



VINCENTIA

ENVIRONMENTAL ASSESSMENT REPORT

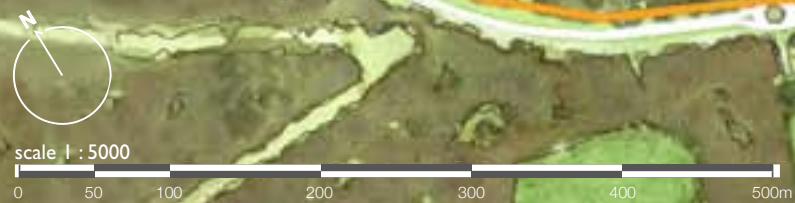
February 2006

SUBMISSION OF ENVIRONMENTAL ASSESSMENT prepared under Part3A of the Environmental Planning and Assessment Act 1979		
EA PREPARED BY Names: Fiona van der Hoeven Christine Allen		
Qualifications: Bachelor of Ars (Hons) Masters of Town Planning BSc (Hons) Urban and Regional Planning		
Address: Building C, 33 Saunders Street Pymont NSW 2009		
PROJECT PLAN APPLICATION Applicant name: Stockland Applicant address: Level 4, 157 Liverpool Street Sydney NSW 2000 Land to be developed: Property description of land to be developed is contained in the EA. Proposed development: Concept approval is sought for a commercial and residential development of land on the north corner of the intersection of Jervis Bay Road (Naval College Road) and The Wool Road, Vincentia. Concept approval includes a display village, district town centre and housing area. Project approval is sought for a 604 lot residential subdivision.		
ENVIRONMENTAL ASSESSMENT ☒ An EA is attached which addresses all matters listed under Part3A of the Environmental Planning and Assessment Act 1979.		
CERTIFICATE I certify that I have prepared the contents of this EA and to the best of my knowledge: - it contains all available information that is relevant to the environmental assessment of the development to which the EA relates; and - it is true in all material particulars and does not, by its presentation or omission of information, materially mislead. Signature:   Name: Fiona van der Hoeven Christine Allen Date: 20 February 2006 20 February 2006		

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CONCEPT PLAN



EXECUTIVE SUMMARY

Purpose and Proposal

This Environmental Assessment Report (the Report) has been prepared by Environmental Resources Management Pty Ltd (ERM), on behalf of Stockland pursuant to Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A). It has been prepared for the application for concept approval for a district town centre, adaptable housing area and display village and project approval for a 604 residential lot subdivision of land located on the north corner of the intersection of Jervis Bay Road (Naval College Road) and The Wool Road, Vincentia (the site).

The purpose of this report is also to provide a study as required under clause 8 of the State Environmental Planning Policy (SEPP) (Major Projects) to justify the nomination of the site as one of State Significance.

The preparation of the project has involved input from a range of disciplines including urban design, ecology, landscape architecture, heritage, engineering, traffic engineering, hydrogeology, economics, social planning, bushfire management, environmental acoustics and geotechnical assessment. An extensive consultation program with key community groups, government departments and service agencies was conducted in the preparation of the technical reports and project design.

The Site and Locality

The site is located approximately two kilometres south west of the existing Vincentia township. It is bound by the Jervis Bay National Park (JBNP) to the west to north-east, the Wool Road to the east and Naval College Road to the south. It has a total area of approximately 127 hectares and the legal description of the site is Lots 801 and 802 in DP 1022286 and Lots 72 – 75 in DP 874040.

Under the Shoalhaven Local Environment Plan the site is currently zoned 2(c) Residential “C” Living Area Zone; 3(a) Business “A” Retail Zone; 5(e) Special Uses “E” Proposed Local Roads Reservation and Widening of Local Road Reservation Zone; 7(d2) Environmental Protection “D2” Special Scenic Zone; and 9(a) Natural Hazards “A” Urban Flooding.

In conjunction with the proposal, modifications to zone boundaries are proposed to facilitate the development and to protect areas of ecological significance. The proposed zones include Zone No. 2(c) Residential “C” (Living Area); Zone No. 3 (a) Business “A” (Retail); Zone No. 3 (b) Business “B” (Transitional); and Zone No. 7(a) Environment Protection “A” (Ecology).

Environmental Assessment

The proposed development has evolved in response to environmental, social and economic implications investigated and mitigation and management measures recommended in the supporting technical documents to create a diverse and sustainable development that is integrated into the natural setting.

Flora and Fauna

The ecological values of the site, as identified in the Species Impact Statement (SIS) prepared by ERM, 2006, were integral to defining the footprint of the proposed development. The site supports habitat for native flora and fauna, regionally significant species and communities, and threatened and migratory species listed under the Threatened Species Conservation Act and the Environmental Biodiversity Conservation Act. The key mitigation measure incorporated in the proposed development is the preservation of approximately 48 hectares (38 percent of the site) as a 'core' environmental zone which will be gifted to Department of the Environment and Conservation (DEC).

Further measures to manage the conservation of threatened species on the site and minimise environmental impacts will include the implementation of a Weed Management Plan and Vegetation Management Plan, implementation of a Feral Animal Management Plan, the banning of cats from the development and the establishment of asset protection zones (APZs) to protect property and the adjoining JBNP from fire.

Groundwater and the Hydrogeology Implications on the Leek Orchid

The Jervis Bay Leek Orchid (*Prasophyllum affine*) is located on Lots 801 and 802 DP 1022286. An assessment of the groundwater needs of the Leek Orchid indicated that as orchids are characterised by shallow root systems rainfall recharge in the immediate vicinity of the orchid colonies would provide sufficient moisture to stimulate growth. The proposed development incorporates a range of water sensitive urban design (WSUD) measures to assist in maintaining soil moisture levels and ground water recharge upstream.

Surface water

There are three valleys draining the site which are separated by two ridges running in a north easterly direction. Forbes Rigby Pty Ltd (2006) has undertaken a hydrological study of the site and incorporated a number of WSUD features into the proposed development relating to water supply management, stormwater quality control and groundwater management. The WSUD measures include a network of permanent ponds, intermittently inundated wetlands, bio-retention swales, propriety gross pollutant traps and monitoring program. The Model for Urban Stormwater Improvement Conceptualisation (MUSIC) was used to optimise the configuration of the various WSUD measures and to ensure water quality objectives are met.

The 1% AEP flood inundation extents are generally contained within the proposed riparian reserves in the residential subdivision, which have been defined in response to the ecological assets of the site (Forbes Rigby, 2006).

Bushfire

The Shoalhaven area has one of the highest incidences of bushfires in New South Wales and the site has been mapped as bushfire prone land by the Shoalhaven City Council. An assessment of the bushfire behaviour potential in the locality indicated that the local region is largely in the 'lower risk' category. Five critical design considerations to manage bushfire risk, have been incorporated into the proposed development, namely Asset Protect Zones (APZs), construction standards, access, water supply and staging (Bushfire and Environmental Services 2006). These design considerations are in accordance with Planning for Bushfire Protection Guidelines, 2001.

Social Infrastructure and the Community

The proposed development contributes to achieving positive social outcomes for the future community of the residential subdivision and the wider community by providing services and facilities to meet the existing unmet needs of the broader community. The future district town centre has the potential to accommodate a range of retail and commercial facilities and leisure and entertainment opportunities in the immediate area including the provision a childcare centre, a new library, a variety of eating places and medical services.

The proposed development will assist in achieving a balanced and sustainable community within the Shoalhaven local government area as the residential subdivision includes a range of lot sizes that will suit different housing types and cater for different households such as families with children and older people.

Transportation

The proposed subdivision design incorporates different street types and design measures to provide for safe and efficient vehicle movement and minimise adverse implications on the existing road network. It also promotes the use of alternative modes by incorporating a cycle / pedestrian network and streets that are able to accommodate a bus route. Stockland is committed to contributing to upgrading intersections in the existing road network, which will be a positive benefit for the wider community.

Economic Implications

The proposed development will result in a number of economic benefits including the provision of a range of shopping facilities for local residents in the district town centre and the creation of additional employment opportunities that will result from the project both during the construction period and once the district town centre is operating.

The proposed development is viable and sustainable in terms of servicing and infrastructure. Existing service infrastructure can be improved to adequately serve the proposed development and constructed to minimise environmental impacts and meet environmental targets. The proposed staging program will enable servicing infrastructure to be provided to meet demand. Stockland is committed to providing an environmentally sustainable residential subdivision in conjunction with the Building Sustainability Index (BASIX), which will have positive economic benefits for the future community.

Cultural Values

A comprehensive archaeological survey for items of Aboriginal and European heritage conducted in August 2003 concluded that there were no significant items of European heritage on the site and further test excavations for Aboriginal heritage revealed that the sites investigated were almost entirely devoid of Aboriginal artefacts, features or deposits.

State Significance of the Site

The proposed development is considered to be state significant as the site is of regional significance in relation to the strategic planning framework and conservation.

The site has been identified in numerous regional planning documents as a residential and commercial growth area, including the:

- Jervis Bay Our future Our Heritage (1992) in which the site was nominated for urban expansion, pending an environmental planning assessment;
- Jervis Bay Regional Environmental Planning Policy (JREP) 1996, in which the site is identified as a proposed urban expansion area;
- Jervis Bay Settlement Strategy (2003), in which the site is identified as a district centre in the settlement hierarchy for the region

The site and proposed development is of regional significance as it presents the unique opportunity to protect natural resources of the site, as a significant portion of land will be transferred to the DEC. This will facilitate the restoration and ongoing care of regionally significant ecological assets.

Justification of the Project

The project is justified as it:

- meets the objectives of the JREP and the strategic planning framework for the region;
- provides for the conservation of areas of high ecological value;
- is consistent with SEPP 71 and Shoalhaven City Council Development Control Plan 100 – Subdivision.

I.1 General

This Environmental Assessment Report (the Report) has been prepared by Environmental Resources Management Pty Ltd (ERM), on behalf of Stockland pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A). It has been prepared for the application for concept approval for a residential and commercial development of land on the north corner of the intersection of Jervis Bay Road (Naval College Road) and The Wool Road, Vincentia (the site). Project approval is sought for the residential subdivision.

The report describes the proposal and the environmental implications associated with the key issues of the proposed development of the site. The purpose of this report is also to provide a study as required under clause 8 of the State Environmental Planning Policy (SEPP) (Major Projects) to justify the nomination of the site as one of State Significance. The report is structured as follows.

- A description of the proposal is set out in Chapter 2.
- A description of the site and locality is set out in Chapter 3.
- The relevant planning provisions applying to the site are set out in Chapter 4.
- A summary of considered alternatives to the proposal is set out in Chapter 5.
- A description of the principles of the Concept Plan is set out in Chapter 6.
- An assessment of key issues and mitigation and management regimes are set out in Chapter 7.
- Justification for the Project and nomination of the site as State Significant is set out in Chapter 8.
- Draft Statement of Commitments for the establishment of the residential subdivision are set out Chapter 9.

See the Appendix for the general environmental risk analysis.

I.2 Methodology

I.2.1 Technical Investigations

The preparation of the project has involved input from a range of disciplines including urban design, ecology, landscape architecture, heritage, engineering, traffic engineering, hydrogeology, economics, social planning, bushfire management, environmental acoustics and geotechnical assessment.

Submitted as appendices to the environmental assessment report is a series of supporting technical reports that investigate the environmental implications of the project and mitigation and management measures. The reports are:

- *Vincentia Coastal Village and District Centre Jervis Bay, Landscape Masterplan Report*, January 2006, prepared by Clousten Associates;
- *Vincentia Coastal Village and District Centre, Water Sensitive Urban Design Study, Final Report*, January 2006, Forbes Rigby Pty Ltd;
- *Vincentia Concept Plan, Species Impact Statement*, January 2006, prepared by Environmental Resources Management Pty Ltd (ERM);
- *Bushfire Assessment*, January 2006, prepared by Bushfire and Environmental Services Pty Ltd;
- *Wool and Jervis Bay Road, Vincentia, Hydrogeological Study*, January 2006, prepared by ERM Pty Ltd (ERM);
- *Vincentia Master Plan Archaeological Test Excavation Report*, January 2006, prepared by Mary Dallas, Dan Tuck and Emeritus Professor RVA Wright;
- *Transport Report*, January 2006, prepared by Masson, Wilson, Twiney Pty Ltd;
- *Vincentia Coastal Village and District Centre - Report on Utility Services and Infrastructure*, January 2006, prepared by Forbes Rigby Pty Ltd;
- *Vincentia District Centre, NSW, Economic Impact Assessment Summary*, January 2006, prepared by Dimasi Strategic Research;
- *Vincentia Coastal Village and District Centre Planning Process, Community Consultation Outcomes Report*, January 2006, prepared by Elton Consulting;
- *Vincentia Coastal Village and District Centre, Social Impact Assessment, Final Report, December 2005*, prepared by Elton Consulting;
- *Vincentia, Jervis Bay Residential Opportunities*, prepared by Cundall, Johnston and Partners Pty Ltd;
- *Vincentia Jervis Bay Commercial and Retail ESD Opportunities*, prepared by Cundall, Johnston and Partners Pty Ltd;
- *Review of Developer Contributions and Associated Works Proposed Residential and Commercial Development Vincentia District Centre*, January 2006, prepared by Don Fox Planning.
- *Vincentia Residential and Commercial Development, Threatened Orchid Monitoring*, January 2006, prepared by GHD.
- *Vincentia Masterplan, Giant Burrowing Frog Survey in Area 5*, January 2006, prepared by GHD.
- *Vincentia Masterplan, Glossy Black-Cockatoo Nesting Surveys*, January 2006, prepared by GHD;

- *Vincentia Masterplan, Giant Dragonfly Impact Assessment*, January 2006, prepared by GHD;
- *Vincentia Masterplan Noise Impact Assessment*, January 2006, prepared by Richard Heggie and Associates Pty Ltd;
- *Proposed Residential and Commercial Development The Wool Road and Naval College Road, Vincentia, Masterplanning Study (Geotechnical) Report*, November 2003, prepared by Network Geotechnics Pty Ltd.
- *Proposed Shopping centre and Commercial Precinct Corner Naval College Road and The Wool Road, Vincentia, Geotechnical Assessment*, January 2004, prepared by Network Geotechnics Pty Ltd.
- *Proposed Vincentia Coastal Village, Naval College Road, Vincentia, Geotechnical Assessment*, June 2004, prepared by Network Geotechnics Pty Ltd.

I.2.2 Consultation

Community Consultation

A community consultation program was completed in three distinct phases over an eighteen month period. The phases focussed on vision and values, development options and preferred options. A variety of techniques were used to engage the Bay and Basin Community, including a website, community information and feedback sessions, a series of key stakeholder briefings at each phase of the project, a special youth consultation workshop and a project newsletter. Three community information and feedback sessions were conducted on 21 September 2002, 6 March 2004 and 17 July 2004. Additional community meetings and presentations were conducted on 27 April 2005 and 20 June 2005.

Key community groups consulted include the Jerrinja Local Aboriginal Land Council, the Jerrinja Wandiwandian People, Jervis Bay Alliance, Bay and Basin Community Resources Inc, Huskisson Chamber of Commerce, St Georges Basin Progress Association, Old Erowal Bay and District Progress Association and the Vincentia Ratepayers and Progress Association. Other community or local agencies consulted include Shoalhaven Area Police Command, Vincentia High School and Primary School, the Nowra Community Hospital. Shoalhaven Public Hospital and local medical specialists were also consulted with regard to opportunities for the provision of a medical services and facilities within the district town centre.

Consultation with Government Agencies

Extensive consultation with government departments and service agencies was undertaken in the preparation of the technical reports and project design.

Preliminary consultation with DIPNR (now Department of Planning and Department of Natural Resources) and Shoalhaven City Council commenced in 2003. The formal commencement of the agency consultation was a Planning Focus Meeting (PFM) conducted in September 2003. A second PFM was conducted in July 2004. The PFMs were attended by the Department of Planning, Department of Environment and Conservation, National Parks and Wildlife Service, Roads and Traffic Authority, NSW Fisheries, Jervis Bay Marine Park Authority, Coastal Council, Shoalhaven Water, Shoalhaven Area Police Command, Shoalhaven City Council, Rural Fire Service, Agility, Integral

Energy, Telstra and Jerrinja Wandian Community.

During the design phase:

- 30 meetings were conducted with Shoalhaven City Council between April 2003 and December 2005;
- nine meetings were conducted with National Parks and Wildlife Service between May 2003 and October 2004;
- ten meetings were conducted with the Department of Environment and Conservation between September 2004 and October 2005;
- 19 meetings were conducted with the DIPNR (now Department of Planning and Department of Natural Resources) Urban Assessments and Wollongong Divisions between February 2004 and December 2005.

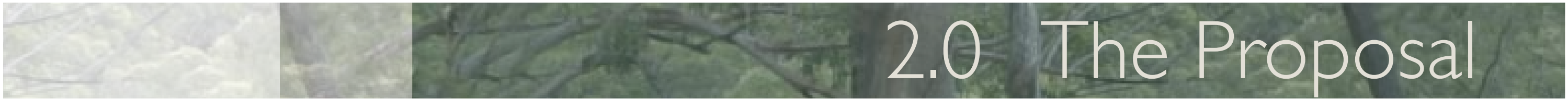
Other departments / agencies consulted in during the design stage include the Department of Education and Training, the Department of Natural Resources, Vincentia High and Primary School, Nowra Community Hospital and Jerrinja Local Aboriginal Land Council.

The bushfire assessment involved consultation with the New South Wales Rural Fire Service, the National Park and Wildlife Service (Jervis Bay National Park) and the Department of Environment and Conservation.

Investigations of utilities and infrastructure included liaison with relevant service providers including Shoalhaven City Council, Shoalhaven Water, Telstra, Agility and Integral Energy. Investigations of transport implications included consultation with the Road Transport Authority.

The preparation of the water sensitive urban design study included consultation with the Department of Natural Resources (previously named Department of Infrastructure Planning and Natural Resources) and the Shoalhaven City Council. A series of meetings were conducted during the design of the district town centre and adaptable housing area and the residential subdivision with respect to road layout, riparian corridors, cross section of creeks and stormwater quality measures in the proposed commercial area. The Department of Natural Resources considered the proposal and set specific riparian corridor and road crossing requirements for each creek on the project site.

The preparation of a Species Impact Statement (SIS) included extensive consultation with the Department of Planning and the Department of Environment and Conservation (DEC). The design of the project has been modified in response to the findings of the SIS and the concerns of DEC.



The principles of the proposal are detailed in section 6 of this report. A summary of the elements for project approval and concept approval are set out below.

Stockland is seeking overall concept approval for a 604 lot residential subdivision and concept approval for a residential and commercial development. Stockland is also seeking some amendments to the zoning of the site to facilitate the development proposal. A description is summarised below.

Project Approval

The project proposal is shown in Section 6.0 *Developing The Concept Plan*.

In summary the residential subdivision includes:

- a total of 604 residential lots (see table 1 for lot breakdown)
- approximately 60 hectares (47 percent of the site) of open space area, which would be comprised of approximately 48 hectares of environmental conservation areas and approximately 12.04 hectares of water sensitive urban design /asset protection zones and urban parks;
- an internal road network (see table 2 for breakdown)
- three access points to Naval College Road;
- construction works related to providing physical infrastructure (both on and off site) and services including some vegetation clearing;
- water sensitive urban design measures and landscaping of public space in streets and parks;
- closure of unformed roads.

An indicative staging program is shown on *Drawing Number 4107 Proposed Staging Plan* prepared by Forbes Rigby Pty Ltd. A summary of the staging is shown in table 3.

Table 1 - Housing Type Mix

Lots area (square metres)	Number of Lots (percent of total lots)
< 300	13 (2%)
300 – 449	84 (14%)
450-599	376 (62%)
600 +	131 (22%)
	604 (100%)

Table 2 - Road Hierarchy

Road type	Reservation width (metres)	Carriageway width (metres)	Verge width (metres)	Median (metres)	Parking (metres)	Constructed footpaths (metres)
Ridge	30m	4.2m^x 2	3m#	Varies	2.1m wide parking bays	2.4m + 1.2m
Connector	20m	7m	6.5m## otherwise 3 minimum	Nil	2.5m wide parking bays	1.2m + 1.2m min.
Local	16m	6m	3 minimum	Nil	On street	Nil
Local (wedge type)	Varies (greater than 16m)	6m^ 4.2m** x 2	3 minimum	Varies	On street	Nil
Park Edge	Varies between 20m to 40m* (includes a 12m reserve, APZ and Tree Retention Zone).	5.5m^	4m verge lot side of street. And varies on the riparian side.	Nil	2.5 m overrun for fire trucks	Nil
Laneway	7m	5m^	1m	Nil	Nil	Nil
Mainstreet	20m	7m^^	6.5 m	Nil	2.5m wide parking bays	1.5m both side of the street min.

* the width will be determined by the design of the water sensitive urban design measure in the asset protection zone.

** Divided carriageway.

^ Undivided carriage way.

^^ Local narrowing.

Some variation.

Includes parking bays.

Table 3 - Staging Summary

Stage Number	Number of Lots
1	63
2	43
3	33
4	27
5	20
6	46
7	34
8	13
9	44
10	55
11	14
12	36
13	44
14	34
15	31
16	33
17	34
	604 (Total)

“housing that sits in the landscape . . .”



Concept Approval

The Concept plan for the district town centre includes:

- building footprints;
- an indicative total floor area of 32,000 square metres with approximately 20,000 square metres proposed in Stage 1 and 12,000 square metres proposed in Stage 2;
- a range of uses including a discount department store, supermarket, medical centre, child care centre, restaurants, bulky goods, potential housing and specialty retail;
- a site (Stage 3) for future bulky goods development;
- a road network that includes a main street, access to The Wool Road and access to a proposed road in the subdivision;
- an indicative total of 1,399 car parking spaces to be provided in two car parking areas and at the upper level of future buildings;
- water sensitive urban design measures and public open space areas.

Refer to Appendix, Vincentia District Centre (SK60).

Indicative floor areas for the proposed uses within the district town centre are listed in table 4. The floor areas are indicative and would be verified during a subsequent project approvals process.

Details relating to design and built form, parking, loading and unloading bays, traffic movement, landscaping, noise implications for adjacent residential development, hours of operation and the like would be the subject of subsequent project approvals.

The concept plan for the adaptable housing area adjacent to the Bay and Basin Leisure centre would accommodate approximately 136 dwellings and includes an internal road network, indicative residential lots, access to The Wool Road and water sensitive urban design (WSUD) measures (some WSUD measures are proposed on land adjoining the Bay and Basin Leisure Centre). Details relating to subdivision design and servicing would be the subject of subsequent project approvals.

Access to the adaptable housing area and the district town centre would be across Lot 71, which is owned by the Shoalhaven City Council.

The concept plan for the display village would incorporate twelve of the proposed residential lots as shown on the Zoning plan located in the Appendix. Details relating to parking, built form, hours of operation, landscaping and the like would be the subject of subsequent project approvals.

Proposed Zoning

Pursuant to SEPP (Major Projects) we propose that the zone boundaries be amended to facilitate the proposed development. Appropriate zoning for the site are shown on the Zoning plan located in the Appendix and includes:

- Zone No. 2(c) Residential “C” (Living Area);
- Zone No. 3 (a) Business “A” (Retail);
- Zone No. 3 (b) Business “B” (Transitional);
- Zone No. 7(a) Environment Protection “A” (Ecology).

