cease immediately and representatives from the Department of Environment and Conservation and the Tweed Byron Local Aboriginal Land Council are to be invited to the site.

## Traffic and Access

A traffic assessment has been undertaken and is presented in the Engineering Impact Assessment Report attached to this EA. Proposed access to the site is from Creek Street. It is intended that Creek Street be extended along the Road Reserve to cater for two entries to the proposed subdivision. These entries are located to the northeast of the development and will connect to the proposed extension of Creek Street. The residential allotments are to be serviced by a permeable road network consisting of the two access roads and two short cul-de-sacs.

The traffic impact assessment undertaken concludes that the Creek Street / Tweed Coast Road intersection can be upgraded to provide for a protected right turn lane for safety reasons.

A flood evacuation track will be incorporated into the end of one of the cul-de-sacs to allow residents access to higher ground in a flood event. Creek Street shall be upgraded to standards consistent with Council's requirements. Public parking is proposed to be provided with appropriate street lighting to Australian Standards to allow visitors convenient access to the areas of open space to be developed.

## Visual Impacts

A Visual Impact Assessment has been carried out in relation to the existing visual catchment (see Appendix G). The site is located at the intersection of Christies and Cudgera Creeks in close proximity to the Hastings Bridge which traverses Cudgera Creek. Accordingly, there is potential for the proposal to create visual impacts to adjoining and surrounding lands. The Visual Impact Assessment proposes methods for the minimisation of any visual impacts to that considered to be reasonable and acceptable to the surroundings and the amenity of the village of Hastings Point.

In particular, existing properties along the southern side of Creek Street have been identified as being within a visual catchment that may be impacted upon by the proposal.

The site is also visible from the southern approach to the Hastings Bridge, however, much of the building bulk that will be eventually constructed on the site will be screened by the mangroves lining the creeks and the remainder of the riparian vegetation behind the mangroves. In addition, it is considered that the ameliorating benefits of significant spatial separation afforded by Cudgera Creek to the southern areas of Hastings Point will assist in ensuring that no unacceptable visual impacts are created by the development.

## Waste

Solid waste generated on site will be disposed of by licensed contractor and disposed of or recycled accordingly.

Effluent generated by staff employed upon the site will be pumped off site for treatment at a Council facility.

## Socio-Economic Aspects

A Socio-economic Impact Statement has been prepared and is presented in Appendix F.

This assessment includes the identification of the likely future impacts of the development on the community of Hastings Point and measures for the mitigation of likely impacts where these are considered necessary.

It is considered the proposed development will generate positive outcomes in relation to employment generation, housing opportunities, recreational opportunities and public open space, competition and multiplier effects throughout the local economy.

Potential impacts associated with the development at the construction stage can be appropriately managed within acceptable limits. In areas where the development is likely to place a demand on Council infrastructure such as roads, surf lifesaving, libraries, cycle ways and other public facilities suitable Section 94 Contributions will be levied accordingly to enable these services and facilities to be maintained, embellished and upgraded as required and planned for by Council.

## ESD and Cumulative Impacts

The principles of Ecologically Sustainable Development have been considered and underpin the evolution of this proposal. The proponent supports the requirements to limit cumulative impacts, the precautionary principle, social and intergenerational equity and the conservation of biological diversity and ecological integrity.

The proposal demonstrates adherence to these principles via the retention of existing riparian vegetation and regeneration of previously disturbed areas, the assurance of negligible impacts upon adjacent sensitive areas, the maintenance of existing groundwater quality and the adoption of management measures relating to energy efficient residential design and traffic efficiency.

### **Mitigation Measures and Environmental Management**

A summary of the proposed management and mitigation measures is contained within Section 7 of this EA.



## Section EA 1

### Introduction

#### 1.1 BRIEF

Planit Consulting has been commissioned by Walter Elliot Holdings Pty Ltd to prepare and submit an Environmental Assessment (EA) to accompany a Concept Approval for a Residential and Tourist Subdivision on the subject site.

The following Environmental Assessment has been prepared in accordance with Section 75M of the Environmental Planning and Assessment Act 1979; and the requirements of the Department of Planning as outlined within the Director General's requirements contained within Appendix D to this submission.

#### 1.2 PROJECT TEAM

The project team commissioned for this EA includes the following firms and/or individuals:

Table 1: Project Team

Firm/Individual	Role
Planit Consulting Pty Ltd	Town Planning
	Urban Design
	Project Management
	Flora & Fauna Assessment
	Rehabilitation & Landscaping
	Environmental Assessment Preparation
	Social Impact Assessment
B&P Surveys	Visual Impact Assessment
	Survey
Opus	Flooding, Drainage, Traffic/Engineering
Everick Heritage Consultants Pty Ltd	Archaeological Assessment
Daryl McGinn	Mosquito & Biting Midge Assessment

#### 1.3 CONSULTATION

Preliminary and ongoing consultation has been formally undertaken with the following relevant Government and Regulatory Authorities.

- Tweed Shire Council
- Department of Planning, inclusive of establishing the proposal as being subject to the requirements of SEPP Major Development and the sourcing of Director General's Requirements
- Department of Primary Industries (Fisheries)
- Hasting Point Community Group

An informal community meeting was convened on Wednesday 28<sup>th</sup> February 2007 at Cabarita Sporting Fields, Cabarita.

At the meeting convened, information sheets were handed out and questions invited. It was clear from the meeting held that key points of consideration were as follows:-

1. Traffic capacity of Creek Street;
2. Acid sulfate soils;
3. Visual impact;
4. Noise generation;
5. Impacts on adjacent wetlands;
6. Loss of property value;
7. Ownership of land and end use; and
8. Access for the public to the estuary.

These matters, amongst others, have been addressed within the body of this submission.

#### 1.4 JUSTIFICATION

Subsequent to the 2003 LES and LEP Amendment undertaken by Council, approximately 7.00ha of the site is zoned as 2(e) Residential Tourism.

It is this area of the site that is proposed to be developed in the form of a subdivision for 37 residential allotments, (including three residential allotments with greater than 1000m<sup>2</sup> which have the potential to be developed as dual occupancy), two (2) townhouse style housing allotments and two (2) tourist allotments.

The extent of 2(e) zoning within the site came under scrutiny by the Tweed Shire Council in 2002. Concern was represented by the Shire that an area, in the east of the site, that is now zoned 7(a) and that was included in a previously larger area of the site zoned 2(e) was environmentally sensitive in regard to containing riparian vegetation. Ultimately the draft Tweed Local Environmental Plan 2000 (amendment 44) was adopted by the Shire.

Detailed environmental investigations, including a Local Environmental Study, were undertaken by the Shire prior to this decision. These investigations essentially determined that the remainder of the site that was zoned 2(e) would remain under such a zoning and could be developed for such purposes. The current land use zones affecting the site are relevant to this study. Furthermore, the 2003 LES identified that this site was warranting of reduced buffers given the merits of the land. This was prefaced by the need to remain flexible with respect to buffering to adjacent residential areas. A copy of the Council's report in this regard is attached at Appendix L.

The Tweed Shire has undergone significant population growth over the past 20 years with the population increasing by close to 2.0% per year from 74,580 in 2001 to 79,321 in 2006. Accordingly, it is estimated that by 2021 the population of Tweed Shire will be approximately 105,180 people. This rate of growth has, in actual fact, been more pronounced at the local level, with Pottsville experiencing a strong growth rate and the Casuarina and Salt developments nearing completion. Further to this, development on Seaside City is now underway and will further add to the population of this area of the Tweed Coast.

In addition, there has been substantial urban and resort development undertaken in other parts of Tweed Shire, including the Tweed Coast. This growth, coupled with additional commercial and employment generating development in both the Tweed and South East Queensland, indicates that demand for residential housing and tourist accommodation will continue to increase in the longer term.

The proponent has carefully considered this proposal with the knowledge that Council in recent years has thoroughly investigated the land contained within this site and its relationship with surrounding areas and then, determining through Amendment 44 to the Tweed LEP 2000, that the remaining land zoned 2(e) Residential/Tourist is suitable and capable of accommodating residential and tourist accommodation.

It is acknowledged that in recent years, certain vegetation classes have been identified as EEC's and as such, the development footprint proposed ensures that that area to be developed has focussed on physical constraints as opposed to the zone boundary and that where removal of EEC is proposed, this is offset in a significant manner.

Further to this, the information within this Environmental Assessment shows that the proposal generally complies with relevant statutory provisions and considers the environmental, social and economic issues pertinent to the site, the village of Hastings Point and the greater Tweed region.

### **1.5 THE PROPONENT**

Walter Elliot Holdings Pty Ltd is a private company specialising in residential development throughout Australia, with a focus on Queensland, Victoria and New South Wales.

### **1.6 OBJECTIVES OF THE PROPOSAL**

The objectives of the proposal are:

- to develop the residential component of the property without adversely impacting upon the natural features of the land and the surrounding wetland areas adjoining Christies Creek and Cudgera Creek;
- to ensure the development respects the low density character of the Hastings Point village;
- to formalise public access arrangements to the surrounding waterways by providing additional foreshore open space;
- to establish a pedestrian and cycleway network that links the coastal open space areas east of the Hastings Bridge with the riparian ecosystems associated with Cudgera and Christies Creeks to the west of Hastings Bridge, creating a cohesive open space network within the village of Hastings Point.
- to minimise the impact on surrounding residences in terms of noise, visual amenity and traffic whilst maintaining the economic viability of the proposed development;
- to provide for the rehabilitation of disturbed areas from past dredging and clearing activities upon the property.

### **1.7 KEY ELEMENTS**

- Creation of 41 allotments comprising Standard Residential, Townhouse Style and Tourist Accommodation sites.
- Rehabilitation of existing degraded areas to increase the width and quality of the riparian zones of both Cudgera Creek and Christies Creek.

### **Proposal Description**

Lot Number	Plan Number	Address	Area
Lot 156	Deposited Plan 628026.	No.32 Creek Street, Hastings Point	17.77 ha
<b>Total Area</b>			17.77 ha
		Details	
<b>Total No. Lots</b>		41	
<b>Total 2(e) zone area (existing)</b>		7.02ha	
<b>Total development footprint inc. roads</b>		4.03ha	
<b>Total public open space</b>		0.51ha	
<b>Total rehabilitation area</b>		1.94ha	
<b>Total EEC removal (saltmarsh)</b>		1740m <sup>2</sup>	
<b>Total dedication area (environmental lands) ex. Public open space.</b> To be retained and monitored for environmental weed presence and removal as outlined in rehabilitation plan attached.		12.75ha	
<b>Open Space</b>		Provided	
<b>Public Open Space – Local Parks</b> TSC Requirement 1.13ha per 1000 population (assume 2.4 persons per allotment)  NB. Structured Open space will be addressed by way of monetary contribution.		0.51ha  TSC Requirement equates to approx 1130m <sup>2</sup>  (41 lots @ 2.4 persons per lot)	

## 1.8 LAND TENURE

All land associated with the proposal are in private ownership (Walter Elliott Holdings Pty Ltd), with the exception of the extension to the Creek Street road reserve, which is in Council ownership..

The land is described as follows:-

Table 2: Land Tenure

Lot Number	Plan Number	Registered Owner
Lot 156	Deposited Plan 628026	Walter Elliott Holdings Pty Ltd

Copies of the Deposited Plan are attached at Appendix B to this submission.

## 1.9 THE PLANNING & APPROVAL PROCESS

The proposal has been identified by the Director General as a Major Project. As such the relevant approval authority will be the Minister for Planning.

On 1 August 2005, the provisions of Part 3A (Major Projects) of the EP&A Act commenced, and under these provisions (and in its subsequent form as SEPP Major Development) this project has been defined as a Major Development and is to be determined by the Minister for Planning.

In accordance with the requirements of the Part 3A process, the Department of Planning issued their requirements for the Environmental Assessment, which confirmed the key issues to be addressed and the level of assessment required. The Director-General's requirements identified the key issues as being:

- Subdivision Layout
- Water
- Flooding
- Flora and Fauna
- Aboriginal and European Heritage
- Contamination and Remediation of the Site
- Geotechnical Issues
- Bushfire Management
- Traffic and Access
- Riparian Corridor and Foreshore Access
- Provision of Public Service and Infrastructure
- Earthworks and Filling; and
- Social Impact and Amenity.

#### 1.10 STRUCTURE OF SUBMISSION

This EA has been prepared in accordance with the Director-General's requirements provided in accordance with Section 75F of the EP&A Act and addresses the relevant government agency requirements which are provided in Appendix D.

It should also be noted that the Concept Plan has been prepared in accordance with section 75M of the Environmental Planning and Assessment Act 1979. An overview of the layout of this document is provided below.

The **Executive Summary** provides a brief overview of the project, key environmental assessment results and an outline of proposed environmental management procedures.

**Section 1: Introduction** - provides background to and sets the context for the project. It consists of a brief introduction to the project, the project objectives, an overview of the approvals and consultation process, the key elements of the proposal and an outline of the structure of the EA.

**Section 2: The Site & its Surrounds** - provides a detailed description of the site and surrounding context in terms of zonings, land uses and existing improvements.

**Section 3: Description of Proposal** - contains a detailed description of the proposed development.

**Section 4: Statutory Framework** - provides an assessment and discussion of requirements as outlined within all relevant Commonwealth, State and Local legislation and planning controls.

**Section 5: Environmental Considerations & Impacts** - contains a description of the existing environment and a comprehensive analysis and assessment of the environmental impacts of the project. Environmental management and monitoring measures are also described in this section.

**Section 6: Socio / Economic Considerations & Impacts** – Contains an assessment of the potential social and economic impacts associated within the proposal. This section also assesses alternative uses of the site and the advantages and disadvantages associated with each.

**Section 7: Environmental Management & Statement of Commitments** - summarises key commitments made by Walter Elliot Holdings in relation to the project design, environmental and community management and mitigation measures.

**Section 8: Conclusion**

**The Appendices** of the EA - include the technical reports and information which provide further detail regarding many of the key environmental issues addressed in the main text.

## Section EA 2

### The Site & Its Surrounds

#### 2.1 PROPERTY DESCRIPTION

The following table identifies the land the subject of this proposal. As described within Table 3 below, the subject lot is considered to constitute ‘the site’ for this application.

Fig.1 below shows the current site aerial, including site boundary and existing dwelling house.

Table 3: Property Description

Lot Number	Plan Number	Address	Area
Lot 156	Deposited Plan 628026.	32 Creek Street, Hasting Point	17.77 ha
Total Area:			17.77 ha



#### 2.2 SUBJECT SITE AND EXISTING IMPROVEMENTS

The site is largely a vacant allotment with the exception of a single house recently constructed in accordance with development consent DA07/0600 (issued by the Tweed Shire Council). Construction of this dwelling has been completed and the dwelling is currently occupied. Figure 2 below shows this dwelling.

Past activities on site, most notably filling and dredging works understood to have been undertaken during the 1980's have resulted in vegetation clearance, wetland disturbance and a visually evident change to the natural ground level across portions of the allotment.

The results of these activities remain visible on site and include the cleared central portion of the allotment, the estuarine lagoon located adjacent to the western boundary, an open artificial drainage channel running north south and generally disturbed wetland areas fringing the eastern, southern and sections of the western boundaries.

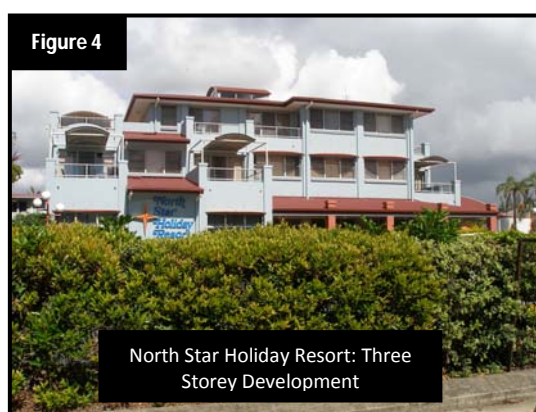
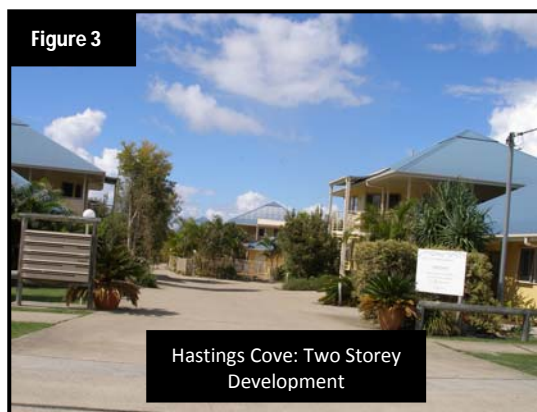


Refer to the aerial photograph in Figure 1 above.

### 2.3 LOCATION/CONTEXT

The subject site is located within the Village of Hastings Point in the Shire of Tweed. Within the immediate vicinity, the following elements frame the context of the site:

- The North Star Holiday Resort is directly adjacent, located on the northern side of Creek Street. The holiday park contains both permanent and temporary sites and a three storey building to the front of the site facing onto the Tweed Coast Road.
- Medium Density Apartments and attached dwellings (Hastings Cove) are located to the north east of the site adjacent to Coast Road.



- Single Detached Dwellings adjoin the site, located between Creek Street and the northern boundary.
- Cudgen Nature Reserve adjoins the western boundary of the site. The southern boundary of the property adjoins the Mean High Water Mark (MHW) of Christies



Creek that connects to Cudgera Creek and a section of State Environmental Planning Policy 14 (SEPP 14) Coastal Wetland in the south east and eastern areas of the property.

## 2.4 ADJOINING PROPERTIES

The immediately adjoining properties provide for a wide variation in land uses. The Cudgen Nature Reserve to the west provides for the maintenance of localised significant vegetation communities and the protection of biodiversity in the area. To the north of the property lies the North Star Holiday Resort which is considered a medium density tourist/residential development (see Figure 4 above). Low density allotments containing single dwellings on Creek Street also adjoin the property to the north. The site to the south and east is bounded by Christies and Cudgera Creeks respectively. To the east of the site is the medium density Hastings Cove Apartments, depicted in Figure 3 above.

## 2.5 SURROUNDING LAND USES AND SURROUNDING ZONINGS

The surrounding area includes a number of land uses and zonings. In the immediate vicinity the following land use zonings are present:

- 2(a) Low Density Residential – (Dwellings on Creek Street)
- 2(b) Medium Density Residential – (Hastings Cove)
- 6(a) Open Space – (Small parcel of land between Hastings Cove and the site)
- 6(b) Recreation – (North Star Holiday Park)
- 7(a) Environmental Protection (Wetland and Littoral Forest)
- 7(l) Environmental Protection (Habitat) – Creek Street Road Reserve; and
- 8(a) National Parks and Nature Reserve – (Cudgen Nature Reserve)

The zoning plan attached within the Concept Plan within Section EA3 demonstrates the locations and nature of the subject zonings.

Areas identified under the Environmental Protection zonings contain a combination of remnant and regrowth vegetation. Site inspections and aerial imagery available indicates these areas have unconsolidated vegetation present, with cleared open areas and some disturbance visible.

## 2.6 STATUTORY ZONING

The site is subject to a number of statutory zonings under the Tweed Local Environmental Plan 2000 (TLEP 2000). In this regard, the site contains the following zones:

- 2(e) Residential Tourist;
- 7(a) Environmental Protection (Wetland and Littoral Rainforest)

Further to the above land use zones, a portion of the Creek Street Road Reserve is proposed to be developed to service the residential lots. This land possesses the following zoning;

- 7(l) Environmental Protection (Habitat)

The proposed allotments have been located such that they are contained entirely within the land zoned 2(e) Residential Tourist. Pursuant to the TLEP 2000, subdivision is allowable with consent in 2(e) Residential Tourist zone.

Refer to the Tweed LEP zoning extract presented in Figure 5 on the following page.

## 2.7 FLOODING

Areas of the site are currently below the Q100 flood level, including areas proposed to be contained within the developable area of the proposal. It is also noted that the highest astronomical tide (HAT) for the site is RL 1.14m AHD. The latter is clearly marked on the Site Constraints Plan presented in Figure 8.

Preliminary hydraulic modelling shows that the site can be filled to the design flood level of 2.4m AHD as required by the Tweed DCP and to an average fill height of 2.8m AHD (for the purpose of achieving adequate drainage), with no detrimental impacts or cumulative effects on surrounding properties (see Section EA3 and Section 6 of the Engineering Impact Assessment Report for further detail in this regard). The Site Constraints Plan shows that the proposal will require only a small portion of land below the HAT to be filled to meet the design flood level of 2.4m.

It has been shown that an area toward the eastern end of Creek Street, equating to that area opposite Lot 10 Creek Street has the potential to be flood prone as it is located slightly below the 1 in 100 year flood level. This constraint has been taken into consideration and an emergency road is provided for vehicular access in such a flood event.

## 2.8 DRAINAGE

Existing drainage patterns on the site are well defined with a general fall toward Christie's Creek to the south. A 2.5m wide table drain runs along the southern side of Creek Street for its frontage to the site, draining along the west of the site to Christies Creek. All runoff from the site ultimately drain to Christies Creek which joins Cudgera Creek adjacent to the south eastern corner of the site (Opus Engineering Infrastructure Report, p20).

Drainage is a vital component of this proposal. An investigation of existing and proposed drainage has been undertaken by Opus and is found in the Engineering Impact Assessment Report presented under separate cover.

## 2.9 ROADS AND ACCESS

Existing access is from Creek Street which joins the Tweed Coast Road to the north of Hastings Bridge. Presently Creek Street is a two way road with bitumen seal and no kerbing or gutter. The seal ends at the site boundary adjacent to existing Lot 34 Creek Street.

Toward the central northern component the site, Creek Street alternates from a Road Reserve of uncoloured land on the zone maps, to that of a 7(l) Environmental Protection - (Habitat) zone. Approximately 150m of this 7(l) zoned section of Creek Street is proposed to be constructed ending 10m east of where the table drain along Creek Street enters a drain that flows across the site and to Christies Creek. This part of the Creek Street Road Reserve is cleared of vegetation to the centre of the Road Reserve. The Road Reserve does not hold any significant areas of vegetation but contains a grassed surface with vegetation to both sides of the road reserve. This vegetation includes established trees similar to those associated with the woodland vegetation of the Cudgen Nature Reserve to the west, with some species evident that also appear in the riparian zone (e.g. melaleuca/paperbark trees).

Fig.5 below shows the sites existing land use zonings.

Insert A3 Zoning plan here

Figure 5

It is noted that pursuant to the Draft Tweed LEP 2010, recently placed on public exhibition, this section of the Creek Street Road Reserve presently zoned as 7(l) is to be zoned as R1 as is the 2(e) component of the site. This would indicate that there is recognition by the TSC that the Road Reserve, as it adjoins the area of the site zoned for residential/tourist development, should be zoned with this more appropriate zoning of R1 to reasonably allow an extension to Creek Street for vehicular access to this site.

## 2.10 FLORA AND FAUNA

The subject land covers an area of 17.77 hectares of which approximately 4.0 hectares will be occupied by the development, with the remainder set aside as open space or environmental lands. This equates to only approximately 22% of the site being utilised for development, with the remainder dedicated to open space or environmental purposes.

The development envelope is occupied by maintained grassland with scattered native trees and small areas of native saltgrass. The proposal, which involves the construction of residential and tourist uses will require the removal of some vegetation within the development envelope. As discussed within the Ecological Assessment Report, this is not considered to be a significant environmental impact.

The areas of the site to be retained contain several vegetation communities/ecosystems of significance, which mostly occur below highest astronomical tide (HAT) level. The majority of these communities (which include marine habitats, rush/sedgeland and three types of sclerophyll forest [Casuarina, Pink Bloodwood/Brushbox, Paperbark]) are considered to be of ecological significance as a result of one or more of the following:

- Being a wetland environment (freshwater or marine)
- Representing riparian communities fringing Christies or Cudgen Creeks
- Being representative of a rare or vulnerable forest ecosystem (Upper Northeast Bioregion) or being a regionally significant vegetation community (Tweed Shire)
- Being representative of an Endangered Ecological Community (Coastal Swamp Sclerophyll)

The flora survey undertaken identifies nine (9) mapped vegetation communities along with the recording of 152 species of flora. None of the species recorded are listed as endangered or vulnerable under the *Threatened Species Conservation Act 1995*.

The fauna survey of the site (and immediately adjacent areas) resulted in the recording of 65 species of bird, 5 reptiles, 6 amphibians and 8 mammals (or evidence of their previous presence). Of these species six (Osprey, Glossy Black Cockatoo, Black-necked Stork, Koala, Grey Headed Flying-fox, Little Bentwing Bat) are listed as endangered or vulnerable within the *Threatened Species Conservation Act 1995*.

A Section 5A of the *Environmental Planning and Assessment Act 1979* (the '7-Part Test of Significance') was conducted for the six (6) recorded species plus an additional three (3) species which are considered possible occurrences on site and may have the potential to be impacted as a result of the proposal. Section 5A assessment was also conducted for the recorded Endangered Ecological Communities. The assessment concludes that the impacts of the proposed development are unlikely to threaten the viability of any local populations of the nominated species/communities. A Species Impact Statement (SIS) is therefore not required.