Justification for the proposed zone variations is contained in Chapter 8.

Table 4 - District Centre Indicative Floor Areas

Proposed use	Stage 1 (present to 2007) (Square metres)	Stage 2 (Square metres)	Total (Square metres)
Discount Department Store	6,670		6,670
Supermarket 1	4,187		4,187
Supermarket 2		3,500	3,500
Commercial		4,400	4,400
Food and Beverage Restaurant	650		650
Medical Centre	630		630
Child Care		600	600
Nursery	400		
Bulky Goods		1,350	1,350
Specialty Retail	7,000	2,250	9,250
Totals	19,537	12,100	
Progression Totals	19,537	31,237	31,237

“ main street will be lined by active uses ... “



“ the focus of the evolving centre ... “





3.0 The Locality & Site

3.1 THE LOCALITY

3.2 THE SITE

3.1 The Locality

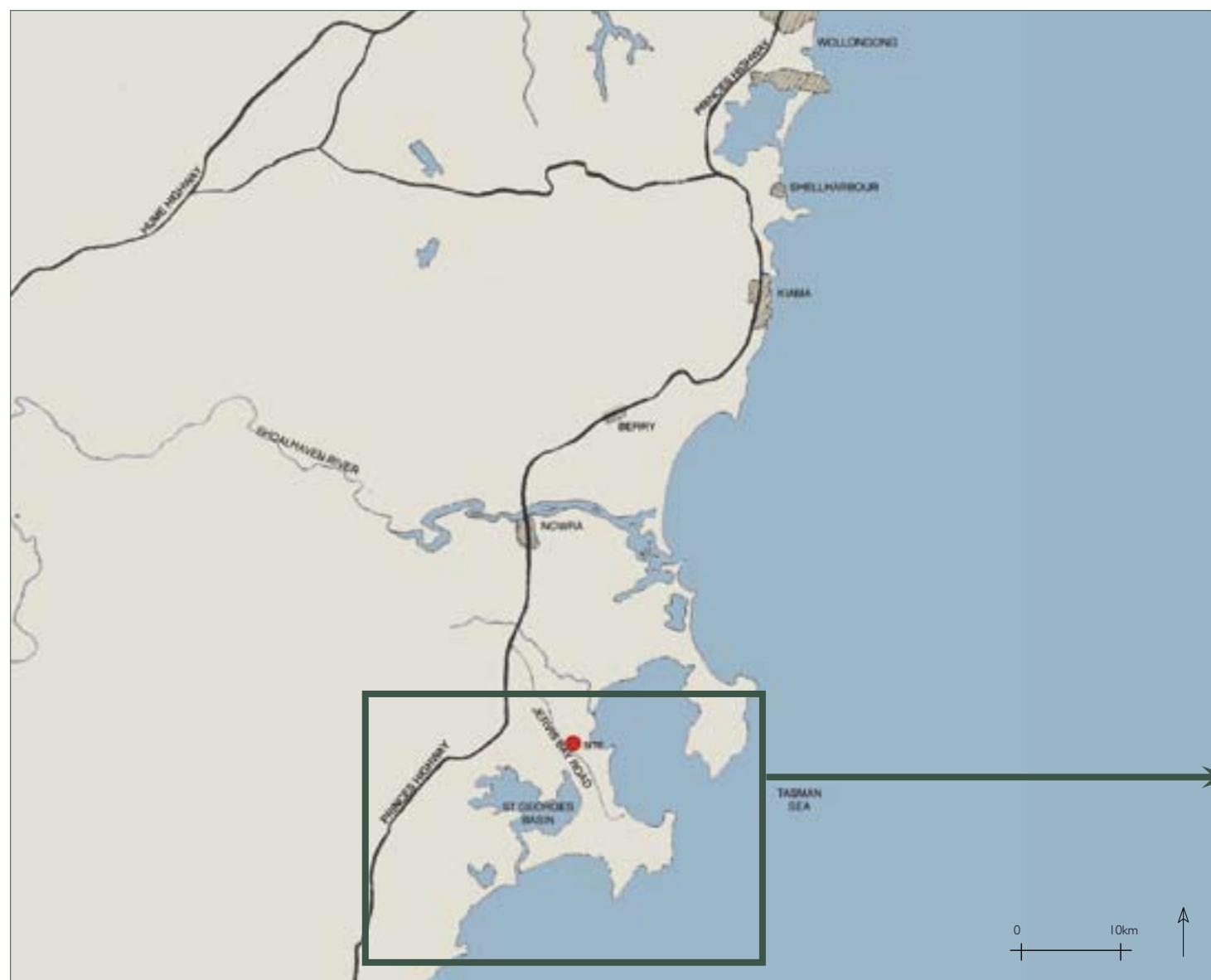
The site is within the Shoalhaven City Council Local Government Area, approximately half way between Nowra and Ulladulla. Shoalhaven contains substantial areas of national park and state forests and a mix of agricultural, townships and protected government land.

The site is located approximately two kilometres south west of the existing Vincentia township. It is bound by The Jervis Bay National Park (JBNP) and Jervis Bay National Park Wetlands to the west and north, the Wool Road to the east and Naval College Road to the south. A sewer treatment plant is located within the existing National Park immediately to the north of the site. The land to the south of the site is occupied by a mix of partially wooded and cleared rural allotments.

The Wool Road is a major north-south link between Vincentia and Naval College Road. Naval College Road forms part of the link between Princes Highway and Jervis Bay. The intersection of the two roads to the south-east of the site is controlled by a roundabout.

Services and facilities in proximity to the site include:

- the Vincentia Primary School and Vincentia High School located to the east;
- the Bay and Basin Leisure Centre, which is adjacent to the north east boundary of the site;
- convenience shopping at Vincentia, Old Erowal Bay and St Georges Basin.



Regional Context



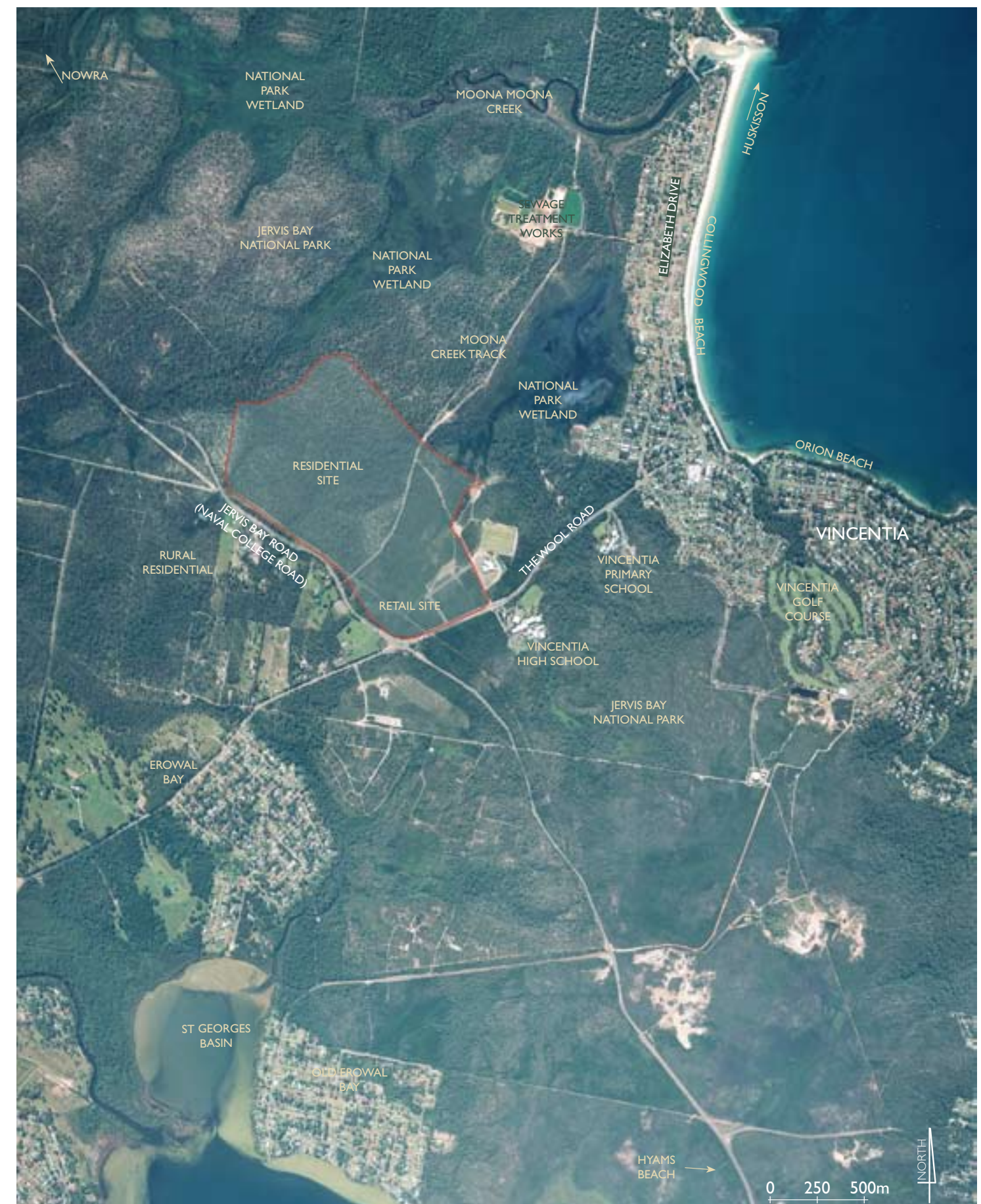
Regional Context - Inset

3.2 The Site

The legal description of the site is Lots 801 and 802 in DP 1022286 and Lots 72 – 75 in DP 874040.

The site is at the north west intersection of Jarvis Bay Road (Naval College Road) and The Wool Road and has a total area of approximately 127 hectares. The terrain is undulating with a gentle slope generally from south-west to north-east. Three natural ephemeral drainage lines cross the site generally from south to north and drain into the Jarvis Bay National Park Wetlands. The site is predominantly covered by remnant and emergent vegetation ranging from low growing sedgeland in the south to tall open forest in the north.

Disturbances of the site are generally limited to tracks, trails, minor dumping and power lines. Access tracks traverse the site including Moona Creek Road, which extends across the site in a north / south direction.





4.0 Planning Provisions

THE EP&A ACT 1979

S.E.P.P. (MAJOR PROJECTS)

S.E.P.P. 11 - TRAFFIC GENERATING DEVELOPMENT

S.E.P.P. 44 - KOALA HABITAT

S.E.P.P. 71 - COASTAL PROTECTION

SHOALHAVEN L.E.P. 1985 (SLEP)

OTHER DOCUMENTS

JERVIS BAY R.E.P. 1996 (JREP)

JERVIS BAY SETTLEMENT STRATEGY 2003

DEVELOPMENT CONTROL PLANS & POLICIES

OTHER ACTS

POPULATION

4.1 Environmental Planning and Assessment Act 1979 (EP&A)

The application is submitted under Part 3A *Major Infrastructure and Other Projects* of the *Environmental Planning and Assessment Act 1979* (EP&A) and Regulations.

4.2 State Environmental Planning Policy (Major Projects)

The State Environmental Planning Policy (SEPP) (Major Projects) defines certain developments that are major projects under Part 3A of the EP&A and determined by the Minister for Planning. Pursuant to section 8 of SEPP (Major Projects) the Minister may initiate a study for the purpose of determining:

- whether any development on the site should be declared to be a project to which Part 3A of the Act applies, and
- the appropriate development controls for the site.

This report fulfils this requirement as it investigates:

- the State or regional planning significance of the site, and
- the suitability of the site for the proposed land use taking into consideration environmental, social and economic factors, the principles of ecologically sustainable development and any State or regional planning strategy, and the implications of the proposed land use for local and regional land use, infrastructure, service delivery and natural resource planning, and
- matters set out by the Director General in relation to the proposed project.

4.3 State Environmental Planning Policy 11 - Traffic Generating Developments (SEPP 11)

The aims, objectives, policies and strategies of this Policy are to ensure that the Traffic Authority is made aware of, and is given an opportunity to make representations in respect of, amongst other matters, the subdivision of land into 200 or more allotments where the subdivision includes the opening of a public road (Schedule 1 of SEPP 11). A traffic impact assessment forms part of the application.

4.4 State Environmental Planning Policy 44 – Koala Habitat (SEPP 44)

This policy applies to land in Shoalhaven local government area. The 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:

(a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and

(b) by encouraging the identification of areas of core koala habitat, and

(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones”.

From previous investigations documented in the *Draft Land North of the Wool Road Vincentia, Hypothetical Residential Subdivision, Flora and Fauna Assessment*, prepared by Gunninah Environmental Consultants in 2002 it was concluded that the site did not provide habitat for Koalas and that no koalas had been recorded there.

4.5 State Environmental Planning Policy 71 –Coastal Protection (SEPP 71)

SEPP 71 applied to land within the ‘coastal zone’ of New South Wales. Part of the site is in the coastal zone and therefore the provisions of SEPP 71 apply to the proposal.

Consistency with SEPP 71 is set out in section 8 of this report, which provides justification for the project.

4.6 Shoalhaven Local Environment Plan 1985 (SLEP)

The site is currently zoned:

- 2(c) Residential “C” Living Area Zone;
- 3(a) Business “A” Retail Zone;
- 5(e) Special Uses “E” Proposed Local Roads Reservation and Widening of Local Road Reservation Zone;
- 7(d2) Environmental Protection “D2” Special Scenic Zone;
- 9(a) Natural Hazards “A” Urban Flooding.

The residential subdivision is permissible under the 2(c) Residential “C” Living Area Zone and the proposed road and drainage works are permissible in zones 5(e), 7(d2) and 9(a). The portion of proposed residential subdivision and ‘concept’ commercial development area in the existing 7(d2) and 9(a) zones is not permissible. The adaptable housing area is not permissible in the 3(a) Zone.

Amendments to the zoning boundaries forms part of this application and is discussed in Chapter 8.

4.7 Other Documents

Other plans and polices that cover the site but do not limit development of a Part 3A application pursuant to Section 75R of EP&A are set out below.

4.7.1 Jervis Bay Regional Environmental Plan (JREP) 1996

The Jervis Bay Regional Environmental Planning Policy (JREP) 1996 aims to protect the natural values and species diversity of Jervis Bay while allowing for development that is compatible with this aim. It includes provisions to protect water quality, landscape attributes, cultural heritage, natural habitats, and identifies and provides for the acquisition of a future National Park. It also identifies opportunities for urban development and encourages appropriate tourism developments.

The site is identified as a proposed urban expansion area in Section 16 of the JREP.

4.7.2 Jervis Bay Settlement Strategy 2003

The Jervis Bay Settlement Strategy (2003) provides the strategic framework to guide future urban and rural residential development across the Jervis Bay for the next 15 – 20 years. The Strategy identified the site as a district centre in the settlement hierarchy for the region. Refer to 4.7.5

4.7.3 Development Control Plans and Policies

The coastal design guidelines supplement SEPP 71, regional strategies and local plans and settlement strategies. The guidelines include five principles for coastal settlement structure, namely:

- defining the footprint and boundary of the settlement;
- connecting open space;
- protecting natural edges;
- reinforcing the street pattern;
- appropriate buildings in a coastal context.

Sections 6 and 7 of this report and supporting technical reports:

- describe how the outer limits of the proposed development was established;
- illustrate how open spaces creates recreation, conservation and public access opportunities;
- show how ecological values and scenic qualities are protected;
- describe the street network;
- include measures to ensure future development complement the natural features of the site and location.

4.7.4 Development Control Plans and Policies

Shoalhaven has two development control plans (DCP) and a number of policies which apply to the site and are relevant to the proposal. They are:

- DCP No. 100 Subdivision Code;
- DCP No.93 Control for Site Waste Minimisation and Management;
- Council Landscape Guidelines;
- Energy Efficiency Guidelines;
- Tree Management Policy (Part 1 to 3);
- Council's Tree Preservation Order;
- Residential Heights and Amenity.

The policies and DCPs have been taken into consideration in the preparation of technical reports. Consistency with the provisions of DCP 100 is set out in section 8 of this report to provide justification for the project.

4.7.5 Other Acts

Pursuant to section 75U of the *EP&A Act* authorisation for a Part 3A application are not required under:

- Coastal Protection Act 1979;
- Heritage Act;
- National Parks and Wildlife 1974;
- Native Vegetation Act 2003;
- Rivers and Foreshore Improvement Act 1948;
- Rural Fires Act 1997.

Pursuant to section 75V authorisation is required under section 138 of the Roads Act 1993. Part 4 of the Roads Act 1993 provides for the closing of roads.

A Species Impact Statement has been prepared in accordance with the Threatened Species Conservation Act 1995.

4.7.6 Population

The population profile of the Bay and Basin Area has been examined in the context of the profile of the Shoalhaven Local Government Area (LGA) and NSW as a whole. The Bay and Basin Area is defined in this study as Shoalhaven City Council Planning District 3. There are 5 planning districts in the LGA. Area 3 covers 528 square kilometres, representing 11.6% of the total LGA. It includes the following towns and villages: Basin View; Bream Beach; Erowal Bay; Huskisson; Hyams Beach; Old Erowal Bay; Sanctuary Point; St. George Basin; Tomerong; Vincentia; Wandandian; Woollamia; and Wrights Beach.

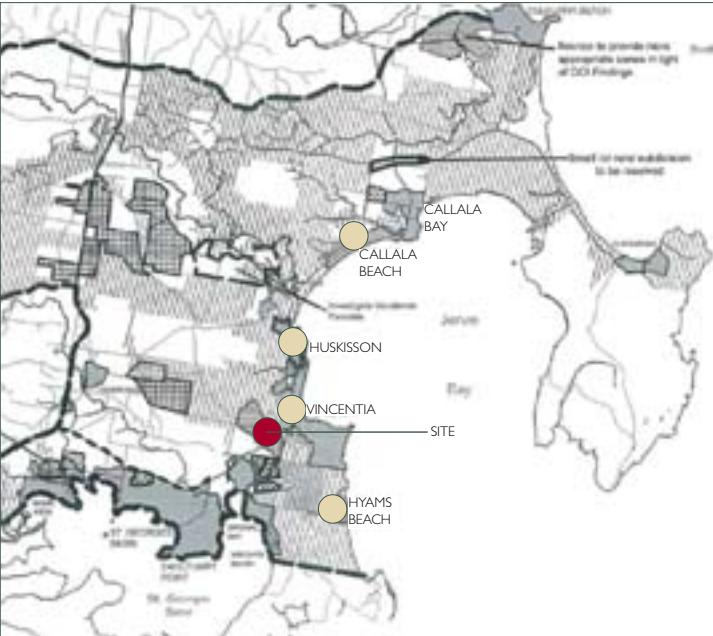
In 2001, the Shoalhaven LGA had a population of 83,548 people. This represents an increase of 6,822 people in the LGA since 1996. Between 1996 and 2001, Shoalhaven had the largest increase in population in the Illawarra region and the 5th highest in NSW outside the Sydney Region. Although the LGA has experienced sustained population growth over the past decade, this high growth rate now appears to be slowing. In 2001, Area 3 had a population of 16,248 people. Area 3 was the fastest growing area in the LGA (increasing from 14,217 people in 1996). However, the most significant growth occurred during 1991-1996 (5.2%), with the growth rate during 1996-2001 being considerably lower (2.7%).

The Jervis Bay Settlement Strategy provides population forecasts for the area up to 2016. As shown in the table below, these figures anticipate significant growth to continue in the area.

Population Projections

	1996	2001	2006	2011	2016
Projection 1	14,217	16,248	19,190	22,180	25,240
Projection 2	14,217	16,245	18,910	21,660	24,520

Source: Jervis Bay Settlement Strategy 2003



Jervis Bay Settlement Strategy



5.0 Considered Alternatives

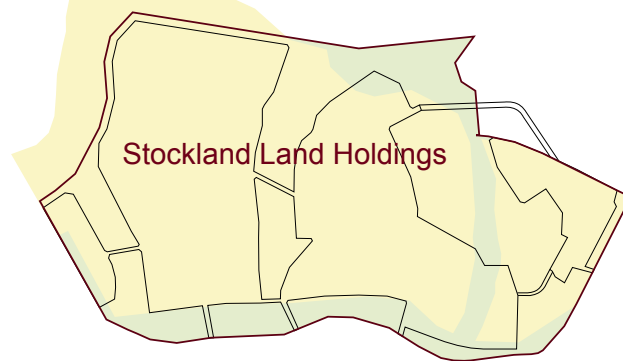
DEVELOPMENT FOOTPRINT NEGOTIATIONS

DESIGN EVOLUTION

DEVELOPMENT FOOTPRINT NEGOTIATIONS

1

- Residential Zone within National Park

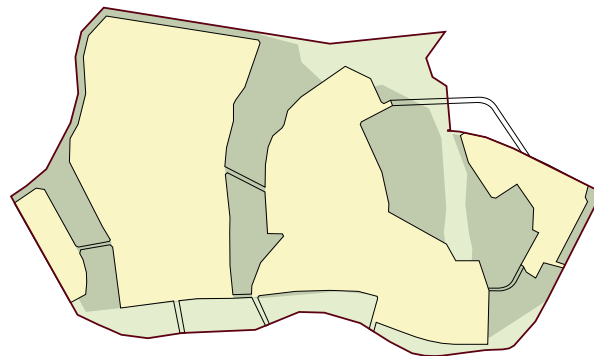


CURRENT LEP ZONING
ADOPTED 1999

Developable Area (Stockland): 102.0Ha
Environmental / Open Space: 24.2Ha

- Development Area
- Environmental Protection
- Stockland's additional environmental zone beyond LEP map

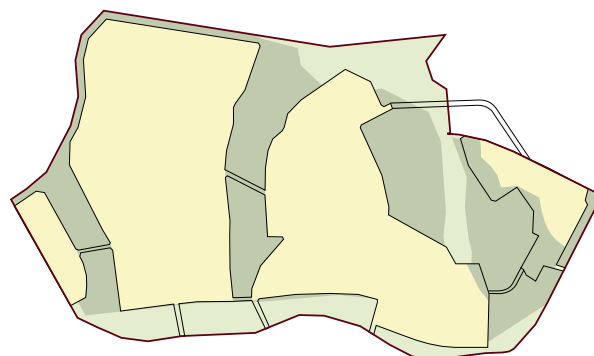
2



STOCKLAND MASTER PLAN FOOTPRINT
DEC MEETING 28 SEP 04

- Development layout tabled after extensive public and agency consultation
- Negotiations re habitat linkages discussed and plan prepared
- Agreed continuing negotiation with Eastern Bristle Bird experts on site
- Agreed to further Glossy Black Cockatoo study
- Environmental sensitivities related to Jervis Bay Leek Orchid were the reason for relocating the commercial precinct and triggered the need for a rezoning application

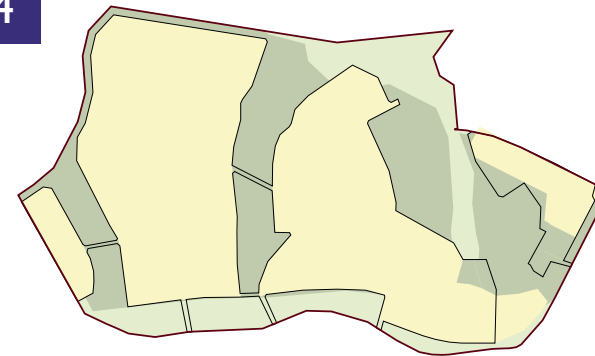
3



MASTER PLAN FOOTPRINT AS MODIFIED
DEC MEETING 19 OCT 04

- Consideration given to removing eco lots (Western Area)
- Further surveys commissioned for the Giant Burrowing Frog and Jervis Bay Leek Orchid
- Stockland agreed to modify Village East and District Centre to accommodate Eastern Bristle Bird habitat corridor and Jervis Bay Leek Orchid habitat

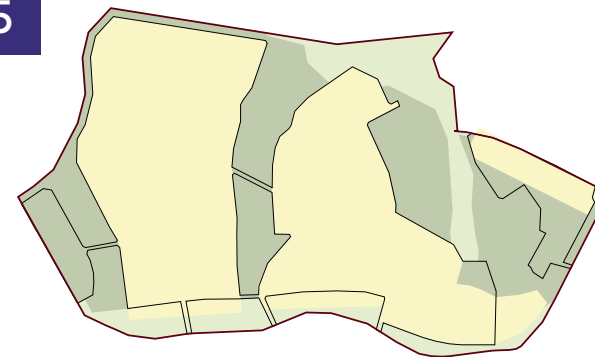
4



MASTER PLAN FOOTPRINT AS MODIFIED
DEC MEETING 12 NOV 04

- Adjusted development footprint in response to DEC plan in areas of Village East, Shopping Centre & Village Central
- Discussed deleting eco lots (Western Area) subject to yield gain on Southern edges of Village West & Village Central
- Road linkages and bridges deleted to improve habitat corridors
- Agreed to further aquatic bio survey investigations

5

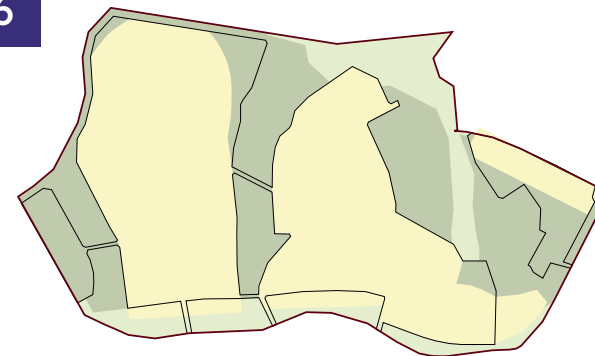


MASTER PLAN LODGED WITH DIPNR
DEC MEETING 03 DEC 04

- Eco lots deleted (Western Area)
- Further amendment made to Village East to reduce area

Developable Area: 84.3Ha
Environmental / Open Space: 41.9Ha

6

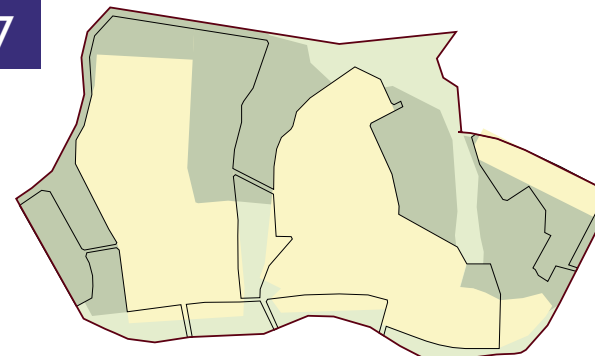


STOCKLAND NEGOTIATION POSITION
DIPNR MEETING 18 JUL 05

- Stockland propose to modify Area 5 to accommodate recommendation in the Glossy Black Cockatoo report

Developable Area: 81.9Ha
Environmental / Open Space: 44.3Ha

7



FEBRUARY 2006

- Current Concept Plan

Developable Area: 66.6Ha
Environmental / Open Space: 59.8Ha

DESIGN EVOLUTION



SEPTEMBER 2003

- Layout to investigate optimum north-south solar orientation-plan considered not sensitive enough to topography / drainage
- Concept of ridge roads introduced
- District Centre links to Leisure Centre



JULY 2004

- Entries to central villages amended
- Area around Leisure Centre refined



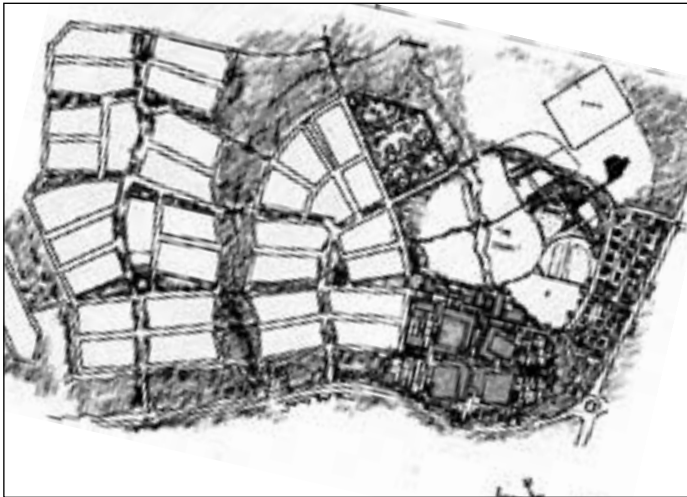
JANUARY 2004

- North South ridge roads
- Secondary streets fall down to creeklines
- Landscaped wedges of trees link internal residential areas to external corridor



FEBRUARY 2005

- Landscaped corridor extended north of District Centre
- Western most area across creek deleted for habitat reasons



FEBRUARY 2004

- District Centre moved south to retain heathland habitat in area south of the Leisure Centre
- Residential plan refined



FEBRUARY 2006

- Current Concept Plan

- CONCEPT PLAN
- CONCEPT PLAN PRINCIPLES
- DEVELOPMENT HISTORY
- WHAT IS A COASTAL VILLAGE?
- LANDSCAPE CHARACTER
- CONNECTING TO THE ENVIRONMENT
- RESPONDING TO TOPOGRAPHY
- URBAN STRUCTURE
- MANAGING WATER
- MANAGING FIRE
- STREET HIERARCHY & PUBLIC TRANSPORT
- PROMOTING WALKING & CYCLING



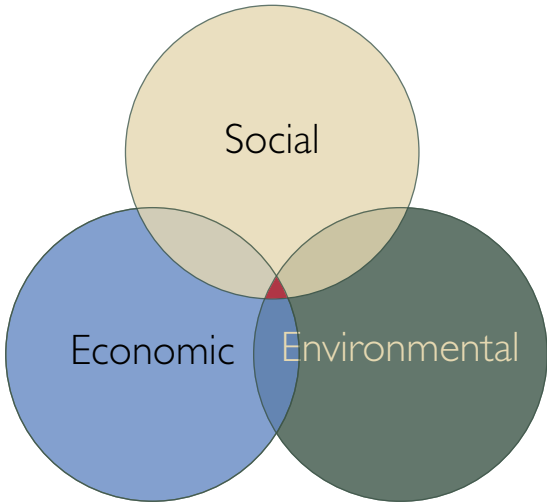
6.0 Developing the Concept Plan

- PUBLIC REALM**
 - DISTRICT CENTRE CHARACTER
 - PARK RESERVES
 - STREET SECTIONS
- PUBLIC / PRIVATE REALM**
 - TREE RETENTION ZONES
 - ARTICULATION ZONES
- PRIVATE REALM**
 - HOUSING DIVERSITY & CHOICE
 - DESIGN CONTROLS & REQUIREMENTS
 - TYPICAL HOUSING TYPES

CONCEPT PLAN



CONCEPT PLAN PRINCIPLES



STOCKLAND SMART LIVING - A PHILOSOPHY

Smart Living is a philosophy embraced in the responsible design and creation of residential communities to ensure that they meet the needs of today without compromising the needs of tomorrow.

Through the combination of advancing technologies, intelligent innovations and leading edge design principles, Stockland creates sustainable communities in harmony with the environment and with people.

DELIVERING A SUSTAINABLE COMMUNITY

To deliver these goals the design of this proposal has utilised best practice design principles, stakeholder consultation, community participation and financial solutions to formulate a clear project vision;

“To create a high quality, active, integrated and sustainable coastal community whereby its character is informed by the unique bushland setting and undulating topography and where ecological impacts are minimised.”

The achievement of a sustainable community relies on the interpretation and implementation of environmental, social and economic principles that create a vibrant and diverse development which is integrated into its natural setting and into the existing urban structure of Vincentia. With this in mind, the following design principles were developed;



DESIGN PRINCIPLES

Environment	Work with the landscape, landform and climate
Integrated Places	Respond holistically to the existing and future context and mix of activities, within and beyond the site
Sustainability	Design to support development that strives to meet the needs of the present without compromising the ability of future generations to meet their own needs, in terms of environmental, social and economic responsibility
Visual Framework	Optimise existing, and establish new views and vistas
Expression Responsive	Design for cohesive diversity Develop a market-informed design response which meets the market price points
Neighbourhood Character	Develop a memorable sense of place
Long-term Approach	Plan for the future, such that staging allows for future opportunities and ongoing evaluation
Prioritise Public Realm	Establish a great public realm from the start, which extends continuously throughout the project

European settlement of the Shoalhaven region commenced with the establishment of Alexander Berry's Coolangatta agricultural settlement to the north of the Shoalhaven River in the early 19th century.

Henry Halloran purchased significant land holdings in the early 20th century, along with large parts of Sydney northern beaches and the north coast of New South Wales. His ambitious plans are shown here, and this proposal for St Vincent City, around the Shoalhaven River; and Pacific City in the south of Jervis Bay, was at one point considered for the national capital of Australia (though this was seen by Victoria to be too close to Sydney). An extension of the railway from the north, a canal between Shoalhaven River / Lake Wollumboola, and the development of port and industrial uses were proposed to underpin the plan.

The formalised structure of street patterns with grids in urban centres and deformed grids following topography in other locations is evident in the unbuilt 'paper subdivisions' attached to the land, and in the structure of the developed settlements of Nowra, Culburra, Callala Beach / Callala Bay, Huskisson, Vincentia, Errowal Bay and Sanctuary Point.

The geography of the Jervis Bay area determined that the coast road (that became the Princes Highway) followed an inland route. This has led to the coastal villages around Jervis Bay being effectively peninsular developments, with Nowra being the only significant town due to its highway/river location.

With the rise of environmental concerns, National Park designations, heritage significance and the State Government's Coastal Policy, the development of this site is likely to be the last significant development in the Bay and Basin Area.



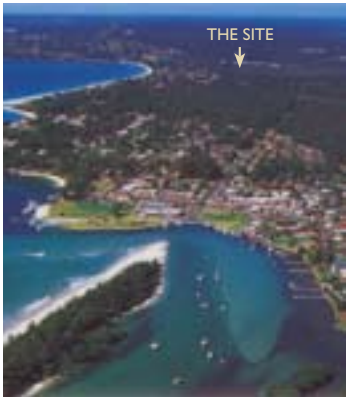
DEVELOPMENT HISTORY



Main Street in Berry,



Aerial view of Vincentia with the site in the background.



Aerial view of Huskisson with the site in the background.



WHAT IS A COASTAL VILLAGE ?

EXAMPLE OF A TRADITIONAL SOUTH COAST VILLAGE
- BERRY, NSW



EXAMPLE OF A NEW COASTAL VILLAGE
- SEASIDE, FLORIDA, USA



Living on the coast is a different experience from living in a more urbanised environment. This Master Plan tries to reflect what life will feel like and what the built environment and landscape will look like. What are the characteristics of the development that will make the evolving place feel like a coastal village? This picks up themes from the State Government's Coastal Design Guidelines.

VILLAGE CENTRE

- A discernable centre
- A street based centre
- A range of retail, commercial and community uses
- A range of housing types with typically denser forms in and around the centre

VILLAGE STREETS AND SPACES

- Residential streets in either grid form or a distorted grid following topography
- A predominance of landscape, both in areas of retained bush/beach and on streets and lots
- Mostly indigenous landscape, with new planting appropriate to a harsh coastal climate
- An informal approach to streets, often without kerbs and gutters.

BUILT FORM

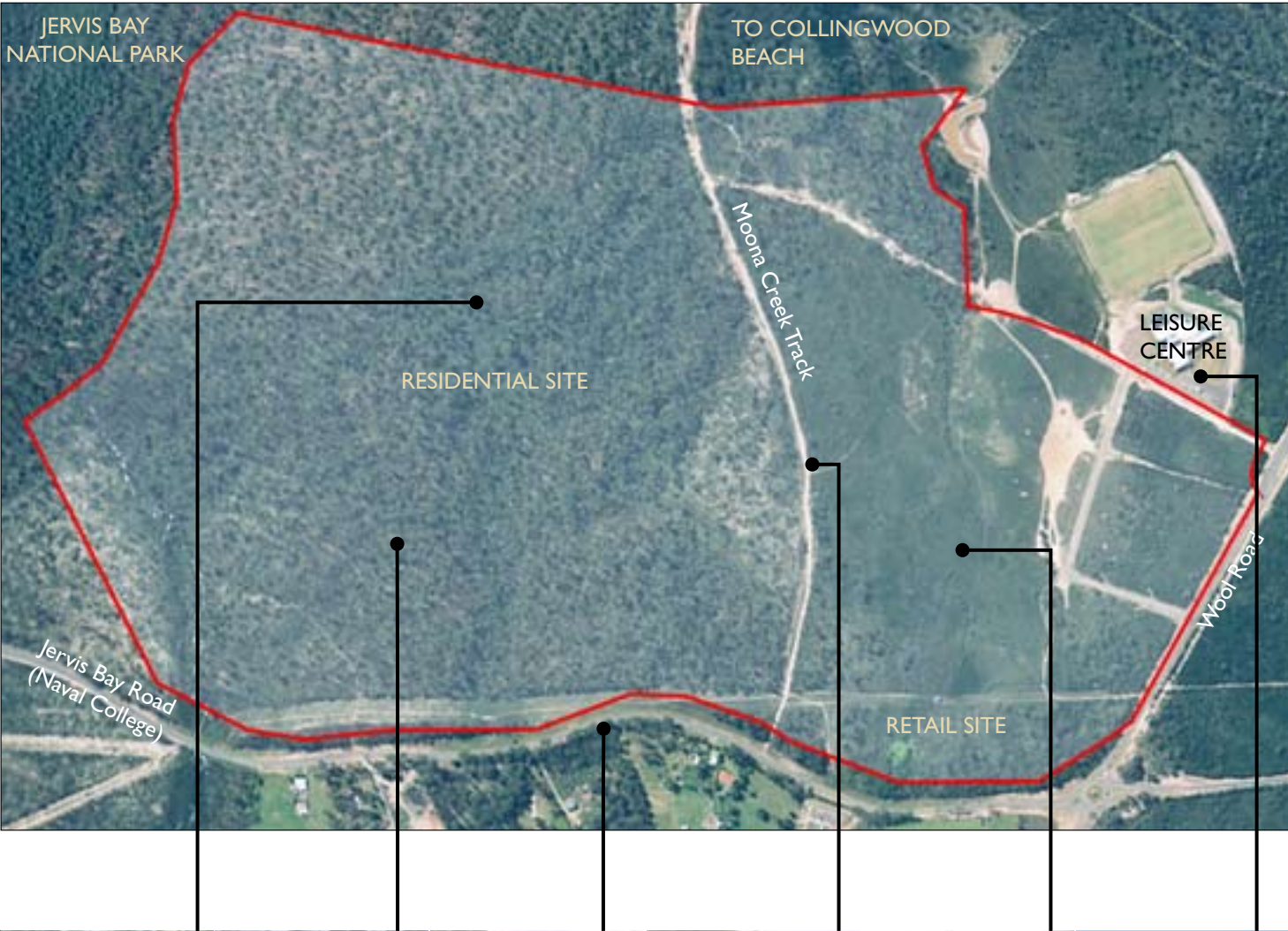
- Simple built forms, emphasis on tradition
- Emphasis on shade through trees and verandahs/awnings/shades
- Use of lightweight materials and unfussy detailing
- Houses expressive of coastal life in indoor /outdoor areas, decks and verandahs.

TYPICAL COASTAL VILLAGES ON A PENINSULA



LANDSCAPE CHARACTER

The existing landscape character of the site falls into two main types. To the West of the Moona Creek Track the wooded valleys, slopes and ridges give a relatively enclosed and undulating character. To the East of the Moona Creek Track is generally open heathland with some low to mid-rise canopy particularly adjacent to The Wool Road.



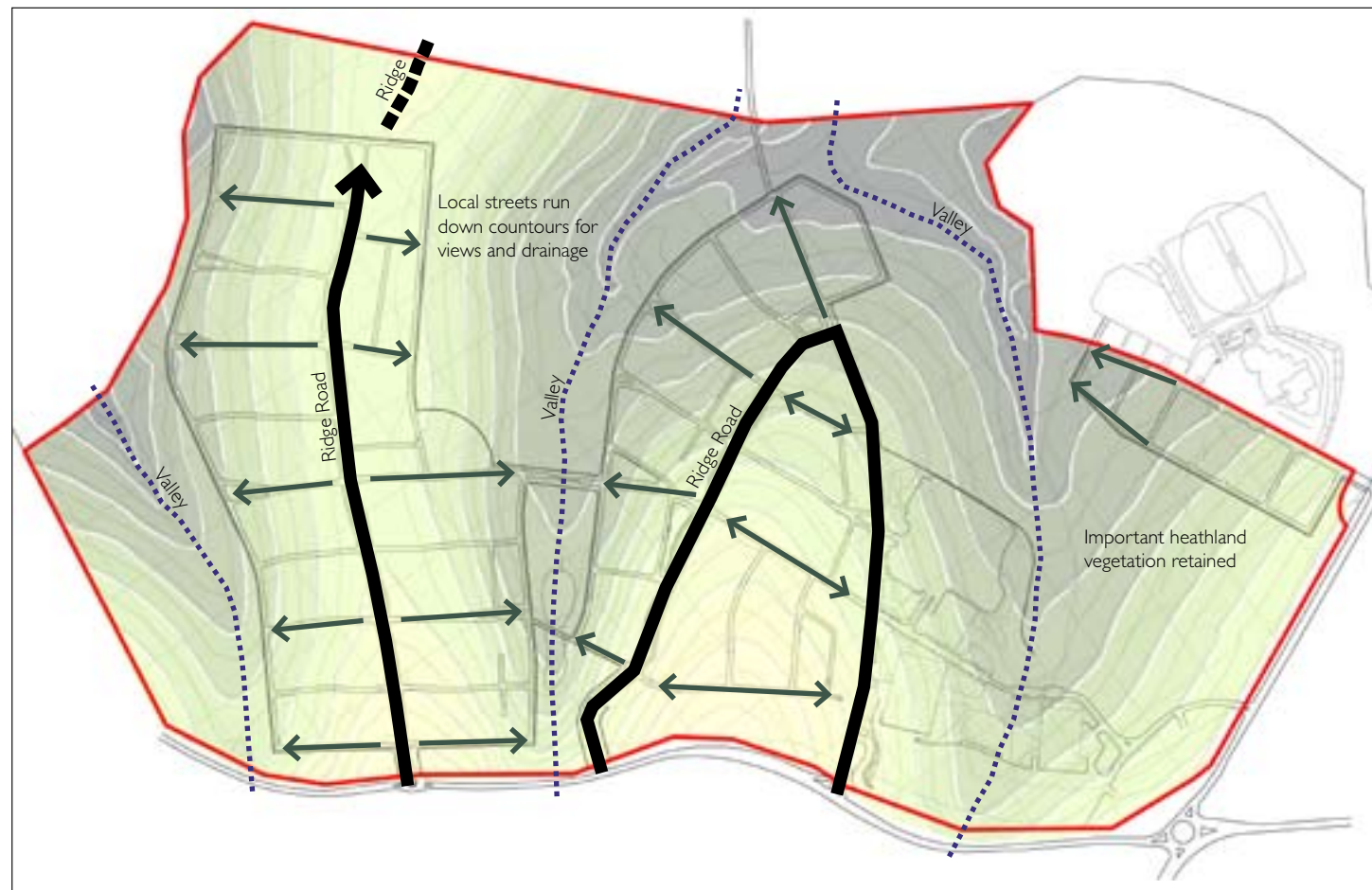
CONNECTING TO THE ENVIRONMENT

The wider environment and its history forms an important starting point in the creation of a new urban structure. The riparian corridors and open heathland are part of the wider environmental and drainage system, and generous spaces are therefore retained to create opportunities for habitat. Along these there are opportunities to complement the natural heritage with the sensitive design of landscape and roads/bridges. Wedges of open space connect open spaces in the residential areas to the bushland corridors.



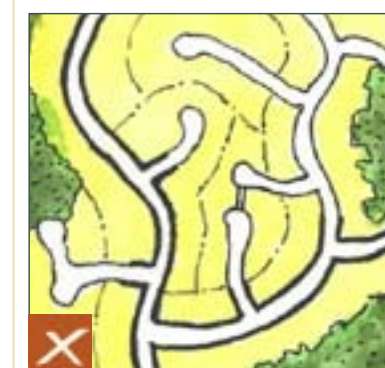
RESPONDING TO SITE TOPOGRAPHY

The site has a strongly defined topography with three shallow valley watercourses running into the wetlands to the north of the site and between these low ridges. The watercourses have been used as environmental linkages to allow for the retention and enhancement of natural and habitat systems as they flow down towards the wetlands and out of the Moona Creek system into Jervis Bay. The ridges are used as key links through the residential areas and create legible structure by being the memorable roads at high points. The local street structure runs perpendicular to the ridges and creates views and natural drainage down to the riparian corridors.

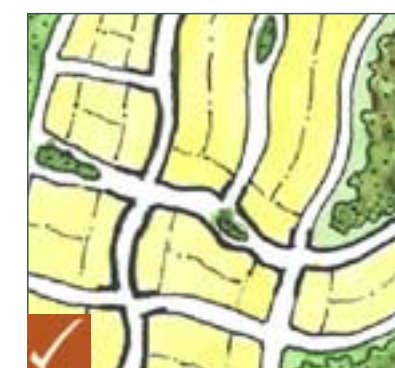


URBAN STRUCTURE

New suburbs and centres need a strong structure or 'skeleton' to create easy movement routes and to help people to find their way around. The main routes of Jervis Bay Road and The Wool Road are linked to internal connecting ridge roads which give access to local streets. The main movement system creates a clear pattern of bus routes which link key places within the residential, and town centre areas with the wider local community.



CONVENTIONAL SUBURBAN PATTERN
Based on looping collector roads and cul-de-sacs. These produce a disorientating urban structure in which it is easy to get lost. This also concentrates traffic on a few major roads with resultant degraded urban environments.



TRADITIONAL CONNECTED PATTERN
Based on a connected street system with clear main routes linking to local streets. This pattern is efficient and gives choice of routes while allowing the main streets to be memorable and clearly understood.