An assessment pursuant to SEPP 44 was also conducted, which concludes that the site does not contain core koala habitat.

Any referrals pursuant to the EPBCA would be external to this development process. However, it is maintained that the development as proposed will not have a significant impact on the matters of National Environmental Significance (NES) previously referenced by the DoP (i.e. Grey-headed Flying Fox and Black Flying Fox). Therefore, the provisions of this Act would not be triggered with regard to this species.

## **2.11 ABORIGINAL AND EUROPEAN HERITAGE**

The site has been disturbed by dredging and then filling of the area that can presently be seen as flat land with only sparse areas of vegetation regrowth. As no known significant activity has occurred on this site, prior to this dredging and filling in the nineteen seventies and/or eighties, the land is not considered to contain any European archaeological artefacts of any significance.

A cultural heritage assessment has been undertaken and is presented within Appendix J of this report. The report was prepared by Everick Heritage Consultants Pty Ltd and found that no aboriginal sites or relics were found as a result of the field inspection of this site. The Tweed Byron Local Aboriginal Land Council is of the view that there are no areas of cultural significance to the Land Council in the subject site.

## **2.12 CONTAMINATION AND REMEDIATION OF THE SITE**

An assessment under SEPP 55 – Remediation of Land has been undertaken and is presented within Appendix C of the attached Engineering Impact Assessment Report (separate report).

An assessment to determine whether the site has been contaminated or contains acid sulphate soils has been undertaken by Soil Surveys Engineering Pty Ltd and is presented as Appendix B to the Engineering Impact Assessment Report (submitted under separate cover). Appendix A of the Engineering Impact Assessment Report contains the Acid Sulfate Soils Management Plan.

The report determines that actual and potential acid sulphate soils are present on site and methods to adequately mitigate these issues are proposed within the Acid Sulfate Soils Management Plan. The investigations have determined that the site is not contaminated and no further management of the site is required in this regard.

## **2.13 GEOTECHNICAL**

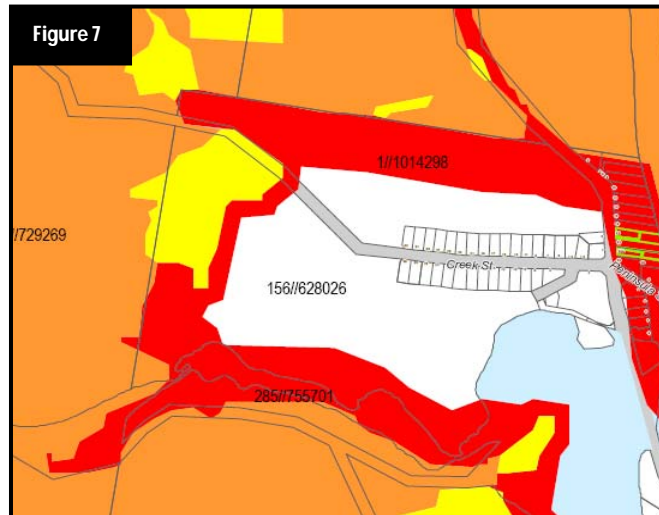
It is understood that the site has been mined/dredged in the past. Sand backfilling used after the mining operation appears to be the same as the natural sand material encountered across the site, making it difficult to distinguish natural minerals from fill. Generally a full sand subsurface profile was encountered with only occasional clayey sand and very occasional silty clay interbeds. The sands were typically loose to medium density. Further to this, the report states that groundwater was noted in most boreholes across the development at depths of between 1m and 1.55m. Existing and potential Acid Sulfate Soils were found on site.

The report by Soil Surveys Engineering suggests a number of methods and programs to be adhered to during site preparation, earthworks and prior to any residential development being undertaken on the site. This report is presented in Appendix F of the Engineering Impact Assessment Report with proposed management and mitigation measures outlined in Section EA7.

## 2.14 BUSHFIRE

The subject property is in part located within a bushfire prone area as per Tweed Shire Council's Bushfire Prone Lands Map (refer extract at Fig.7). Having regard to the extract from Bushfire Prone Lands Map below, the subject site is constrained by Vegetation Category 2 bushfire prone land and associated buffer zones to Vegetation Category 1 and 2.

It is considered the proposed subdivision satisfies the Planning for Bushfire Protection Guidelines 2006 and adequate land has been set aside within the subdivision layout for the provision of a suitable Asset Protection Zone.



A Bushfire Management Plan is presented in Appendix H.

## 2.15 RIPARIAN CORRIDOR AND FORESHORE ACCESS

The site contains remnant riparian vegetation along with some regrowth following past disturbance. The south east corner of the lot contains land found within that area mapped by SEPP 14 – Wetlands. The site constraints plan (Figure 8) presented below, outlines the riparian areas as ground truthed on-site and as mapped by SEPP 14 - Coastal Wetlands. It is recognised that the riparian area is not only important to the protection of natural systems and waterways but also to the residents of Hastings Point and visitors to the area.

Access to the foreshore areas has been investigated and is outlined in Section EA3 below.

## 2.16 VISUAL CORRIDORS

It is recognised that surrounding landowners and residents may be impacted upon in regards to visual outlook from existing properties and that the proposal may have a visual impact upon views from other public places, including waterways. Further to this, the visual impact that may be achieved from within the site is an important design aspect that has been considered in preparation of the proposed lot layout.

The degree to which the proposal may have an impact on visual amenity in the area has been investigated within the Visual Impact Assessment presented in Appendix G. It is noted within the Visual Impact Assessment that the views of existing residents on Creek Street and those of visitors to the adjacent Hastings Cove and North Star Holiday Resort developments may be impacted upon. Public views include those obtained by individuals from public open space areas.

## 2.17 SOCIAL IMPACT AND AMENITY

A Socio-economic Impact Statement has been prepared and is presented in Appendix F.

This assessment includes the identification of the likely future impacts of the development on the community of Hastings Point and measures for the mitigation of likely impacts where these are considered necessary.

## 2.18 SUMMARY OF OPPORTUNITIES AND CONSTRAINTS

The site contains a number of constraints that have been investigated through on site inspection, inspections of surrounding areas, analysis of topographical mapping and aerial photographs.

Please refer to the Constraints plan presented below in Figure 8 on the following page.

The known constraints to development on the site are as follows;

- A small portion of the proposed developable area of the site is subject to the influence of the highest astronomical tide. Section EA3 and EA4 outline measures to prevent tidal influence affecting the proposal whilst protecting natural systems in the area. Mitigation measures are finally outlined in Section EA7.
- Areas of the site are currently below the Q100 flood levels. Preliminary hydraulic modelling shows that the site can be filled to the design flood level with no detrimental impacts.
- The western areas of the site fall within that area mapped by the Tweed Shire Council, bushfire mapping and will require relevant bushfire management techniques to be employed to mitigate this constraint. A Bushfire Management Plan has been prepared and is presented in Appendix H. The plan shows adequate Asset Protection Zones and fire trails for service vehicles.
- Areas of SEPP 14 - Wetlands are mapped within the site, restricting the area of the site that may be developed. However, the opportunity exists to preserve these areas and link them and other riparian areas to a developed open space with public access.
- Large areas of the site are zoned 7(a) Environmental Protection – Habitat limiting the amount of development in these areas. However, this provides the opportunity to rehabilitate degraded land in this zoning and improve riparian buffers to Christies and Cudgera Creeks thereby preserving and enhancing vegetation corridors for known flora and fauna investigated within the area.
- A portion of the Creek Street Road Reserve that is proposed to be upgraded is zoned 7(l) Environmental Protection - Habitat. Although it is proposed to extend and upgrade the existing Creek Street road surface here, it is seen as an opportunity to protect the existing vegetation to the sides of the road reserves through urban design controls within the Area Specific Development Controls (see Appendix E). It is noted that this area of land is proposed to be zoned as R1 General Residential under the Draft Tweed LEP currently on public exhibition.

## Section EA 3

### Description of the Proposal

#### 3.1 PROPOSED DEVELOPMENT – GENERAL SUMMARY

The proposal is for the approval of a Concept Plan for a Residential and Tourist subdivision of the subject site. The following table summarises the proposed developments physical parameters.

Table 6: Physical Parameters

Residential Allotments	37(1.8995 ha) (includes 3 allotments of a size capable of containing dual occupancy development)
Townhouse Allotments	2 (0.2915 ha)
Tourist Allotments	2 (0.333 ha)
Public Open Space & Roads	15.246 ha

#### Proposal Description

Lot Number	Plan Number	Address	Area
Lot 156	Deposited Plan 628026.	No.32 Creek Street, Hastings Point	17.77 ha
Total Area		17.77 ha	
Details			
Total No. of Lots		41	
Total 2(e) zone area (existing)		7.02ha	
Total development footprint inc. roads		4.03ha	
Total public open space		0.51ha	
Total rehabilitation area		1.94ha	
Total EEC removal (saltmarsh)		1740m <sup>2</sup>	
Total dedication area (environmental lands) ex. Public open space. To be retained and monitored for environmental weed presence and removal as outlined in rehabilitation plan attached.		12.75ha	
Open Space		Provided	
Public Open Space – Local Parks TSC Requirement 1.13ha per 1000 population (assume 2.4 persons per allotment)  NB. Structured Open space will be		0.51ha  TSC Requirement equates to approx 1130m <sup>2</sup> (41 lots @ 2.4 persons per lot)	



addressed by way of monetary contribution.	
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### 3.2 SUBDIVISION & LOT LAYOUT

Following careful consideration of the proposed lot layout and the interface between existing properties, the proposed design is considered to provide for minimal impact to existing adjoining properties whilst seeking to benefit future residents of the subdivision, through a focus on utilising the natural attributes of the site and surrounds.

As the site does not directly interface with an established roadway pattern, the subdivision layout has been formed through the influence of the existing Creek Street alignment and the opportunities presented therein. The proposed road network provides for efficient access to all lots. The network also serves to provide clear access to open space areas by providing roads that are the interface between the open space areas and residential allotments. This allows public parking to be placed in these focal points for interchange between public open spaces and residential/tourist areas; and provides views to help facilitate a clearly legible access and movement network. The proposed layout seeks to minimise roadway hardstand area by utilising an internal carriage width of 6m for public roadways. Internal roadways will see a typical composition of six (6) metre internal carriage width and a 13m Road Reserve width.

A clear and legible pedestrian and cycle network is proposed which links all proposed roads of the subdivision to proposed pathways of 2.5m width construction that runs around the perimeter of the subdivision. This path connects residents with open space areas. The path is also proposed to connect to existing pedestrian and cycle networks on Creek Street and will ultimately support the linkage between the open space areas to the east of Coast Road and the foreshore areas of Christies and Cudgera Creeks. This linkage is presently not available as entry to the site to the public is not available. The proposal will open these areas to the public and the pedestrian and cycle network will allow for a link between the main natural and focal open space areas of Hastings Point.

The proposed Lot layout was arrived at with a view to facilitating opportunities for use of solar and sustainable technologies within future dwelling houses and providing a safe and secure environment. These priorities have been achieved through maximising northerly orientation; and utilising passive design principles of Crime Prevention through Environmental Design (CPTED), with many of the residential allotments placed to provide casual surveillance to the proposed public areas.

The proposed tourist allotments have been spatially separated from the existing dwellings along Creek Street and are of a land area that would not promote a single large resort proposal. Please note that the proposed tourist allotments are envisaged to be suitable for conventional medium density development also, given that the tourist zoning is identified as being removed within the Draft LEP 2010.

The remainder of the subdivision is largely comprised of low density single dwelling allotments. These lots have been positioned so that where possible they are orientated to the north. Further, the lot layout reflects a desire to achieve the maximum utilisation of the views to the scenery of Christies and Cudgera Creeks and surrounding hills. The lot layout has also given consideration to the existing dwellings along Creek Street. Impacts to these dwellings have been minimised through the design by restricting the number of dwellings that adjoin the existing lots on the southern side of Creek Street. There are twelve (12) existing dwellings on the south of Creek Street and the proposed design shows that only two (2) of these existing dwellings would adjoin future proposed dwelling allotments, thereby minimising any visual impacts upon the majority of these allotments.

Three (3) larger dwelling allotments (Lots 19, 32, 35) are provided within the layout and have the potential to be taken up as dual occupancy allotments by future owners as these lots are of a minimum size, in accordance with the Tweed Shire Council's DCP, to enable dual occupancy development (refer to the Land Use Plan presented in Figure 14 on the following pages).

Attention is drawn to the Concept Plans on the following pages (Figures 9 - 13) for visual representation of the subdivision and lot layout and the general design elements intent. It should be noted that this application is for the approval of a concept plan for the abovementioned subdivision and it is not known what the form of any future development upon the dedicated tourist / residential allotments would take. It is considered that the form of residential and tourist development on subdivision should be in accordance with Section A1 of the Tweed DCP. Further to these controls some additional Area Specific Development Controls are proposed and presented within Appendix E.

In regard to the existing dwelling that has been recently constructed on the site under DA07/0600, this dwelling will become part of the Townhouse housing within proposed Lot 31 (refer to Figure 2).

Please note that significant areas of the development footprint are provided with retaining walls at the interface in order to limit the extent of batter influence and hence limit the extent of vegetation removal.

### 3.3 SUITABILITY OF THE SITE

The central portion of the site that is largely cleared and grassed is zoned 2(e) Residential Tourist, allowing residential and tourist development with consent, on the site.

The land area proposed to be developed is that area contained within the 2(e) zoning and upon previously cleared land (Refer to Figure 15 above showing the proposed lot layout over the Tweed LEP zonings). In addition to approximately 1740m<sup>2</sup> of saltmarsh EEC, only scattered trees and shrubs within the development footprint will be required to be removed, with significant land within the 2E zone set aside to be regenerated and or utilised for open space purposes.

It is considered that the environment can be sustained and improved through this proposal whilst also being opened to the public through the creation of foreshore open space areas. Additionally the zoning of the land and the available previously degraded cleared area of the site can be utilised to provide environmentally responsive development to assist in satisfying the demand for residential land in the Tweed Coast.

### 3.4 DESIRED FUTURE CHARACTER

The desired future character of the locality is of a generally low density detached housing precinct incorporating high quality modern coastal design and environmental performance in water and energy efficiency. This is confirmed by way of the existing and proposed land use zonings for the site.

It is recommended that any future development of dwellings and tourist buildings be in accordance with the relevant design elements and controls of Section A1 of the Tweed DCP. Additionally some Area Specific Design Controls are recommended to ensure the future development maintains a coastal character through association and recognition of the quality natural environment surrounding the site.

### 3.5 SUSTAINABILITY

Sustainability has been the guiding influence from project inception to final concept design. This has resulted in orientation of the majority of allotments with northerly aspects to enable use of solar power and hot water to each dwelling house. Water Sensitive Urban Design has been utilised throughout and is detailed in the Water Cycle Management Plan presented within the Engineering Impact Assessment Report. Area Specific Design Controls are recommended to ensure the future development maintains a coastal character through association and recognition of the quality natural environment surrounding the site.

### 3.6 WATER MANAGEMENT

A Water Cycle Management Plan prepared by Opus is outlined within Section 8 of the Engineering Impact Assessment Report.

Considerable time has been spent to develop a drainage system that will serve three purposes; 1) Drain the proposed subdivision effectively, 2) Provide a drainage system that will mitigate any detrimental impacts to the riparian vegetation and the local waterways,

and 3) Ensure that existing properties are not impacted upon or put at risk, through the provision of an appropriate drainage system.

Three catchments are proposed within the overall subdivision footprint and are labelled as Catchments A1, A2 & A3 for the purposes of the Engineering Impact Assessment. Only one stormwater catchment area external to the site is affected by the development (refer to the storm water management plan in Figure 13.0 of the Engineering Impact Assessment prepared by Opus).

Excess runoff from driveways will flow across grass to the internal drainage network. Runoff from the public roads to the west (Catchment A1 & A2) will enter inlet pits flowing onto a treatment device before being discharged to Christies Creek. Runoff from roads and lots to the east (Catchment B) will be treated separately to the Catchment A runoff before being discharged to Christies Creek. Roof water from allotments will drain into inter-allotment drainage pits connecting into the stormwater drainage network where suitable.

Runoff from catchment C (existing dwellings) will be collected in the concrete swale drain to the north of the emergency access driveway and discharged beneath the driveway to Christies Creek. This piped system should be designed to accommodate Q100 flows as there is no overland flow path below the flood level for this catchment. Water sensitive design features such as infiltration of roof water and the use of swale drains can be readily incorporated into the proposal if a sand fill is used. The proposed drainage is detailed in Figure 13.0, 13.1 and 13.2.

Roof water from allotments is to drain into Inter-Allotment Drainage (IAD) pits. IAD pits will connect directly into the stormwater drainage network as it is considered by TSC to be relatively clean water. The runoff from driveways and paved areas on the proposed allotments is to flow across grassed areas following the drainage path to the IAD pits. Alternatively driveway runoff can flow back onto the road stormwater system. Road runoff would be collected and treated by proprietary Gross Pollutant Traps, such as a Humeceptor. Infiltration and swale drains are also reasonable alternative solutions.

It is also noted that under BASIX, rain water tanks would be required for all future dwellings which would further minimise the volume of stormwater flow exiting the boundary of each future allotment.

Pollutants from residential areas generally comprise of gross pollutants (trash and sediments), biological pollutants (decaying vegetable matter and animal excreta) and nutrients (nitrogen and phosphorus). Road areas typically collect oil products and sediments from vehicles and drain rapidly to the stormwater system. As such, runoff from road areas will be treated prior to discharge from the site. The storm water treatment measures are specified in accordance with Design Specification D7. The performance of the devices would achieve the performance criteria set by Tweed Shire Council, specified in the Tweed Urban Stormwater Quality Management Plan (2000). Please refer to the Engineering impact Assessment Report for complete detail concerning the above Water Cycle Management Plan.

It is submitted that through the above use of Water Sensitive Urban Design treatments and actions, that the proposed Water Cycle Management Plan meets the objectives of the Tweed Coast Estuaries Management Plan 2004-2008 and will mitigate the potential for pollutants to enter the surrounding waterways.

### 3.7 FLOODING

The proposal requires filling depths of generally between 0.5m and 2m across the degraded area of the site that is proposed to contain the allotments and road network.

This fill would bring the level of this area of the site to a minimum of 2.4m AHD, which is the adopted design flood level for Hastings Point as required under the provisions of the Tweed DCP Section A3 – Development of Flood Liable Land. However, finished fill levels will vary across the development footprint to provide for drainage and services.

An assessment of the risk of flooding of the site and within the areas of the Christies and Cudgera Creek Catchments has been carried out by Opus. This is located in Section 6 of the Engineering Impact Assessment Report and has taken into consideration the relevant provisions of the Floodplain Development Manual, Tweed LEP 2000 and Section A3 of the Tweed DCP. The range of sea levels modelled, conform with the range of suggested level increases outlined in the Department of Environment and Climate Change (DECC) document Flood Risk Management: Practical Consideration of Climate Change. This analysis takes into account the potential impacts associated with sea level rises as a consequence of Global Warming.

In regard to flooding effects on surrounding areas the Engineering Impact Assessment Report prepared by Opus concludes that the proposed development results in a reduction in water levels on the eastern end of Creek Street. It slightly increases levels in the main channel by + 20 mm to + 30 mm. It causes a minor increase in levels at the western end of Creek Street of + 20mm and the northern drainage channel + 20 to + 60mm. These increases are mathematically insignificant in the context of natural variation due to the hydraulic influence of the downstream bridge and the variability in estimating flood flows. We are of the opinion that the increase (and decrease) has no practical significance as the area is already inundated by up to 1.0m of water irrespective of the development and consequently the development is unlikely to result in a measurable increase in damage or nuisance to adjacent properties. The development reduces the impact of storm surges on the properties north of and adjacent to Creek Street.

In regard to Probable Maximum Flood Levels, which are required to be addressed in accordance with the Tweed Shire Council DCP, Opus concluded the following:

Tweed Shire Council's Flood Risk Management Policy requires a 100 year ARI (Q100) flood free access to land above the PMF for all new residential development. The applicant has incorporated a flood free access to the eastern end of Creek St. This is to be made available to the residential development in emergencies. The Flood assessment has included an analysis of the PMF and has demonstrated no additional inundation during PMF event as a result of the development. Figures 9 -10 of the Engineering Impact Assessment demonstrate the PMF flood scenarios combined with a 100 year ARI Storm surge.

In regard to flood hazard assessment the following conclusions were presented by Opus:

The NSW Government Floodplain Development Manual (2005) categorises the hazard posed by the flow of floodwaters based on their depth and velocity. The degrees of flood hazard outlined in the manual are low (0 - 0.6) medium (0.6 - 0.8) and high (> 0.8) where the values given are depth multiplied by velocity. By their nature and the results of the Flood Model the site and surrounding areas are categorised as flood storage area for Q100 and PMF flood events. The results from the Flood Model were output as flood hazard maps to assess any variation between existing and post development scenarios as follows in Figures 5.2, 6.2, 7.2, 8.2, 9.2, 10.2 and 11.2 of the Engineering Impact Assessment document.

From the figures it can be seen that the development does not change the flood hazard ratings for the developed areas surrounding the development. Developed areas and the proposed development are rated as low hazard. There is an increase in flood hazard area within the main stream however there is no additional risk to persons or properties due to the increase.

The proposal sufficiently demonstrates that it will have a negligible impact in regard to flood impact in the area and that proposed residential/tourist development along with existing residential development in the area will not be increasingly affected by flood levels as a result of this development.

### 3.8 FLORA AND FAUNA & TREE REMOVAL

A detailed Ecological Assessment has been undertaken and is presented in Appendix I of this report. The assessment provides details of the threatened species that occur or are likely to occur within at least 5km of the site. As part of this assessment field surveys were undertaken for the assessment of any threatened or vulnerable flora and fauna species and their habitats, populations and Endangered Ecological Communities.

The subject land covers an area of 17.77 hectares of which approximately 3.9 hectares will be occupied by the development with the remainder set aside as open space. The development envelope is occupied by existing grassland with scattered native trees, and some minor areas of native salt grasses.

The proposal which involves the construction of residential and tourist uses will require the removal of some vegetation within the development envelope. Following a survey of the site it has been determined that 77 trees are located within the footprint of the proposed developable area. Of these 77 trees a total of 43 will be required to be removed (including two dead trees), whilst 34 will be maintained to retain the natural character of Creek Street. The trees to be retained are located within the proposed lots along Creek Street refer to Figure 16 on the following pages. It is important to note that all other trees within the remainder of the site are to be retained as shown in Figure 17. As discussed within the Ecological Assessment Report, this is not considered to be a significant environmental impact, particularly in view of the rehabilitation program proposed.

With the exception of a relatively small area of saltmarsh (approx 1740m<sup>2</sup>) the development area of the site does not encroach into areas nominated as being significant, which are largely contained within the existing 7a zone. Recommendations for management of weeds and revegetation to promote the continued viability of these ecosystems are incorporated within the Rehabilitation Plans presented in Figures 18 to 22 on the following pages.

Whilst the development proposal is considered unlikely to significantly affect fauna and associated habitat it will result in the minor loss of local habitat for native species through tree removal and development construction. In this regard recommendations have been included in the Ecological Assessment Report regarding the management of habitats to be retained and the revegetation of native plants (including targeted foraging resources for threatened species) to offset losses.

The following design and management measures are considered to be appropriate compensation of the residual impacts of the proposed development:

- Avoidance of 4655m<sup>2</sup> of the Coastal Saltmarsh EEC and 109 native trees within the paddock/pasture that is currently located in the 2E zone (north-western areas of the site). ~3500m<sup>2</sup> of predominately pasture grassland (also with regenerating native species) beneath and adjacent 109 trees are to be retained within the 2e zone and therefore will be avoided.
- Additional areas to those considered in the existing Tweed LEP for the site (i.e. within the 2e zone) shall be protected through the provision of environmental zonings.

- The retained native vegetation communities (10.43ha) which currently exhibit varying levels of degradation through exotic plant infestation shall be managed for conservation (i.e. weed management and revegetation/rehabilitation).
- Revegetation/restoration of 1.28ha of current Community 3 (Low/Mid-High Closed Grassland/Paddock [Pasture Grassland W/ Scattered Trees]) shall occur (refer Figure 13). Revegetation shall be focused upon re-creating endangered ecological communities (i.e. Littoral Rainforest, Subtropical Coastal Floodplain Forest, Swamp Oak Floodplain Forest and Swamp Sclerophyll Forest on Coastal Floodplains).

Please refer to the Flora and Fauna Assessment in Appendix I and Figures 18 - 22 below for detail in regard to proposed rehabilitation and revegetation of the site.

### 3.9 ABORIGINAL AND EUROPEAN HERITAGE

Everick Heritage Consultants have recommended mitigation measures be undertaken during any works on site. These mitigation measures are outlined within Section 7.1.9.