MANAGING WATER

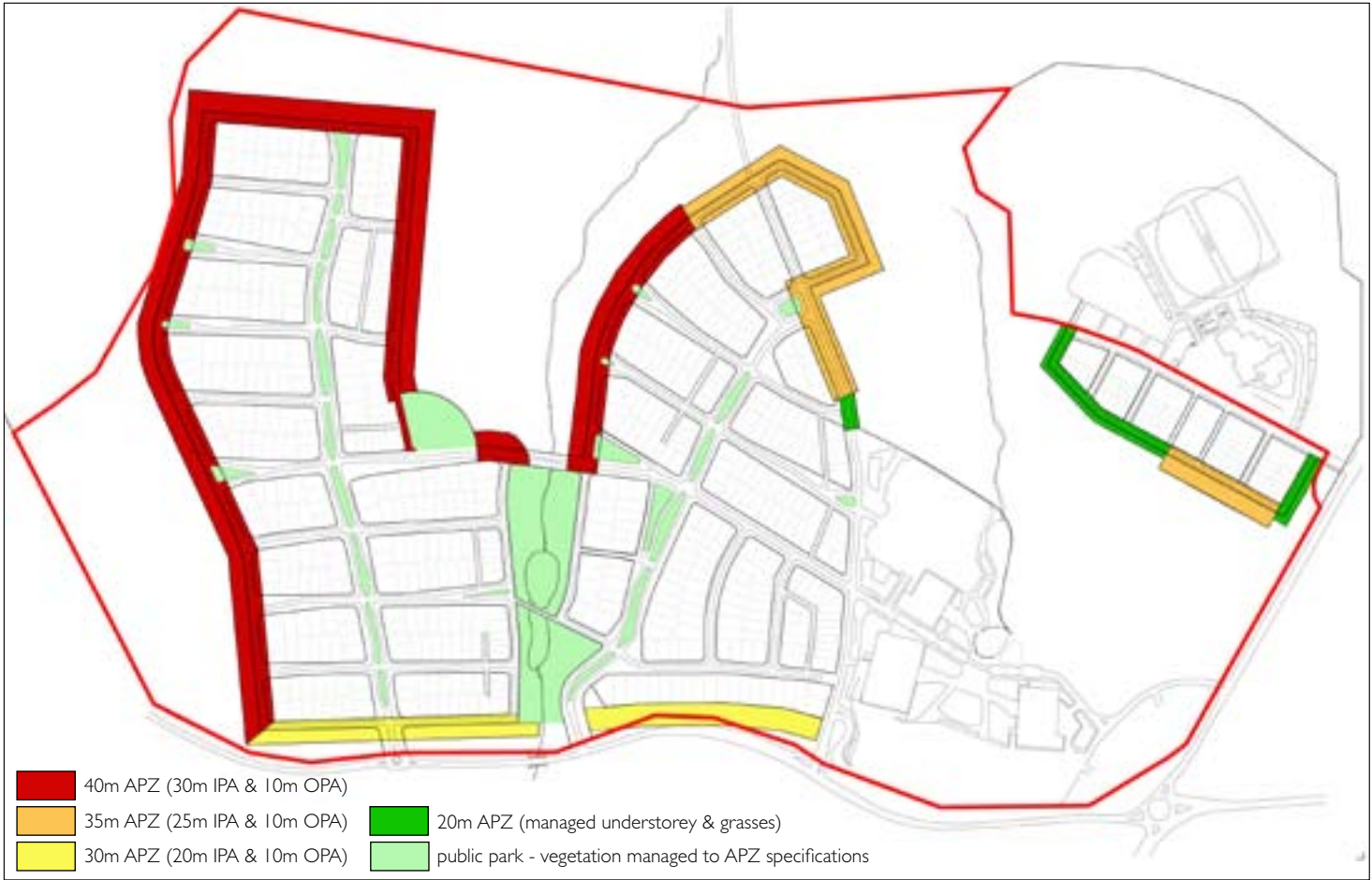
The water management approach has followed a 'total catchment management' philosophy using:

- > on lot detention (tanks for water harvesting),
- > on street/parking lot detention (Bioswale cleansing) ,
- > edge swales (in the APZ's), and
- > cleansing ponds.



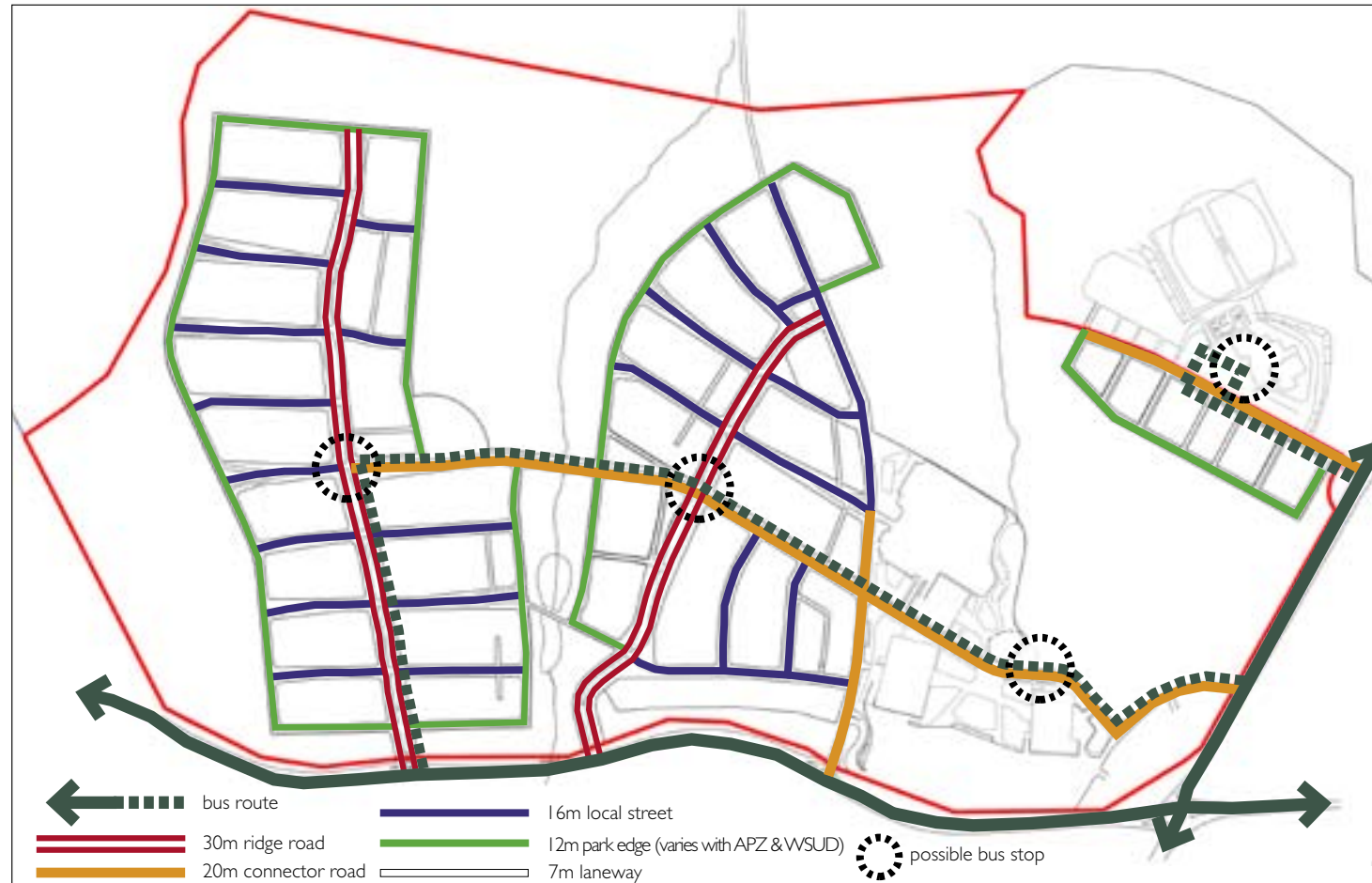
MANAGING FIRE

There is a fire threat from the north/west of the site, where the National Park has burned several times in recent years. To manage this risk, Asset Protection Zones (APZ's) as shown below will be established. Within these zones understorey planting will be removed, tree canopy thinned and edge roads to the perimeter of the development zones used to allow access for firefighting. These edge roads allow for effective environmental management.



STREET HIERARCHY & PUBLIC TRANSPORT

The proposed bus routes show how the newly evolving village will be served by buses linking to the wider Bay and Basin area, with service links to the regional centre of Nowra. It is important that bus use is promoted as early as possible which will encourage public transport usage. The whole of the new development area will be within a five minute walk of a bus stop. The street hierarchy has been designed to create a legible system of memorable main connectors ('ridge roads' and 'journey' roads from ridges through valleys), local streets running from these connectors and edge roads to the environmental corridors.



PROMOTING WALKING & CYCLING

Pedestrian and cycle routes have been located to allow for and encourage easy movement within the residential precinct and to promote linkages to the village centre and Collingwood Beach.



DISTRICT CENTRE CHARACTER

The main street is the most important place in the town centre and will be lined by active uses. The deflection in the line of the street will give changing vistas when moving along the main street. Trees, awnings and verandahs will give shade and create an intimate character. The street has defined entry points which will be celebrated by gateway built elements.

The town square will be the focus of the evolving centre, linking the retail core to the main street and lakeside area. It is to be flanked by active corner buildings with accentuated architectural character and height. The north facing space will be ideal for outdoor eating, with views across main street to the lakeside area and beyond to the Heath. It will be a place to meet, with community information and gathering spaces.



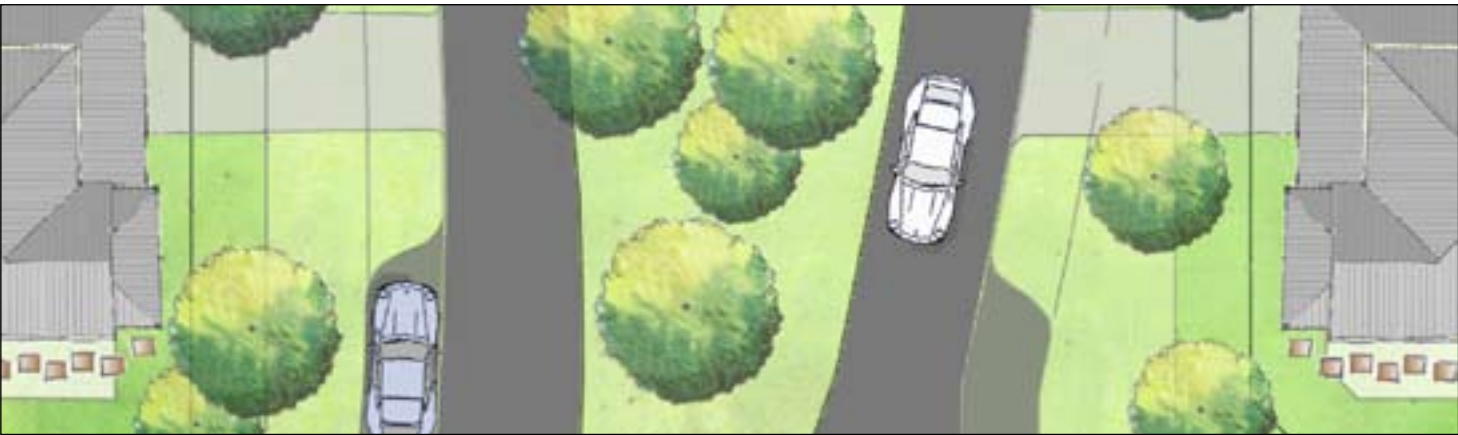
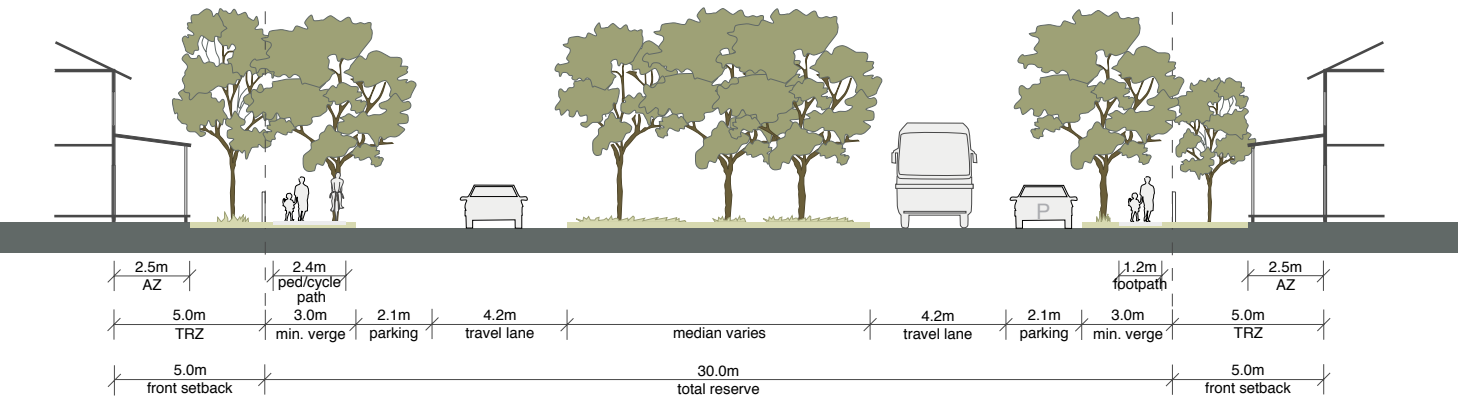
PARK RESERVES

Village parks are retained open areas in the residential precincts which give the opportunity for mainly passive and some limited active recreation. These create opportunities for retention of significant amounts of existing vegetation, and will read as memorable pockets of bushland and clearings along the ridge roads. Denser forms of housing around village parks can take advantage of the added amenity and attractive outlook.

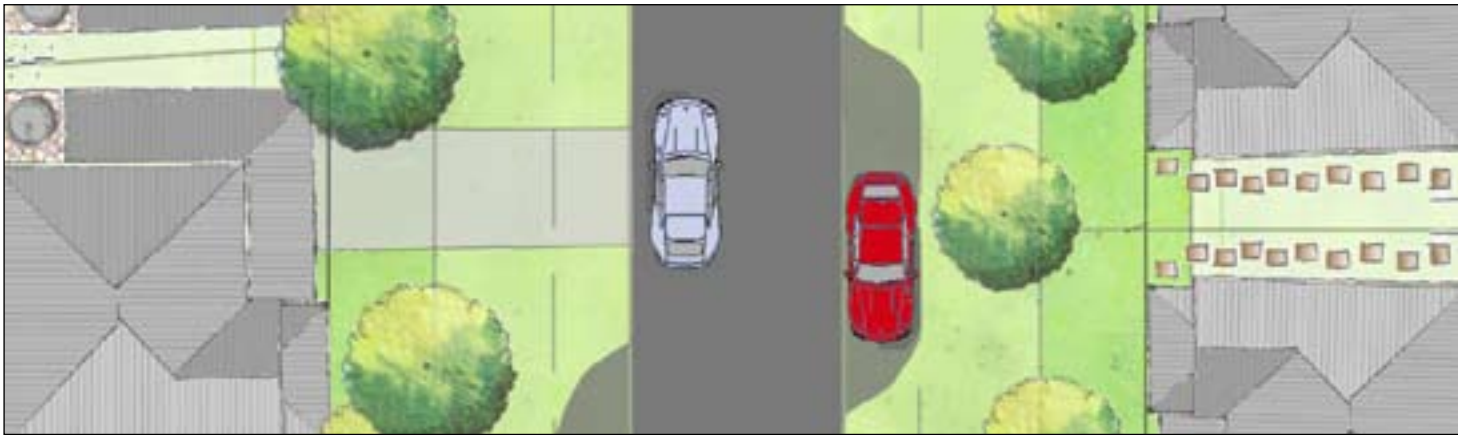
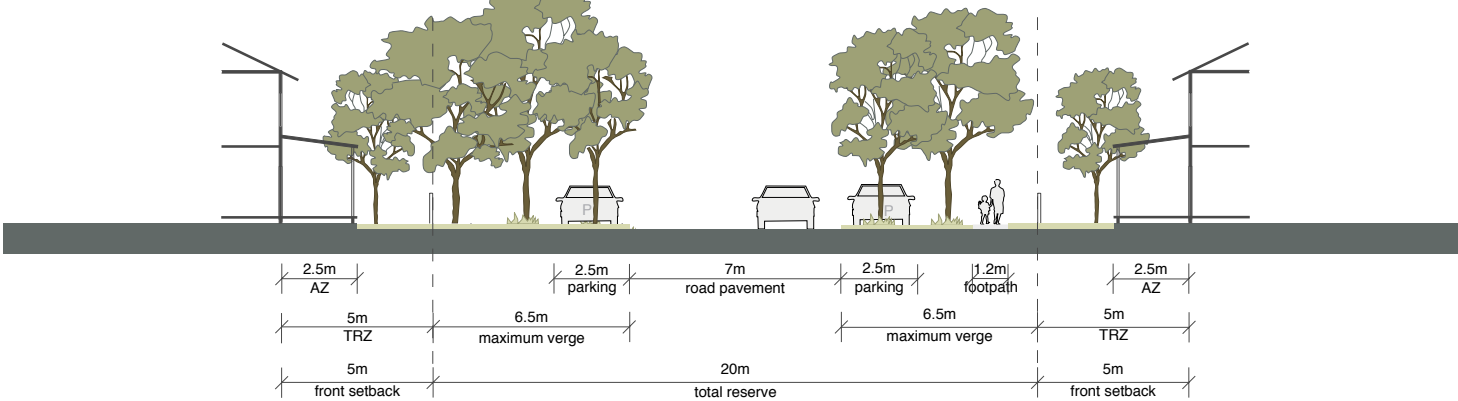


STREET SECTIONS

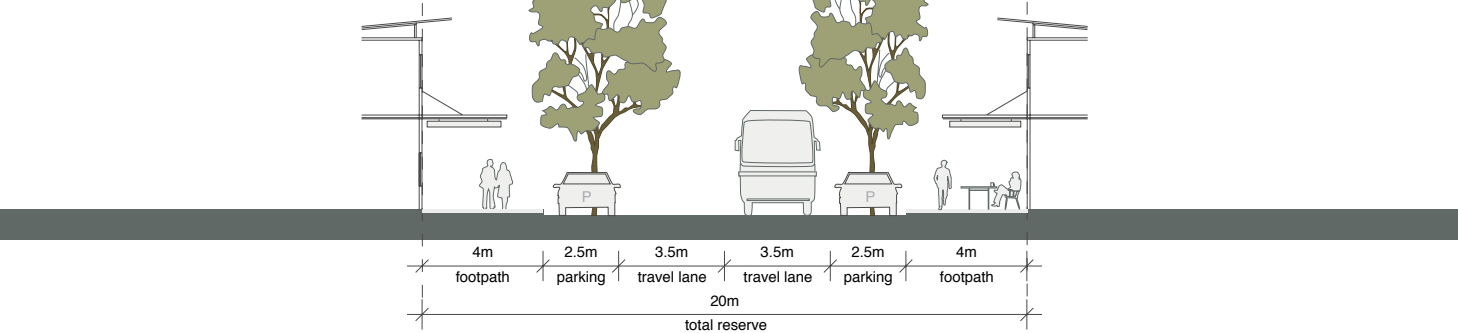
30m Ridge Road



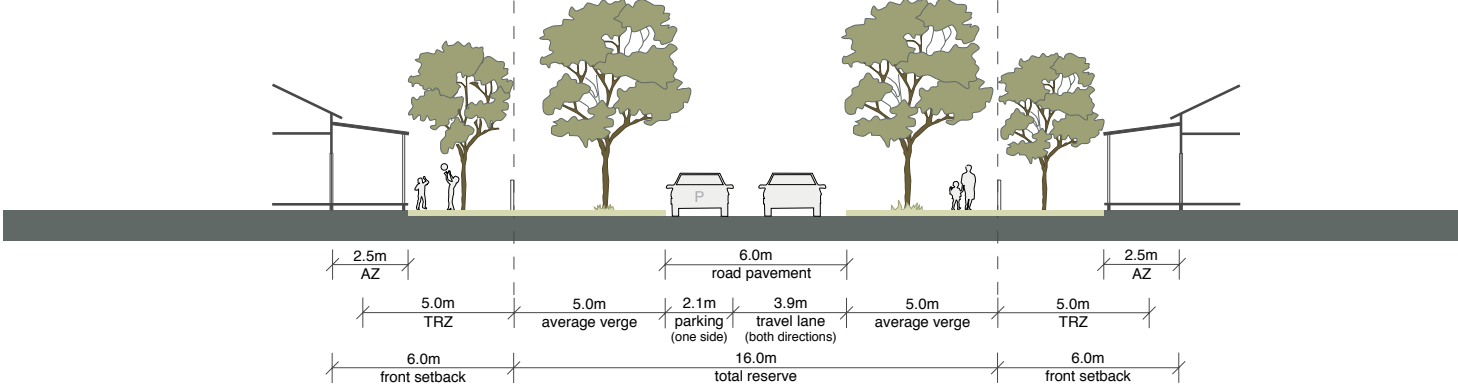
20m Connector Road



20m Main Street

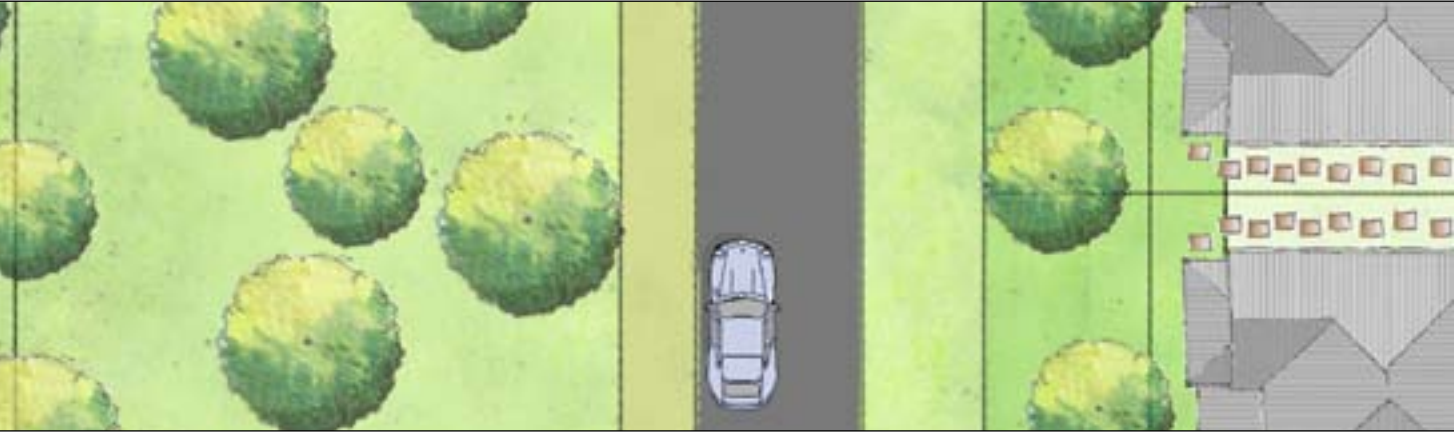
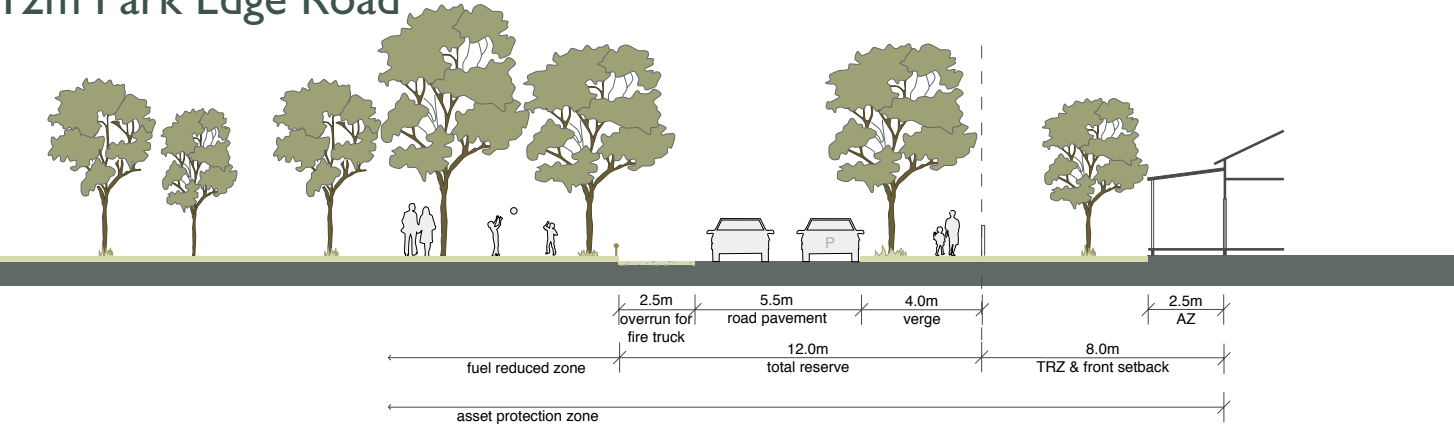