### 3.10 CONTAMINATION AND REMEDIATION OF THE SITE

Investigations in this regard have determined that actual and potential acid sulphate soils are present on site and methods to adequately mitigate these issues are proposed within the Acid Sulfate Soils Management Plan, inclusive of the following:

Sandy soils have been encountered in this locality. Action thresholds for sandy soil types are listed in Table 4.4 of the Assessment Guidelines (ASSMAC 1998). The test results show an Oxidisable Sulfur percentage of 0.03% or greater and a TAA of 18 mol H<sup>+</sup>/tonne or greater, therefore the treatment procedures described below must be implemented. Due to the irregular distribution of Acid and Sulfur trails throughout the site, we recommend adopting a single liming rate for all excavations below natural surface.

- All trench excavation material shall be backfilled within 24 hours.
- Stormwater runoff from trench spoil stockpiles shall be collected and retained on site. It shall only be released if the pH is greater than 6.5.
- If the pH of the water is less than 6.5 it shall be treated with agricultural lime or an approved alternative until it exceeds 6.5. Furthermore additional lime shall be applied to the soil stockpile and it shall be backfilled into the bottom of the trench immediately.
- Excavated material shall be treated with agricultural lime at a rate of 21.3kg/tonne.
- The Contractor shall report all cases to Council where the pH of collected leachate is less than 4.5.

The investigations have determined that the site is not contaminated and no further management of the site is required in this regard.

### 3.11 GEOTECHNICAL

The report undertaken by Soil Surveys Engineering suggests a number of methods and programs to be adhered to during site preparation, earthworks and prior to any residential development being undertaken on the site. This report is presented within the Engineering Impact Assessment Report under separate cover.

Further to this, the report states that groundwater was noted in most boreholes across the development at depths of between 1m and 1.55m. Some minor areas associated with the excavation for sewer lines may intersect the water table, however, it is not considered that this will significantly affect the water table and further investigations at this point are not considered to be warranted.

### 3.12 BUSHFIRE MANAGEMENT



It is considered the proposed subdivision satisfies the Planning for Bushfire Protection Guidelines 2006 and adequate land has been set aside within the subdivision layout for the provision of a suitable Asset Protection Zone.

A Bushfire Management Plan is presented in Appendix H.

### 3.13 TRAFFIC AND ACCESS

Existing access is from Creek Street which joins the Tweed Coast Road to the north of the Hastings Bridge. Presently Creek Street is a two way road with seal and no kerbing or gutter. The seal ends at the site boundary adjacent to existing Lot 34 Creek Street.

Proposed access to the site is from Creek Street. The residential allotments are to be serviced by an internal road network consisting of two access roads forming a loop from Creek Street. This initial access road located between the two tourist allotments traverses in a southerly direction to then connect to additional roads that service allotments in the south east corner of the developable area. Two short cul-de-sacs are proposed. The cul-de-sac located to the south east extremity of the developable area is essentially an extension of the road to provide a turning circle for traffic and to provide access to the emergency exit track. The roads will have a reserve width of 13m and a pavement width of 6m. These road reserves and pavement widths are in accordance with Tweed Shire Council Design Specification D1.

Intersection sight distances from Creek Street are greater than those required by Austroads Standards and all roads used to access the proposed development and internal roads meet the requirements for accommodating the projected traffic volumes in the area.

A traffic assessment addressing the relevant provisions of Table 2.1 of the RTA's Guide to Traffic Generating Developments and including further detail on the above information, has been prepared by Opus and is presented within the Engineering Impact Assessment Report under separate cover.

Toward the central north point of the site boundary, Creek Street alternates from a Road Reserve of uncoloured land on the zone maps, to that of a 7(l) Environmental Protection - (Habitat) zone. Approximately 150m of this 7(l) zoned section of Creek Street is proposed to be constructed ending approximately 10m to the east of the connection of the table drain in Creek Street and the drain that runs through the site. The central part of this area of the Creek Street Road Reserve is cleared of vegetation and contains a grassed surface. This shall be the location of the road extension. To the southern side of this length of Road Reserve is a strip of vegetation of well established trees. The majority of this vegetation shall be maintained and only those areas where driveways into the proposed lots on Creek Street are located, will be required to be removed. Drainage will be provided along this section of Creek and will flow to a proposed Gross Pollutant Trap located at the western extremity of the extension to Creek Street prior to flowing into the existing drainage swale to the western extremity of the proposed development footprint and ultimately to Christies Creek. This will ensure that water is appropriately treated prior to entering any local waterways. For greater detail in regard to drainage systems for the proposed development refer to the Engineering Impact Assessment under separate cover.

It is proposed to implement a physical barrier in the form of bollards separating vehicle and pedestrian networks from the adjoining Cudgen Nature Reserve to prevent any vehicular access to the Reserve.

It is considered that the proposed road extension and upgrading into this parcel of land is an acceptable undertaking and that the land in question has already been significantly altered and does not contain significant habitat. The trees within this parcel of land are

proposed to be preserved where possible and as recommended, in the form of Area Specific Development Controls to be adopted within Section A1 of the DCP (see Appendix E for the proposed Area Specific Development Controls).

It is noted that under the Draft Tweed LEP recently placed on public exhibition the section of the Creek Street Road Reserve that is proposed to be extended and is zoned as 7(l) is to be zoned as R1, as is the 2(e) component of the site. This would indicate that there is recognition by the TSC that the Road Reserve, as it adjoins the area of the site zoned for residential/tourist development, should be covered by this more appropriate zoning of R1 to reasonably allow an extension to Creek Street for vehicular access to this site.

### 3.14 RIPARIAN CORRIDOR AND FORESHORE ACCESS

The site contains remnant riparian vegetation along with some regrowth following past disturbance. The south east corner of the lot contains land found within that area mapped by SEPP 14 – Wetlands. The proposal includes the rehabilitation of much of this riparian corridor adding to the buffer between proposed residential development and the foreshore of Cudgera and Christies Creeks. As a further addition to this natural vegetative buffer, formalised recreational open space adjacent to riparian vegetation associated with the creeks is proposed. Pedestrian and cycle networks are proposed throughout the open space and linking to other pedestrian and cycle networks outside the site. It is considered that following this linkage, Hastings Point will then have a cohesively linked open space network making the main natural features of the town (the headland, creek mouth and the Cudgera and Christies Creeks riparian zones) easily accessible to locals and visitors alike.



Figure 23 – typical buffer photograph

It is proposed that these areas of open space (i.e. those areas remaining on the site and not included in the residential and tourist allotments) will be dedicated to the Shire following a commitment by the owner to undertake the abovementioned rehabilitation within the riparian

corridor and the provision of works associated with the dedicated public open space. The Concept Plans presented in Figures 9-13 above, clearly outline the proposed initiatives in these open space areas.

The Rehabilitation Plans (Figures 18 - 22) also show the land areas to be rehabilitated, inclusive of significant buffers to riparian areas including the areas of SEPP 14 mapped land. The Tweed Shire Council's DCP Section A5 – Subdivision Manual requires that a buffer of 30m from the top of the bank of creeks that have an upstream catchment of between 1000Ha and 5000Ha. Both Cudgera and Christies Creeks fall into this range. The 30m buffer has been marked on the Constraints Plan (Figure 8). In many areas, particularly in the area of the mapped SEPP 14 wetland the buffer provided is greater than

that required under Section A5 of the DCP. Various other State Government guidelines pertaining to buffers for wetland and riparian areas have been considered including; the Policy and Guidelines Aquatic Habitat Management and Fish Conservation 1999 and the NSW Coastal Design Guidelines. These 'guidelines' generally recommend a larger buffer distance surrounding waterways and riparian zones than that presented in Section A5 of the Tweed DCP.

When Council considered the area of the site to be zoned as 7(a) under LEP Amendment 44 (2003), a buffer area to the wetland was taken into consideration along with all relevant ecological aspects concerning the flora and fauna of the site. The boundary of the existing 7(a) zoning was considered appropriate to protect the riparian areas of Cudgera and Christies Creeks (including the SEPP 14 Wetland), with the known understanding that the remainder of the site would be zoned as 2(e) Residential/Tourist to provide for future development on this site. It is considered that the buffer provided to the riparian zone by the proposal provides a far superior outcome in regard to riparian buffers than that offered by the 7(a) zoning boundary that has previously been considered as adequate protection for these areas in 2003.

The proposal will provide larger buffer areas through rehabilitation than that provided by the land within the 7(a) zoning, as clearly demonstrated in Figure 22 above. It is also noted that considerable areas of 2(e) zoned land are being dedicated as rehabilitated vegetation areas that could otherwise be utilised for development and this is being undertaken to achieve an appropriate balance between an economically viable development and the attainment of the objective for protecting the riparian zone of Cudgera and Christies Creeks.

The proposal, including the buffers provided by the existing vegetation and additional land areas of rehabilitation are considered appropriate and reasonable in their aim to maintain water quality in the area and enhance and preserve the existing riparian vegetation corridor of the Christies and Cudgera Creeks. Should greater buffer distances be provided as recommended by some 'guidelines', the area of the site within the 2(e) zone available for development would be unusable for any development that would achieve the objectives of the 2(e) zoning in accordance with the Tweed LEP. This would essentially require the proponent to adopt the 'Do Nothing Alternative' as presented in the Table in Section EA6. This alternative would see the area of the site that is 'paddock grass' continue to be maintained as such and would not see additional areas of the site be rehabilitated, as offered under this proposal and ultimately be preserved through dedication to a public authority. It is clear that the proposal presents a greater benefit to the continued preservation and protection of this important riparian corridor.

Foreshore access should be controlled and minimised to further protect the riparian vegetation. It is proposed to maintain a single formalised direct link to the bank of the lagoon. This will be achieved through connection to the larger proposed Park Area 1. This will allow a direct link for visitors from the open space provided to the riparian zone allowing visitors to gain an appreciation for the coastal ecosystems of the locality and to enjoy these areas. Appropriate landscaping and configuration will be provided to the formalised open space (Park Area 1) to draw individuals toward this area of the bank of the lagoon and to assist in minimising the potential for visitors to the open space to create random tracks through the riparian vegetation.

Further mitigation measures outlined above in relation to sediment and erosion control have been recommended and are considered to mitigate pollutants entering the waterways of the Cudgera and Christies Creeks catchments thereby maintaining water quality in these catchments.

### 3.15 PROVISION OF PUBLIC SERVICE AND INFRASTRUCTURE

It is not proposed to stage infrastructure works.

#### **3.15.1 Water**

The water reticulation works are not proposed to be staged. There is an existing 100mm diameter pipe located along the northern side of Creek Street. This will not be adequate to provide for the projected water demands for the proposed development however, there are water pipes of a larger diameter on the eastern side of the Coast Road which are adequate to cater for the proposal and will be utilised to service this proposal. Please refer to Section 9 of the Engineering Impact Assessment Report.

#### **3.15.2 Sewerage**

The wastewater generated by the proposed development is to be serviced by the existing pump station adjacent to the site. It is not proposed to stage the sewerage infrastructure works. The pump station is of sufficient capacity to cater for the proposed development and connection can be made to the existing gravity reticulation on the site. Please refer to Section 10 of the Engineering Impact Assessment Report for further detail.

#### **3.15.3 Electricity and Telecommunications**

Electrical and telecommunications services are available from existing cables in the Creek Street road reserve. It is intended that these services be extended to provide service to the proposed allotments.

### **3.16 WASTE MANAGEMENT**

#### **3.16.1 Solid Wastes**

The proposed roads within the development conform to the horizontal and vertical geometric requirements of Tweed Shire Council's Design Specification D1 – Road Design. The proposed roads are suitable for manoeuvring of a garbage truck for solid waste collection. Solid waste collection services would be provided by Tweed Shire Council's solid waste contractor.

### **3.17 EARTHWORKS AND FILLING**

The proposed earthworks will comprise importation and placement of fill (predominantly a sandy soil, from approved sources) to bring the existing levels up to above RL 2.40m AHD. Please refer to Section 5 of the Engineering Impact Assessment prepared by Opus for an outline of the extent of the proposed filling works.

In this regard, fill depths are generally of the order of 0.5 to 2.0 metres (based on the existing natural surface). The average fill height will be RL 2.80m AHD. Approximately 37,000m<sup>3</sup> (solid volume) of sand fill is required to bring the site to above RL 2.40. An increased level of fill is required to the west of the proposed developable footprint to allow sewer services to be provided and enable connection to the existing sewer pump station adjacent to the site. A SEPP 14 Coastal Wetland is located adjacent to the property to the south. No works are proposed within the wetland. Excavation will involve stripping topsoil and the creation of trenches for services and footings.

### **3.18 SOCIAL IMPACT AND AMENITY**

A Socio-economic Impact Statement has been prepared and is presented in Appendix F. This assessment includes the identification of the likely future impacts of the development on the community of Hastings Point and measures for the mitigation of likely impacts where these are considered necessary.

## Section EA 4

# Statutory Framework

### 4.1 COMMONWEALTH LEGISLATION

#### 4.1.1 Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999)

The Commonwealth *Environment Protection and Biodiversity Act, 1999* (EPBC Act) requires that the following matters of national environmental significance must be considered:

- World Heritage Properties;
- RAMSAR wetlands of international importance;
- Commonwealth listed threatened species and ecological communities;
- Commonwealth listed migratory species;
- Nuclear actions; and
- Commonwealth marine areas.

In addition, the impact on Commonwealth land should also be considered. An assessment of the impacts was undertaken through a search of the EPBC database and a detailed on site Flora and Fauna Assessment. A Flora and Fauna Assessment is presented under Appendix I.

This assessment has revealed that no World Heritage properties, National Heritage places, RAMSAR wetlands or Commonwealth marine areas are within 10 kilometres of the site. However, a number of flora and fauna elements classed as threatened or endangered were recorded.

Any referrals pursuant to the EPBCA would be external to this development process. However, it is maintained that the development as proposed will not have a significant impact on the matters of National Environmental Significance (NES) referenced (i.e. Grey-headed Flying Fox and Black Flying Fox). Therefore, the provisions of this Act would not be triggered with regard to these species.

These results and others contained within the Flora and Fauna Assessment assisted in providing guidance to the evolution of the proposal so as to ensure that no significant impact is likely to threatened species or endangered ecological communities.

As it is considered that the proposed development will not have a significant impact on matters of national environmental significance, approval from the Commonwealth Minister for Environment under the EPBC Act is not required.

### 4.2 STATE LEGISLATION

#### 4.2.1 Environmental Planning and Assessment Act 1979 (EP&A Act 1979)

The EP&A Act 1979 outlines the requirements for development applications within the state of New South Wales.

The relevant objectives of the Act with regard to the proposal are as follows:

- *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;*
- *The promotion and co-ordination of the orderly and economic use and development of land;*
- *Ecologically Sustainable Development; and*
- *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*

The above objectives have been used to guide the development of the concept plan and all supporting documentation as included within this EA.

As defined by section 75(B) of the EP&A Act 1979 and as was previously listed under Schedule 2 Clause 1(1)(j)(i) and Clause 1(1)(f)(i) of State Environmental Planning Policy (Major Projects) 2005, Part 3A of EP&A Act 1979 applied to the proposal at the time of submission to the Department of Planning (DoP). As such the Minister is the consent authority for the development.

***It is noted that since the recent amendments to the SEPP – Major Projects (now SEPP Major Developments) the proposal would be considered a ‘Regional Development’ under the SEPP – Major Developments. As the initial application was accepted by the DoP as a major project under the pre-existing SEPP – Major Projects the application will continue to be assessed as a Major Project by the DoP.***

This Environmental Assessment relating to a Concept Plan application has been set out in accordance with Section 75M of the EP&A Act 1979 and as such the EA outlines the components of the project and provides detail on all issues raised by the Director General.

This submission has been prepared in accordance with section 75(E) of the EP&A Act 1979.

#### **4.2.2 Environmental Planning & Assessment Regulation 2000 (EPAR 2000)**

The proposal has been prepared with regard to all requirements outlined within EPAR 2000, specific to ‘Major Projects’. In this regard, attached documentation has been supplied in an appropriate format to enable all information to be made publicly available in accord with Clause 8G of the EPAR 2000.

### **4.3 STATE ENVIRONMENTAL PLANNING POLICIES**

The following State Environmental Planning Policies are applicable to the proposal:

- State Environmental Planning Policy - Infrastructure
- State Environmental Planning Policy No. 14 – Coastal Wetlands
- State Environmental Planning Policy No. 44 – Koala Habitat Protection
- State Environmental Planning Policy No. 55 – Remediation of Land
- State Environmental Planning Policy No. 71 – Coastal Protection

- State Environmental Planning Policy – Major Developments (previously Major Projects)

#### 4.3.1 State Environmental Planning Policy - Infrastructure

State Environmental Planning Policy- Infrastructure requires that applications for uses listed under schedule 2 of the Policy be referred to the Road Traffic Authority for review and comment.

As listed under Schedule 2, subdivisions of residential land greater than 50 allotments which will have site access to a classified road or to a road that connects to a classified road if access is within 90m of connection, measured along alignment of the connecting road must be forwarded to the Road Traffic Authority as required under Section 7(3).

Creek Street is not identified as a classified road, however Tweed Coast Road is identified. Given the proximity of the proposed emergency access exit to Creek Street to Tweed Coast Road, the application will require referral to the Road Traffic Authority.

For completeness of assessing this proposal a traffic assessment and recommendations for traffic management has been prepared and is found within Section 7 of the Engineering Impact Assessment Report.

#### 4.3.2 State Environmental Planning Policy No. 14 – Coastal Wetlands (SEPP 14)

The site contains an area of SEPP 14 wetland along the eastern and south eastern boundary adjacent to Cudgera Creek. As required by Section 8 of this Policy the development is required to be forwarded to the Director of National Parks and Wildlife. Figure 24 below depicts the eastern area of the site that contains Mapped SEPP 14 Wetlands.



**Figure 24**

It is stated under section 7(2) of the policy that consideration is to be given to the following:

1. the environmental effects of the proposed development, including the effect of the proposed development on:
  - (i) the growth of native plant communities,
  - (ii) the survival of native wildlife populations,
  - (iii) the provision and quality of habitats for both indigenous and migratory species,



- (iv) *the surface and groundwater characteristics of the site on which the development is proposed to be carried out and of the surrounding area, including salinity and water quality,*
2. *whether adequate safeguards and rehabilitation measures have been, or will be, made to protect the environment,*
3. *whether carrying out the development would be consistent with the aim of this policy,*
4. *the objectives and major goals of the “National Conservation Strategy for Australia” (as set forth in the second edition of a paper prepared by the Commonwealth Department of Home Affairs and Environment for comment at the National Conference on Conservation held in June, 1983, and published in 1984 by the Australian Government Publishing Service) in so far as they relate to wetlands and the conservation of “living resources” generally, copies of which are deposited in the office of the Department,*
5. *whether consideration has been given to establish whether any feasible alternatives exist to the carrying out of the proposed development (either on other land or by other methods) and if so, the reasons given for choosing the proposed development,*
6. *any representations made by the Director of National Parks and Wildlife in relation to the development application, and*
7. *any wetlands surrounding the land to which the development application relates and appropriateness of imposing conditions requiring the carrying out of works to preserve or enhance the value of those surrounding wetlands.*

It is considered that all of the above elements have been satisfactorily addressed within this Environmental Assessment and supporting documentation. It is noted that the proposal incorporates extensive buffer zones to all wetland areas and that the proposal commits to undertaking site rehabilitation and general regeneration within the degraded wetland areas on site.

Conceptual Details relating to same are shown within the attached Rehabilitation Program contained within Figures 18 - 22 above and Appendix C.

Detailed Rehabilitation Plans will be prepared and submitted for approval as a condition of consent.

As such it is considered that the proposal is consistent with the requirements of SEPP 14.

#### **4.3.3 State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)**

In February 1995 the NSW Department of Infrastructure, Planning and Natural Resources enacted the *State Environmental Planning Policy No. 44: Koala Habitat Protection*. This Policy ‘aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline.’

In association with development applications and in areas where the policy applies a number of criteria are to be addressed to determine levels of assessment and to govern management considerations. The steps are as follows:

##### **1. Does the Policy Apply?**

Is the land greater than 1ha in size and located within one of the Local Government areas listed within Schedule 1 of SEPP 44?

Yes. The land is approximately 18ha in area and located within the Tweed Local Government Area

## 2. *is the land potential koala habitat?*

The SEPP defines ‘potential koala habitat’ as ‘areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.’ The trees within Schedule 2 are tabulated below:

Scientific Name	Common Name
<i>Eucalyptus tereticornis</i>	Forest red gum
<i>Eucalyptus microcorys</i>	Tallowwood
<i>Eucalyptus punctata</i>	Grey Gum
<i>Eucalyptus viminalis</i>	Ribbon or manna gum
<i>Eucalyptus camaldulensis</i>	River red gum
<i>Eucalyptus haemastoma</i>	Broad leaved scribbly gum
<i>Eucalyptus signata</i>	Scribbly gum
<i>Eucalyptus albens</i>	White box
<i>Eucalyptus populnea</i>	Bimble box or poplar box
<i>Eucalyptus robusta</i>	Swamp mahogany

Whilst trees from the above list (*E. tereticornis*, *E. robusta*) do occur on site they do not represent 15% or greater of the total number of trees present within the upper and lower strata of noted vegetation communities.

As such it is considered that the land does not represent potential koala habitat as defined.

## 3. *Is the land core koala habitat?*

The SEPP defines ‘core koala habitat’ meaning ‘an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.’

No direct observations of Koalas were made on the site during survey works (either in 2003 or 2006), although scats were recorded.

As such, it is contended that the land is not core koala habitat as defined.

## 4. *Is there a requirement to prepare a Plan of Management for land containing core koala habitat?*

No. It is considered that the site does not contain core Koala habitat as described.

### 4.3.4 State Environmental Planning Policy No.55 – Remediation of Land

A Soil Contamination Investigation has been undertaken by Soil Surveys and a Preliminary Soil Contamination Report was undertaken by Opus. This report finds that the site is not considered to be contaminated and is suitable for residential development having regard to the test contained within the SEPP.

### 4.3.5 State Environmental Planning Policy No. 71 – Coastal Protection (SEPP 71)

The subject site is located within the coastal zone and therefore relevant provisions of this policy apply. The matters for consideration under Clause 8 of the Policy are addressed below:

**a) *The aims of this policy set out in Clause 2.***

The development is consistent with the aims of the policy. The proposal provides new opportunities for public access to adjacent waterway areas, maintains existing native vegetation onsite and seeks to preserve the adjacent marine environments through rehabilitation of degraded land adjacent to the estuaries of Cudgera and Christies Creeks.

**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.***

The site abuts the high water mark of Christies and Cudgera Creeks with no existing formal public access. The proposal will provide for two (2) distinct public open space areas that will provide access to the estuary. These areas have also been provided with car parking facilities.

As part of the open space treatments, both passive and active recreation facilities will be provided, including seating and shelters, footpath sections accessible to persons with a disability, and a children's playground.

Appropriate disabled facilities will be included within all public areas.

**c) *Opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability.***

As discussed under consideration (b) above, the proposal incorporates approximately 14.2 hectares of public open space and environmental protection area adjacent to Christies and Cudgera Creeks.

Included in this area are two (2) designated public parks that create a linkage between the residential component of the proposal and the estuary itself.

These areas, upon completion, are intended to be dedicated to Council.

**d) *The suitability of development and its type, location and design and its relationship with the surrounding area.***

The subject site adjoins existing residential and tourist uses, including detached dwellings, medium density apartments. The proposed subdivision will see additional opportunities for complementary residential and tourist uses within the locality.

All dwellings on the site will be required to comply with Section A1 of the TSC's DCP, with the exception of the additional Area Specific Development Controls attached under Appendix E. Together, these controls will ensure the proposal will provide low density development with sufficient open spaces to harmonise with the surrounding locality. The proposed layout of the subdivision makes use of available views toward the riparian zones of the creek systems.

**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 development will not cause any overshadowing of the coastal foreshore and will not impede any views to the coastal foreshore.

***f) The scenic qualities of the NSW coast, and means to protect and improve these qualities.***

It is considered that the proposed residential and tourist subdivision will present a positive contribution to the existing visual amenity of the locality. Contributing appropriately designed structures, high quality public open space and rehabilitated environment. These elements will ensure that a minimal impact on the scenic quality of the area will result.

It is considered the proposal provides for an appropriate outcome to the visual qualities 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.***

Detailed flora and fauna investigations have been undertaken and it is found that it would be unlikely that threatened species exist in the location of the proposed residential and tourist subdivision. Some species may occur in the remaining areas of the site. These areas will either be preserved or rehabilitated which will provide increased areas for fauna that may occur in this area of the site to forage and breed. For detailed discussion on these issues refer to Appendix I of this report.

***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.***

The significant rehabilitation of degraded land within the site and retention of existing riparian vegetation will promote water quality received by the local estuary system and assist in the preservation of a healthy estuarine system and the fish within this system.