16m Local Street

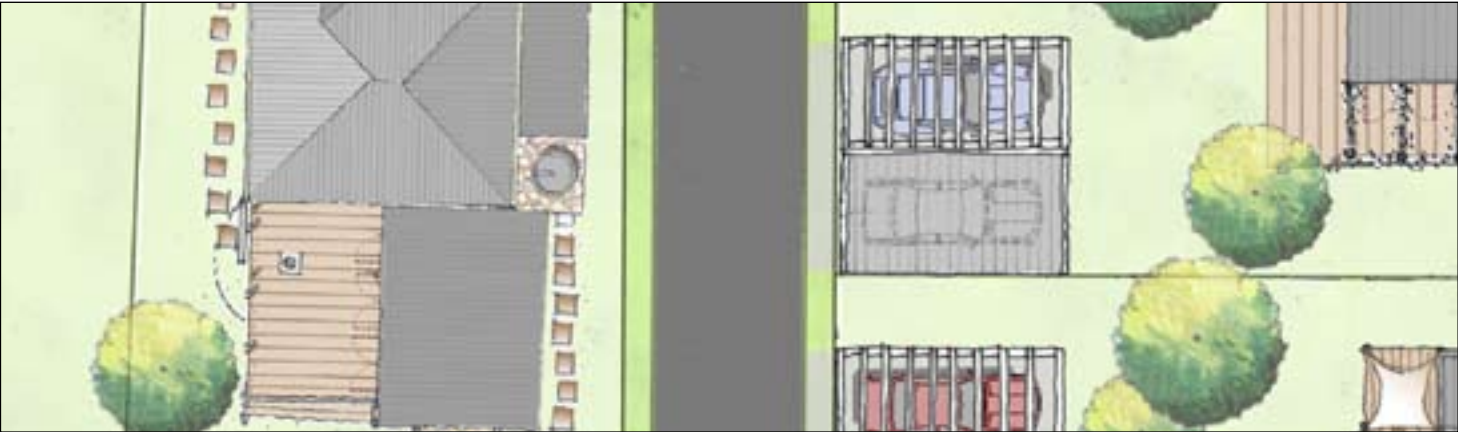
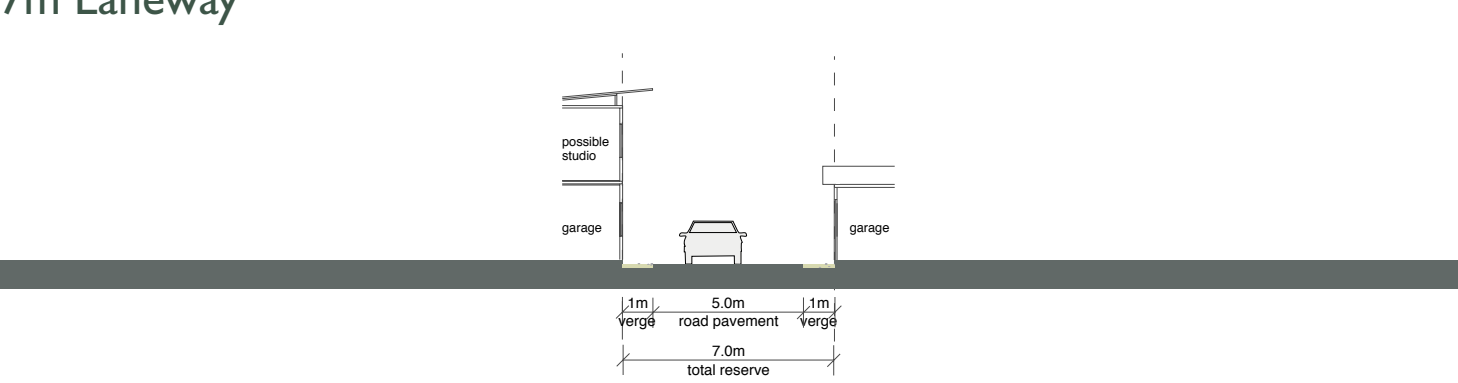


STREET SECTIONS

12m Park Edge Road



7m Laneway



STREETSCAPE CHARACTER

30m Ridge Road



20m Connector Road



20m Main Street



16m Local Street



12m Park Edge Road

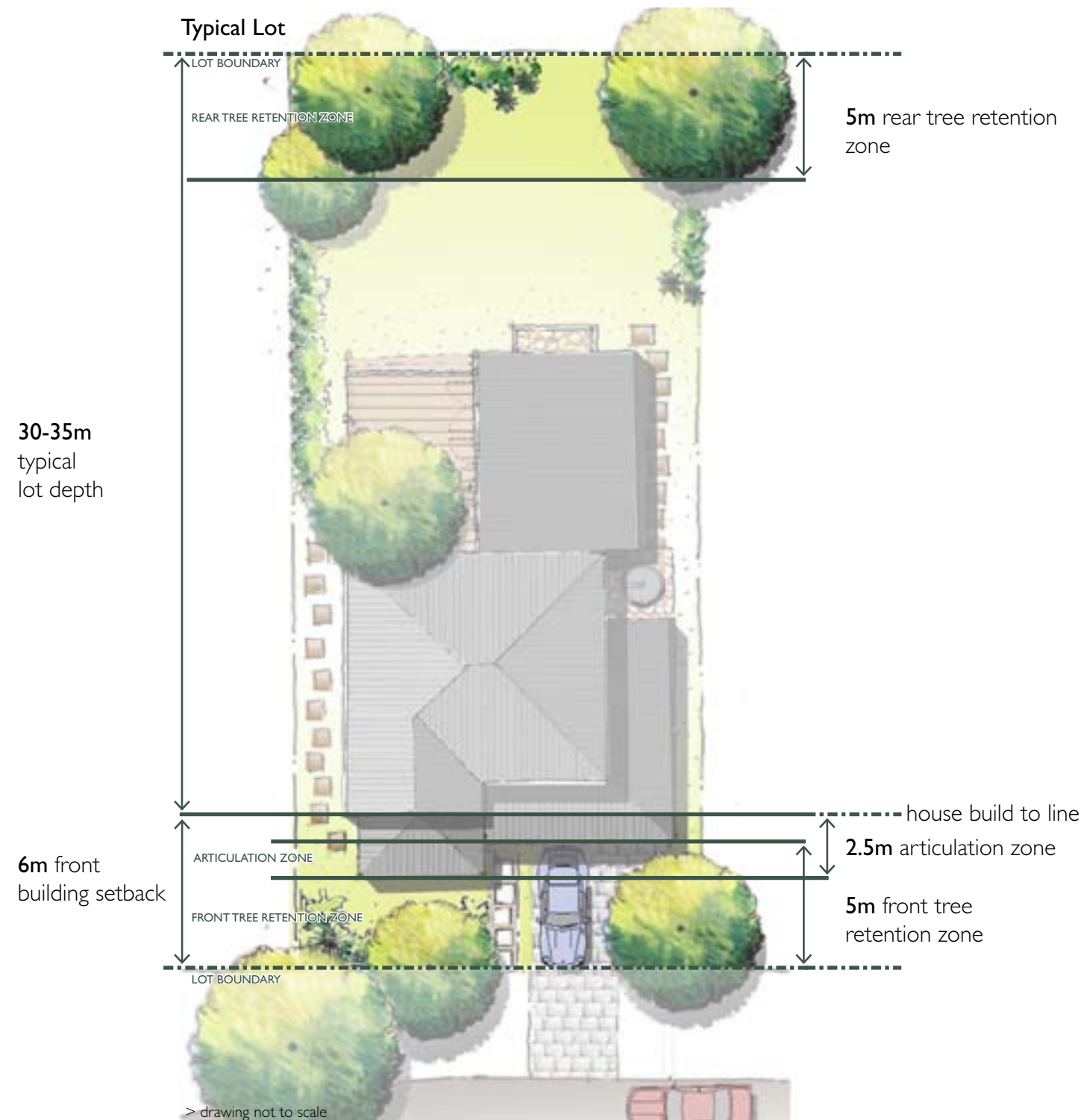


7m Laneway



TREE RETENTION ZONES

An important guiding principle in the development of this Concept Plan is the focus on the preservation of native vegetation and bushland. The retention of mature trees is of vital importance in maintaining the unique natural landscape of the area and in creating a suitable residential environment. In order to achieve this goal, special consideration must be made for existing trees and vegetation on a lot by lot basis. The following illustration shows how the retention of native vegetation will be achieved.

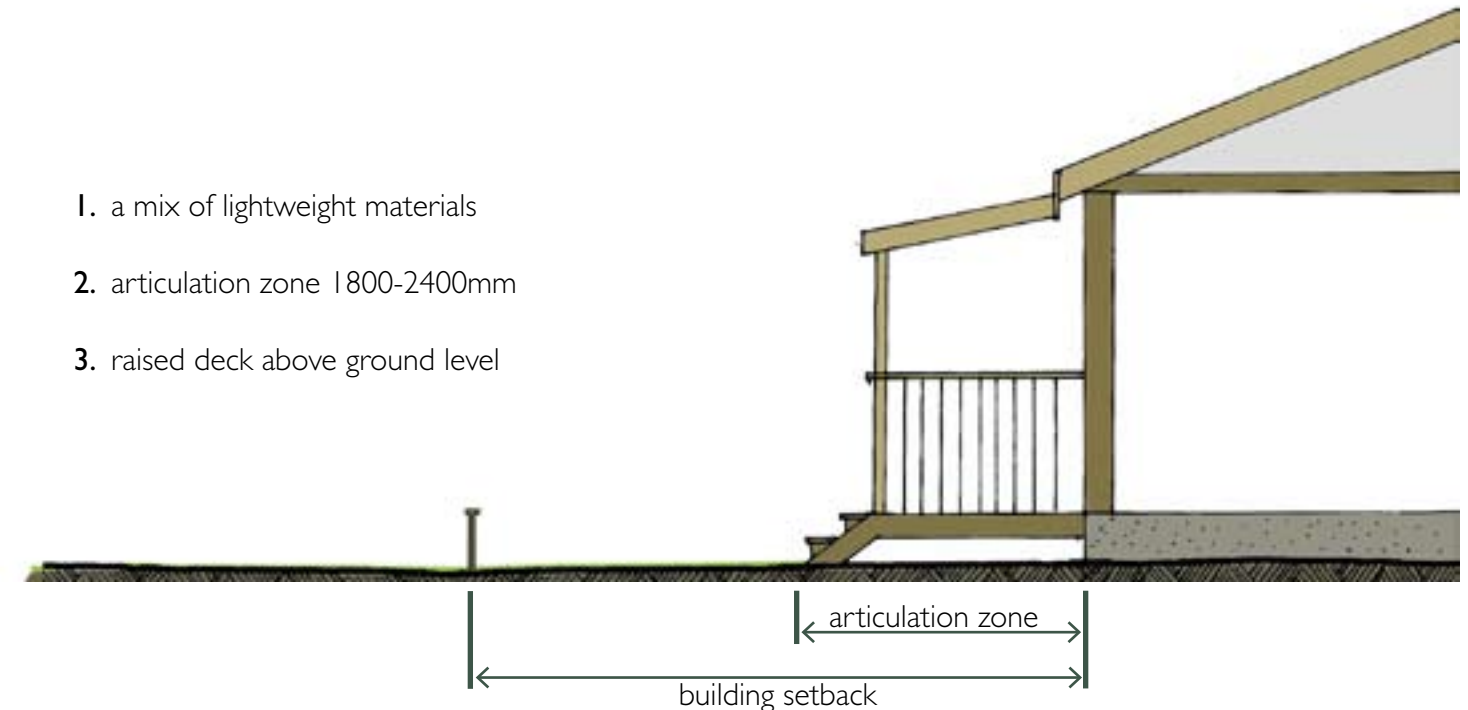


Tree Retention Zones and Articulation Zones, along with Building Setbacks are illustrated on the 'Building Setbacks Plan'- located in the Appendix. Those zones and setbacks follow the typical examples shown on this page and are described in the 'Design Controls & Requirements' section overleaf. Where appropriate, exceptions are made to these controls in response to streetscape character, street hierarchy, topography, and product diversity. The zones and setbacks shown on the plan are indicative and will be confirmed upon registration of the linen plan on a staged basis. Stockland will commission an arborist report that will confirm the ultimate tree retention zone locations. The 'Building Setbacks Plan' is intended as a framework for cohesive streetscape, with sufficient flexibility as consistent with a casual coastal bushland character.

ARTICULATION ZONES

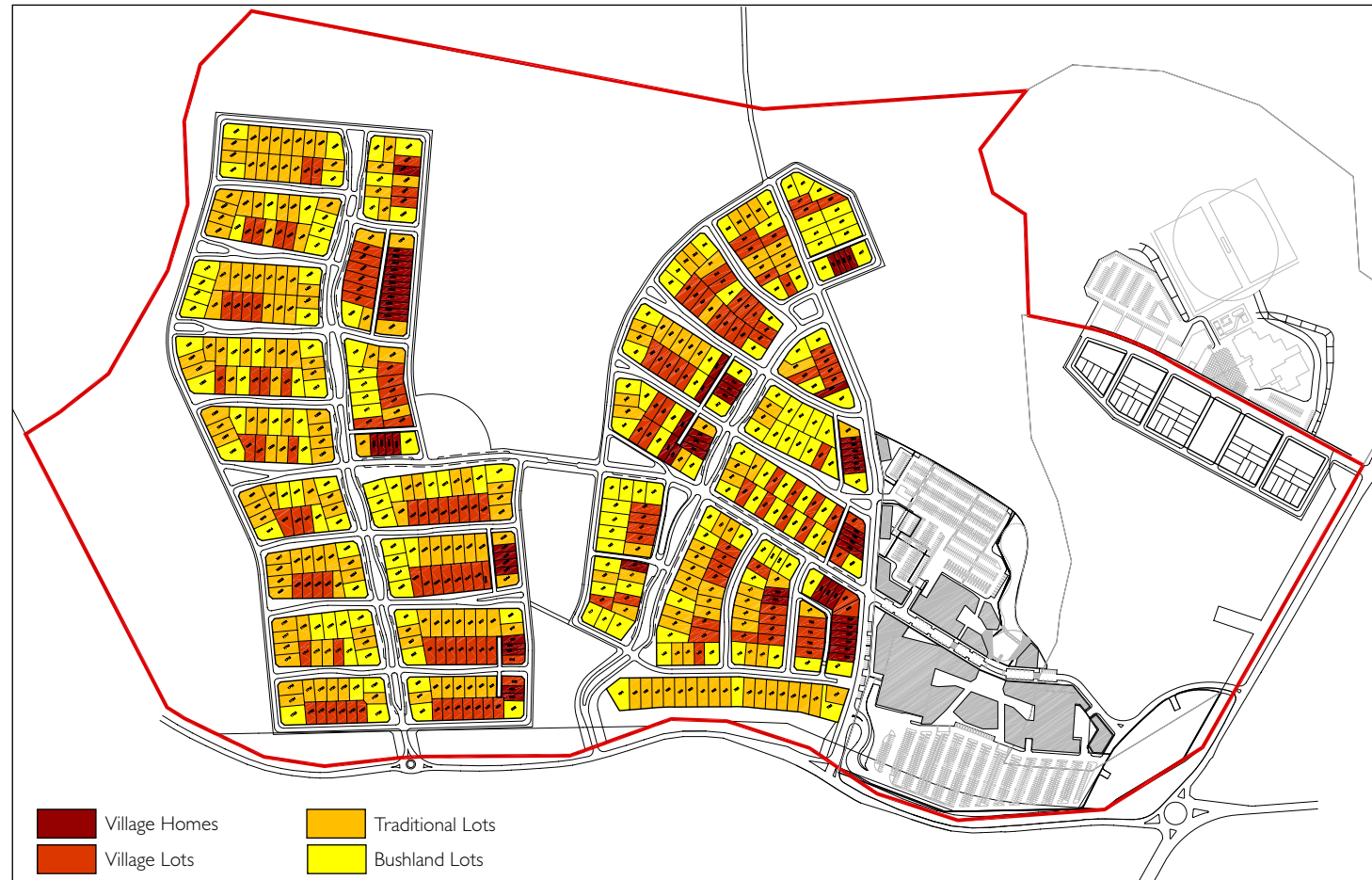
Within the front setback to the main building frontage the intention is to create a lightweight 'threshold' of built form elements such as veranda, porch, pergola, roof overhangs, decks or similar external features. These will create a transitional lightweight edge that mediates between home and street, and will create opportunities for casual outdoor living to complement the coastal bushland feel of the development. Treatment that creates exposed or dressed undersides of veranda elements as opposed to a boxed in finish is preferred (the latter is a 'heavier' element when viewed from the street). See examples below which illustrate lightweight porches and verandahs. (Refer to Setback plan in Appendix)

1. a mix of lightweight materials
2. articulation zone 1800-2400mm
3. raised deck above ground level



HOUSING DIVERSITY & CHOICE

The overall plan has been designed to allow for a diversity of lot and housing types, to create variety and consumer choice within the evolving development. The opportunity for smaller lots and types has focused on well serviced and high amenity areas such as adjacent to the Leisure Centre, along side parks, bushland and at bus stops.



Bushland Lots - 17.5m
 Traditional Lots - 15m
 Village Lots - 13.5m
 Village Homes



DESIGN CONTROLS & REQUIREMENTS

Built Form Controls and Design Guidelines

The following built form controls outline those design controls that typically Council administer and approve. The objectives of these controls are to maintain and enhance the quality of the public realm and protect the amenity of the private realm, for both applicant and community.

Stockland will produce a Design Guidelines document for the Vincentia Coastal Village that further explains the controls in this document and suggests ways to achieve the best outcome for each allotment. The Design Guidelines will also detail further information on controls such as materials and colours palettes and planting schedules. It is envisaged that the Design Guidelines will be endorsed by the consenting authority for dwelling approvals. Stockland will monitor compliance with such a document prior to an application for dwelling consent being made with the appropriate authority.

Completion and Beyond

Principles and Objectives

To safeguard the overall vision and maintain the design integrity of Vincentia Coastal Village, covenants will be attached to the Contract of Sale for individual allotments.

Restrictions on Sale

- Only one dwelling per lot is permissible on individual lots and no further subdivision is permitted
- Consolidation of allotments is prohibited, unless written permission has been gained from Stockland and subsequent approval by Council
- Applications for Stockland Design House approval are to be submitted within 6 months of settlement on the land purchase
- Dwellings are to be completed within 18 months from the land settlement date
- Works in accordance with the Council approved landscaping plan that are visible from public view, are to be completed prior to occupation of the dwelling
- Any changes to house designs before, during and after the construction phase will require consultation with, and the approval of, Stockland, as well as any other necessary Council approvals
- No temporary structures or relocatable buildings may be erected on a lot unless they are required in the construction process and are removed prior to completion of the building
- Detached houses with the same street elevation will not be permitted adjacent to your dwelling or directly or diagonally opposite



Building Setbacks and Articulation Zones

Principles and Objectives

The aim is to create great streetscapes in a bushland setting and to foster a coastal character. Varied setbacks and zones will create a diverse streetscape with depth to the architecture, whilst maintaining enough consistency to form cohesive community. All setbacks including the articulation zone, which is forward of the building line, are illustrated on the Building Setback Plan. The purpose of the setback controls is to emphasise a lightweight coastal architecture forward of the building line and to visually suppress the dominance of garaging in the streetscape. Rear and side setbacks protect the amenity of neighbouring lots, whilst encouraging the efficient use of land.

Building setback controls are intended as a guide for cohesive streetscapes, however where it can be demonstrated that a variation to the control will result in a favourable streetscape outcome or retention of a significant tree, without affecting the amenity of others, such a variation will be considered by Stockland / Council.

Design Controls

- All building line setbacks and articulation zones are as illustrated on the Building Setback Plan (see appendix)
- Primary (front) setbacks are generally 5m or 6m with secondary (side of corner lot) setbacks also 5m
- The articulation zone extends a minimum 2.5m forward of the building line
- All garaging on the primary setback shall be set a minimum 1m behind the building line
- Side setbacks are 900mm (except zero lots) for single storey dwellings. Two storey dwellings shall have 1500mm minimum side setback to one side
- Zero lot setbacks will be permitted on selected lots to be determined on a staged basis prior to the titling of subdivision
- Rear setback is 5m minimum
- Lots with rear vehicular access are to locate garaging on zero setback to rear boundary
- No tree of trunk diameter 250mm or greater, measured 1.2m above natural ground, shall be removed from the tree retention zones as illustrated on the Building Setback Plan
- No habitable space can encroach on the tree retention zone, however where building setbacks permit, lightweight structures such as porches and verandahs can be modified to suit retained trees

Architectural Form

Principles and Objectives

The massing of dwellings shall reflect the desired coastal bushland character. Some distinguishing attributes of the desired architecture are lightweight form and materials, simple (non-complex) roof forms, plans designed around existing trees, shades, overhanging eaves, deep verandahs and a strong relationship between indoor and outdoor living spaces.

The relationship between indoor and outdoor living shall be encouraged through private open space controls and protected through privacy controls. The siting and massing of built form shall not unreasonably affect the amenity of adjacent allotments.

Design Controls

- Building height shall be restricted to two storeys except where Council consents for habitable attic space
- Private Open Space is to be 35sqm minimum
- Each allotment shall landscape 25sqm minimum ‘principal outdoor living space’ of dimension not less than 4m, adjacent an internal living space
- No development shall reduce solar access of an adjacent dwelling’s ‘principal outdoor living space’ to less than 3Hrs between 09:00-15:00Hrs on 21st June
- Direct overlooking of adjacent allotment’s private open space or primary living spaces is to be identified in site analysis and avoided through building layout / location and ameliorated through screening devices
- The massing of the dwelling and especially the roof form shall be simple without complexity. The articulation zones are intended for diversity of lightweight architecture and visual interest
- Roofs can be hipped or gabled (25degree minimum) or skillion roofs (12.5degree minimum)
- Flat roofs or parapet details are not permissible
- Garaging to be maximum two bays wide and visually suppressed from public view
- Corner buildings must treat both public elevations consistently and utilise the wrap-around articulation zone

Architectural Detail

Principles and Objectives

The control of critical architectural details will set the tone for the coastal bushland character. Such controls are aimed at providing an underlying consistency of character which provides for cohesion of streetscape but allows for diverse individual expression. The Design Guidelines document will further describe materials, finishes and colours palette and prohibit the siting and presentation of details such as antennae and fencing details.

Design Controls

- A verandah / porch or similar lightweight structure shall be built within the articulation zone and to the principles set out in the 'Lightweight Threshold' section of this document. (This information will be repeated in the Design Guideline document) 1800-2400mm deep and raised from the ground plane
- Facades fronting public realm shall be of a mix of materials and finishes with predominant lightweight materials
- Colour palettes to be sympathetic to the bushland setting
- All roofs to be sheet metal

Landscape Design

Principles and Objectives

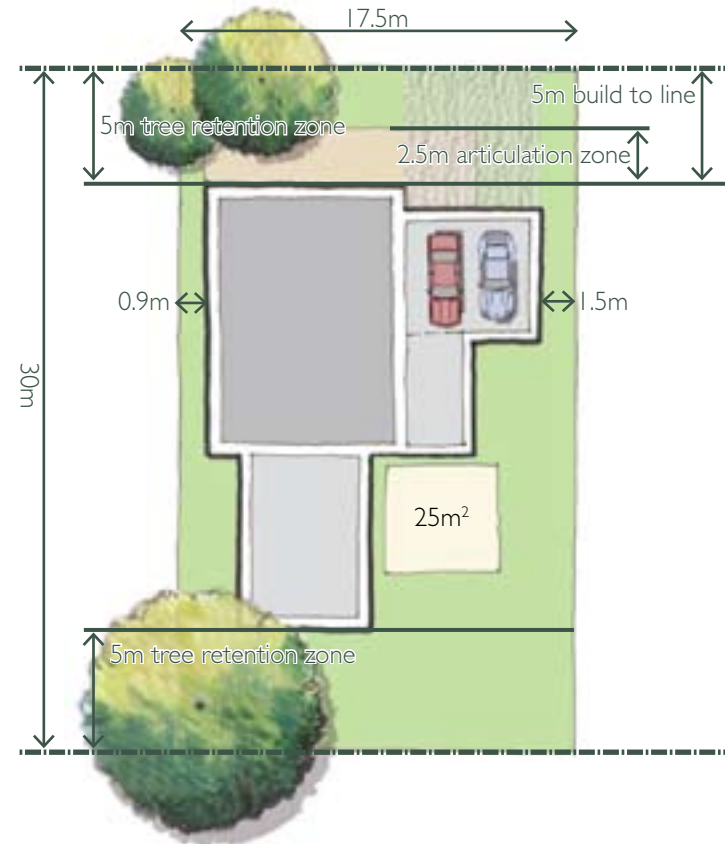
Retention of existing vegetation where possible is fundamental to the coastal bushland character. Hard landscaping should be minimised where possible and advantage made of porous materials. Boundary treatments shall be controlled to minimise visual impact, whilst providing for appropriate levels of privacy. Future planting will favour endemic species.

Design Controls

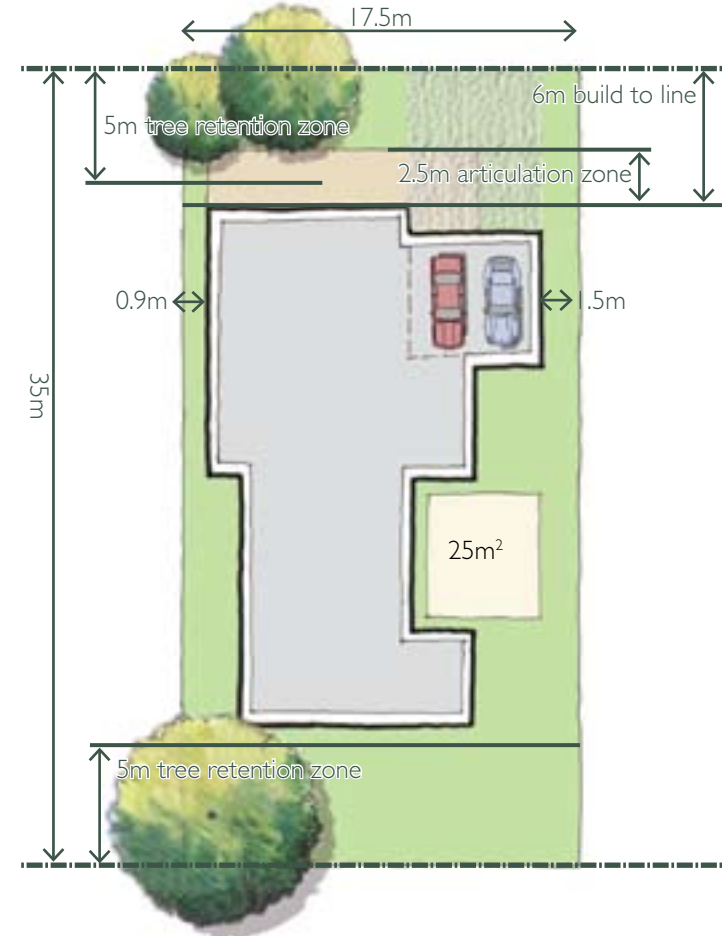
- Maximum width of driveway crossings in the public domain are 3.5m for double garages, 3m for single garages
- All boundary treatments to be as per Design Guidelines
- For corner lots, side boundary treatment shall be minimised by setback to building line, side garaging and screen planting
- No turf in front gardens and only native species
- Approval must be sought for the removal of any dangerous tree based on an arborist report. Should approval be granted, an equivalent endemic tree must be replaced
- Where retaining walls are required, they shall be tiered in sections of no more than 1m, with 1m separation between tiers for planting
- 3000L minimum rainwater tank and pump to be located on all lots and not visible from public view

TYPICAL HOUSING TYPES

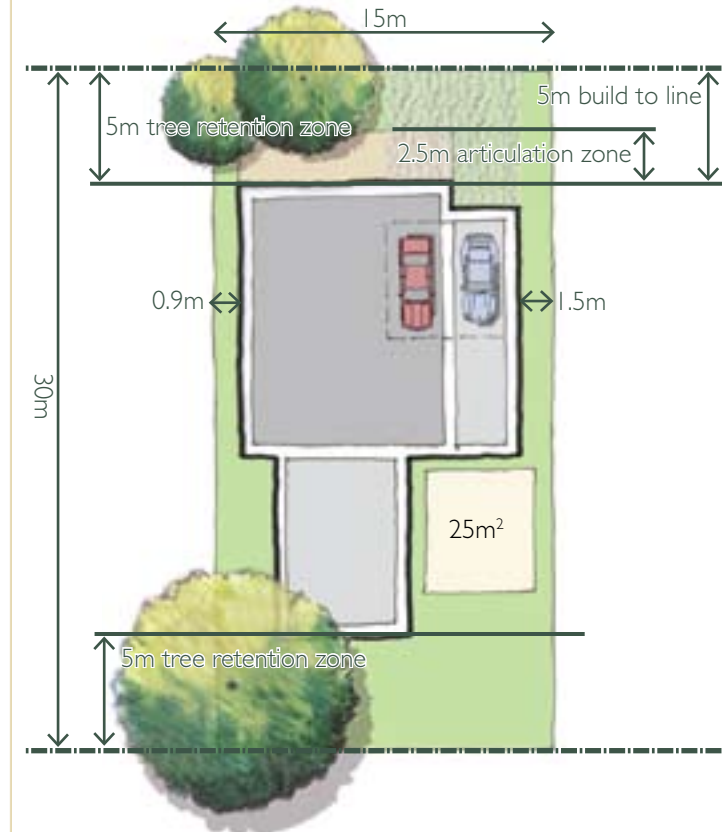
Bushland Lot (2 storey)



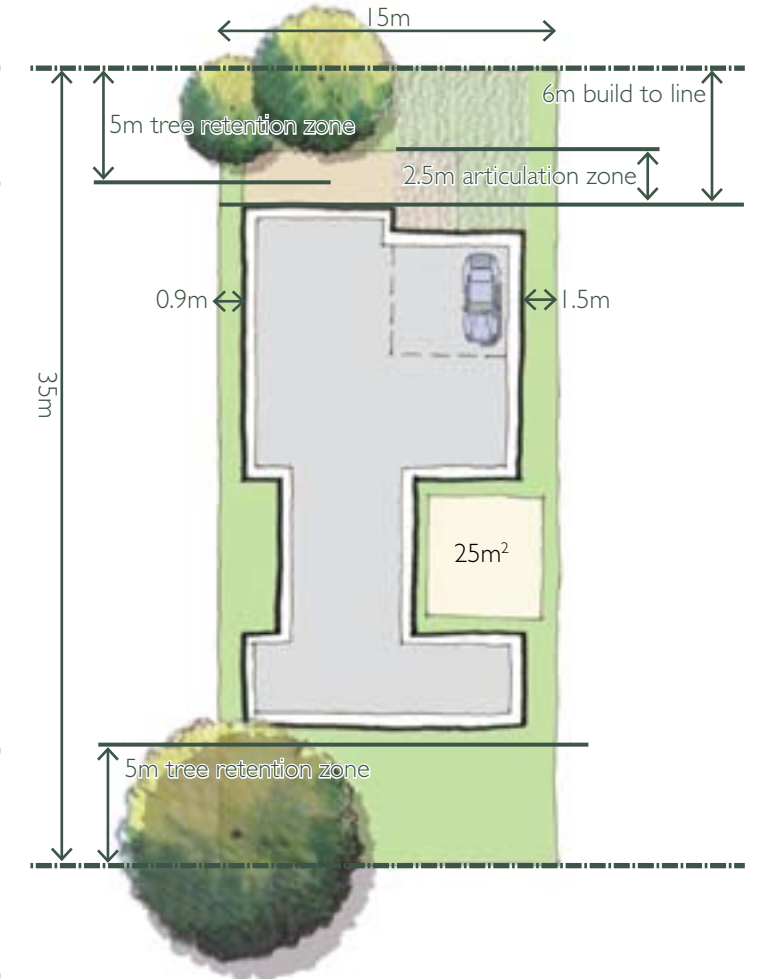
Bushland Lot (1 storey)



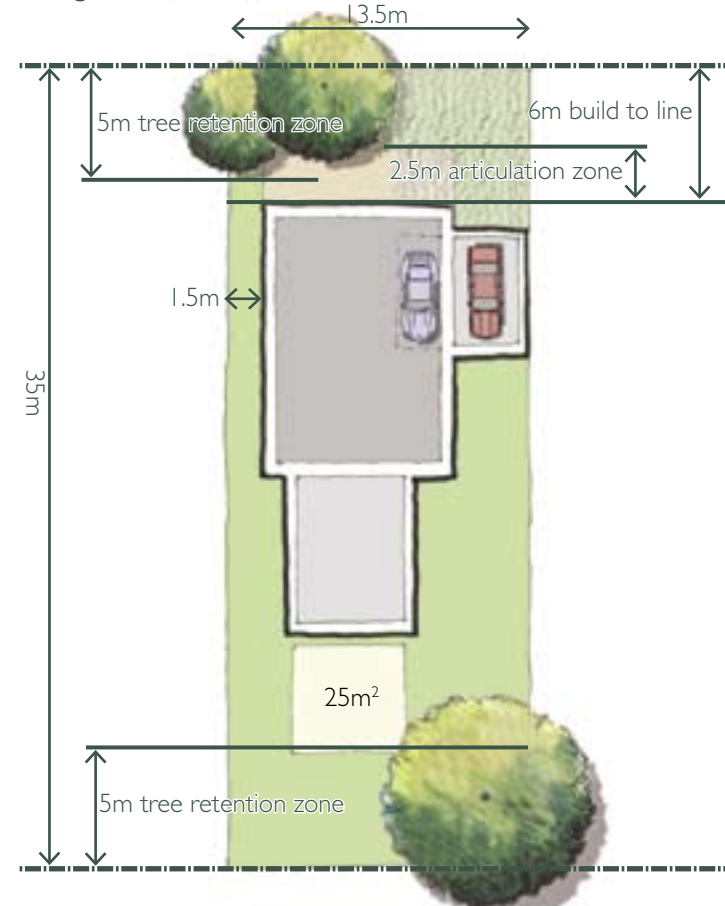
Traditional Lot (2 storey)



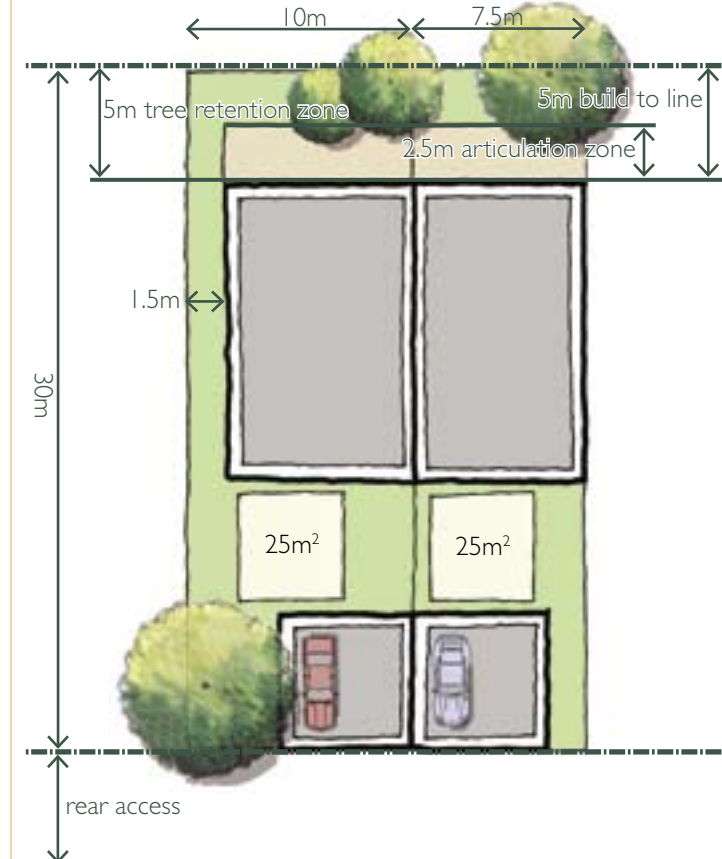
Traditional Lot (1 storey)



Village Lot (2 storey)



Village Home (with rear access)



ECOLOGY & NATURAL SYSTEMS

FLORA, FAUNA & CORRIDOR VALUES

GROUNDWATER MANAGEMENT & HYDROGEOLOGICAL IMPACT ON THE LEEK ORCHID

SURFACE WATER

BUSHFIRE

CONCLUSION

7.0 Environmental Implications

SOCIAL INFRASTRUCTURE, CULTURAL VALUES & THE COMMUNITY

INTRODUCTION

COMMUNITY INTEGRATION

COMMUNITY SERVICES & INFRASTRUCTURE

IMPACT ON SURROUNDING COMMUNITY

ENHANCE COMMUNITY BENEFIT

CULTURAL VALUES

TRAFFIC & TRANSPORT

CONCLUSION

ECONOMIC & INFRASTRUCTURE IMPLICATIONS

INTRODUCTION

POTENTIAL IMPACTS ON EXISTING RETAIL FACILITIES

EMPLOYMENT GENERATION

HOUSING CHOICE

UTILITIES & SERVICES

CONCLUSION

7.1 Introduction

Section 7 sets out an assessment and mitigation and management regimes of key environmental issues of the residential subdivision, the district town centre and the adaptable housing area. In this report the environment includes social and economic issues. The implications addressed are in accordance with the requirements of the Director General issued 31st January 2006.

The design of the proposed development has evolved in response to environmental, social and economic implications investigated and mitigation and management issues recommended in the supporting technical documents. In doing so it creates a diverse and sustainable development that is integrated into the natural setting.

7.2 Ecology and Natural Systems

7.2.1 Flora, Fauna and Corridor Values

The ecological values of the site, as identified in the *Species Impact Statement* (SIS) prepared by ERM were integral to defining the footprint of the residential subdivision, the district town centre and the adaptable housing area. The design of the proposed development has evolved in response to the outcomes of ecological studies and consultation with relevant stakeholders. It has resulted in both specific mitigation measures and the conservation of sensitive areas.

The site supports habitat for native flora and fauna, regionally significant species and communities, and threatened and migratory species listed under the *Threatened Species Conservation Act* and the *Environmental Biodiversity Conservation Act*. 34 species and one endangered ecological community were considered in the SIS. Of these, six were identified as having the potential to be significantly impacted on, namely the Giant Dragonfly, Yellow-bellied Glider, Eastern Pygmy-Possum, Eastern Bristlebird, Ground Parrot and the Glossy Black-cockatoo.

The site and adjacent land are recognised in the SIS as forming part of an important habitat corridor that permits movement between the Booderee National Park to the South East and JBNP. It was also assessed in the SIS as being relatively weed-free and containing habitats of conservation significance including hollow-bearing trees and riparian areas. The development has the potential to impact on the ecology of the locality through the loss of habitat and disruption of habitat corridors. Other possible affects include weed invasion, alterations to fire frequency, changes to hydrology, alterations of light, noise and dust levels, loss of tree hollows for roosting and breeding and an increase in the number of feral animals.

Having regard to the potential impacts, the footprint of the residential subdivision, the district town centre and the adaptable housing area was designed to preserve a 'core' environment zone, which Stockland intends to gift to the Department of the Environment and Conservation (DEC) or placed in some form of public ownership. This core environment zone will conserve an area of approximately 48 hectares (38 percent of the site) of native vegetation.

The core environment zone:

This area includes:

- the area adjacent to the western edge of residential development which incorporates a known habitat for Yellow – bellied Glider; Eastern Bristlebird, several threatened species of microchiropteran bats and several vegetation communities;
- the area to the east of Moona Creek Road, which is specifically set aside to provide habitat for the Eastern Bristlebird, Ground Parrot, *Prasophyllum affine* and its pollinator, *Cryptostylis hunteriana*, Eastern Pygmy-Possum, the endangered ecological community (Sydney Coastal Estuary Swamp Forest Complex) and provides an important corridor function connecting JBNP to areas to the south, including Booderee National Park; and
- the area to be protected in the centre and north of the residential development to conserve habitat for the Yellow bellied glider and Glossy Black - cockatoo retain and protect an important riparian corridor and habitats.

The core environment zone will also contain large hollow – bearing trees and habitat for Masked owl, Powerful owl, Square-tailed Kite, White – throated Needletail and the Rufous Fantail.

A number of vegetation communities will be retained in the core environment zone including, importantly the *Sydney Coastal Estuary Swamp Forest Complex* (SCESFC) – endangered ecological community. As a result there are no adverse impacts on this endangered ecological community (ERM, 2006).

All known habitat for *Prasophyllum affine* (Jervis Bay Leek Orchid) and its pollinator will be conserved in the core environment zone, with the exception of a small number of *P. affine* recorded in the *Eucalyptus sclerophylla* Open – woodland within village central / west area. It is proposed that these will be collected for research purposes. The inclusion of the *P. affine* within the core environment zone may in fact be beneficial to the species as it will provide for protection and management of the population, which does not currently exist (ERM, 2006).

The habitat requirements for the Leafless Tongue Orchid *Cryptostylis hunteriana* are similar to those of the *P. affine* and therefore this species will be adequately conserved within the core environment area (ERM, 2006).

The areas adjacent to the JBNP are to be included in the core environment zone to reduce the potential indirect impacts on the national park. This land is proposed to be transferred to DEC to ensure appropriate management and protect of these areas into the future, or placed in an appropriate form of public ownership.

Species Impact

Giant Dragonfly

The known breeding habitat for the Giant Dragonfly along the western and central creek and the foraging habitat in the north of the site will be conserved in the core environment zone. In addition, the proposed development incorporates a number of water sensitive urban design (WSUD) measures to minimise the impact on the hydrology of the site, to ensure water quality and levels are not compromised. Refer to section 7.2.3 for further discussion on WSUD (Forbes Rigby, 2006).

Glossy Black Cockatoo

Feeding habitat for Glossy Black Cockatoos (*Allocasurina littoralis*) occurs in the stands in several of the woodland communities on the site. Some of the habitats will be cleared however, a total of approximately 1.49 hectares of *A. littoralis* will be retained within the core environment zone, ensuring mature feed trees are conserved (ERM, 2006).

Eastern Pygmy – possum

The development footprint allows for the conservation of 20 hectares of habitat for this species being conserved in the core environment zone. Satellite images show that the potential habitat for this species is generally widespread within the JBNP (ERM, 2006).

Eastern Bristlebird

The core environment zone will retain the habitat corridor function of the site for the Eastern Bristlebird through the conservation of secondary and some primary habitats. There are however likely to be approximately three individuals impacted by the development.

Yellow Bellied Glider

The development may result in the loss of one family group from the 31 estimated to occur in the St Georges Basin. Approximately ten hectares of known habitat adjacent to the JBNP however, will be conserved in the core environment zone.

Ground Parrot

Habitat for this species will be retained in the core environment zone, including 14 hectares of suitable habitat to the east of Moona Creek Road. Although some habitat may be compromised due to disturbance associated with adjacent development, the habitat corridor functionality of the site will be retained.

Mitigation measures

Further measures to manage the conservation of threatened species on the site and reduce environmental impacts are also recommended. These include the:

- implementation of a Weed Management Plan and Vegetation Management Plan;
- implementation of a Feral Animal Management Plan;
- banning of cats from the development;
- establishment of asset protection zones (APZs) protect to property and the adjoining JBNP from fire.

In addition, the proposed staging program allows for the regeneration of important habitat and for fauna to relocate gradually. In particular, it is likely that the microchiropteran bats will be able to switch their focus from the areas of clearing to nearby suitable habitat available in the adjacent JBNP and core environment zone.

The retention of existing trees and enhancement of existing bushland where possible is a guiding principle for the landscape masterplan. The proposed landscape design and public domain includes:

- the retention of significant areas of existing trees and understorey to retain the dominant bush landscape character; and
- residential lots of a sufficient size to allow for the retention of trees where practical.