***i) Existing wildlife corridors and the impact of development on these corridors.***

The proposal will involve the rehabilitation of substantial degraded wetland and vegetated areas onsite, which will improve connections between vegetation areas and enhance their function as wildlife corridors.

***j) The likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards.***

Issues pertaining to the affect of storm water runoff from the developed site and the risk of flooding due to the proximity to Cudgera and Christies Creeks and the ocean have been addressed in the Engineering Impact Assessment Report and show that mitigation elements will mean a net minimal affect on coastal hazards and coastal processes in the area. Rehabilitation of much of the degraded site and retention of the riparian vegetation will assist in maintaining existing coastal processes.

***k) Measures to reduce the potential for conflict between land based and water based coastal activities.***

Due to the nature of Christies and Cudgera Creeks and the proposed buffer and open space area, conflict between uses is unlikely.

***l) Measures to protect the cultural places, values, customs, beliefs and traditional knowledge of aboriginals.***

A heritage evaluation has been undertaken as part of the background research for the proposal. No items or sites of heritage value were identified. The Tweed Byron Local Aboriginal Land Council (Tweed Byron LALC) participated in a field survey of the site and is satisfied that no items or relics of significance were found or are likely to be found on the site. Correspondence from the Tweed Byron LALC to this effect can be found within the Cultural Heritage Report presented in Appendix J.

***m) Likely impacts of development on the water quality of coastal water bodies.***

Detailed investigations have been undertaken into the existing water quality of the site and groundwater. The development has been designed to avoid any adverse impact on the quality of the adjoining water bodies. Please refer to Sections 5, 6 and 8 of the Engineering Impact Assessment Report.

***n) The conservation and preservation of items of heritage, archaeological or historic significance.***

No items of heritage, archaeological or historic significance are present on the site.

***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 of the proposed development on the environment;***

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

Cumulative impacts are unlikely to result as part of the proposal. As designed the site will benefit from the following;

- water sensitive urban design used throughout with all storm water runoff treated to a high quality prior to discharge;
- will provide rehabilitation of degraded wetland areas back to a natural state to provide improved habitat and fauna linkages;
- will utilise current best practice principles relating to pedestrian orientated design to help reduce car dependency; and will utilise an appropriate endemic planting palette to ensure weed infestations will be combatted.

This is complemented through attempts to reduce broader negative externalities by incorporating efficient water and energy use. This will be achieved through water tanks plumbed to internal and external fixtures and appropriate passive solar design for all future dwellings and tourist development which complies with the BASIX provisions.

### 3.3.6 State Environmental Planning Policy – Major Projects (now SEPP Major Developments)

It is noted that since the amendments to the SEPP – Major Projects (now SEPP Major Developments) the proposal would be considered a 'Regional Development'. However, as the initial application was accepted by the DoP as a major project under the pre-existing SEPP – Major Projects, the application will continue to be assessed as a Major Project by the DoP.

The proposal was considered a major project by virtue of the provisions of SEPP Major Projects as outlined below in earlier correspondence to the Department.

*'The proposal is for a Residential and Tourist subdivision containing a total of 41 lots on a site located within 100m of the mean high water mark of an estuary. As stated within Clause 6 of SEPP Major Projects:*

- (1) *Development that, in the opinion of the Minister, is development of a kind:*
- (a) *that is described in Schedule 1 or 2, or*
  - (b) *that is described in Schedule 3 as a project to which Part 3A of the Act applies, or*
  - (c) *to the extent that it is not otherwise described in Schedules 1–3, that is described in Schedule 5,*

*is declared to be a project to which Part 3A of the Act applies*

*As listed under schedule 2 of State Environmental Planning Policy (Major Projects) 2005*

- (1) *Development within the coastal zone for any of the following purposes:*
- (j) *subdivision for residential purposes of land that is not in the metropolitan coastal zone (unless it is wholly or partly in a sensitive coastal location):*
  - (i) *into more than 25 lots, or...*

The site is located in the 'Coastal Zone' and the proposal as then submitted, encompassed a subdivision that creates more than 25 residential lots. As such Part 3A of EP&A Act 1979 applied to the proposal, with the Minister for Planning, the consent authority.

*In addition, Schedule 2 of the Major Project SEPP listed the following;*

- (f) *recreational or tourist facilities (other than internal refits of, or minor alterations or minor additions to, existing facilities or a change of use of a building by which the building becomes a recreational or tourist facility):*
- (i) *in the case of facilities wholly or partly in a sensitive coastal location outside the metropolitan coastal zone—that provide accommodation (or additional accommodation) for any number of persons, or...*

The proposed tourist allotments are approximately 100m from the lagoon on the site making the tourist facilities within a sensitive coastal location. As such Part 3A of EP&A Act 1979 applied to the proposal, with the Minister for Planning, the consent authority.

The proponent wishes that the proposal continue to be assessed as a Major Project as outlined by the Director General in correspondence dated 28 October 2008.

#### 4.4 NORTH COAST REGIONAL ENVIRONMENTAL PLAN 1988 (NCREP)

The North Coast Regional Environmental Plan encompasses all of the North Coast Local Government areas, inclusive of the Tweed Shire LGA.

The aim of the NCREP is:

*To provide a basis for the co-ordination of activities related to growth in the region and encourage optimum economic and social benefit to the local community and visitors to the region*

The site's location, features and zonings require assessment and consideration of a number of provisions and requirements contained in the NCREP. With regard to the proposal the following Clauses are applicable:

- Clause 15 – Wetland or Fisheries Habitats
- Clause 29 A - Natural Areas and Water Catchment
- Clause 32B – Coastal Lands
- Clause 33 – Coastal Hazard Areas
- Clause 43 – Residential Development
- Clause 66 – Adequacy of Community and Welfare Services
- Clause 75 – Tourism Development
- Clause 81 – Development Adjacent to Ocean or a Waterway

##### 4.4.1 Clause 15 – Wetland or Fisheries Habitats

Clause 15 states;

*The council shall not consent to an application to carry out development for any purpose within, adjoining or upstream of a river or stream, coastal or inland wetland or fishery habitat area or within the drainage catchment of a river or stream, coastal or inland wetland or fishery habitat area unless it has considered the following matters:*

- (a) ***the need to maintain or improve the quality or quantity of flows of water to the wetland or habitat,***

The quality and quantity of water flow from the site, through the riparian zones (including those areas mapped as SEPP 14 wetlands) of Christies and Cudgera Creeks, will be maintained to acceptable levels through proposed mitigation treatment and actions. Erosion and sediment control plans have been developed for the construction phase of the proposal and flood risk assessment has been undertaken and shows a minimal impact upon the surrounding waterways (see Engineering Impact Assessment Report). A Water Cycle Management Plan has also been undertaken and proposes a number of onsite retention techniques to minimise the quantity of water flow to the creeks created by a future increase in impervious areas. Further to this, it is proposed to revegetate and rehabilitate substantial areas of degraded and denuded land within the site adjoining the existing natural riparian communities. This will reduce over land flow velocities and assist with the prevention of erosion which will prevent any significant impact upon water quality.

The above measures have been investigated thoroughly and are considered to provide adequate mitigation measures to maintain an acceptable level of water quality and quantity of flows from the proposed development through to the local waterways.

**(b) the need to conserve the existing amateur and commercial fisheries,**

With the abovementioned mitigation measures proposed it is considered that water quality within the Christies and Cudgera Creeks will be maintained to an acceptable level and that fish stocks within these creek systems will not be affected thereby assisting future stocks for both commercial and recreational fishers alike.

**(c) any loss of habitat which will or is likely to be caused by the carrying out of the development,**

The subject site has been significantly degraded from its natural state through previous activities and the proposal will not see the loss of any original habitat but will see a net gain through rehabilitation using localised plant species of the immediate riparian areas to regenerate substantial portions of the degraded site.

**(d) whether an adequate public foreshore reserve is available and whether there is adequate public access to that reserve,**

The proposal includes substantial areas of publicly accessible foreshore, recreational, open space which will include boardwalks and shelters which can be accessible to disabled persons.

**(e) whether the development would result in pollution of the wetland or estuary and any measures to eliminate pollution,**

Please refer to sub-clause (a) above.

**(f) the proximity of aquatic reserves dedicated under the [Fisheries Management Act 1994](#) and the effect the development will have on these reserves,**

There are no reserves in the area dedicated under the Fisheries Management Act 1994, which this proposal will impact upon.

**(g) whether the watercourse is an area of protected land as defined in section 21AB of the [Soil Conservation Act 1938](#) and any measures to prevent soil erosion, and**

Neither Christies Creek nor Cudgera Creek are within an area of protected land as defined in Section 21 AB of the Soil Conservation Act 1938.

**(h) the need to ensure that native vegetation surrounding the wetland or fishery habitat area is conserved, and**

The native vegetation within the site and adjoining the site that has not previously been significantly degraded will be conserved and in addition to this significant areas of the site adjacent to these areas are proposed to be rehabilitated.

**(i) the recommendations of any environmental audit or water quality study prepared by the Department of Water Resources or the Environment Protection Authority and relating to the river, stream, wetland, area or catchment.**

No studies are apparent from these departments in relation to Christies and Cudgera Creeks. However, the proposal has been guided by consultations with guidelines found within the Tweed Coast Estuaries Management Plan 2004-2008 for Cudgen, Cudgera and Mooball Creeks along with measures to comply with the water quality objectives of the Tweed Urban Stormwater Management Plan (2000).

#### 4.4.2 Clause 29A – Natural Areas and Water Catchment



Clause 29A applies to the site. However, as no clearing of vegetation as defined within this clause is proposed within the area affected by the Environmental Protection zoning, the Clause is not relevant to the proposed development.

#### 4.4.3 Clause 32B –Coastal Lands & Clause 33 – Coastal Hazard Areas

As identified within figure 4 of the NSW Coastal Policy 1997, the subject site falls within the policy boundary. As such, Clauses 32B and 33 apply to the proposal.

Clause 32B states as follows:

*In determining an application for consent to carry out development on such land, the council must take into account:*

- (a) *the NSW Coastal Policy 1997,*
- (b) *the Coastline Management Manual, and*
- (c) *the North Coast: Design Guidelines.*

Clause 33 states as follows:

*Before granting consent to development on land affected or likely to be affected by coastal processes, the council shall:*

- (a) *take into account the Coastline Management Manual,*
- (b) *require as a condition of development consent that disturbed foreshore areas be rehabilitated, and*
- (c) *require as a condition of development consent that access across foredune areas be confined to specified points*

It is considered that the detailed assessments undertaken within this EA demonstrates that the proposed residential and tourist subdivision concept plan has been developed in accordance with current best practice principles relating to subdivision design, environmental management, site rehabilitation and energy and water efficiency.

Due attention has been given to the above manuals and guidelines throughout the preparation of the environmental assessment (Section 6) and environmental management measures (Section 8) contained in this report and the accompanying documentation.

#### 4.4.4 Clause 43 – Residential Development

Clause 43 of the NCREP is applicable to the proposal, as stated within the clause the following must be considered:

- (1) ***The council shall not grant consent to development for residential purposes unless:***
  - (a) ***it is satisfied that the density of the dwellings have been maximised without adversely affecting the environmental features of the land,***

The concept plan proposes subdivision of 36 residential allotments and two (2) tourist allotments. The 36 lot residential component incorporates a mix of 34 standard residential allotments (including 3 lots of a size large enough for the potential to contain dual occupancy development) and 2 townhouse lots.

This configuration has been chosen in the context of the site, including the adjoining environmental areas, the existing character of Hasting Point, ability to provide adequate water quality treatment to onsite flows and rehabilitation of degraded areas on site.

The proposal is considered to maximise those areas of land on the site capable of containing this form of development whilst maintaining and preserving the riparian and estuarine habitat of the area through rehabilitation and preservation of existing vegetation.

- (b) *it is satisfied that the proposed road widths are not excessive for the function of the road,*

The proposed road widths are in compliance with the Tweed Shire Council Design Specification D1.

- (c) *it is satisfied that, where development involves the long term residential use of caravan parks, the normal criteria for the location of dwellings such as access to services and physical suitability of land have been met,*

Not Applicable

- (d) *it is satisfied that the road network has been designed so as to encourage the use of public transport and minimise the use of private motor vehicles, and*

The proposed development is within walking distance of bus stops located on the Coast Road.

- (e) *it is satisfied that site erosion will be minimised in accordance with sedimentation and erosion management plans.*

A sediment and erosion control management plan has been developed and is presented within Section 5.4 of the Engineering Impact Assessment Report.

#### 4.4.5 Clause 66 – Adequacy of Community and Welfare Services

*Before granting consent to a development application for the subdivision of land intended for residential or rural residential purposes, the council shall consider the adequacy of community and welfare services available to the land and take into account the results of that consideration.*

The nearby towns of Cabarita/Bogangar, Pottsville and Kingscliff contain numerous clubs and community services and opportunities for welfare services such as medical centres. Tweed Heads is the largest town in the region with most community and welfare services based here. Tweed Heads and the other coastal towns of the Tweed Coast are easily accessible from Hastings Point by public transport, with the bus route to Tweed Heads passing through Hastings Point.

#### 4.4.6 Clause 75- Tourism Development

This clause applies to the proposed development as two lots are proposed for resort development.

- (1) *The council must not grant consent to tourism development unless it is satisfied that:*
- (a) *adequate access by road, railway or water transport (or any combination of them) exists or will be provided to service the development, taking into account the scale of the development proposed, and*

An appropriate internal road network joining the Coast road is proposed including upgrades to the existing Creek Street and the Creek Street intersection. The Coast Road provides linkages to the Tweed Coast towns of Pottsville, Cabarita/Bogangar, and Kingscliff and further to the north Coolangatta/Tweed Heads. The proposal is within close proximity to an existing bus route and bus stops on the Coast Road.

- (b) *if the proposal involves permanent residential accommodation, all social and community services reasonably required by those residents exist in close proximity to the development, and*

The nearby towns of Pottsville, Cabarita/Bogangar and Kingscliff contain all the services reasonably required by the permanent residents of these towns including medical services, police, ambulance, fire fighting, schools and libraries.

- (c) *the development will not be detrimental to the scenery or other significant features of the natural environment, and*

Much of the site is degraded and denude of original vegetation. The proposed development will be located on these areas whilst the existing riparian vegetation will not be cleared. Rehabilitation involving revegetation with existing native plants of the immediate location adjacent to these riparian zones will improve the scenery of these creek areas and minimise any visual impact of the development to the existing town areas.

- (d) *reticulated water and sewerage are available, or arrangements satisfactory to the council have been made for the provision of those facilities.*

Water and sewage are available to the site. The existing water pipe in Creek Street is not adequate to service the water needs of the proposal however, there are water pipes nearby in Coast Road which can be connected to and are of an adequate width to service the development. These connections and works would be supplied by the developer.

#### 4.4.7 Clause 81 – Development Adjacent to the Ocean or a Waterway

The estuary of Cudgen Creek could be considered a substantial waterway in the area and is within 100m of the site therefore this clause of the NCREP applies. Clause 81 states the following;

- (1) *The council shall not consent to a development application for development on land within 100 metres of the ocean or any substantial waterway unless it is satisfied that:*
- (a) *there is a sufficient foreshore open space which is accessible and open to the public within the vicinity of the proposed development,*

Much (approximately 14.2 Hectares) of the site will become public open space dedicated to the Council following development consent. This area includes the proposed public parks and the remaining environmental areas.

A large portion of this land proposed to be dedicated is the existing riparian vegetation of the Christies and Cudgera Creek systems. The remainder is degraded open grass areas with limited vegetation. This area will be rehabilitated to increase the natural riparian zone and also in a fashion so as to create recreational open space opportunities available for the use of the general public.

- (b) *buildings to be erected as part of the development will not detract from the amenity of the waterway, and*

The proposed buildings and allotments for buildings are setback sufficient distances to allow the natural processes of the riparian zone to function. There is also ample space for the development of open space for recreational use.

It is considered that the location of the proposed allotments will not detract from the amenity of the nearby Cudgera and Christies Creeks and the associated riparian zone.

- (c) ***The development is consistent with the principles of any foreshore management plan applying to the area.***

The proposal has been developed following consultation of the Tweed Coast Estuaries Management Plan 2004-2008 for Cudgen, Cudgera and Mooball Creeks. It is considered that the proposal is consistent with this plan as is shown through this report and the attached reports and investigations.

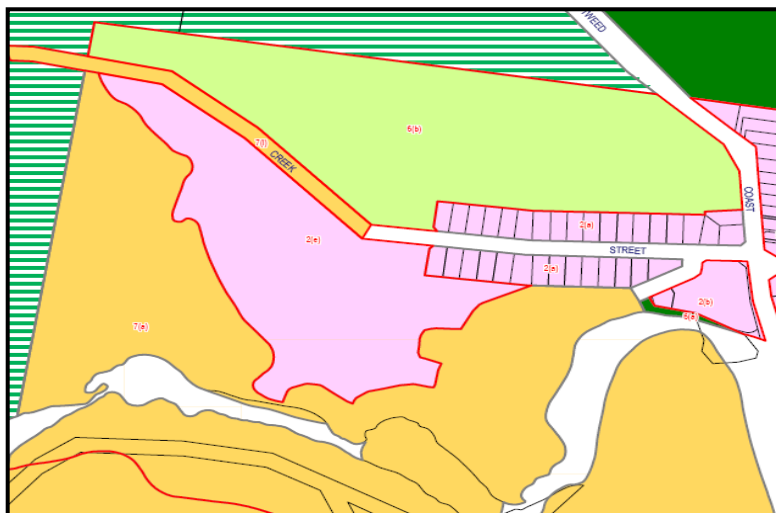
#### 4.5 TWEED LOCAL ENVIRONMENTAL PLAN 2000 (TLEP 2000)

The site falls within the legislative boundary of the Tweed Local Environmental Plan 2000 (TLEP 2000). Pursuant to the TLEP 2000, the site is subject to a number of zoning classifications as follows:-

- 2(e) Residential Tourist
- 7(a) Environmental Protection - (Wetland and Littoral Rainforest)

A section of the Creek Street Road Reserve is proposed to be upgraded to service the proposed residential allotments. This parcel of land has the following zoning under the Tweed LEP 2000;

- Environmental Protection 7(l) - (Habitat)



**Figure 25**

With regard to the subdivision layout it has been demonstrated that the proposed allotments are located entirely on land zoned 2(e) Tourist Residential. Justification for development in

each of the abovementioned zones is provided following the listing of the objectives for each zone as presented below.

The TLEP 2000 outlines the following objectives for the 2(e) Residential Tourist Zone:

##### **Zone 2 (e) Residential Tourist**

##### **Primary objective**

- *To encourage the provision of family-oriented tourist accommodation and related facilities and services in association with residential development including a variety of forms of low and medium density housing and associated tourist facilities such as hotels, motels, refreshment rooms, holiday cabins, camping grounds, caravan parks and compatible commercial services which will provide short-term accommodation and day tourist facilities.*

**Secondary objective**

- *To permit other development which has an association with a residential/tourist environment and is unlikely to adversely affect the residential amenity or place demands on services beyond the level reasonably required for residential use.*

The proposed subdivision over the land zoned 2(e) will provide for both residential and tourist accommodation. In this regard, the Tweed Coast is a location that has an established tourism structure, with increased numbers of tourists (Refer to the Socio-economic Impact Assessment presented in Appendix F for statistics in regard to tourist visitation in the Tweed area).

The proposal will provide for permanent accommodation in the form of residential lots which will contain low density housing along with 2 larger lots to contain tourist accommodation and or conventional medium density (subject to introduction of DRAFT LEP 2010).

The proposed development within the land zoned 2(e) would provide both residential and tourist accommodation to families in an area that can provide numerous activities located close to the beach and to the proposed parks to be located on the fringe of the proposed development, with proximity to Cudgera and Christies Creeks.

There are no set guidelines or parameters that dictate the extent to which tourist accommodation is required within the current 2(e) structure, however it is acknowledged that under the current zoning, tourist accommodation is a required form of development. The proposal meets this objective, albeit without committing to Tourist Accommodation as the key or dominant form of the development. Put simply, to do so would not be commercially viable given that the Tweed Coast is now home to in excess of 1500 tourist apartments, many of which remain viable simply due to school holiday and public holiday trade. These developments, were also largely only viable in the first instance through the sale of the apartments in a manner that has seen many utilised for permanent occupation contrary to the terms of their approval. It is also considered that to place a greater emphasis on tourist accommodation within the development would result in greater potential impacts with respect to surrounding environmental facilities (through uncontrolled access, waste and weed introduction) and reduced public access.

Reference is also drawn in this regard to the provisions of the exhibited DRAFT Tweed LEP 2010, which identifies the site as being rezoned to R1 General Residential. This is consistent with the development proposed and whilst no certainty is given to the gazettal of this zone, it adds considerable weight to the argument presented here, whilst also justifying the potential future use of the identified Tourist Allotments for medium density (permanent residential) purposes.

The TLEP 2000 outlines the following objectives for the 7(a) Environmental Protection (Wetland & Littoral Rainforest) Zone:

**Zone 7(a) Environmental Protection (Wetland & Littoral Rainforest)**

**Primary objectives**

- *To identify, protect and conserve significant wetlands and littoral rainforests.*

- *To prohibit development which could destroy or damage a wetland or littoral rainforest ecosystem.*

**Secondary objectives**

- *To protect the scenic values of wetlands and littoral rainforests.*
- *To allow other development that is compatible with the primary function of the zone.*

The site contains large areas of land zoned as 7(a) Environmental Protection – (Wetlands and Littoral Rainforests). These areas are located to the south, east and west of the areas proposed to be developed.

The area of the site in this zoning will remain outside of the proposed developable area and will be rehabilitated in areas where previously degraded as public open space. The riparian vegetation that is remaining in its natural form closer to the creeks will be preserved.

The SEPP 14 mapped wetlands are identified in the Constraints Plan presented in Figure 8 above. Ground truthing of the site has also led to mapping of ground truthed vegetation associated with the riparian zone and is also presented within the Constraints Plan. The area of SEPP 14 wetland within the site will be preserved and is buffered from the development by existing areas of riparian vegetation. These areas are also intended to be preserved with rehabilitation to be undertaken to those areas of the existing riparian vegetation previously degraded. This proposal to preserve as well as rehabilitate in the 7(a) zone will ensure the protection of the riparian zone into the future, particularly considering the proponents proposal to ultimately dedicate these areas of open space to the Shire. Further to this, areas of the 7(a) zone will include proposed pedestrian and cycleways along with some planted landscaped areas and fire services trail that would all ultimately be part of the public domain. These items are allowable with consent under the Tweed LEP and will not prevent the proposal from meeting the objectives of the zone.

The views of the wetlands and riparian areas are largely attainable from Hastings Bridge and from the public open space to the east of Hastings Bridge along Cudgera Creek. The preservation of the existing riparian vegetation and the increase of vegetation in the riparian zone through rehabilitation will serve to maintain scenic views to these areas, particularly as the proposed development is setback a substantial distance from the mean high water mark in most instances.

It is considered that the proposed development preserves existing riparian vegetation, and promotes conservation of the riparian zone through proposed rehabilitation. It is submitted that the proposal meets the objectives of the 7(a) zone.

The TLEP 2000 outlines the following objectives for the 7(l) Environmental Protection (Habitat) zone;

**Zone 7 (l) Environmental Protection (Habitat)**

**Primary objectives**

- *To protect areas or features which have been identified as being of particular habitat significance.*
- *To preserve the diversity of habitats for flora and fauna.*
- *To protect and enhance land that acts as a wildlife corridor.*

**Secondary objectives**

- *To protect areas of scenic value.*
- *To allow for other development that is compatible with the primary function of the zone.*

A parcel of land that adjoins the site to the north is the Creek Street Road Reserve of which the western end is zoned 7(l) Environmental Protection - (Habitat).

Although this land is not within the site, the proposal requires the upgrading of the Creek Street Road Reserve to service the proposed residential lots. This parcel of land is largely cleared containing grass covering. The southern side of the Road Reserve particularly, contains numerous established trees and scrub vegetation and it is considered that at present the parcel of land does not provide any significant habitat for fauna of the area but may provide a corridor for birds. The trees are proposed to be retained through the provision of criteria recommended to be adopted within Area Specific Development Controls that seeks to maintain the trees through appropriate placement of driveways to proposed residential allotments. It is considered that the proposal meets the objectives of the 7(l) zoning. Further consideration of the development of the area of the Creek Street Road Reserve zoned 7(l) is presented below under the heading Clause 8 (2). Under the zoning table of Clause 11 the proposal for a road construction in 7(l) zoning must satisfy the provisions of Clause 8(2).

It is important to note that under the recently released for public exhibition, Draft Tweed LEP that this area of land currently zoned as 7(l) is proposed to be zoned R1 – General Residential, which is an equivalent zone to the existing 2(e) Residential Tourist zoning. For further discussion in this regard refer to Section 4.7 below.