The landscape masterplan incorporates the use of appropriate indigenous vegetation in the landscaped entries to the district town centre and the residential subdivision, including the use of:

- local provenance tree, shrub and ground cover species to rehabilitate public domain areas, where necessary;
- heathland species in and around the immediate area of the heath, for botanical, visual and habitat contributions; and
- *Corymbia maculate* / *Eucalyptus globoides* Open Forest along the north north –west border of the site, which incorporates *Allocasuarina littoralis*, which is a food source for the Glossy Cockatoo.

7.2.2 Groundwater Management and Hydrogeological Impact on the Leek Orchid

A hydrological study completed by ERM identified two groundwater regimes at the site, specifically a perched water table in the shallow confined sediments and deeper confined / semi - confined aquifer system within the weathered bedrock profile.

The Jervis Bay Leek Orchid (*Prasophyllum affine*) is located on Lots 801 and 802 and as such the potential change to groundwater hydrology as a result of the development of the future district town centre was a critical consideration in design process.

An assessment of the groundwater needs of the Leek Orchid and measures to mitigate the potential impacts from development is detailed in the *Vincentia Hydrogeological Study*, January 2006, prepared by ERM. The proposed development was assessed as having the potential to decrease recharge to groundwater, due to a combination

of soil compaction, impermeable surfaces and stormwater drainage systems. The impacts however, were expected to be limited to the areas immediately beneath the development footprint as rainfall recharge through permeable surfaces will not be affected.

The Hydrogeological Study concluded that as orchids are characterised by shallow root systems the shallow soil profile was the primary consideration with regards to the presence of groundwater. Given this, the orchid is unlikely to require direct hydraulic connection with the perched water table. Instead, rainfall recharge in the immediate vicinity of the orchid colonies will provide sufficient moisture to stimulate growth. The Hydrogeological Study also determined that the orchid population located on the western side of the watercourse, opposite the development area, was relatively remote from the proposed development area, and the groundwater regime in this area should not be affect by the development activities.

The proposed development includes a number of WSUD measures to alleviate the potential loss of groundwater recharge as set out below:

- bio-retention swales are located within the Moona Creek Road reserve to assist in maintaining soil moisture levels and ground water recharge on the north– west side of the area that contains the Jervis Bay Leek Orchid;
- the lower portion of the proposed district town centre pond system will be unlined, so as to assist in maintaining soil moisture levels and ground water recharge upstream;
- flows from the piped creek under the district town centre are dispersed as sheet flow; and
- bio-retention swales located within the reserve of the perimeter road of the adaptable housing area to maintain soil moisture levels and groundwater recharge adjacent to the heathlands / Jervis Bay Leek Orchid area.

Expert advice provided to Forbes Rigby on the potential impact on groundwater quality due to aquifer recharge from swales and ponds indicated that most contaminants will not pass to ground water. Instead it will be removed by precipitation, absorption and sedimentation before entering the aquifer (Forbes Rigby, 2006). Only dissolved conservative contaminants such as nitrate and soluble organic contaminants will pass into the groundwater system and the impacts of the relatively small proportion of contaminants will be further reduced by the attenuative mechanisms that apply within the underlying aquifer (Forbes Rigby, 2006).

In accordance with the recommendation of the Hydrogeological Study monitoring of water levels will occur and up to three months after, construction of the district town centre to provide a record of overall water level fluctuations at the site. The results will then be used as a basis for comparison to the potential influence of development. This will be considered as part of the project approval for the district town centre.

7.2.3 Surface Water

There are three valleys draining the site, which are separated by two ridges running in a north easterly direction. Creek morphology within the site is generally not well defined except within the lower reaches as the streams are ephemeral, the valley slopes gently and the catchments are limited in size. The western most sub-catchment drains to a Jervis Bay National Park Wetland immediately to the west of the existing sewage treatment system. The central and eastern sub-catchments join at the northern boundary of the site and drain to another Jervis Bay National Park Wetland, immediately behind the existing residential area on Collingwood Beach.

Water quality controls have been designed to ensure that changes in the type and concentration of water borne pollutants in stormwater runoff from the development do not cause a decline in the ecological health of downstream water bodies. A hydrological study of the site was undertaken by Forbes Rigby Pty Ltd (2006) and as a result WSUD features have been incorporated into the proposed development. These features encourage the management of urban water cycles through maximising re-use opportunities and the distribution of control measures across the development (Forbes Rigby, 2006). The two principal water-related environmental outcomes for the proposed development are to achieve:

- “a high degree of protection for existing streams (including their riparian vegetation) and receiving water bodies;
- a high level of amenity and safety for future residents”.

The WSUD measures relate to the residential subdivision, the district town centre and the adaptable housing area. These are described in the following pages.

Flooding

Investigations completed by Forbes Rigby indicate that the hydrologic sub-catchments are small with limited areas upstream draining into the site. The one percent annual exceedance probability (AEP) flood inundation extents are generally contained within the proposed riparian reserves in the residential subdivision, which have been defined in response to the ecological assets of the site (Forbes Rigby, 2006). Flood flows from the catchment above to the district town centre will be directed into a large box culvert sized to carry the 1 in 100 year event with an oversized inlet arrangement to accommodate the entire one percent AEP flow. Overflow paths will be integrated to cater for the substantial paved and roofed areas of the shopping centre. These overflow paths do not related to creek flooding and will be defined during the detailed design of the district centre.

Comparison of peak flows pre and post development indicate that the increase in peak discharges will result in an insignificant increase in flood level in the large wetlands downstream (Forbes Rigby, 2006) Therefore no specific measures to reduce peak discharges are required.

Water Quality

The prime water quality objective for the residential subdivision, future district town centre and adaptable housing area is “the maintenance of water quality within receiving water bodies at pre-development levels”. Given that almost the entire site is forested or heathland and only small portions of the headwaters of each of the three sub-catchments covering the site are subject to rural land use, meeting an objective of no net increase in pollutant loadings will require a comprehensive WSUD system.

The WSUD incorporate a combination of proprietary litter / sediment traps, bio-retention swales and water quality control ponds / wetlands to create a ‘treatment train’ that commences at the early stage in the runoff cycle and has the flexibility to cater for a range of pollutants concentrations during varying rainfall intensity (Forbes Rigby, 2006).

The Model for Urban Stormwater Improvement Conceptualisation (MUSIC) was used to optimise the configuration of the various WSUD measures and to ensure water quality objectives are met.

Residential Subdivision

The stormwater management approach for the two sub-catchments affected by the residential subdivision includes the following.

- a permanent pond in the upper part of the sub-catchment, immediately downstream of Naval College Road. The pond provides sedimentation and aesthetic functions;
- intermittently inundated wetlands, linked by bio-retention swales located in the APZs adjoining the riparian corridors will receive and treat stormwater runoff; and
- propriety GPTs will be located on stormwater discharge lines at the point of discharge into the pond/wetland system in the APZ.

The proposed wetland vegetation is an important design element as the vegetation provides for enhanced water treatment by:

- filtering water;
- encouraging the settlement of sediment;
- the development of biofilm on plant stems that which harvest nutrients;
- reducing wind induce re-suspension;
- providing nutrient conversion into less bio-available organic forms; and
- aerating wetland subsoils to enhance the breakdown of organic matter (Forbes Rigby, 2006).

Mitigation and management measures for water supply and quality within the residential subdivision are also reflected in the landscape masterplan prepared by Clouston Associates. A key design objective of the residential subdivision and landscape design is to emphasise water wise gardening through design, plant selection and use of water tanks and the minimisation of hard surfaces for increased infiltration.

District Town Centre

The district town centre is located in the upper part of the eastern sub-catchment. The stormwater management approach for the district town centre was designed following consultation with Department of Natural Resources (DNR) and DEC and involves filling the natural creek and the construction of a 100-year capacity culvert in its place, with overflow path for events in excess of the design capacity. This approach:

- has the benefit of a single water quality control pond allowing for creation of a significant ornamental feature around the town centre;
- eliminates the need to provide freeboard within the overflow path running though the district town centre and as such shop floor levels do not require significant elevation to achieve 500 millimetres freeboard;
- improves development flexibility and operational outcomes and
- has advantages in relation to addressing security and public safety.

Water quality measures incorporate a pond system, which includes an ornamental pond that serves an aesthetic function, a sedimentation pond and a third pond that is heavily planted with macrophytes. In heavy rainfall events where the capacity of the piped drainage system is exceeded, surface flows will be diverted into the ornamental pond

A system of bio-retention swales throughout the carpark will cope with fine sediment, oil and grease. The main drainage lines will drain the extensive paved surfaces into the large culvert passing through the district town centre (Forbes Rigby, 2006). The outlet of the main culvert under the district town centre will be located adjacent to the sediment pond immediately downstream of the ornamental pond and following sedimentation, flows will be directed to a 'moat' system with densely planted macrophytes and then the final pond (Forbes Rigby, 2006).

Rainwater collection tanks will be provided to take advantage of the large roof area of the district town centre, and the rainwater will be used for irrigation and when necessary topping up the ornamental pond (Forbes Rigby, 2006).

Adaptable Housing Area

The adaptable housing area is at the lower part of the eastern sub-catchment. An existing water quality control pond is located to the north of the Bay and Basin Leisure Centre and serves as a dual purpose of irrigating the sports field and water quality control. It is owned by Shoalhaven City Council and concept approval is sought to upgrade the pond. Upgrade works are proposed to increase the pond effectiveness. The proposed upgrade work includes:

- minor re-shaping to maximise flow lengths and increase water quality treatment benefits;
- inlet modifications to allow for bioswale connection;
- outlet modification to increase flow control;
- additional macrophyte and riparian planting around the pond perimeter and within the increase moat length connecting the inlet and outlet ponds.

In addition, bio-retention swales will be used as a supplementary treatment measure to fully control the quality of stormwater runoff from the adaptable housing area.

During construction

To mitigate the potential environmental impact of sediment laden water from the construction zones of the residential subdivision being discharged into nearby watercourses a comprehensive soil and water management plan (SWMP) will be prepared during the detailed design stage. The SWMP will outline the method through which stormwater run-off is controlled through the construction phase. This will be addressed as part of the project approval process for the district town centre and the adaptable housing area. It will include the use of proposed wetlands in the APZ as temporary sediment basins and as such the proposed ponds and wetlands will need to be constructed in advance of each development stage.

Testing of water quality on site will occur at the completion of each development stage to ensure that water quality objectives are achieved. If test results deem it necessary, the WSUD measures for further stages in the residential subdivision would be modified accordingly.

Operational and Maintenance Issues

General maintenance of the proposed wetlands includes regular inspections and the cleaning of inlet structure and gross pollutant traps. Ponds and wetlands will require periodical maintenance in the event of weed invasion, or some other ecological disturbance affecting the species balance within the wetlands system. It is proposed that Shoalhaven City Council will be responsible for maintenance of proposed stormwater quality control measure to ensure the long term objectives are met. Monitoring and management of the macrophyte beds is important, in the initial 12 months of operation to ensure establishment. Stockland proposes to be responsible for the monitoring and management of the macrophyte beds until 80 percent of the houses are constructed in each development stage. Details of the operational issues and preliminary maintenance schedule are set out in the *Water Sensitive Urban Design Study*, Final Report, February 2006, Forbes Rigby Pty Ltd.

In addition to monitoring onsite, biophysical monitoring will occur in the receiving bodies downstream (Jervis Bay National Park Wetlands) and an appropriate monitoring program will developed. This is consistent with the recommendation of Forbes Rigby 2006.

Water quality monitoring in relation to the future district town centre and the adaptable housing area will be considered as part of a separate project approval application.

7.2.4 Bushfire

The Shoalhaven area has one of the highest incidences of bushfires in New South Wales and the site has been mapped as bushfire prone land by the Shoalhaven City Council. In addition the adjoining National Park poses an ongoing risk of bushfire to any development on the site.

A bushfire assessment for the site was completed by Bushfire and Environmental Services and documented in *Bushfire Assessment*, January 2006. An assessment of the bushfire behaviour potential in the locality was mapped using slope, aspect and vegetation analysis. It ranks areas into four categories, according to the risk of high intensity fire as follows:

- areas that have a greater risk of high intensity fire;
- areas that have a medium risk of high intensity fire;
- areas that have a lower risk of high intensity fire;
- areas that have a negligible risk of high intensity fire.

The assessment indicated that:

- the local region is largely classified in the 'lower risk' category, which is mainly due to the relatively flat topography;
- there are no large areas of land in the 'greater risk' category;
- there are large areas of land in the 'lower risk' category in proximity to the site, offering potential control lines for firefighters.

The residential subdivision, the district town centre and the adaptable housing area adopt five critical design considerations to manage bushfire risk, namely Asset Protect Zones (APZs), construction standards, access, water supply and staging (*Bushfire and Environmental Services 2004*). These design considerations are in accordance with *Planning for Bushfire Protection Guidelines*, 2001.

Asset Protection Zones

APZs will be integrated with the WSUD measures proposed at the interface between all fire prone vegetation and built assets vulnerable to bushfire damage. They will be established by Stockland and incorporate the WSUD measures. It is proposed that ongoing maintenance of the WSUD will be the responsibility of Shoalhaven City Council once the measures have been established. The maintenance of the WSUD will perform the dual function of water management and fuel load reduction. The primary purpose of the APZs will be to ensure that there is a progressive reduction of bushfire fuels between the bushfire hazard and any habitable structure with in the development. The dimensions of the APZs will vary in accordance with slope, development type and vegetation and accommodate the water sensitive urban design measures. A major component of the APZ will be the Shoalhaven City Council road reservation and the setback area of dwellings.

The retention of a majority of trees within the outer APZ will provide foraging habitat for some fauna species, including microchiropteran bats and birds. It will also provide a vegetated buffer between the development, areas within JBNP to the west of the site and the conserved land in the core environment zone.

Fuel management within the APZs and APZs maintenance plans are set out in the *Bushfire Assessment*, January 2006, prepared by Bushfire and Environmental Services Pty Ltd.

Construction Standards

Construction standard AS3959 – *Construction of Building in Bushfire Prone Areas* will be applicable to a number of lots on the perimeter of the subdivision, as shown on figure 7 in the *Bushfire Assessment* report.

Roads and Access

The residential subdivision will have three public access roads to Naval College Road providing alternate access points to ensure at least one safe evacuation and access route. According to Masson, Wilson and Twiney (2006) the proposed subdivision layout will make it possible for residents to evacuate the area within approximately 15 minutes.

Perimeter roads will be provided around all development areas and link with internal road at frequent intervals. These roads will be located within APZs and have reservation widths varying between 20 and 40 metres, which includes 5.5 to seven metres wide carriageways. No culs – de – sac will be constructed and road reservations will allow firefighting appliances to be sited without impeding traffic movement and allow firefighters sufficient width to work safely.

The concept plan shows that the district town centre will have access to the Wool Road and Moona Creek Road of the residential subdivision. When project approval is obtained for the district town centre and it is constructed it will provide another access route for the residential subdivision, through to The Wool Road. The concept plan for the adaptable housing area proposes access to The Wool Road providing a safe evacuation and access route.

7.2.5 Conclusion

The proposed development has been designed with due consideration given to the ecological assets and natural systems on the site and incorporates a range of bushfire management measures for the protection and safety of life and property.

The design of the proposed development has evolved in response to the outcomes of ecological studies and consultation. Refer to section 5 of this report for the considered design alternatives. The design process has culminated in approximately 60 hectares of public open space, of which approximately 48 hectares will be a core environment zone, containing habitat for the Yellow – bellied Glider, Eastern Bristlebird, Glossy Black Cockatoo, several threatened species of microchiropteran bats, Ground Parrot, *Prasophyllum affine* and its pollinator, *Cryptostylis hunteriana*, Eastern Pygmy-Possum and several vegetation communities including the endangered ecological community (Sydney Coastal Estuary Swamp Forest Complex). It will also contain large hollow – bearing trees and habitat for Masked owl, Powerful owl, Square-tailed Kite, White – throated Needtail and the Rufus Fantail and provide an important corridor function connecting JBNP to areas to the south, including Booderee National Park.

It is proposed that the core environment zone will be gifted to DEC or placed in a suitable form of public ownership and thereby provide a level of protection and management of the flora and fauna species on the site that currently does not exist.

The proposed surface and ground water management regime is a total catchment approach, which incorporates a combination of measures to create a water quality and flow 'treatment train' that commences at the early stage in the runoff cycle to achieve a high degree of protection for existing streams and receiving water bodies and a good amenity for future residents. This includes the retention of riparian corridors, strategically located gross pollutant traps, bio-retention swales and wetlands, appropriate wetland vegetation and specific ground water management measures to facilitate groundwater recharge in proximity to the Leek Orchid.

To further protect the ecological assets of the site the implementation of a range of mitigation measures will be adopted including:

- implementation of a Weed Management Plan and Vegetation Management Plan;
- implementation of a Feral Animal Management Plan;
- banning of cats from the development;
- establishment of asset protection zones (APZs) to limit the affect of potential fire on existing bush land.

7.3 Social Infrastructure, Cultural Values and the Community

7.3.1 Introduction

The residential subdivision is a planned expansion of the existing Bay and Basin community, which consists of the towns and villages of Basin View, Bream Beach, Erowal Bay, Huskisson, Hyams Beach, Old Erowal Beach, Sanctuary Point, St George Basin, Tomerong, Vincentia, Wandandian, Woollamia and Wrights Beach. From the commencement of design process Stockland has consulted extensively and directly with the Bay and Basin community on the potential social impacts, in particular the implications of:

- changes in population size and profile of the area;
- changes to the availability of services and facilities;
- changes to the amenity, character and identity of the area;
- changes in employment patterns and economic development.

Stockland commissioned a study of the social implications likely to be generated by a proposed district town centre and residential development in order to identify and consider the social consequences of the development and examine ways in which community benefits might be enhanced. The study was completed by Elton Consulting and documented in the *Social Impact Assessment* (SIA) Report, 2006. The report identified three potential issues, namely the integration of the future population into the existing community; impact on local facilities and services; and impact on the surrounding community.

Investigations of the presence of Aboriginal and European heritage were completed in the early stages of the design process to ensure that the proposed development safeguards the heritage value of any identified deposits of significance.

A review of transport implications, particularly in relation to traffic generation, parking, public transport and bicycle and pedestrian circulation was completed to ensure the proposed development contributes to a sustainable transport system.

The following discusses the above issues and mitigation and management measures implemented in the proposed development.

7.3.2 Community Integration

To assist in achieving balanced and sustainable communities within the Shoalhaven local government area, the residential subdivision incorporates a range of lot sizes that will suit different housing types and therefore different households including families with children and older people. By attracting families with children at different stages of the life cycle, the development will assist in maintaining a balance between younger and older populations.

The characteristics of the population in the Bay and Basin Area are consistent with the profile of a retirement population. The diversity of housing within the residential subdivision contributes to providing much needed housing options for older people who wish to remain in the area but move to a smaller house or more manageable site. Opportunities for shop top housing within the district town centre will also add to the vitality of the centre.

The layout of the proposed subdivision will also facilitate community integration by incorporating street, pedestrian and cycle networks and public open spaces that can be accessed by the wider community.

7.3.3 Community Services and Infrastructure

Services and Infrastructure

The future population will require access to a range of services and facilities to meet their needs, including: neighbourhood community centres/halls for meeting space and community activities; education opportunities; services for children; open space and recreation facilities; cultural, entertainment and leisure facilities; health services; welfare and support services for individuals and families; public transport; places of worship; police and emergency services; retail and commercial services (Elton, 2006).

A review of existing facilities and services in the Bay and Basin Area indicated that there is little or no capacity to absorb demand from the new community in the residential subdivision, particularly in the areas of aged care and health services. The proposed development however meets the needs of the new population and existing unmet needs of the broader community in a number of ways. Particular initiatives are summarised below.

- The future district town centre has the potential to include a range of retail and commercial facilities and leisure and entertainment opportunities, such as a childcare centre, a variety of eating places and medical services to serve the future residents of the subdivision and the wider community. The police service is currently investigating a number of sites within the Bay and Basin area. The provision of police and emergency services within the district town centre could be further investigated as part of the project approvals process. The range of retail and commercial facilities and leisure and entertainment opportunities could also be accessed by tourists in the region.
- Concept approval for the district town centre will provide the opportunity for a major focal point for community life and employment generation. It incorporates a variety of public spaces designed to encourage social interaction and a vibrant community life.

- The design promotes better public transport (refer to

section 7.3.7 for further discussion) and movement between existing and proposed schools in proximity to the site.

- Stockland has contributed \$45,000 to the Bay and Basin Community Resources Inc to develop a detailed strategic plan for community services. The funding is indicative of a collaborative approach to planning future service provision in Vincentia.
- The introduction of more people to the region will sustain a growth in services, which might otherwise not have been warranted.

Public Open Space

A network of public open spaces across the site provides opportunities for community and cultural events within the development and informal recreation activities.

It is proposed that the core environment zone described in section 7.2 of this report will be gifted to DEC or placed in a suitable form of public ownership. Ensuring appropriate long term management measures are implemented consistently with the adjoining JBNP. Stockland will prepare vegetation and weed management plans for this area. A landscape management plan will be prepared by Stockland for the long term management of the riparian corridors and APZs by the Shoalhaven City Council.

7.3.4 Impact on Surrounding Community

Through the community consultation process, residents of the area surrounding the site were provided the opportunity to express their views on the development concepts presented through the design process. The views are documented in the two reports prepared by Elton Consulting, 2006. There was broad support for a district town centre, however in the initial stages of consultation there were mixed views about the additional residential development in relation to the potential impact on their amenity and the character of the area. The proposed development incorporates design controls to ensure development is sympathetic to the existing amenity and character of the area. These are documented in section 6 of this report.

7.3.5 Enhance Community Benefit

To build on the benefits of the proposed development of the site Stockland is committed to developing a community development program that includes welcome initiatives to provide new residents with local information and help them develop a sense of belonging, provides an on-going program of two-way consultation with the surrounding community; and provides opportunities for involvement by the local community in environmental restoration and maintenance initiatives and the interpretive strategy.

Stockland will pursue opportunities for contractors to employ local people in the construction of the development and servicing, where possible, to boost local employment benefits.

7.3.6 Cultural Values

A comprehensive archaeological survey for items of Aboriginal and European heritage was conducted early in August 2003 to identify whether any deposits of significance were present on the site. The report documenting the survey concluded that all elements associated with European land use were relatively recent and none constituted significant items of European heritage under the terms of the *NSW Heritage Act 1977*. Consultation with the NSW Heritage Council was therefore not relevant.

No items of Aboriginal heritage were identified in the survey conducted in August 2003. This however, was considered to be the result of poor surface exposure rather than a true reflection of Aboriginal site use. The report documenting the survey recommended two areas that should be the subject of preliminary test excavation to determine the presence or absence of sites.

Further test excavations investigated two areas of Potential Archaeological Deposit (PAD 1 and PAD 2) under Permit Number 1907, issued pursuant to Section 87 of the *National Parks and Wildlife Act 1974* (NP&W). The findings were documented in *Vincentia Master Plan Archaeological Test Excavation Report*, February 2005, prepared by Mary Dallas, Dan Tuck and Emeritus Professor RVA Wright.

The Jerrinja Local Aboriginal Land Council and the Jerrinja Wandiwandian People were consulted on matters relating to the protection and management of Aboriginal cultural heritage in the region which includes the project site. The Jerrinja Wandiwandian People were consulted through a series of meetings to discuss the study findings, the development of appropriate site management options and to review the *Vincentia Master Plan Archaeological Test Excavation Report*.