In addition to the zoning provisions of the Tweed Local Environmental Plan 2000, the following Clauses of the Tweed LEP 2000 are relevant to the site and the proposed development:

#### 4.5.1 Clause 8(2) – Consent Considerations

The consent authority may grant consent to development specified in Item 3 of the Table to Clause 11 only if the applicant demonstrates to the satisfaction of the consent authority that:

*(a) the development is necessary for any one of the following reasons:*

- (i) it needs to be in the locality in which it is proposed to be carried out due to the nature, function or service catchment of the development,*
- (ii) it meets an identified urgent community need,*
- (iii) it comprises a major employment generator...*

In regard to the proposal to upgrade the Creek Street Road Reserve in the form of a constructed road on land zoned 7(l) to service the proposed subdivision it is necessary to provide for an effective vehicle movement network to utilise the developable extent of the land zoned 2(e). Without the extension to the existing seal within the Road Reserve a lesser design would be achieved that would not provide for efficient use of land whilst also providing a safe environment for vehicles and pedestrians of the proposed subdivision and those existing residents of Creek Street.

On a wider scale the proposal will undoubtedly generate significant employment within both the local area and throughout the region through both the construction phase and operational phases of the development. The tourist component of the proposal has the capability to provide approximately 10 jobs with hundreds of jobs being created through construction of the development when applying multiplier effects. The detail regarding the creation of jobs by such a proposal is outlined in the Socio-economic Impact Assessment presented in Appendix F.

*(b) there is no other appropriate site on which the development is permitted with consent development (other than as advertised development) in reasonable proximity,*

The site is considered to be the last remaining vacant site of anywhere near this size in Hasting Point that is capable of containing (due to the 2(e) zoning on-site) both permanent residential subdivision that also provides for tourist allotments in close proximity to the beach. To efficiently utilise the lot to meet the objectives of the 2(e) zoning, the upgrading of the Creek Street Road Reserve that is within the 7(l) zoning is necessary and there are no further reasonable options to provide safe, efficient and permeable road networks to the proposed development.

*(c) the development will be generally consistent with the scale and character of existing and future lawful development in the immediate area,*

The proposed subdivision design provides residential allotments of varying land areas but of sufficient areas to provide ample landscaped areas similar to those of existing single residences along Creek Street. Further to this, any future dwellings and/or tourist development on the subdivision will be designed in accordance with TSC's DCP Section A1 – Residential and Tourist Code. By addressing the controls of this section of the DCP no dwellings or tourist development will exceed a two storey limit and will provide for a largely low density residential development with a tourist component that is entirely in keeping with the immediate surrounding land uses and in keeping with the scale of development in the area.

*(d) the development would be consistent with the aims of this plan and at least one of the objectives of the zone within which it is proposed to be located.*

The development is considered consistent with the aims of the LEP and as outlined above meets the relevant objectives of the various zonings associated with the proposal.

#### **4.5.2 Clause 15 – Availability of Essential Services**

All essential services can be provided to the site. Water services exist in Creek Street; however the pipe is not of a width to be adequate to service the proposal. Through consultation with the Tweed Shire Council it is noted that the existing pipes in nearby Coast Road are of an adequate width and are capable of accommodating the proposed development. The proponent will meet the costs of any upgrading of the water service to Creek Street for this development. There is a sewer pump station located adjacent to the site and the Hastings Cove development and following consultation with the Tweed Shire Council it has been determined that this facility and the local sewer system can be easily extended to accommodate the proposal. Please refer to the Engineering Impact Assessment Report for more detail regarding these issues.

#### **4.5.3 Clause 16 – Height of Buildings**

The relevant parts of this clause are presented below;

##### **1. Objective**

- *to ensure that the height and scale of development is appropriate to its location, surrounding development and the environmental characteristics of the land.*



2. *Consent must not be granted to the erection of a building which exceeds the maximum height or number of storeys indicated on the Height of Buildings map in respect of the land to which the application relates.*

The maximum building height indicated for this site as shown on the Height of Buildings map within the LEP is three (3) stories. A recent resolution by TSC to include an Area Specific Development Control in Section A1 of the Tweed DCP provided a Control requiring that the maximum building height in Hastings Point be two storeys and 8m. All design elements of both future residential and tourist development on the subdivision will be required to meet the controls and objectives of Section A1. Effectively, development across the site would be a maximum two storeys which is more than compliant with Clause 16 of the LEP.

It is submitted that the proposal meets the objectives of Clause 16 of the Tweed LEP 2000.

#### **4.5.4 Clause 17 – Social Impact Assessment**

##### **1. Objective**

- to ensure proper consideration of development that may have a significant social or economic impact.
2. Where the consent authority considers that a proposed development is likely to have a significant social or economic impact in the locality or in the local government area of Tweed, the consent authority may grant consent to the proposed development only if it has considered a socio-economic impact statement in respect of the proposed development.
  3. The socio-economic impact statement that the consent authority considers must do at least the following:
    - (a) identify the likely future impacts of the development on the affected community,
    - (b) analyse the impacts in terms of magnitude, significance, duration, effect on current and future conditions and community services, and the like,
    - (c) determine if the impacts will cause a loss of amenity within the locality due to a net reduction in community services and facilities,
    - (d) determine and assess possible measures for the management or mitigation of likely impacts.

A Social Impact Assessment has been undertaken and considers all of the factors listed in this clause of the LEP along with further relevant detail for a complete assessment of the development and social implications (see Section 6 of this report and Appendix F to this report).

#### **4.5.5 Clause 22– Development near Designated Roads**

This Clause does not apply to the site as the land zoned 7(a) is more than 90m from the intersection of Creek Street with Coast Road. For completeness of assessing this proposal a traffic assessment and recommendations for traffic management has been prepared and is found within Section 7 of the Engineering Impact Assessment Report.

#### **4.5.6 Clause 25 – Development in Zone 7(a) Environmental Protection (Wetlands & Littoral Rainforests) and on Adjacent Lands**

As the site contains and is adjacent to land zoned 7(a) Environmental Protection, the provisions of Clause 25 of the TLEP 2000 are applicable.

Clause 25 states, inter alia:

1. Objective

- to ensure that wetlands and littoral rainforests are preserved and protected in the environmental and economic interests of the area of Tweed.

2. Unless it is exempt development, a person must not clear vegetation from, drain, excavate or fill land within Zone 7 (a) except with development consent.

3. Consent must not be granted to the carrying out of development on land within Zone 7 (a) or on land adjacent to land within Zone 7 (a) unless the consent authority has taken into consideration:

- (a) the likely effects of the development on the flora and fauna found in the wetlands or littoral rainforest, and
- (b) the potential for disturbance of native flora and fauna as a result of intrusion by humans and domestic and feral animals, increased fire risk, rubbish dumping, weed invasion and vegetation clearing, and
- (c) a plan of management showing how any adverse effects arising from the development can be mitigated, and
- (d) the likely effects of the development on the water table, and
- (e) the effect on the wetlands or littoral rainforest of any proposed clearing, draining, excavating or filling.

4. The consent authority must not grant consent to development (other than development for the purpose of agriculture or a home business) on land within Zone 7(a) or on land adjacent to land within Zone 7(a) without taking into consideration any representations made by NSW Fisheries or the Department of Environment and Conservation in respect of the development.

A detailed assessment of the impact of the proposed fill on the degraded areas of the site proposed to accommodate the allotments has been undertaken and investigates the impact of this fill on flood levels within the creek systems. The report shows that a minimal rise in water level would occur as a result of proposed filling of a portion of the site. It is considered this very small rise would have a minimal impact upon the riparian zone of the Christies and Cudgera Creek systems.

A detailed assessment of all environmental risks has been undertaken in the preparation of this EA. With regard to Clause 25(3) listed above, the assessment has identified the likely impacts of the proposal on groundwater, adjacent and surrounding vegetation and native flora and fauna (see the Flora and Fauna Assessment in Appendix I). Relevant recommendations have been arrived at in relation to the preservation and rehabilitation of vegetation communities on the site.

#### **4.5.7 Clause 28 – Development Adjoining 7(l) Environmental Protection (Habitat) and on Adjacent Land**

A parcel of land that adjoins the site to the north is the Creek Street Road Reserve which is zoned 7(l) Environmental Protection - (Habitat).

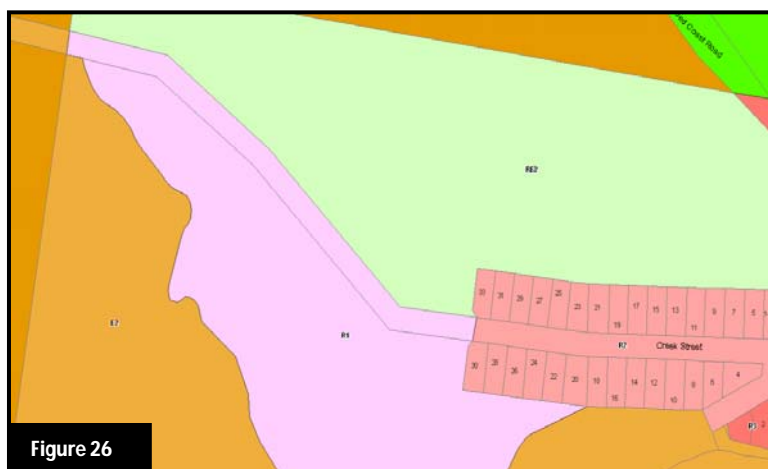
Although this land is not within the site, the proposal requires the upgrading of the Creek Street Road Reserve to service the proposed residential lots.

1. Objective

- to protect wildlife habitat from the adverse impacts of development.
2. Unless it is exempt development, a person must not clear vegetation from, drain, excavate or fill land within Zone 7 (I) except with development consent.
  3. The consent authority must not grant consent to development (other than for the purpose of agriculture, a dwelling house or a home business) on land within Zone 7 (I) without having regard to any representations made by NSW Fisheries and the National Parks and Wildlife Service.
  4. The consent authority must not grant consent to development on or adjacent to land within Zone 7 (I) unless it has taken into consideration:
    - (a) the likely effects of the development on the flora and fauna found in the locality, and
    - (b) the potential for disturbance of native flora and fauna as a result of intrusion by humans and domestic and feral animals, increased fire risk, rubbish dumping, weed invasion and vegetation clearing, and
    - (c) a plan of management showing how any adverse effects arising from the development are to be mitigated.

Toward the central, north point of the site boundary, Creek Street alternates from a Road Reserve of uncoloured land on the zone maps, to that of a 7(I) Environmental Protection - (Habitat) zone. Approximately 150m of this 7(I) zoned section of Creek Street is proposed to be constructed. The southern side of the Road Reserve particularly, contains numerous established trees and scrub vegetation and it is considered that at present the parcel of land does not provide any significant habitat for fauna of the area but may provide a corridor for birds. The proposed recommended Area Specific Development Controls ensure the preservation of most of these trees and provision of culverts to access the proposed properties along the southern side of Creek Street. This will see the retention of existing vegetation in the table drains on Creek Street maintain the visual outlook of the street and provide a natural screening between the North Star Holiday Resort and these proposed lots.

It is recommended that the installation of a barrier to separate proposed vehicle and pedestrian networks from the adjoining Cudgen Nature Reserve be implemented. This



would assist in ameliorating the impact of vehicles on the Reserve by preventing entry to this area. The barrier used to prevent this type of illegal entry to the Reserve, shall be placed at the end of the proposed sealed extension to Creek Street.

It is considered

that these mitigation techniques are sufficient to protect what vegetation remains within this section of the Road Reserve that is zoned 7(l) Environmental Protection - (Habitat) and to protect the adjacent Cudgen Nature Reserve.

Notably an equivalent zoning has not been proposed under the Draft LEP for the area of the land within the Creek Street Road Reserve that is proposed to accommodate the extension of Creek Street. This portion of the Creek Street Road Reserve is currently zoned 7(l) - Environmental Protection (Habitat) and is proposed to be zoned R1 – General Residential, which is the same zoning as that of the developable area of the site. This is a more appropriate zoning for this section of the Creek Street Road Reserve as this section of the Road Reserve is largely cleared where the actual road surface and associated kerbing is proposed. The draft zoning also reflects the commonsense approach that to access land zoned for residential and tourist purposes the Road Reserve should be similarly zoned to allow this.

#### **4.5.8 Clause 29 – Development Adjoining 8(a) National Parks & Nature Reserves**

Land to the west of the site, is zoned 8(a) National Parks and Nature Reserves (Cudgen Nature Reserve) and hence Clause 29 of the LEP applies to the proposed development.

The objective of this clause states;

- to ensure that development of land adjacent to Zone 8 (a) does not have a significant impact on wildlife habitat.

Clause 29 states that Council must not grant consent to development adjoining land zoned 8(a) National Parks and Nature Reserves without first considering the likely effects of the development on flora and fauna found in the locality and the potential for disturbance of native flora and fauna as a result of the intrusion of humans, domestic and feral animals, increased fire risk, rubbish dumping, weed invasion and vegetation clearing.

Impacts on the Nature Reserve will be minimal through the use of mitigation techniques, including as outlined above, prevention of vehicle access, sediment and erosion control techniques and educational signage promoting the benefits of the Cudgen Nature Reserve in relation to the region. Further, the development would have beneficial impacts for the reserve, through the rehabilitation and revegetation of adjacent areas creating a natural buffer to the proposed residential areas as opposed to the existing degraded condition of the land.

It is considered the mitigation measures investigated and proposed to be put in place will negate any potential significant impacts on the adjoining Cudgen Nature Reserve.

#### **4.5.9 Clause 31 – Development Adjoining Waterbodies**

Clause 31 of the TLEP 2000 applies to land adjoining the high water mark, or bank, or a waterbody. The subject site has frontage to Christies and Cudgera Creeks and although the proposed allotment areas would be separated from the bank of the creeks by a substantial area of preserved existing and proposed rehabilitated riparian vegetation and developed recreational open space, Clause 31 is applicable to the development.

The objectives of this clause state the following;

- 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.

Clause 31 requires the following matters to be considered by Council before granting consent to a development:

- (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*
- (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*
- (c) *the development is compatible with any coastal, estuary or river plan of management adopted by the Council under the Local Government Act 1993 that applies to the land or to land that may be affected by the development, and*
- (d) *the development addresses the impact of increased demand from domestic water supply on stream flow; and*
- (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.*

In response to the above matters for consideration, the following comments are offered:

The views of the wetlands and riparian areas are largely attainable from Hastings Bridge and from the public open space to the east of Hastings Bridge along Cudgera Creek. The preservation of the existing riparian vegetation and the increase of vegetation in the riparian zone through rehabilitation will serve to maintain scenic views to these areas, particularly as the proposed development is setback a substantial distance from the mean high water mark in most instances. It is acknowledged that views from some of the existing residential allotments along Creek Street will be affected however; these properties under the proposal would now acquire legal access to the foreshore areas of Cudgen and Christies Creeks. It is considered that the scenic quality of the riparian zone of this area will not be significantly affected.

Investigations have been undertaken to propose best practice techniques for mitigating sediment and pollutant flow to the creek systems. The measures proposed to be implemented are considered to meet the various design guidelines and specifications of the Tweed Shire Council in regard to these matters and are presented in the Engineering Impact Assessment Report. It is considered that any impact upon water quality and flow volumes of the development on the creek systems would be of a minimal and acceptable level in accordance with relevant environmental requirements and would have negligible impact upon the local marine environment or the bio-diversity of the area. The proposal would increase the area of the riparian zone as it exists in its present state, through rehabilitation which would promote wildlife corridors.

Over thirteen hectares of the site will remain outside of the proposed developable area and will either be rehabilitated in areas where previously degraded or improved to create recreational open spaces for public use. The riparian vegetation that is remaining in its natural state will be preserved. Paths and shelters are proposed for the recreational open space and are structures that can be approved with consent in the 7(a) zoning.

The Tweed Coast Estuaries Management Plan 2004 – 2008 for the Cudgen, Cudgera and Mooball Creeks has been consulted when investigating mitigating measures to limit any impacts that may arise from this proposal and it is considered that the proposal adheres to the guidelines within this plan. It is noted that appropriate vegetation will be planted to create a type of border to these areas which will assist in preventing random access through the riparian vegetation. These 'border' plantings will draw people toward a proposed single point of access to the creek as indicated in the area highlighted on the plan below. This area is presently a grassed area to the edge of the lagoon and this area will provide the point of focus for access to the lagoon.

The impact of mosquitoes and biting midge in the area has been investigated and a report is presented within Appendix K, with suggestions to ameliorate the impact of known biting midge in the area.

It is submitted that the proposal protects scenic quality, water quality, aquatic ecosystems, bio-diversity and wildlife habitat and corridors through adherence to required environmental mitigation measures and the proposed rehabilitation of degraded riparian land, whilst providing another recreational open space opportunity in Hastings Point for both visitors and local residents.

#### 4.5.10 Clause 34 – Flooding

The objectives of this clause state the following:

- 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.

Where Council, is of the opinion that a site of a development is affected by flooding, the following matters are required to be addressed prior to development consent being granted:

- (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 Tweed Development Control Plan No 5—Development of Flood Liable Land and any other relevant development control plan.*

The proposal requires filling depths of generally between 0.5m and 2m across the degraded area of the site that is proposed to contain the allotments and road network. This fill would bring the level of this area of the site to a minimum of 2.4m AHD, which is the adopted design flood level for Hastings Point as required under the provisions of the Tweed DCP Section A3 – Development of Flood Liable Land.

In regard to flooding effects on surrounding areas the Engineering Impact Assessment Report prepared by Opus concludes that the proposed development results in a reduction in water levels on the eastern end of Creek Street. It slightly increases levels in the main channel by + 20 mm to + 30 mm. It causes a minor increase in levels at the western end of Creek Street of + 20mm and the northern drainage channel + 20 to + 60mm. These increases are mathematically insignificant in the context of natural variation due to the hydraulic influence of the downstream bridge and the variability in estimating flood flows. We are of the opinion that the increase (and decrease) has no practical significance as the

area is already inundated by up to 1.0m of water irrespective of the development and consequently the development is unlikely to result in a measurable increase in damage or nuisance to adjacent properties. The development reduces the impact of storm surges on the properties north of and adjacent to Creek Street.

In regard to Probable Maximum Flood Levels, which are required to be addressed in accordance with the Tweed Shire Council DCP, Opus concluded the following:

Tweed Shire Council's Flood Risk Management Policy requires a 100 year ARI (Q100) flood free access to land above the PMF for all new residential development. The applicant has incorporated a flood free access to the eastern end of Creek St. This is to be made available to the residential development in emergencies. The Flood assessment has included an analysis of the PMF and has demonstrated no additional inundation during PMF event as a result of the development. Figures 9 -10 of the Engineering Impact Assessment demonstrate the PMF flood scenarios combined with a 100 year ARI Storm surge.

In regard to flood hazard assessment the following conclusions were presented by Opus:

The NSW Government Floodplain Development Manual (2005) categorises the hazard posed by the flow of floodwaters based on their depth and velocity. The degrees of flood hazard outlined in the manual are low (0 - 0.6) medium (0.6 - 0.8) and high (> 0.8) where the values given are depth multiplied by velocity. By their nature and the results of the Flood Model the site and surrounding areas are categorised as flood storage area for Q100 and PMF flood events. The results from the Flood Model were output as flood hazard maps to assess any variation between existing and post development scenarios as follows in Figures 5.2, 6.2, 7.2, 8.2, 9.2, 10.2 and 11.2 of the Engineering Impact Assessment document.

From the figures it can be seen that the development does not change the flood hazard ratings for the developed areas surrounding the development. Developed areas and the proposed development are rated as low hazard. There is an increase in flood hazard area within the main stream however there is no additional risk to persons or properties due to the increase.

The proposal sufficiently demonstrates that it will have a negligible impact in regard to flood impact in the area and that proposed residential/tourist development along with existing residential development in the area will not be increasingly affected by flood levels as a result of this development.

Refer to Section 6 – Flooding, in the Engineering Impact Assessment Report for greater detail in regard to flooding investigations.

#### **4.5.11 Clause 35 – Acid Sulfate Soil**

The proposal will require some excavation of trenches up to a depth of 2m into the exiting levels for services and footings and as such an acid sulfate soil investigation is required.

The objectives of Clause 35 state the following;

- to manage disturbance of acid sulfate soils to minimise impacts on water quality, ecosystems, infrastructure and agricultural and urban activities.
- to require special consideration and development consent for works, including some agricultural and infrastructure-related works, that would disturb soils or ground water levels in areas identified as having acid sulfate soils.

- to provide for a regime of self-regulation by those organisations which have demonstrated to the Council their ability to manage acid sulfate soils issues.

An Acid Sulfate Soils investigation was undertaken on the site (in 2004) and shows the actual and potential acid sulfate soils that exist. The investigation showed that groundwater exists at steady levels between 0.55m and 1.85m depth across the site (i.e. the area proposed for the development of allotments).

An Acid sulfate Soils Management Plan has been prepared and prescribes mitigation techniques to demonstrate that the oxidation of acid sulfate soils and discharge of acid water from the area of the proposed works would not occur (see Appendix A of the Engineering Impact Assessment Report under separate cover).

It is considered that the Acid Sulfate Soil investigations and the subsequent Acid Sulfate Soil Management Plan, developed to mitigate any associated issues, satisfy the objectives of Clause 35 of the Tweed LEP 2000.

#### 4.5.12 Clause 39 – Remediation of Contaminated Land

A Preliminary Soil Contamination Report was prepared by Opus and found that the site is not contaminated and is suitable for residential use (See Appendix C of the Engineering Impact Assessment Report under separate cover).

#### 4.5.13 Clause 39A – Bushfire

The subject property is in part located within a bushfire prone area as per Tweed Shire Council's Bushfire Prone Lands Map. Having regard to the extract from Bushfire Prone Lands Map below, the subject site is constrained by Vegetation Category 2 bushfire prone land and associated buffer zones to Vegetation Category 1 and 2.

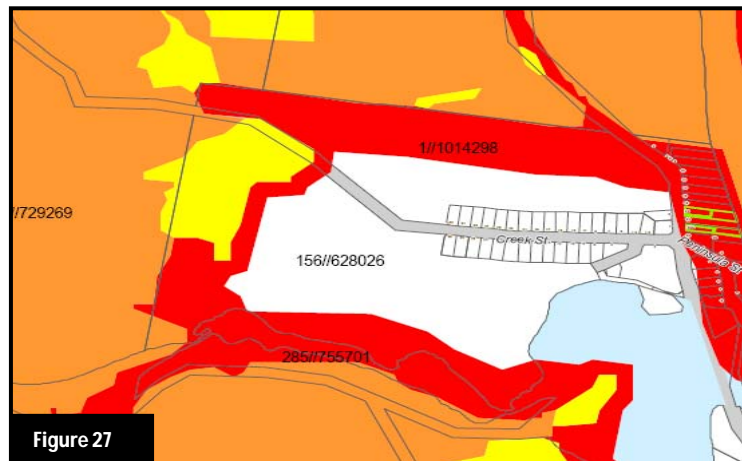


Figure 27

Clause 39A requires the following matters to be addressed:

- (a) *whether the development is likely to have a significant adverse effect on the implementation of any strategies for bushfire control and fuel management adopted by the Bushfire Control Office established by the Council for the area, and*
- (b) *whether a significant threat to the lives of residents, visitors or emergency services personnel may be created or increased as a result of the development (including any threat created or increased by the access arrangements to and from the development), and*
- (c) *whether the increased demand for emergency services during bushfire events that is created by the development would lead to a significant decrease in the ability of the emergency services to effectively control major bushfires, and*
- (d) *the adequacy of measures proposed to avoid or mitigate the threat from bushfires including:*



- (i) *the siting of the development, and*
- (ii) *the design of structures and the materials used, and*
- (iii) *the importance of fuel-free and fuel-reduced areas, and*
- (iv) *landscaping and fire control aids such as roads, reserves, access arrangements and on-site water supplies, and*
- (e) *the environmental and visual impacts of the clearing of vegetation for bushfire hazard reduction.*

It is considered the proposed subdivision satisfies the Planning for Bushfire Protection Guidelines 2006 and adequate land has been set aside within the subdivision layout for the provision of a suitable Asset Protection Zone (refer to the Bushfire Management Plan in Appendix H).

#### **4.6 TWEED DEVELOPMENT CONTROL PLAN 2008**

##### **4.6.1 Section A1**

It is noted that strict compliance with the provisions of a Council DCP is not required when considering an application for Concept Approval pursuant to the provisions of Part 3A of the Environmental Planning & Assessment Act, 1979. Notwithstanding, the proposal has endeavoured to maintain a significant level of compliance where the relevant interim controls are considered to achieve the best outcome for this site.

On the 21<sup>st</sup> April 2009 Council adopted site specific Area Controls that pertain to the entire Hastings Point locality. In addition, a Hastings Point Locality plan has commenced preparation, however no exhibited Draft of this document has been made available.

The relevant Objectives and Controls are as follows:

##### **Objectives**

- *To implement the recommendations of the Hastings Point "Review of height, FSR and Setback Controls" Report, prepared by Ruker and Associates dated 26 March 2008, as resolved by Council on 22 April 2008.*
- *To limit the impact of new development on the existing character and amenity of this coastal settlement prior to any further locality based planning by:*
  - o *Implementing interim restricting height and density provisions for new development until provisions appropriately tailored to larger and more dense development (where appropriate) is adopted following community consultation, that will;*
  - o *Provide greater certainty to the protection and preservation of the areas natural and built environment.*

##### **Controls**

- a. *The maximum building height is 2-storeys and 8 metres.*
- b. *The maximum density on any lot or combination of lots comprising a development site is two dwellings (dual occupancy).*

These controls were developed and adopted within the Tweed DCP following the recently prepared "Review of Height, FSR and Setback Controls – Hastings Point, Tweed Coast, NSW", prepared by Ruker & Associates Urban Design.

It is noted that the interim controls make no reference to the subdivision of land.

In regard to Control a) no dwelling that will be constructed as a result of the subdivision will exceed eight metres in height. In regard to control b) the majority of lots will contain a single dwelling with possible exception of three lots that have the potential (due to their land area exceeding 1000m<sup>2</sup>), to contain dual occupancy development.

Pursuant to Tweed DCP Section A1 Part B the following Control applies to dual occupancies;

*a. Dual occupancy developments on residentially zoned land must be located:*

- on sites with a minimum area of 900m<sup>2</sup>, or
- if the land is within the 2(b) zone it has a minimum area of 450m<sup>2</sup>; and
- on significantly regular, rectangular or square, shaped lots.

In regard to the two larger lots proposed for tourist development it is considered that more than two dwellings per lot dedicated to tourist development is appropriate on these lots and meets the objectives of the LEP for the 2(e) zoning. The adoption of this Concept Approval would override the interim controls in place for Hastings Point.

With respect to the Townhouse style allotments, it is envisaged that these would be developed in line with the provisions of Section A1, with the exception of the specific Area Controls contained in Appendix E.

### **Proposed Area Specific Development Controls**

Area Specific Development Controls provide development provisions that are formulated in response to an identified specific need of a site or locality. These proposed Area Specific Development Controls apply to the proposed subdivision on Lot 156 Creek Street.

The intent of these controls is to ensure visual appearance of the development from public places, including those proposed within this subdivision, maintains a coastal character associated with existing low density development of Creek Street and the riparian vegetation of the site. In addition, the proposed controls seek to assist in maintaining the low density character of Creek Street itself.

These controls would be complimentary to those controls presented throughout Section A1 and would prevail to the extent of inconsistency of any other development provision of Section A1 of the DCP.

The proposed Area Specific Development Controls are as follows:

### **Objectives**

- To minimise the visual impact of the development on the streetscape of Creek Street through the preservation of existing vegetation.
- To provide an appropriate interface between allotments within the development and the adjoining open space foreshore areas.
- Maintain a coastal character associated with existing low density development of Creek Street and the riparian vegetation of the site both within Creek Street and between the allotments of the subdivision and adjoining open spaces.

### **Controls**

### **Residential Allotments**

- a) Garages, carports or outbuildings are to be setback a minimum of 5m from any boundary adjoining public open space (including lots adjoining the emergency flooding access track). This Control applies to Lots 19 -21, 32 and Townhouse development within proposed Lot 31.
- b) Any garage, carport or outbuilding on Lots 19 - 21, 22 and 32 and townhouse style development within proposed Lots 22 & 31 are to be well screened from the view of public open space areas through the use of appropriate landscaping and/or combining these structures into the design of a dwelling and being located under the roof of the main dwelling.
- c) All fencing of boundaries that adjoin public open space, (including lots adjoining the emergency flooding access track), are to be a maximum of 1.2m in height.

### **Tourist Allotments**

- a) A maximum of two entry/exit driveways are permissible to Lots 18 and 39, with a maximum of one entry/exit driveway permitted with connection to Creek Street.

### **Allotments in General**

- a) Driveways to lots with frontage to Creek Street are to be located and constructed such that they avoid, where possible, the removal of trees adjacent to the property boundary, both within the property boundary and within the Creek Street Road Reserve. Trees within the road reserve may only be removed to accommodate an approved driveway location and to allow approved service location.
- b) All development is to be limited to 2 storeys in height and 8m.

#### **4.6.1 Section A2 – Site Access and Parking Code**

All proposed residential allotments have an area that can adequately accommodate the requirements for off street parking for both the low density allotments and proposed medium density forms.

The requirements for the Townhouse allotments will be dictated by the provisions of Section A2.

#### **4.6.2 Section A3 – Development of Flood Liable Land**

Please refer to Section 4.5.10 of this report.

#### **4.6.3 Section A5 – Subdivision Manual**

The proposed subdivision will be carried out in accordance with the requirements of Section A5 of DCP 2007. Upon approval being granted for the Concept Plan, a subdivision application will be required to be submitted to the Council.

For the sake of thoroughness the following comments are provided against pertinent sections of the DCP:

## Physical Constraints

### *Contaminated Land*

A Preliminary Soil Contamination Report was prepared by Opus and found that the site is not contaminated and is suitable for residential use (see Appendix C of the Engineering Impact Assessment Report under separate cover).

### *Bushfire*

The subject property is in part located within a bushfire prone area as per Tweed Shire Council's Bushfire Prone Lands Map. The subject site is constrained by Vegetation Category 2 bushfire prone land and associated buffer zones to Vegetation Category 1 and 2.

A Bushfire Management Plan is presented in Appendix H.

It is considered the proposed subdivision satisfies the Planning for Bushfire Protection Guidelines 2006 and adequate land has been set aside within the subdivision layout for the provision of a suitable Asset Protection Zone (see Bushfire Management Plan).

### *Coastal lands*

The site falls within that area described as the Coastal Zone under the Coastal Policy 1997 and the following are the provisions of the DCP for urban subdivision on Coastal Lands;

*Development of coastal lands needs to:*

- *be consistent with the Coastal Policy 1997;*
- *maintain and enhance visual amenity of the coastal zone;*
- *be sited, designed and managed to avoid risks to environmental assets, people and property and impacts on coastal processes;*
- *avoid beaches and frontal dunes except for essential public purposes (such as surf clubs); beach management works that do not compromise the natural and cultural values of the area; rehabilitation of disturbed foreshore areas; and rationalisation of beach access ways;*
- *be consistent with the Coastal Design Guidelines for NSW.*

The proposed subdivision is designed with environmental considerations in mind. The existing vegetated riparian areas have been maintained and substantial areas within the riparian zone are proposed to be rehabilitated preserving and enhancing open space corridors and linkages within the Cudgera and Christies Creek riparian areas. The proposed subdivision will provide legal, public access to these areas. Flood risk assessment has been undertaken with mitigating measures proposed and sediment and erosion control and acid sulfate soil management plans have been prepared minimising the risk of significant impacts, in accordance with environmental standards, to the local riparian, estuarine and marine ecosystems. The proposal is considered to meet the above provisions of this Clause of the DCP.

### *Threatened species, population or ecological communities or their habitats*

Please refer to the Flora and Fauna Assessment presented in Appendix I of this report.

#### ***Coastal Wetlands***

The eastern portion of the site contains land located within the boundary of the SEPP 14 – Coastal Wetlands mapped areas. The proposed subdivision layout and associated works will not require the removal of any vegetation within this area. Sediment and erosion control plans have been developed to mitigate any impacts on this area during construction and adjoining areas of degraded land are proposed to be rehabilitated, enhancing the overall health of this riparian/wetland area.

#### ***Landscape visual character***

A Visual Impact Assessment has been undertaken and is presented in Appendix G to this report.

#### ***Acid Sulfate Soils***

The proposal will require some excavation of trenches up to a depth of 2m into the existing levels for services and footings and as such an acid sulfate soil investigation is required.

An Acid Sulfate Soils investigation was undertaken on the site (in 2004) and shows that actual and potential acid sulfate soils exist. The investigation showed that groundwater exists at steady levels between 0.55m and 1.85m depth across the site (i.e. the area proposed for the development of allotments).

An Acid sulfate Soils Management Plan has been prepared and prescribes mitigation techniques to demonstrate that the oxidation of acid sulfate soils and discharge of acid water from the area of the proposed works would not occur (see Appendix A of the Engineering Impact Assessment Report under separate cover).

It is considered that the Acid Sulfate Soil investigations and the subsequent Acid Sulfate Soil Management Plan developed to mitigate any associated issues, satisfies the objectives of Clause 35 of the Tweed LEP 2000.

#### ***Erosion, Sediment Control and Stormwater Management***

Please refer to the Erosion and Sediment Control Management Plan found in Section 5.4.2, the Water Cycle Management Plan in Section 8 and the Flood Risk Assessment in Section 6 of the Engineering Impact Assessment Report.

#### ***Waterways; water bodies; riparian areas and riparian vegetation***

Investigations have been undertaken to propose best practice techniques for mitigating sediment and pollutant flow to the Christies and Cudgera Creek systems. The measures proposed to be implemented are considered to meet the various design guidelines and specifications of the Tweed Shire Council in regard to these matters and are presented in the Engineering Impact Assessment Report. It is considered that any impact upon water quality and flow volumes of the development on the creek systems would be of a minimal and acceptable level in accordance with relevant environmental requirements and would have negligible impact upon the local marine environment or the bio-diversity of the area. The proposal would increase the area of the riparian zone as it exists in its present state, through rehabilitation which would promote wildlife corridors.

The majority of the site in this zoning will remain outside of the proposed developable area and will either be rehabilitated in areas where previously degraded or improved to create

recreational open spaces for public use. The riparian vegetation that is remaining in its natural form closer to the creeks will be preserved. Paths, boardwalks and shelters are proposed for the recreational open space and are structures that can be approved with consent.

The Tweed Coast Estuaries Management Plan 2004 – 2008 for the Cudgen, Cudgera and Mooball Creeks has been consulted when investigating mitigating measures to limit any impacts that may arise from this proposal and it is considered that the proposal adheres to the guidelines within this plan.

#### ***Flood Liable Land***

Please refer to Section 4.5.10 of this report.

#### **Urban Structure**

##### ***Movement Network***

The proposed street network combines with the proposed pedestrian network to create a high level of permeability throughout the subdivision and its associated open spaces, whilst connecting effectively with the existing movement networks. The proposed pedestrian movement network involves the use of required fire trails beginning in the west of the site, linking to path ways in the foreshore open space areas, bringing the public closer to the creek to enjoy the natural aspects of the location. This network traverses the site and connects to the existing path to the east of the site. The existing path then leads to the Coast Road and the pathway across Hastings Bridge leading to further open space areas to the east of the bridge along the foreshore of Cudgera Creek. As part of the upgrading of Creek Street, pedestrian/cycle paths can be provided to safely link existing residences and proposed allotments to the abovementioned open space movement network.

The residential allotments are to be serviced by an internal road network consisting of two access roads forming a loop from Creek street. The access roads will have a reserve width of 13m and a pavement width of 6m. These road reserve and pavement widths are in accordance with Tweed Shire Council Design Specification D1.

The proposed road network has sufficient turning circle for the servicing of waste disposal trucks within the subdivision. This is represented diagrammatically within Figure 11.0 & 11.1 of the Engineering Impact Assessment Report.

Intersection sight distances from Creek Street are greater than those required by Austroads Standards and all roads used to access the proposed development and internal roads meet the requirements for accommodating the projected traffic volumes in the area. Following an intersection analysis and for the safety of localised traffic, a right hand turning lane is proposed within the Coast Road for entry to Creek Street.

A traffic assessment addressing the relevant provisions of Table 2.1 of the RTA's Guide to Traffic Generating Developments and including further detail on the above information, has been prepared by Opus and is presented within the Engineering Impact Assessment Report.

#### **Residential solar access, orientation and associated minimum dimensions**

The lot layout has been designed so as many lots as possible achieve a northerly aspect whilst also providing as many lots as possible with a scenic outlook to the natural features

of the locality. The northerly aspect provided to the majority of lots will ensure that solar access is easily achievable in line with Section A1 – Residential and Tourist Code of the TSC's DCP.

## Infrastructure

The provisions for infrastructure under the DCP are as follows;

### Infrastructure required

- All lots created in urban areas for private occupation must be fully and individually serviced with sealed road (equipped with kerb and gutter both sides of the road) frontage, water supply, sewerage, underground electricity and telecommunications.
- A drainage system that provides Q100 immunity from local stormwater flooding and must have surface levels above the Q100 flood levels of regional river/creek flooding.
- Utilities and services are to be designed to minimise long term maintenance and ownership costs.
- Urban subdivision infrastructure must be provided in accordance with Table A5-10.

## Drainage

A Water Cycle Management Plan prepared by Opus is outlined within Section 8 of the Engineering Impact Assessment Report.

Three catchments are proposed within the overall subdivision footprint and are labelled as Catchments A1, A2 & A3 for the purposes of the Engineering Impact Assessment. Only one stormwater catchment area external to the site is affected by the development (refer to the storm water management plan in Figure 13.0 of the Engineering Impact Assessment prepared by Opus).

Excess runoff from driveways will flow across grass to the internal drainage network. Runoff from the public roads to the west (Catchment A1 & A2) will enter inlet pits flowing onto a treatment device before being discharged to Christies Creek. Runoff from roads and lots to the east (Catchment B) will be treated separately to the Catchment A runoff before being discharged to Christies Creek. Roof water from allotments will drain into inter-allotment drainage pits connecting into the stormwater drainage network where suitable.

Runoff from catchment C (existing dwellings) will be collected in the concrete swale drain to the north of the emergency access driveway and discharged beneath the driveway to Christies Creek. This piped system should be designed to accommodate Q100 flows as there is no overland flow path below the flood level for this catchment. Water sensitive design features such as infiltration of roof water and the use of swale drains can be readily incorporated into the proposal if a sand fill is used. The proposed drainage is detailed in Figure 13.0, 13.1 and 13.2.

Roof water from allotments is to drain into Inter-Allotment Drainage (IAD) pits. IAD pits will connect directly into the stormwater drainage network as it is considered by TSC to be relatively clean water. The runoff from driveways and paved areas on the proposed allotments is to flow across grassed areas following the drainage path to the IAD pits. Alternatively driveway runoff can flow back onto the road stormwater system. Road runoff

would be collected and treated by proprietary Gross Pollutant Traps, such as a Humeceptor. Infiltration and swale drains are also reasonable alternative solutions.

### Essential Services

All essential services can be provided to the site. Water services exist in Creek Street; however the pipe is not of a width to be adequate to service the proposal. Through consultation with the Tweed Shire Council it is noted that the existing pipes in nearby Coast Road are of an adequate width and are capable of accommodating the proposed development. The proponent will meet the costs of any upgrading of the water service to Creek Street for this development. There is a sewer pump station located adjacent to the site and following consultation with the Tweed Shire Council it has been determined that this facility and the local sewer system can be easily be connected to accommodate the proposal. All required infrastructure will be provided in accordance with Table A5-10 – Subdivision Infrastructure Requirements of Section A5 of the Tweed DCP. Please refer to the Engineering Impact Assessment Report for more detail regarding these issues.

It is considered that the proposal meets the provisions of the infrastructure requirements of the DCP.

### Public Open Space

The majority of the site under this proposal is proposed to be dedicated to Council as public open space and public roads. This dedication will ensure that the vast majority of the site will remain as protected riparian vegetation that shall be increase and improved through the proposed rehabilitation of the site.

In addition two (2) park areas designed for recreational use are proposed and provide an effective interface between the residential component of the proposal and the riparian vegetation associated with Christies and Cudgera Creeks. The Tenure Plan presented in Figure 28 on the following page clearly shows that the footprint of this development is quite minimal in relation to the area of the site that will not be developed and will largely be maintained as public open spaces that will be protected into the future and essentially provide an extension to the protected lands in the neighbouring National Park to the west.

Council's passive open space requirement of 1.13ha per 1000 persons has been easily met (1130m<sup>2</sup> required and 0.51ha provided).

Structured Open space is to be satisfied by way of monetary contribution.



#### 4.6.4 Section A6 – Biting Midge and Mosquito Control

The subject site is within that area affected by biting midge as depicted within Section A6 of the Tweed DCP. In response an investigation has been undertaken and a Mosquito and Biting Midge Impact Assessment report is presented in Appendix K This report contains recommendations to ameliorate the presence of biting midge in and around the site.

#### 4.6.5 Section A9 – Energy Smart Homes Policy

All dwellings will be required to comply with the relevant requirements in this regard.

#### 4.6.6 Section A13 – Socio Economic Impact Assessment

Section 13.5 states that residential subdivision creating more than 50 allotments requires the preparation of a Socio-economic Impact Assessment. Under the revised concept plans a total of 38 lots are proposed. The Director-General in the requirements issued to assess the Major Project has nominated Social Impact and Amenity as a ‘key issue’ requiring the preparation of a social impact assessment.

Notwithstanding the different legislative processes, a detailed Socio-Economic Impact Assessment has been prepared and included within Appendix F to this EA.

It has been found that the proposal will generate positive economic impacts, while potential social impacts can be appropriately managed and mitigated.

#### 4.7 DRAFT TWEED LOCAL ENVIRONMENTAL PLAN 2010

The Draft Tweed LEP has recently been placed on public exhibition. The Draft LEP replaces the existing 2(e) – Residential Tourist zoning with an equivalent R1 - General Residential zoning and the area of the site currently zoned as 7(a) Environmental Protection (Wetlands and Littoral; Rainforest) with an E2 Environmental Conservation zoning. Notably an equivalent zoning has not been proposed under the Draft LEP for the area of the land within the Creek Street Road Reserve that is proposed to accommodate the extension of Creek Street. This portion of the Creek Street Road Reserve is currently zoned 7(l) -

Environmental Protection (Habitat) and is proposed to be zoned R1 - General Residential, which is the same zoning as that of the developable area of the site. This is a more appropriate zoning for this section of the Creek Street Road Reserve as

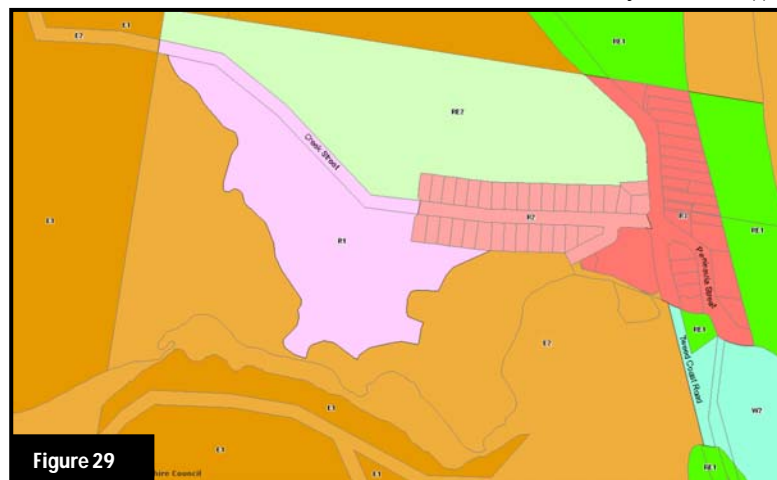


Figure 29

this section of the Road Reserve is largely cleared where the actual road surface and associated kerbing is proposed. The draft zoning also reflects the commonsense approach

that to access land zoned for residential and tourist purposes the Road Reserve should be similarly zoned to allow this.

### **Zone R1 General Residential**

Under the Draft LEP the objectives for the R1 – General Residential zoning are as follows:

#### **1 Objectives of zone**

- *To provide for the housing needs of the community.*
- *To provide for a variety of housing types and densities.*
- *To enable other land uses that provides facilities or services to meet the day to day needs of residents.*
- *To encourage the provision of tourist accommodation and related facilities and services in association with residential development where it is unlikely to significantly impact on amenity or place demands on services beyond the level reasonably required for residential use.*

The proposed development provides for a mix of housing types with low density residential, tourist accommodation and townhouse style development. Further, three (3) lots with the potential for dual occupancy development are proposed. It is clear housing is in demand on the Tweed Coast as outlined in the Socio-economic Assessment presented in Section EA6 below.

It is considered that the proposal can meet the objectives for the future zoning of the developable area of the site as they are presented under the Draft LEP.

### **Zone E2 Environmental Conservation**

Under the Draft LEP the objectives for the E2 – Environmental Conservation zoning are as follows:

#### **1 Objectives of zone**

- *To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.*
- *To prevent development that could destroy, damage or otherwise have an adverse effect on those values.*

The footprint of the developable area of the proposed subdivision is wholly contained within the R1 zoning with the exception of a section of the emergency exit road to the east of the site that links the development to the road reserve adjacent to the existing sewer pump station. The emergency road is proposed on land that is cleared and contains paddock grasses. No riparian vegetation is required to be removed from any land zoned as E2. Many areas of the E2 zoning are proposed to be rehabilitated greatly improving the exiting buffers to riparian zones and ultimately the water quality to the local creek catchments. The proposal clearly meets the objectives of this zoning.

## **4.8 NSW COASTAL DESIGN GUIDELINES**

The lot layout and subdivision design in general has taken into consideration the relevant sections of the Coastal Design Guidelines for NSW. Hastings Point would be considered a village under the guidelines and as such the proposal remains within the 'developable footprint' of the village. The design has taken into consideration the quality natural surroundings by utilising only that part of the site that has been severely disturbed and degraded in the past and preserving natural areas on the site. Further to this, the proposal sees the ultimate provision of large areas of public open space in foreshore areas greatly

enhancing the open space network and public access to quality environments unique to Hastings Point.

The proposal will encourage low density development that will be required to adhere to the design elements of the TSC Section A1 - Residential and Tourist Code. At the same time the proposal will provide for tourist accommodation. Two separate lots have been created at a size that would prevent large scale tourist development but will provide tourist accommodation in a quality natural setting close to the beach.

The proposal is considered to provide for a residential/tourist development that protects and also utilises the natural qualities of the locality whilst maintaining close linkages to existing services and infrastructure in Hasting Point.

## Section EA 5

# Environmental Considerations & Impacts

### 5.1 LANDFORM

The site is bound by National Park to the west, Christies Creek to the south, and Cudgera Creek to the east and Creek Street to the north. There are mangroves located around the mean high water mark. Above the mean high water mark are vegetation communities of swamp sclerophyll, swamp mahogany and swamp she-oak. Fringing these areas on parts of the site are coastal salt marsh communities. The remainder of the site and largely the area to be developed is grassed with scattered shrubs and the site is relatively level, with the exception of scattered depressions and hollows. The existing natural surface is RL 1.9m AHD approximately in the central and eastern portion of the site and approximately RL 1.0m AHD in the west. The soil has a sandy profile and some filling with sand has been previously carried out, presumably with material obtained from the inlet/lagoon situated in the west of the property. The site is currently vacant.

#### 5.1.1 Geology and Soils

##### Regional and Site Geology

The coastal landforms, of which this site forms part, are essentially dependent on the basement geology and the river erosion and deposition processes. Low rises in the floodplain in this area are commonly residual soils and shallow rock (mainly phyllite and metasandstone), while the relatively flat flood plains consist of alluvial soils.

The reason for two systems side by side is explained in terms of Pleistocene ice ages when, at times, the level of the sea was some 100 metres lower than the present level. Major rivers then entered the sea somewhere on the continental shelf. Progressive rising and falling seas levels resulted in deposition and erosion processes.

Prominent along the low lying areas of the eastern, northern and north-western coasts of Australia, particularly below RL 5.0 AHD, iron sulphide layers are found. These sulphide layers formed when the sea level rose and inundated the land. Seawater containing sulphate mixed with land sediments. These sulphide sediments, when exposed to air oxidise to produce sulphuric acid, thus the term acid sulphate soils.

#### 5.1.2 Subsurface Conditions

As indicated by the soil assessments undertaken, the natural subsurface conditions encountered in the boreholes were relatively consistent between bore locations and were dominated by an alluvial sequence comprising upper level interbedded silty sands and sands with occasional clayey sand and very occasional silty clay lenses encountered to the depths investigated. Parent soil type is identified as predominantly silty sand of the Cobaki Landscape variety.

#### 5.1.3 Catchments and Flooding

The site is located within the Cudgera Creek catchment and the Christies Creek sub catchment area. The Christies Creek catchment drains into Cudgera Creek. Cudgera Creek has its mouth at Hastings Point and the catchment area for Cudgera Creek is approximately 24km<sup>2</sup>.

For the purposes of calculating filling impacts on upstream water levels in a 100 year flood event the model used included the Cudgera Creek catchment and the Christies Creek catchment.

In regard to flooding effects on surrounding areas the Engineering Impact Assessment Report prepared by Opus concludes that the proposed development results in a reduction in water levels on the eastern end of Creek Street. It slightly increases levels in the main channel by + 20 mm to + 30 mm. It causes a minor increase in levels at the western end of Creek Street of + 20mm and the northern drainage channel + 20 to + 60mm. These increases are mathematically insignificant in the context of natural variation due to the hydraulic influence of the downstream bridge and the variability in estimating flood flows. We are of the opinion that the increase (and decrease) has no practical significance as the area is already inundated by up to 1.0m of water irrespective of the development and consequently the development is unlikely to result in a measurable increase in damage or nuisance to adjacent properties. The development reduces the impact of storm surges on the properties north of and adjacent to Creek Street.

In regard to Probable Maximum Flood Levels, which are required to be addressed in accordance with the Tweed Shire Council DCP, Opus concluded the following:

Tweed Shire Council's Flood Risk Management Policy requires a 100 year ARI (Q100) flood free access to land above the PMF for all new residential development. The applicant has incorporated a flood free access to the eastern end of Creek St. This is to be made available to the residential development in emergencies. The Flood assessment has included an analysis of the PMF and has demonstrated no additional inundation during PMF event as a result of the development. Figures 9 -10 of the Engineering Impact Assessment demonstrate the PMF flood scenarios combined with a 100 year ARI Storm surge.

In regard to flood hazard assessment the following conclusions were presented by Opus:

The NSW Government Floodplain Development Manual (2005) categorises the hazard posed by the flow of floodwaters based on their depth and velocity. The degrees of flood hazard outlined in the manual are low (0 - 0.6) medium (0.6 - 0.8) and high (> 0.8) where the values given are depth multiplied by velocity. By their nature and the results of the Flood Model the site and surrounding areas are categorised as flood storage area for Q100 and PMF flood events. The results from the Flood Model were output as flood hazard maps to assess any variation between existing and post development scenarios as follows in Figures 5.2, 6.2, 7.2, 8.2, 9.2, 10.2 and 11.2 of the Engineering Impact Assessment document.

From the figures it can be seen that the development does not change the flood hazard ratings for the developed areas surrounding the development. Developed areas and the proposed development are rated as low hazard. There is an increase in flood hazard area within the main stream however there is no additional risk to persons or properties due to the increase.

The proposal sufficiently demonstrates that it will have a negligible impact in regard to flood impact in the area and that proposed residential/tourist development along with existing residential development in the area will not be increasingly affected by flood levels as a result of this development.

Refer to Section 6 – Flooding, in the Engineering Impact Assessment Report for greater detail in regard to flooding investigations.

## 5.2 RIPARIAN ZONE

Lands located within the Environmental Protection Zone 7(a) - (Wetlands and Littoral Rainforests) are located within the subject site and adjacent to the site, to the east, west and south. These areas are the riparian zone of Christies and Cudgera Creeks. The site is located approximately 500m upstream from the mouth of Cudgera Creek at the intersections of Cudgera and Christies Creek.

This riparian vegetation is widespread on the site and incorporates the entire eastern boundary within the low-lying inter-tidal zone, fringes the southern boundary in association with Christies Creek and also dominates tidal areas in the west of the site proximate to the dredge pond. Inland of the mangroves are areas of saltmarsh grasses within the influence of the Highest Astronomical Tide (HAT). These are located in the western areas of the site. Beyond this and toward the centre of the site (the area proposed to be developed) is closed grassland/paddock above the HAT. Melaleuca and swamp she-oak are located to the south west and west of the site behind the mangroves and a variety of tree species are also found along an existing drain flowing from Creek Street in the north of the site toward the south and eventually into Christies Creek.

The relatively flat topography of the site suggests that most surface run off infiltrates into the sandy soils or flows to the creek. Surface ponding does occur after rainfall when the infiltration rate for the sand has been exceeded or the shallow groundwater table reaches the surface.

Detail of the proposal in regard to the riparian zone can be found in Section 3.14 above along with the proposed rehabilitation plans presented in Figures 18 – 22.

## 5.3 ACID SULFATE SOILS ASSESSMENT

The proposal may require some excavation of trenches up to a depth of 2m into the existing levels for services and footings and as such an acid sulfate soil investigation is required.

An Acid Sulfate Soils investigation was undertaken on the site (in 2004) and shows that actual and potential acid sulfate soils exist. The investigation showed that groundwater exists at steady levels between 0.55m and 1.85m depth across the site (i.e. the area proposed for the development of allotments).

An Acid sulfate Soils Management Plan has been prepared and prescribes mitigation techniques to demonstrate that the oxidation of acid sulfate soils and discharge of acid water from the area of the proposed works would not occur (see Appendix A of the Engineering Impact Assessment Report under separate cover).

The remedial actions required to mitigate acid sulfate soils are as follows.

Sandy soils have been encountered in this locality. Action thresholds for sandy soil types are listed in Table 4.4 of the Assessment Guidelines (ASSMAC 1998). The test results show an Oxidisable Sulphur percentage of 0.03% or greater and a TAA of 18 mol H<sup>+</sup>/tonne or greater, therefore the treatment procedures described below must be implemented.

Due to the irregular distribution of Acid and Sulphur trails throughout the site, we recommend adopting a single liming rate for all excavations below natural surface.

1. All trench excavation material shall be backfilled within 24 hours.
2. Stormwater runoff from trench spoil stockpiles shall be collected and retained on site. It shall only be released if the pH is greater than 6.5. If the pH of the water is less than 6.5 it shall be treated with agricultural lime or an approved alternative until it exceeds 6.5. Furthermore additional lime shall be applied to the soil stockpile and it shall be backfilled into the bottom of the trench immediately.
3. Excavated material shall be treated with agricultural lime at a rate of 21.3kg/tonne.

It is considered that the Acid Sulfate Soil investigations and the subsequent Acid Sulfate Soil Management Plan shall be adequate to mitigate any issues which have potential to affect the surrounding environment. Please refer to the Acid Sulfate Soil Management Plan located in Appendix A of the Engineering Impact Assessment Report under separate cover.

#### 5.4 SITE CONTAMINATION

The residential component of the property has been cleared at sometime in the past and used intermittently as pasture for the grazing of horses. The investigations into soil contamination also included possible contaminants from banana farming and small crop growing. These activities occur within the catchment.

Initial sampling was performed on 22 June 2004. The report by Soil Surveys Engineering contained in Appendix B of the Engineering Impact Assessment (under separate cover) gives the locations and detailed numbering of the samples. The sampling test locations and detailed results are reproduced in Appendix A and B respectively of the Preliminary Soil Contamination Report by Soil Surveys Engineering. In summary the results show:

From twenty two tested laboratory samples, ranges of contaminants from testing that were greater than the limit of reporting were as follows.

- |  |                          |
|--|--------------------------|
| • Arsenic.   | (Range <1- 3 mg/kg).     |
| • Lead.  | (Range <1- 38 mg/kg).    |
| • Chromium   | (Range <1- 3 mg/kg).     |
| • Copper   | (Range <1- 8 mg/kg).     |
| • Nickel   | (Range <1- 2 mg/kg).     |
| • Zinc   | (Range <1- 95 mg/kg).    |
| • Organochloride pesticides (DDT, aldrin, dieldrin). | (Below Level of Reading) |
| • Organophosphorous pesticides.                      | (Below Level of Reading) |

The Individual sample # 2044808 19A gave the values.

- |          |                   |
|----------|-------------------|
| • Lead.  | (Range 38 mg/kg). |
| • Copper | (Range 8 mg/kg).  |
| • Nickel | (Range 2 mg/kg).  |
| • Zinc   | (Range 95 mg/kg). |

All contaminants are well below the stated thresholds. The higher values gained from the 19A sample can be viewed as a confined case as all other sample values range from <1 -3 mg /kg on average.

It is concluded that the site is not contaminated and is suitable for residential use.

(Please refer to Appendix C – Preliminary Soil Contamination Report, of the Engineering Impact Assessment Report under separate cover).

As contamination of the site is clearly not a constraint, no further contamination assessment or contamination management plan is considered to be required.

## **5.5 FLORA & FAUNA INVESTIGATIONS**

As part of the Environmental Assessment a detailed Flora and Fauna Assessment has been undertaken, a copy of the report is attached as Appendix I. The assessment has identified the vegetation communities on site; flora and fauna species present, constraints and the mitigation measures proposed for the development. The following sections summarise the findings of the Flora and Fauna Assessment. Detailed discussions of findings are contained within Appendix I.

### **5.5.1 Analysis of Constraints and Impacts**

A review of the flora and fauna assessments undertaken for the site (2003 and 2006) identifies a number of environmental constraints to any proposed development or activity. Identified constraints include:

- Significant vegetation communities (poorly reserved, rare or vulnerable within UNE region, regionally significant within Tweed Shire etc).
- Recorded occurrence of an Endangered Ecological Communities.
- Intertidal communities (below HAT) and riparian associations of Cudgera/Christies Creeks.
- Presence of significant environmental reserves (Cudgen Nature Reserve) to the west of the site.
- Recorded or potential occurrence of threatened fauna (and associated habitat) species.
- Fauna corridors/linkages.

### **5.5.2 Vegetation Communities**

As a result of detailed flora surveying nine (9) vegetation associations/assemblages were identified on site and are listed below.



<b>Community 1:</b>	Low Closed Forest Mangrove
<b>Community 2:</b>	Low/Mid-High Closed Grassland (Saltwater Couch / Saltmarsh)
<b>Community 3:</b>	Low/Mid-High Closed Grassland/Paddock (Pasture Grassland w/ scattered trees)
<b>Community 4:</b>	Tall-Very Tall Rushland (Salt Rush)
<b>Community 5:</b>	Mid-High/Tall Sedgeland/Rushland (Bare Twigrush)
<b>Community 6:</b>	Very Tall Open Forest (Pink Bloodwood/Brushbox)
<b>Community 7:</b>	Very Tall Open Forest (Broad-leaved Paperbark)
<b>Community 8:</b>	Mid-high/Tall Open Forest (Swamp Oak)
<b>Community 9:</b>	Open Water

Detailed description and location of each community is provided within Appendix I and within the plan presented on the previous page.

### 5.5.3 Flora Species & Impacts

The proposed development will result in the removal of vegetation contained within Communities 2 (Low/Mid-High Closed Grassland (Saltwater Couch / Saltmarsh) and 3 (Low/Mid-High Closed Grassland/Paddock (Pasture Grassland w/ scattered trees). It is considered that the development of these areas will not have a significant environmental impact.

### 5.5.4 Fauna Species & Impacts

The fauna survey of the site (and immediately adjacent areas) resulted in the recording of 65 species of bird, 5 reptiles, 6 amphibians and 12 mammals (or evidence of their presence). The proposed development will result in a very minor loss (isolated trees within paddocks) of potential foraging, sheltering and nesting habitat for native fauna (principally birds and bats) occurring within the site and general locality.

The proposed vegetation removal/modification works are not considered to significantly impact upon the endemic fauna assemblage of the site or local/sub-regional populations. A relatively low diversity of fauna was recorded or predicted to occur within the areas to be disturbed.

### 5.5.5 Endangered, Vulnerable and Threatened Species and Communities

#### Flora

No flora species listed as endangered or vulnerable under Schedules 1 and 2 of the *Threatened Species Conservation Act 1995* or listed as critically endangered, endangered, and vulnerable or conservation dependant under the *Environment Protection and Biodiversity Conservation Act 1999* were observed on the site.

Endangered ecological communities (EEC's) are listed under Schedule 1, Part 3 of the *Threatened Species Conservation Act 1995*, while threatened ecological communities are listed under the *Environment Protection and Biodiversity Conservation Act 1999* as critically endangered, endangered and vulnerable.

Four EEC's have been recorded on the subject site. These communities in three cases are reflected by individual vegetation communities that are detailed in Section 5.5.2. The fourth EEC is made up of three of the vegetation communities. The four EEC's are listed as follows:

(NB: For greater detail regarding the following EEC's it is important to refer to Section 3.2.1 of the Flora and Fauna Assessment presented in Appendix I)

- **Swamp Schlerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions:** It is considered that Vegetation Community 7: Very Tall Open Forest (Broad Leafed Paperbark) is reflective of this EEC as described by the scientific committee.

This community is located in the SW and NW portions of the Site (See Figure 30 above).

- **Subtropical Coastal Floodplain Forest of the NSW North Coast Bioregion:** It is considered that Vegetation Community 6: Very Tall Open Forest (Pink Bloodwood/Brushbox) is reflective of this EEC as described by the scientific committee.

This community is located within the south west portions of the site (See Figure 30 above).

- **Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions:** It is considered that Vegetation Community 8: Mid-high/Tall Open Forest (Swamp Oak) is reflective of this EEC as described by the scientific committee.

This community is located as seven small copses within the southern and eastern portions of the site (See Figure 30 above).

- **Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions:** It is considered that Vegetation Communities 2: Low/Mid-High Closed Grassland (Saltwater Couch), 4: Tall-Very Tall Rushland (Salt Rush) & 5: Mid-High/Tall Sedgeland/Rushland (Bare Twigrush) are reflective of this EEC, as described by the scientific committee.

These communities are proposed to be retained in association with the development proposal with the exception of a small area (approx 1740m<sup>2</sup>) of the Coastal Saltmarsh Community. Compensatory plantings of this community are proposed as outlined in Section 5.5.7 below.

A search of the NPWS 'Atlas of NSW Wildlife' [2006] has determined that twenty-three species of threatened flora occur within the region.

Based on habitat assessment and the known distribution of these species within the NENSW bioregion, 18 of these species are considered unlikely to be present within the site. It is considered that suitable or potential habitat occurs for 10 species; however they were not detected during field survey (2003 or 2006). None of the listed species are likely to occur in areas proposed to be developed.

It is considered that potential habitat for the majority of the nominated species is absent from the area to be developed. Notwithstanding, active searches throughout all observed macro- and micro-habitats occurring throughout the site were undertaken to locate the

presence or absence of the tabled species. As the species were not recorded, further assessment is considered unnecessary.

## Fauna

Several species listed as endangered or vulnerable under Schedules 1 and 2 of the *Threatened Species Conservation Act 1995* or listed as critically endangered, endangered, vulnerable or conservation dependant under the *Environment Protection and Biodiversity Conservation Act 1999* were recorded on or adjacent the site during survey works:

A search of the NPWS 'Atlas of NSW Wildlife' [2006] has determined that an additional twenty-nine species of threatened fauna occur within the region.

For species considered a potential occurrence or which were recorded within or directly adjacent the study area during either survey period (Warren & Associates: 2003, Planit Consulting, 2006), the seven-part test of significance has been performed in Section 6 of the Ecological Assessment presented in Appendix I.

Table 12: Threatened Species and Communities subject to 7-part test		
Ecological Communities	Coastal Saltmarsh (Community 2)	
Populations	N/A	
Flora	N/A	
Fauna	<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo
	<i>Miniopterus australis</i>	Little Bentwing Bat
	<i>Miniopterus schreibersii</i>	Eastern Bentwing Bat
	<i>Phascolarctos cinereus</i>	Koala
	<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox
	<i>Pteropus alecto</i>	Black Flying Fox
	<i>Syconcteris australis</i>	Common Blossom Bat
	<i>Pandion haliaetus</i>	Osprey
	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork

No endangered fauna populations listed under Part 2 Schedule 1 of the *Threatened Species Conservation Act 1995* are located on or within the vicinity of the site. As such, the proposed activity is unlikely to disrupt the lifecycle of any species constituting an endangered population or the viability of such a population.

It was found unlikely that the proposed development will disrupt the lifecycle of the local population, of the above listed fauna, to the point that it is at risk of extinction. The Coastal Swamp Sclerophyll community also listed above is also not considered to be threatened by the proposed development as areas of land between the developable area of the site and this vegetation are proposed to be rehabilitated through revegetation creating a larger buffer than presently exists.

The development proposal is considered unlikely to significantly affect fauna and associated habitat; however the proposal will result in a very minor loss of local habitat for native species due to minimal tree removal across the site. It is considered that the development layout protects the significant habitats of the site. In this regard the following recommendations and comments are included within the Flora and Fauna Assessment.

### 5.5.6 Protection & Avoidance

A range of development scenarios were considered in the planning of this development with the inclusion of ecological, hydraulic, traffic and planning constraints as they became identified during the reporting process. In association with this terrestrial flora and fauna assessment the design has been progressively amended to avoid areas of high significance and to respond to issues raised by the DoP. The areas to be retained are largely reflective of endangered ecological communities, inter-tidal environments and/or riparian communities. These areas are displayed within Figure 13.

In addition the development as proposed (refer Attachment 1) avoids removal of 4655m<sup>2</sup> of the Coastal Saltmarsh EEC and 109 native trees within the paddock/pasture that are currently located in the 2E zone.

It should be noted that fish movement will not be impacted upon as no boardwalks or works are proposed within areas below the MHW. A minor area (approx 1740m<sup>2</sup>) within the area of the Highest Astronomical Tide (HAT) will be taken up within the developable footprint. However, this will not impede fish movement as this area is the extreme outer edge of the HAT and the works here do not impede fish movement to any destination elsewhere within the site. In addition this extremity of the HAT would contain depths so minimal that fish passage within this area would be negligible. The proposal in this regard would have no significant impacts upon fish movement.

#### 5.5.7 Mitigation Measures

The following measures are proposed to mitigate potential impacts associated with site development:

##### Impact of Vegetation and Habitat Clearing

Disturbance to areas of native and exotic vegetation as described in this report will be unavoidable to deliver the development as proposed. To ensure that clearing impacts do not occur outside of the designated development and construction zone it will be necessary to clearly identify and mark the boundaries of the environmental and buffer areas onsite prior to construction. Such boundaries are to be protected via high visibility fencing, sediment fencing and signage identifying that no construction activities (including temporary storage, stockpiling, vehicle movement etc) are permitted beyond.

Within the designated development/construction zone identification of areas to be cleared are to be pre-assessed by an experienced ecologist and wildlife spotter/catcher. This pre-assessment shall allow for an inventory of trees bearing birds' nests and/or hollows (suitable for arboreal mammal or bat nesting) to be undertaken prior to felling works. A wildlife spotter catcher is to be utilized during all phases of clearing of the site to ensure safe dispersal and relocation of native fauna.

Salvageable habitat components such as hollow stems or ground logs shall also be stockpiled and randomly dispersed throughout the retained environmental zones.

##### Impacts Associated With Edge Effects

The following design and management initiatives are proposed in association with site development to progressively reduce the impact of 'edge effects' on the retained, interconnected native vegetation remnants:

- A weed management plan shall be prepared for the retained vegetation communities (refer Figure 13) to progressively remove existing infestations.
- A rehabilitation/restoration plan shall be prepared for the retained vegetation communities (refer Figure 13) to progressively revegetate areas from which weeds are removed and to restore the currently cleared 'offset' zones (refer

Figure 13) and thus reduce the 'edge:area ratio' of the resultant inter-connected communities.

#### Weed Management

A weed management plan shall be prepared for the retained vegetation communities and restoration/rehabilitation areas (refer Figure 13) to progressively remove existing infestations. Weed control across the entire site will be necessary during the construction phase and following the establishment of the residential development.

Control techniques will vary depending upon the species being targeted and its location within the site. In areas of low significance (i.e. streetscape, stockpiles, batters, general development zone) broad scale application of herbicide or mechanical removal will be appropriate. Within the environmental zones more selective removal techniques (i.e. cut stump, stem application etc) and spot application of a non-residual herbicide (i.e. roundup bioactive) will be necessary.

#### Management of Construction and Operational Phase Water Quality Impacts

A stormwater quality management plan for the operational and construction phases of the project has been prepared by Opus. This plan calls for temporary and permanent sediment/erosion controls and stormwater quality improvement devices to ensure all stormwater is treated to appropriate standards prior to discharge to the downstream receiving environments.

Opus have also undertaken a hydraulic report demonstrating that impacts receiving environments will be minimal with an acid sulfate soils management plan also to be implemented to reduce potential downstream impacts.

#### Enhancement & Restoration

The following actions are aimed at providing a level of enhancement to retained habitats and restoration of degraded areas of the site. These actions focus upon bush regeneration activities, replacing fauna habitats and restoring native vegetation biomass following development.

#### Revegetation & Restoration of Disturbed Areas

##### Development Envelope

Revegetation within the development envelope shall be undertaken following construction and establishment of the residential use. This is to include the following:

- Use of native trees which may provide potential foraging resources for threatened birds and bats within the streetscape and recreational areas of the parklands/open space. This planting should focus upon fruiting rainforest trees and banksias.
- Native wetland plants should be utilised within stormwater quality devices (i.e. bioretention basins) to promote future use by native frogs and birds. Planting is to include aquatic/semi-aquatic native ground covers and shrubs in addition to trees.

##### Environmental Zones

A rehabilitation/restoration plan shall be prepared for the retained vegetation communities and rehabilitation/restoration zones (refer Figure 13) to progressively revegetate currently disturbed areas and areas from which weeds are removed. This plan shall incorporate species lists and modules to be replanted and focus upon riparian, rainforest and swamp sclerophyll community types.

##### Provision of Alternate Bat/Bird Roosting Sites

Nest boxes for bats and birds shall be installed within the retained environmental zones to provide potential breeding sites for threatened species of the locality. Quantities and

designs of the proposed boxes shall be documented within the future rehabilitation/restoration plan.

#### Provision of Raptor Nesting Site

An additional raptor pole shall be installed within the environmental zone to offset the loss of the large blue gum from the site.

#### Offset Of Residual Impacts

Many of the potential impacts of the development on terrestrial flora and fauna values have been either avoided or minimised through the design process (i.e. retention and buffering) or considered to be adequately mitigated or managed (i.e. through the implementation of management plans). Impacts that cannot or are not proposed to be mitigated (in the context of development consistent with the planning designation) are considered to be residual impacts. The following residual impacts will occur as a result of this development proposal:

- Loss of 4.5ha of Vegetation Community 3 (Low/Mid-High Closed Grassland/Paddock [Pasture Grassland W/ Scattered Trees]). Whilst the majority of this community contains exotic grasses/weeds, native trees and groundcovers will be removed.
- The native trees located within the development envelope to be removed include:
  - Paperbarks (*Melaleuca quinquenervia*) x 16
  - Brushbox (*Lophostemon confertus*) x 2
  - Pink Bloodwood (*Corymbia intermedia*) x 1
  - Swamp box (*Lophostemon suaveolens*) x 4
  - Blue Gum (*Eucalyptus tereticornis*) x 10
  - Two dead stags (one containing a small strangling fig)
- Loss of 1767m<sup>2</sup> of Community 2 (Low/Mid-High Open-Closed Grassland [Saltwater Couch]). This community is an endangered ecological community.
- Loss of a variety of fauna habitats associated with the above communities
- Loss of native flora species which may provide potential foraging resources or secondary habitat for the threatened fauna describe in Section 5.4

The following design and management measures are considered to be appropriate compensation of the residual impacts of the proposed development:

- Avoidance of 4655m<sup>2</sup> of the Coastal Saltmarsh EEC and 109 native trees within the paddock/pasture that is currently located in the 2E zone (north-western areas of the site). ~3500m<sup>2</sup> of predominately pasture grassland (also with regenerating native species) beneath and adjacent the 109 trees to be retained within the 2e zone shall also be avoided.
- Additional areas to those considered in the existing Tweed LEP for the site (i.e. within the 2e zone) shall be protected through the provision of environmental zonings.
- The retained native vegetation communities (10.43ha) which currently exhibit varying levels of degradation through exotic plant infestation shall be managed for conservation (i.e. weed management and revegetation/rehabilitation).
- Revegetation/restoration of 1.28ha of current Community 3 (Low/Mid-High Closed Grassland/Paddock [Pasture Grassland W/ Scattered Trees]) shall occur (refer Figure 13). Revegetation shall be focussed upon re-creating endangered ecological communities (i.e. Littoral Rainforest, Subtropical Coastal Floodplain Forest, Swamp Oak Floodplain Forest and Swamp Sclerophyll Forest on Coastal Floodplains).

Please refer to the flora and fauna report for detailed investigations and outcomes of the surveys and field results in regard to the above information.

## 5.6 BITING MIDGE INVESTIGATIONS

Development within the general location of coastal estuarine habitat increases risk of exposure to biting midge species breeding within the intertidal zone. Through its' Development Control Plan Section A6 Biting Midge and Mosquito Control, Council has identified the Christies and Cudgera Creeks as producing two biting midge species, *Culicoides subimmaculatus* and *Culicoides molestus*. Field investigation by the author in May 2008 has confirmed Council's advice on presence of these two species both in terms of nearby available habitat and as found in biting adult collections. It would be expected that biting midge nuisance would be experienced around the development site locality following their emergence. During the warmer months of November to April, exposure would likely be greatest following new and full moon tides that stimulate emergence of *C subimmaculatus* with a secondary emergence of *C molestus* around the half moon tides.

Assessment of the proposed development plan has shown that bush fire asset protection zones will provide breeze-ways and buffering (Figure 2) of between 20 to 40 meters orientated windward of the development. Other open space is indicated beyond the asset protection zone that if maintained with minimal harbourage, will enhance the total buffer and breeze-way effect using the prevailing east to south-east winds. From time to time however when wind strength could be said to be calm, the breeze-way effect will fail to suppress biting midge dispersal and some level of biting impact may be experienced within the development. At such times reliance on biting midge proof screening and personal protection will be required.

The following recommendations are made in relation to the nomination, nature and maintenance of biting midge buffer and breeze-ways relevant to approving this application; and, for provision of biting midge proof screening relevant to Building Application approvals in due course.

### Recommendations:

1. The proposed bush fire asset protection zone and additional open space identified on Figure 2 of this report should be regarded also as a biting midge buffer and breeze-way.
2. The biting midge buffer and breeze-way should be established and maintained free of vegetation likely to provide harbourage to biting insects. It should predominately contain mown grass.
3. Biting midge proof screening should be required to be fitted to external windows and doorways for all dwellings within the development.

By accepting these recommendations, the reader should not exclude the possibility that, from time to time, biting midge activity within the development will be felt by residents. However, within the context of this development, by following these recommendations, the possible impacts should be minimised.

## 5.7 VISUAL ASSESSMENT

A Visual Impact Assessment has been undertaken to identify existing visual corridors, potential vistas and to outline proposed mitigation measures to ameliorate any potential visible impacts the proposal may have to existing residents and future residents and visitors to the village of Hastings Point and the site itself. The Visual Impact Assessment report is presented in Appendix G and the proposed mitigation measures to assist in the minimisation of potential visual impacts upon the amenity of the area are presented with Section 8 of this report.

## 5.8 CULTURAL HERITAGE ASSESSMENT

As per the requirements of the Director General of the NSW Department of Planning, an Archaeological Assessment (Cultural Heritage Assessment) was undertaken to establish the extent of Aboriginal and non-Aboriginal heritage present on site.

A review of literature sources relevant to the Tweed Coast Region was undertaken by Everick Heritage Consultants and provided detail pertaining to both cultural and archaeological background to the site and surrounds. In regard to archaeological history of the site a site survey was undertaken by Everick Heritage Consultants with the Tweed Byron Local Aboriginal Land Council (TBLALC) to determine if it was considered by the TBLALC that any items or relics of cultural or archaeological significance were located within the site.

The literature review provides an insight into the cultural history of the area. The aboriginal people of the coastal Tweed-Brunswick Rivers were associated with a wider linguistic group the Bundjalung, which was spoken with dialect differences between the Clarence and Logan Rivers. Various evidence in the form of sites and artefacts have been identified in the Tweed Coast area and it is known through the literature that the Tweed Coast has a history of continued use of the coast for ceremonial and food gathering purposes, particularly fishing and the





gathering of shellfish. With this understanding, the TBLALC survey of the site through ground truthing determined that the site is unlikely to contain any items of Aboriginal significance.

Please refer to Appendix J for detailed discussion of both methods and results.

As found through a search of DEC's AHIMS database and consultation with the TBLALC, aboriginal sites are found near to the site, however no aboriginal sites within Lot 156 in DP 628026 were identified as containing any Aboriginal places of cultural heritage which would be destructively impacted upon by the proposal.

In addition to the above surveys no evidence in the form of buildings, equipment, 'springboard trees', artefacts or any other material which might be considered to be of European heritage value were identified.

As no Aboriginal sites or relics were found, neither an assessment of significance nor specific recommendations as to site management are required. The following recommendations were supplied in a precautionary nature in the event that Aboriginal or non-Aboriginal sites or relics were exposed during future works:

#### **Recommendation 1: Aboriginal Human Remains**

It is recommended that if human remains are located at any stage during construction works within the Subject Lands, all works must halt in the immediate area to prevent any further impacts to the remains. The Site should be cordoned off and the remains themselves should be left untouched. The nearest police station, the Tweed Byron LALC, and the DECCW Regional Office, Coffs Harbour are to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the site for criminal activities, the Aboriginal community and the DECCW should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also recommended that in all dealings with Aboriginal human remains, the proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

#### **Recommendation 2: Aboriginal Cultural Material**

It is recommended that contractors engaged for the development, construction and rehabilitation of surrounding vegetation at the proposed Creek Street Hastings Point Residential Development be advised that under the terms of the *National Parks and Wildlife Act 1974* (NSW) it is an offence for any person to knowingly destroy, deface or damage or permit the destruction, defacement or damage to a relic or Aboriginal place without first obtaining the written consent of the Director General of the Department of Environment, Climate Change and Water (DECCW).

It is recommended that if it is suspected that Aboriginal material has been uncovered as a result of development activities within the Subject Lands:

- (a) work in the surrounding area is to stop immediately;
- (b) a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;
- (c) an appropriately qualified archaeological consultant is to be engaged to identify the material;

- (d) if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the DECCW guidelines: *“Interim Community Consultation Requirements for Applicants”* (2005); and
- (e) an appropriate ‘keeping place’ is to be identified in accordance with the wishes of the Aboriginal community.

### **Recommendation 3: Notifying the DECCW**

It is recommended that if Aboriginal cultural material is uncovered as a result of development activities within the Subject Lands, they are to be registered as Sites in the Aboriginal Heritage Information Management System (AHIMS) managed by the DECCW. Any management outcomes for the site will be included in the information provided to the AHIMS.

### **Recommendation 4: Conservation Principles**

It is recommended that all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the proponent and the Aboriginal Community.

## Section EA 6

# Socio / Economic Considerations & Impacts

### 6.1 SOCIO-ECONOMIC IMPACT ASSESSMENT

It is proposed to develop part of the residential portion of the property by way of a residential development comprising a mixture of development types including residential allotments, villas (townhouses) and tourist development lots. The development will also include provision of public open space and parkland and provision of access to the foreshore areas of Christies and Cudgera Creek.

Further to this, the proposal contains rehabilitation works on-site in accordance with the recommendations contained the Rehabilitation Plan presented in Figures 18 -22 and Appendix C.

A detailed Socio –Economic Impact Assessment Report has been prepared for the proposed Residential/Tourist subdivision and is attached at Appendix F.

#### 6.1.1 Potential Impacts

It is considered the proposed development, as evidenced in the socio-economic assessment, will generate positive outcomes in relation to:

- Employment generation;
- Housing opportunities;
- Recreational opportunities and public open space;
- Competition; and
- Multiplier effects throughout the local economy.

Potential or perceived adverse impacts include:-

- Loss of environmentally sensitive lands
- Change
- Visual impacts
- Damage to the character of the Hastings Point town

Potential adverse impacts associated with the development at the construction stage can be appropriately managed within acceptable limits, with reference to dust, noise and human safety.

These issues have been fully addressed within the Environmental Assessment and associated Plans of Management. In areas where the development is likely to place a demand on Council infrastructure such as roads, surf lifesaving, libraries, cycle ways and other public facilities suitable Section 94 Contributions will be levied accordingly to enable these services and facilities to be maintained and upgraded as required and planned for by Council.

It has been identified that the proposed residential/tourism development will generate positive socio-economic impacts. In particular the potential economic benefits provide significant justification for the proposed development to proceed, whilst a large area of the

property which is of environmental value is to be dedicated as public open space to enable all members of the community to enjoy and access.

## 6.2 Alternatives

A number of alternatives for the site have been examined including:

- Not Proceeding and leave the land vacant; (Do Nothing Option)
- Developing the land for agricultural purposes;
- Developing the entire site for tourism purposes;
- Developing the entire site for residential purposes;

The advantages and disadvantages of these alternatives are summarised in the table below.

Alternatives	Advantages	Disadvantages
<b>Not Proceeding – The Do Nothing Option –</b>	Neighbouring landowners in Creek Street will continue to overlook vacant land.	<p>The land will not be properly managed and potentially become a site for dumping rubbish including lawn and garden vegetation. The property potentially will become infested with weeds and other exotic species if not properly managed.</p> <p>Vacant urban land which is slowly becoming a scarce resource would not be developed.</p> <p>Loss of housing and tourism opportunities;</p> <p>Loss of Income for the property owners;</p> <p>The economic benefits including multiplier effects which would flow on to the region would not be realised.</p>
<b>Developing the land for agricultural purposes - Primarily grazing of livestock</b>	Neighbouring landowners in Creek Street will continue to overlook land which is predominantly vacant.	<p>Land is not zoned for agricultural purposes and therefore not permissible under current planning regime.</p> <p>Approximately only half of the property could be used for agricultural purposes with the remainder identified and zoned as wetland.</p> <p>Potential for livestock to enter into wetland areas and pollute local waterways.</p> <p>The property could only sustain a small number of livestock and even then it is suggested they would need to be fed with supplements.</p> <p>The soils are unsuitable for cultivation of small crops and the</p>

		like.
<b>Developing the entire residential/tourist zoned component of the site for tourism.</b>	Potential to meet the increasing demands of tourist wanting to visit and stay on the Tweed Coast for their holidays.	Such a development would ignore the demand for residential allotments along the Tweed Coast.  Potential for additional traffic generation on Creek Street compared to residential.  Potential to adversely impact upon surrounding wetland and creek areas from overuse.
<b>Developing the entire residential/tourist zoned component of the site for residential dwellings.</b>	Potential to meet the increasing demand for Coastal Residential land.  Less traffic generation when compared to a tourist development.	Would not meet the increasing demands of tourists by failing to provide further tourist accommodation or facilities.  Potential for a much denser residential development being proposed including medium density housing such as residential flat buildings which would be out of character with the low density nature of Creek Street.

In summary it is concluded that the alternatives are not feasible, and that the proposal can occur with identified impacts being suitably mitigated and managed.

### 6.3 SUMMARY OF SOCIO ECONOMIC IMPACTS

The proposed development will have a positive economic impact upon the local economy through the construction period with upwards of 345 job years being created and a measurable contribution to the local economy of \$24.4 million with an economy multiplier effect of \$70 million on direct and indirect costs and associated consumption. Other benefits will also accrue through the construction of two (2) tourist accommodation developments on the subject property which will provide further employment opportunities for those working in the Hospitality Sector and living within the region.

The development will also provide added social benefits to the local community and will see more than two thirds of the property dedicated for public open space purposes and will provide public access to these areas by way of pedestrian and cycle way links. It is noted that the subject land has been zoned for urban purposes since the early 1990's and the development as such will provide for low density residential housing across much of the developable area. Alternative uses of the site would permit a more intense form of residential development on the property; however these have not been pursued so that the property would not be overdeveloped.

In summary, the potential socio economic impacts arising from the proposal are of a positive nature and provide strong justification for the proposed development to proceed. Please refer to the detailed Socio-economic Impact Assessment presented in Appendix F of this report.

## Section EA 7

# Environmental Management & Statement of Commitments

## 7.1 SUMMARY OF COMMITMENTS AND MITIGATION MEASURES inc. STATEMENT OF COMMITMENTS

The following sections summarises the commitments of Walter Elliot Holdings regarding mitigations and control measures to be implemented for the proposal:

### 7.1.1 Subdivision Layout and Design

- Dedication to the Tweed Shire Council of all areas of the site outside of those areas containing the proposed residential and tourist allotments would occur following the issue of a Subdivision Certificate. Maintenance periods with respect to the rehabilitation areas will remain active, with Council's accepted norm being 5 years.
- Provision of recreational open space including, landscaped areas, paths, shelters and seating generally in accordance with the approved plans and prior to the issue of a Subdivision Certificate.
- Provision of pedestrian and cycle networks throughout the subdivision linking with existing movement networks external to the site, prior to the issue of a Subdivision Certificate.
- Area Specific Development Controls to be adopted for this particular site within Section A1 – Residential and Tourist Code of the Tweed DCP. These controls would be as follows:

### Objectives

- To minimise the visual impact of the development on the streetscape of Creek Street through the preservation of existing vegetation.
- To provide an appropriate interface between allotments within the development and the adjoining open space foreshore areas.
- Maintain a coastal character associated with existing low density development of Creek Street and the riparian vegetation of the site both within Creek Street and between the allotments of the subdivision and adjoining open spaces.

### Controls

#### Residential Allotments

- a. Garages, carports or outbuildings are to be setback a minimum of 5m from any boundary adjoining public open space (including lots adjoining the emergency flooding access track). This Control applies to Lots 19 - 21, 32 and townhouse style development within proposed Lots 22 & 31.
- b. Any garage, carport or outbuilding on Lots 19 - 21, 32 and townhouse style housing within proposed Lots 22 & 31 are to be well screened from the view of public open

space areas through the use of appropriate landscaping and/or combining these structures into the design of a dwelling and being located under the roof of the main dwelling.

- c. All fencing of boundaries that adjoin public open space, (including lots adjoining the emergency flooding access track), are to be a maximum of 1.2m in height.

#### **Tourist Allotments**

- d. A maximum of two entry/exit driveways are permissible to Lots 18 and 39, with a maximum of one entry/exit driveway permitted with connection to Creek Street.

#### **Townhouse Allotments**

- e. Minimum 4m front setback for each allotment, with the exception of secondary frontages, where a 3m setback is permitted.

#### **Allotments in General**

- f. Driveways to lots with frontage to Creek Street are to be located and constructed such that they avoid, where possible, the removal of trees adjacent to the property boundary, both within the property boundary and within the Creek Street Road Reserve. Trees within the road reserve may only be removed to accommodate an approved driveway location and to allow approved service location.

### **7.1.2 Sediment and Erosion Control**

- The sediment and erosion control mitigation method shall be implemented utilising the following proposed construction sequence during the construction phase of the subdivision:
  1. Install silt fences around the filling perimeter.
  2. Clear, grub and remove topsoil from 10 metre wide strip (stockpiling topsoil for reuse) before placing imported fill bund inside perimeter silt fences including installation of outlet pipe work to suit the post development pipe outlet locations.
  3. Topsoil and turf external batter and crest of initial bund.
  4. Remove existing vegetation (trees and ground cover) from balance of filling site progressively ahead of filling operations such that cleared areas generally kept less than 2 Ha.
  5. Strip topsoil from cleared areas and stockpile away from drainage paths.
  6. Place imported fill starting from adjacent to the perimeter bund and progressing towards the central sediment pond. Maintain 0.5% grade to direct runoff towards central sediment pond.
  7. Spread stockpiled topsoil with grass seed mix (appropriate to season). Water regularly to ensure early groundcover regeneration.
- In addition the measures recommended in the Soil and Water Management Plan should be implemented throughout the construction and following completion of construction where this is outlined within this Plan..

### **7.1.3 Surface Water Control & Quality**

- Water quality control during the filling and earthworks phase of construction will require a suitably qualified professional to undertake a water quality monitoring and testing program to comply with the Department of Housing Guidelines and Protection of the Environment Operations Act 1997 and Tweed Shire Council Design Specification D7 as tabulated in Section 29 of Appendix E (Soil and Water Management Plan) of the Engineering Impact Assessment Report under separate cover.
- Stormwater drainage is to be applied to the proposed developable area and areas adjoining existing residential allotments on Creek Street as outlined in the Engineering Impact Assessment Report prepared by Opus.
- Road stormwater runoff would be collected and treated by proprietary Gross Pollutant Traps, such as a humeceptor that are to be installed in accordance with the Engineering Impact Assessment Report prepared by Opus, prior to the issue of a Subdivision Certificate.

### **7.1.4 Flooding**

- Site levels shall achieve a minimum of 2.4m AHD across the developable area of the site, inclusive of proposed allotments, road reserves and emergency access fire trails.

### **7.1.5 Acid Sulfate Soils**

- During the construction phase the following methods of mitigation shall be implemented in regard to Acid Sulphate Soils:
  - All trench excavation material shall be backfilled within 24 hours.
  - Stormwater runoff from trench spoil stockpiles shall be collected and retained on site. It shall only be released if the pH is greater than 6.5. If the pH of the water is less than 6.5 it shall be treated with agricultural lime or an approved alternative until it exceeds 6.5. In addition, lime shall be applied to the soil stockpile and it shall be backfilled into the bottom of the trench immediately.
  - Due to the irregular distribution of Acid and Sulphur trails throughout the site, it is recommended to adopt a single liming rate for all excavations below natural surface. Excavated material shall be treated with agricultural lime at a rate of 21.3kg/tonne.
  - The Contractor shall report all cases to Council where the pH of collected leachate is less than 4.5.

### **7.1.6 Traffic Movement**



Mitigation measures to minimise impacts of projected traffic volumes are to be undertaken as follows, prior to the issue of a Subdivision Certificate;

- Creek Street to be upgraded to a 7.5m pavement width in accordance with Tweed Shire Council's Specification D1.
- Bollards or a similar barrier endorsed by the Tweed Shire Council be installed at the western end of the proposed extension to Creek Street to prevent vehicles gaining access to the Cudgen Nature Reserve to the west. This is to be undertaken prior to the issue of a Subdivision Certificate.

### 7.1.7 Flora & Fauna

Mitigation measures aimed at protecting and enhancing retained habitats onsite and to offset the loss of potential foraging resources from the development envelope include:

- To ensure that clearing impacts do not occur outside of the designated development and construction zone it will be necessary to clearly identify and mark the boundaries of the environmental and buffer areas onsite prior to construction. Such boundaries are to be protected via high visibility fencing, sediment fencing and signage identifying that no construction activities (including temporary storage, stockpiling, vehicle movement etc) are permitted beyond.
- Within the designated development/construction zone identification of areas to be cleared are to be pre-assessed by an experienced ecologist and wildlife spotter/catcher. This pre-assessment shall allow for an inventory of trees bearing birds' nests and/or hollows (suitable for arboreal mammal or bat nesting) to be undertaken prior to felling works.
- A wildlife spotter catcher is to be utilised during all phases of clearing of the site to ensure safe dispersal and relocation of native fauna.
- Salvageable habitat components such as hollow stems or ground logs shall also be stockpiled and randomly dispersed throughout the retained environmental zones.
- A detailed weed management plan shall be prepared and approved, prior to the issue of any project approval, for the retained vegetation communities (refer Figure 13) to progressively remove existing infestations. Weed control across the entire site will be necessary during the construction phase and following the establishment of the residential development.
- A detailed rehabilitation/restoration plan shall be prepared and approved, prior to the issue of any further project approval, for the retained vegetation communities (refer Figure 13) to progressively revegetate areas from which weeds are removed and to restore the currently cleared 'offset' zones (refer Figure 13) and thus reduce the 'edge:area ratio' of the resultant inter-connected communities. This plan shall incorporate species lists and modules to be replanted and focus upon riparian, rainforest and swamp sclerophyll community types.
- Revegetation within the development envelope shall be undertaken following construction and establishment of the residential use. This is to include the following:

- Use of native trees which may provide potential foraging resources for threatened birds and bats within the streetscape and recreational areas of the parklands/open space. This planting should focus upon fruiting rainforest trees and banksias.
  - Native wetland plants should be utilised within stormwater quality devices (i.e. bioretention basins) to promote future use by native frogs and birds. Planting is to include aquatic/semi-aquatic native ground covers and shrubs in addition to trees.
- Nest boxes for bats and birds shall be installed within the retained environmental zones to provide potential breeding sites for threatened species of the locality. Quantities and designs of the proposed boxes shall be documented within the rehabilitation/restoration plan.
  - An additional raptor pole shall be installed within the environmental zone to offset the loss of the large blue gum from the site.
  - Compensatory regeneration and rehabilitation associated with the proposed development shall be undertaken as follows:
    - Avoidance of 4655m<sup>2</sup> of the Coastal Saltmarsh EEC and 109 native trees within the paddock/pasture that is currently located in the 2E zone (north-western areas of the site). ~3500m<sup>2</sup> of predominately pasture grassland (also with regenerating native species) beneath and adjacent the 109 trees to be retained within the 2e zone shall also be avoided.
    - The retained native vegetation communities (10.43ha) which currently exhibit varying levels of degradation through exotic plant infestation shall be managed for conservation (i.e. weed management and revegetation/rehabilitation).
    - Revegetation/restoration of 1.28ha of current Community 3 (Low/Mid-High Closed Grassland/Paddock [Pasture Grassland W/ Scattered Trees]) shall occur (refer Figure 13). Revegetation shall be focused upon recreating endangered ecological communities (i.e. Littoral Rainforest. Subtropical Coastal Floodplain Forest, Swamp Oak Floodplain Forest and Swamp Sclerophyll Forest on Coastal Floodplains).

Revegetation and rehabilitation will commence upon the commencement of construction and be completed (with the exception of the accepted 5 year maintenance period) prior to the issue of a subdivision certificate.

#### **7.1.8 Biting Midge**

- The proposed bush fire asset protection zone and additional open space proposed should be regarded also as a biting midge buffer and breeze-way.
- The biting midge buffer and breeze-way should be established and maintained free of vegetation likely to provide harbourage to biting insects.
- Biting midge proof screening is required to be fitted to external windows and doorways for all dwellings within the development.

#### **7.1.9 Cultural Heritage Assessment**

- If human remains are located at any stage during construction works within the Subject Lands, all works must halt in the immediate area to prevent any further impacts to the remains. The Site should be cordoned off and the remains themselves should be left untouched. The nearest police station, the Tweed Byron LALC, and the DECCW Regional Office, Coffs Harbour are to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the site for criminal activities, the Aboriginal community and the DECCW should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.
- Contractors engaged for the development, construction and rehabilitation of surrounding vegetation at the proposed Creek Street Hastings Point Residential Development be advised that under the terms of the *National Parks and Wildlife Act 1974* (NSW) it is an offence for any person to knowingly destroy, deface or damage or permit the destruction, defacement or damage to a relic or Aboriginal place without first obtaining the written consent of the Director General of the Department of Environment, Climate Change and Water (DECCW).
- It is recommended that if it is suspected that Aboriginal material has been uncovered as a result of development activities within the Subject Lands:
  - work in the surrounding area is to stop immediately;
  - a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;
  - an appropriately qualified archaeological consultant is to be engaged to identify the material;
  - if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the DECCW guidelines: *"Interim Community Consultation Requirements for Applicants"* (2005); and
  - an appropriate 'keeping place' is to be identified in accordance with the wishes of the Aboriginal community.
- It is recommended that if Aboriginal cultural material is uncovered as a result of development activities within the Subject Lands, they are to be registered as Sites in the Aboriginal Heritage Information Management System (AHIMS) managed by the DECCW. Any management outcomes for the site will be included in the information provided to the AHIMS.
- All effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the proponent and the Aboriginal Community.

#### **7.1.10 View Corridors and Landscape Vistas**

- Rehabilitation of the degraded areas of the site as per the approved Rehabilitation Plan to enhance riparian areas and maintain natural vistas.
- The preservation of trees, where possible, along the fringes of Creek Street to promote the existing natural features of the Street and the location adjacent to the Cudgen Nature Reserve.



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- Rehabilitation of the site behind the existing riparian vegetation and across to the proposed residential allotments and emergency flood access track in accordance with an approved Rehabilitation Plan.
- The preservation of all existing riparian vegetation within that area of the site zoned 7(a) Environmental Protection (Wetlands and Littoral Rainforests).

## Section EA 8

### Conclusion

Walter Elliot Holdings Pty Ltd proposes a residential development of 37 residential allotments plus two (2) tourist allotments and two (2) townhouse style medium density allotments.

Concept Approval only is sought at this stage, with formal development application/s to follow subsequent to gaining consent for this proposal.

Assessment of the potential environmental impacts within this Environmental Assessment has indicated that the proposal would have limited impacts which can be easily and effectively managed to ensure negligible environmental risk. As such the proposal is considered consistent with all of the relevant regulatory requirements and planning controls.

To ensure compliance with requirements as outlined by the Director General and to meet the objectives of the proposal, this Environmental Assessment has focused on and undertaken detailed assessments of the following issues:

- Subdivision Layout
- Water
- Flooding
- Flora and Fauna
- Aboriginal and European Heritage
- Contamination and Remediation of the Site
- Geotechnical Issues
- Bushfire Management
- Traffic and Access
- Riparian Corridor and Foreshore Access
- Provision of Public Service and Infrastructure
- Earthworks and Filling; and
- Social Impact and Amenity.

Assessment of these areas indicates the proposal will result in impacts which can easily and effectively be mitigated through relevant best practice measures, whilst gains from the proposal will see the generation of employment opportunities, access to future public environmental areas, rehabilitation of degraded areas.

The proposal will establish improved open space linkages (inc. direct access to the foreshore and estuary), environmental linkages and increase habitat areas within the site and surrounding areas through rehabilitation of a large portion of the site presently degraded.

Overall the proposal demonstrates that effective management and mitigation measures are achievable onsite, environmental impacts are negligible, improved environmental outcomes will be achieved through site rehabilitation and revegetation; and positive social and economic outcomes will result for Tweed Shire.

**As such it is respectfully requested that the application be considered favourably and approved subject to reasonable and relevant conditions.**

## **Appendix A**

### **Locality Plan**

## **Appendix B**

### **Deposited Plans**

## **Appendix C**

### **Masterplan, Landscape Plans, Rehabilitation Plans & Site Photos**



## **Appendix D**

### **Director Generals Requirements**

## **Appendix E**

### **Area Specific Development Controls**

## **Appendix F**

### **Socio-Economic Impact Assessment**

## **Appendix G**

### **Visual Impact Assessment**

## **Appendix H**

### **Bushfire Management Plan**



## **Appendix I**

### **Flora and Fauna Assessment**

## **Appendix J**

### **Archaeological Assessment**



## **Appendix K**

### **Mosquito and Biting Midge Impact Assessment**

## **Appendix L**

### **Council LEP Amendment Report (2003)**