PAD 1 and 2 sites have been recorded as on the Department of Environment and Conservation Register of Aboriginal Sites, as Site #58-2-0392 and Site #58-2-0393. The excavation of the sites revealed that although the landscape was relatively intact and had not been the subject of significant alteration in terms of major land clearing the sites investigated were almost entirely devoid of Aboriginal artefacts, features or deposits.

The *Vincentia Master Plan Archaeological Test Excavation Report* makes the following conclusions for the cultural remains at Site #58-2-0392 and Site #58-2-0393.

- The cultural remains at Site #58-2-0392 and Site #58-2-0393 do not possess any scientific significance in terms of future research possibilities.
- The Jerrinja community support the findings that the nature of the evidence does not warrant active preservation of the excavation sites.
- Site #58-2-0392 and Site #58-2-0393 do not warrant further archaeological investigation.

In accordance with the recommendations of the management strategy set out in the *Vincentia Master Plan Archaeological Test*

Excavation Report for the cultural remains at Site #58-2-0392 and Site #58-2-0393:

- the artefacts retrieved during the excavations will be retained under a Care and Control Agreement by the Jerrinja community for inclusion in an Interpretation centre for Cultural Displays;
- copies of the *Vincentia Master Plan Archaeological Test Excavation Report* have been sent to the Jerrinja Wandiwandian People, the Jerrinja Local Aboriginal Land Council and the New South Wales National Parks and Wildlife Service, Central Aboriginal Cultural Heritage Unit.

7.3.7 Traffic and Transport

An investigation of existing traffic conditions and implications of the proposed development was completed by Masson, Wilson and Twiney. The proposed design incorporates different street types to provide for safe and efficient vehicle movement through the subdivision and design measures to minimise adverse implications on the existing road network. The key implications and mitigation measures are summarised below.

Traffic Volumes

An assessment of traffic volumes in proximity to the site indicated that:

- the busiest day on The Wool Road and Naval College Road is typically Friday, when The Wool Road carries between 6,600 and 9,000 vehicles a day and the Naval College Road carries between 3,000 and 4,000 vehicles a day;
- during peak hourly traffic flows (8am to 9am and 4pm and 5pm), The Wool Road, adjacent to the site and the high school, carries between 700 and 800 vehicles and Naval College Road carries between 350 and 400 vehicles;
- the holiday traffic volume is approximately 20 percent more than typical non-holiday traffic (Masson, Wilson and Twiney, 2006).

Based on Roads and Traffic Authority (RTA) Guidelines the Masson, Wilson and Twiney report makes a conservative estimate that the residential subdivision will generate 514 vehicle trips per peak hour, based on 0.85 vehicle trips per dwelling per peak hour. It is also estimated to generate approximately 140 vehicle trips per peak hours to and from Princes Highway and Nowra, based on existing traffic patterns. The estimated number of vehicle trips generated at peak times from the fully constructed district town centre is in the order of 1908 trips per hour. The estimated number of vehicle trips generated from the adaptable housing area, is 43 vehicle trips per hour. Masson, Wilson and Twiney concluded that even without the proposed development continued residential development within the Bay and Basin area will result in significant traffic growth.

The integration of a residential subdivision adjacent to a future district town centre will promote sustainable transport outcomes by minimising trip lengths and provide an activity hub that will allow trips for purposes to be combined. The proposed district town centre will provide a range of services and facilities and employment opportunities, which will reduce the need for residents to travel to Nowra and thereby contribute to reducing vehicle flows on Jervis Bay Road and the Princes Highway (Masson, Wilson and Twiney, 2006).

A roundabout at the proposed western access point along Naval College Road will create a transition point from rural conditions to the west to essentially urban conditions to the east, to The Wool Road intersection. The normal capacity for an urban road land is 900 vehicles per hour. A forecast of future traffic volumes along the proposed 'urban' portion of Naval College Road, indicated that it will not exceed this capacity and therefore this section of the road will operate satisfactorily with one lane in each direction (Masson, Wilson and Twiney, 2006). Masson, Wilson and Twiney concluded that The Wool Road would require only one way traffic lane in each direction.

Intersections

An analysis of existing intersections in the local road network indicates that:

- they currently operate at a good level during normal peak hours with vehicles only experiencing short delays;
- continued residential development within the Bay and Basin area will result in capacity deficiencies at The Wool Road / Beach Road intersection irrespective of the proposed development;
- the traffic generated from the proposed development will not contribute to the need to upgrade either Jervis Bay Road (Huskisson Road to Princes Highway) or the intersection with Princes Highway;
- additional capacity will be required for The Wool Road and Naval College Road intersection roundabout by 2011, to cater for peak summer traffic;
- the intersection of Naval College Road, Pine Forest Road and Huskisson Road will operate satisfactorily in holiday periods in 2016, if moderately upgraded.

In accordance with the recommendations of the Masson, Wilson and Twiney report the proposed development will contribute to the:

- upgrade of The Wool Road and Naval College Road intersection to a two land roundabout with two approach lanes on all legs except the Jervis Bay Road approach and this will occur for the opening of stage 1 of the district town centre;
- upgrade of Naval College Road intersections with Pine Forest Road and Huskisson Road by 2016, including a widening of the Huskisson Road approach to provide separate left and right turn lanes for traffic turning out of Huskisson Road and side by side right turn lanes in Naval College Road between the two intersections to safely cater for right turns into each side road.

Access

The access design for the site was developed with regard to the environmental features of the site and following detailed discussions with Shoalhaven City Council and Roads and Traffic Authority.

Three vehicle access points are proposed along Naval College Road to serve the residential subdivision and the district town centre. The western access point along Naval College Road will be controlled by a roundabout to indicate the start of the urban area and provide safe access to the residential subdivision and nursery on the southern side of Naval College Road.

The eastern Naval College Road access will be designed as a roundabout or as a 'seagull' type intersection, with a sheltered right turn bay into the site and an acceleration lane for right turns out of the site. The type of intersection will be resolved during the detailed design phase. The remaining access to / from Naval College Road will have 'give way' controls.

An access to the Wool Road is proposed as part of the concept approval for the district town centre. This will provide the district town centre with two access points, allowing for the distribution of traffic to reduce the effect on the road system. It will also provide direct access for loading vehicles to loading areas. The Wool Road access point will be located approximately 150 metres north of the Naval College Road intersection roundabout and signalled to facilitate motor vehicle access and pedestrian and cycle crossing of The Wool Road. This will be a consideration for the project approval of the district town centre.

To facilitate good access between the site, the leisure centre and the high school the proposed access point to the adaptable housing area from The Wool Road, will be signalled and form a four way intersection opposite the high school. This will be a consideration of a future project approval process for the adaptable housing area.

Public Transport

Public transport to the site is currently a limited bus service operated by Nowra Coaches. The limited service is due to the dispersed nature of development and absence of an activity centre resulting in a lack of concentrated patronage levels to sustain a high service (Masson, Wilson and Twiney, 2006).

The future district town centre will facilitate the improvement of the local public transport system by providing an activity hub for the local bus services. The site is located at the midway point of the existing bus service route which follows an arc through the local area serving Basin View in the west through Sanctuary Point, Vincentia, Huskisson, Woolamia and terminating at Nowra.

The proposed road system within the residential subdivision will provide for potential bus routes within 400 metres of 90 percent of dwellings.

Street Types and Layout

The proposed development incorporates a street hierarchy, including laneways, local streets, park edge streets, connector roads and ridge roads to provide streets that fulfil their designated functions and create a safe and attractive environment. The street types have sufficient reservation widths to accommodate public utility services and footpaths, where appropriate.

The road network takes account of the existing topography and is designed to run along the site ridges and perpendicular to the contours to minimise excavation. This layout is also orientated to promote solar efficient lots and takes account of natural drainage and open space systems.

Pedestrian and Cycle Circulation

Walkability and cycle access is a key feature of the development of the site, with a cycle / pedestrian network through the residential subdivision and integrated with the future district town centre and the wider area. A north-south shared pedestrian / cycleway through the site is proposed to link up with a track north of the site, which provides access to the Jervis Bay foreshore.

The proposed signalised crossing at the intersection along The Wool Road at the new Leisure Centre / High School access point will provide a major crossing point for pedestrians and cyclists to and from the school. This is supplemented by the proposed access on The Wool Road, north of the Naval College Road intersection, which will provide connection between the two sides of the road. Two proposed pedestrian paths will connect the residential subdivision and the district town centre with the leisure centre.

Shoalhaven City Council has prepared a strategy to facilitate vehicle and pedestrian movement between the district town centre and future schools on the either side of The Wool Road, south of the site. It incorporates a pedestrian crossing and an underpass beneath Naval College Road.

Parking

The proposed parking for the district town centre area will meet or exceed the Shoalhaven City Council Development Control Plan. Bicycle parking will also be provided in the district town centre. The exact details of vehicle and bicycle parking will be resolved with the individual project application.

Noise

An acoustic impact assessment was completed by Heggies Australia to evaluate the potential impact of traffic noise from The Wool Road and Naval College Road on the proposed development. Heggies Australia concluded that it is unreasonable to provide special mitigation measures where the level is no more than 2dBA above the Environmental Criteria for Road Traffic Noise (ECRTN) target. Acoustic computer modelling indicated that this will be exceeded by up to 4dBA along parts of Naval College Road and appropriate mitigation measures will be incorporated along a portion of Naval College Road in accordance with the recommendations of the Heggies Australia 2006 report. No measures are required along The Wool Road.

7.3.8 Conclusion

The project contributes to achieving positive social outcomes for the future community of the residential subdivision and the wider community, particularly by providing services and facilities to meet the existing unmet needs of the broader community.

Through a community consultation process, residents of the area surrounding the site were able to express their views on the development concepts. The views were taken into consideration during the design process.

The internal street network and access points have been designed with regard to the proposed function of street, the environmental assets of the site and urban design principles to achieve safe and efficient vehicle movement and attractive streetscapes. To promote the use of alternate modes of transport a cycle / pedestrian network through the residential subdivision and the integrated with the future district town centre and the wider area. In addition the internal street network is designed to accommodate a bus route through the subdivision providing an accessible and convenient service to the community.

The proposed development includes a contribution to improving intersections in the existing road network, which will be a positive benefit for the wider community.

7.4 Economic and Infrastructure Implications

7.4.1 Introduction

To ascertain the demand and market scope for the proposed development of a discount department store in the district town centre and the likely impact that will result from the development of the district town centre an economic impact assessment was conducted. Details of the analysis of the trade area, competitive framework and potential impacts of the district town centre are in *Vincentia District Centre, NSW Economic Impact Assessment Summary, 2006*, (EIA) prepared by Dimasi Strategic Research. The following summarises the key implications, namely the potential impact on existing retail facilities and employment generation.

An assessment of the adequacy of existing utilities and services was completed by Forbes Rigby Pty Ltd and documented in the *Vincentia Coastal Village and District Centre - Report on Utility Services and Infrastructure*, January 2006. The following summarises the key implications for the provision of services and utilities.

7.4.2 Potential Impact on Existing Retail Facilities

The EIA identified that there are no vacant stores in Vincentia, Huskisson or Sanctuary Point, which are in the defined trade area that is likely to be served by the district town centre. This suggests that there is a strong unmet demand for retail space, including a discount department store and supermarkets. The only other major retail area in the EIA defined trade area is in Sussex Inlet, approximately 15 kilometres south of Vincentia. An increase of the population in the region, partially generated by the residential subdivision will create demand for additional retail facilities.

The existing retail floor space in the trade area is estimated at 15,500 square metres or 0.65 square metres person, which is less than the typical provision in Australia of approximately two square metres per person. The shortfall is evident in both food and non-food related categories signifying the need for both discount department stores and supermarkets in the trade area. The proposed district town centre will increase the retail floor area to 1.16 square metres per person by 2009.

Residents within the trade area currently have to drive to Nowra, approximately 30 kilometres away, to access a department store and full line supermarket (Dimasi, 2006). As such most of the retail spending generated by the Bay and Basin population is directed to retail facilities outside the trade area. The addition of discount department store and full scale supermarkets in the district town centre will provide greater choice and convenience for trade area residents.

The major retail facilities south of Vincentia are located at Ulladulla, approximately 45 kilometres away. This includes a total of 15,000 square metres, with the main tenants being supermarkets. It is likely that the district town centre will attract some patronage from Ulladulla however; the recently opened sub-regional centre at Bateman's Bay will limit the amount of business that Vincentia will attract.

The district town centre will have some impact on existing retail facilities in the region however all existing supermarkets in the region will continue to be viable largely due to the current low provision of facilities in the trade area and the rapidly expanding market.

7.4.3 Employment Generation

Analysis of the 2001 Census data indicated that approximately 40 percent of employed persons in the Bay and Basin area were employed in the area, which means that 60 percent of the workforce travel outside the Bay and Basin area to work (Masson, Wilson and Twiney, 2006). In addition, 25 percent of jobs in the Bay and Basin area are taken up by persons not living in the area (Masson, Wilson and Twiney, 2006). This highlights the need for more local employment in the area and the possibility of reducing people's journey to work.

In terms of employment generation, the EIA estimates that the district town centre will create 600 new jobs in the local economy. It will therefore become a major source of employment in the area, providing job opportunities for young people in particular. Jobs will potentially be provided in retail, service and hospitality sectors, cleaning and maintenance, and health and community services.

Stockland will pursue opportunities for contractors to employ local people. Currently, a local nursery has been commissioned to propagate indigenous seeds for use in the future landscaping of the residential subdivision. In addition, two individuals from the Jerrinja People will be employed on the seed collection project. The construction workforce over the life of the project is expected to be in the order of 220 people.

7.4.4 Housing Choice

The residential subdivision includes a mix of lot sizes, including small lots, (less than 300 square metres), conventional lots (450 to 600 square metres) and large lots (greater than 600 square metres), which provides opportunities for diversity of housing types as well as cost. The plan of the proposed residential subdivision shows the distribution of lot sizes throughout the development, providing a range of housing choices for people within the community. The smaller lots are appropriately located in close proximity to public open spaces and the district town centre and are well orientated for solar access.

7.4.5 Utilities and Services

An assessment of existing utilities and services prepared by Forbes Rigby Pty Ltd, concluded that the site can be serviced by sewer, water, electricity and telecommunications. The proposed development incorporates environmentally sustainable design (ESD) elements and strategies in conjunction with the Building Sustainability Index (BASIX), to provide positive economic benefits for the future community in terms of reducing energy, waste and water costs. The measures are detailed in the two reports prepared by Cundall, Johnston and Partners Pty Ltd, 2006. The findings of the assessment and recommended ESD measures are summarised below.

Water

Water infrastructure is managed by Shoalhaven Water and the Vincentia water supply network forms part of the Northern Shoalhaven Water Supply System. An existing water reticulation main is located within The Wool Road reserve to serve the Vincentia High School and the existing Bay and Basin Leisure Centre. A lead in main from the existing trunk main in Naval College Road will be constructed to serve the development.

The proposed subdivision design provides for an efficient internal water distribution network with good connectivity and minor hydraulic losses (Forbes Rigby, 2006). It is anticipated that water main easements over private property will not be required.

The proposed water supply infrastructure will also be designed to provide for fire fighting to protect buildings and bushland.

A number of water saving initiatives are proposed as part of the residential subdivision and the district centre to reduce demand for potable water, including:

- water sensitive urban design measures as discussed in section 7.2 of this report;
- rainwater tanks and a range of water saving appliances to achieve the BASIX requirements;
- water wise landscaping, through the promotion of indigenous planting.

For further details refer to the two reports prepared by Cundall, Johnston and Partners Pty Ltd, 2006.

Sewer

The sewerage system in the Vincentia area forms part of the Northern Shoalhaven Reclaimed Water Management Scheme (REMS). The Vincentia Wastewater Treatment Plant (WwTP) is located approximately two kilometres north east of the site along the Moona Creek Road. An existing pump station located in the northern corner of the Bay and Basin Leisure Centre was designed by Shoalhaven Water to accommodate future development within the catchment of Lot 801. A stub connection point has been constructed from the gravity main towards Lot 801 for this future connection (Forbes Rigby, 2006).

A conventional gravity and rising main sewer system is proposed for the development. The entire catchment will feed into the Vincentia WwTP. Shoalhaven Water advises that the Vincentia WwTP and REMS could accommodate the additional load generated by the proposed development.

The proposed residential street layout, perpendicular to the contours allows for sewer mains at the front boundary, thus minimising the need for vegetation removal at the rear of the proposed lots. Some construction works for sewer mains and inter allotment drainage will be required along the rear and side boundaries of some lots and these will be subject to an easement under section 88 of the Conveyancing Act. Refer to the Forbes Rigby 2006 for further details of the proposed system.

The existing sewer main that runs through the proposed adaptable housing area on the site will need to be accommodated in the future road design. This will be undertaken as part of the project approval application for the adaptable housing area.

Waste Removal and Recycling

Shoalhaven City Council has confirmed that further residential development in Vincentia could be supported with the extension of the contracted waste removal/recycling services. Shoalhaven City Council currently contracts regular waste and recycling services to the Vincentia area through SITA Environmental Services, located in South Nowra. Residential waste is collected on a weekly basis and recycling collected on a fortnightly basis. Both waste and recyclable material area transported to one of ten waste and recycling depots within the Shoalhaven area. The nearest depot to the site is located to the north in Huskisson Road.

Existing residential waste services are available for commercial premises within the Shoalhaven area. An assessment of waste management for the district town centre will be considered as part of a future project approval application.

The proposed development promotes a range of waste reduction initiatives to reduce the amount of waste going to landfill including, recycling. Waste reduction and recycling strategies, will be promoted through a community education program. For further details refer to the two reports prepared by Cundall, Johnston and Partners Pty Ltd, 2006.

Electricity and Energy Demand

The Huskisson zone substation is located on the southern side of Naval College Road opposite Lot 802 and distributes power to Huskisson and the surrounding area, including Vincentia. The residential subdivision and the district town centre require an augmentation of this substation.

A number of power lines traverse the site parallel with Naval College Road. Powerlines along Moona Creek Road will need to be relocated or accommodated as part of the residential subdivision of the site. Integral Energy will be likely to require easements to be created where high voltage cables encroach over private land and advised that the likely easement width is nine metres either side of the overhead cables.

Existing transmission lines along the southern boundary of the site will be relocated along Naval College Road. The existing transmission lines along Moona Creek Road will be accommodated in the realignment of the road or will be relocated. This will be resolved as part of the detailed design phase of the project. All internal reticulation will be generally underground in common service trenches within road reservations. The relocation of existing power lines along Naval College Road will allow for revegetation of the existing electrical easement and provide an attractive outlook for rural lots along that road.

To reduce energy consumption the proposed residential subdivision includes a range of energy saving techniques and initiatives. The lots are generally orientated on an east-west or north south axis to promote solar access for future dwellings. The orientation of dwellings relating to solar access can significantly influence amenity, internal temperatures and the demand for heating and cooling (Cundall, Johnston and Partners, 2006).

For further details refer to the two reports prepared by Cundall, Johnston and Partners Pty Ltd, 2006.

Natural Gas and Telecommunications

The Eastern Gas Pipeline along the New South Wales coast is approximately 20 kilometres west of Vincentia. Natural gas services have not been extended from this pipeline to Vincentia, with closest reticulated gas supply infrastructure in Nowra, approximately 30 kilometres north of the site.

The service provider, Agility, expressed interest in extending a natural gas reticulation service to Vincentia from the eastern gas pipeline. Based on a feasibility study, however, it is currently not commercially viable.

An existing telecommunication network is provided within road reservations adjacent to the site. Telstra and Optus currently provide mobile phone coverage in the Vincentia area.

The residential subdivision will connect to the existing fibre optic junction point at the intersection of Naval College and The Wool Roads.

Staging

The provision of utility infrastructure can be provided in accordance with the indicative development staging program so that each stage of the residential subdivision can be fully provided with services. Refer to Proposed Staging Plan.

7.4.6 Conclusion

In conclusion there will be a number of economic benefits from the proposed district town centre including:

- improvements to the range of shopping facilities for local residents;
- creation of additional employment opportunities that will result from the project both during the construction period and once the district town centre is operating.

In addition, the district town centre will result in a substantial increase in the rateable value of the land, thereby contributing to a greater revenue base for Shoalhaven City Council.

In terms of servicing and infrastructure the proposed development is a viable and sustainable development. Existing service infrastructure can be improved to adequately serve the proposed development and constructed to minimise environmental impacts and meet environmental targets. The proposed staging program will enable servicing infrastructure to be provided to meet demand.

Stockland is committed to providing an environmentally sustainable residential subdivision in conjunction with the Building Sustainability Index (BASIX), which will have positive economic benefits for the future community in terms of providing opportunities for affordable housing choices and reducing household energy and water consumption costs.



8.0 Justification for the Project

INTRODUCTION

REGIONAL PLANNING SIGNIFICANCE

STRATEGIC PLANNING FRAMEWORK

CONSERVATION

APPROPRIATE PLANNING PROVISIONS

CONSISTENCY WITH THE SEPP 71 - COASTAL PROTECTION

CONSISTENCY WITH SHOALHAVEN CITY COUNCIL DCP 100 - SUBDIVISION CODE

(DCP) 100 - SITE ANALYSIS, NEIGHBOURHOOD DESIGN & STREETScape

(ELEMENTS RE1, RE2 & RE3)

(DCP) 100 - MAJOR & LOCAL STREET NETWORK & PEDESTRIAN & CYCLIST FACILITIES

(ELEMENTS RE3, RE4 & RE5)

(DCP) 100 - PUBLIC OPEN SPACE (ELEMENT RE7)

(DCP) 100 - STREET DESIGN & STREET & DRIVEWAY CONSTRUCTION (ELEMENTS RE8 & RE9)

(DCP) 100 - UTILITY SERVICES (ELEMENT RE10)

(DCP) 100 - STORMWATER DRAINAGE & QUALITY MANAGEMENT (ELEMENTS RE11 & RE12)

(DCP) 100 - ALLOTMENT LAYOUT (ELEMENT RE14)

BUSHFIRE MANAGEMENT (ELEMENT RE15)

GEOTECHNICAL (ELEMENT RE16)

CONCLUSION

8.1 Introduction

This section demonstrates that the site is state significant, in accordance with section 8 of SEPP (Major Projects) and provides justification for the project by explaining:

- the regional significance of the site in relation to the strategic planning framework and conservation;
- how the development is consistent with SEPP 71 and Shoalhaven City Council Development Control Plan 100 – Subdivision.

It also sets out justification for the proposed amendments to the zones that currently affect the site to provide appropriate development controls.

Section 8 of SEPP (Major Projects) also requires assessment of the suitability of the site, the implications for infrastructure and service delivery and other matters required by the Director - General. This is set out in sections 6 and 7 of this report, which demonstrate that the proposed development has taken into consideration natural systems and ecological, social and economic factors to produce a development that implements principles of ecologically sustainable development.

8.2 Regional Planning Significance

8.2.1 Strategic Planning Framework

The site is regionally significant as it is the only site identified in the Bay and Basin area that is zoned, well located and readily able to be developed for housing and as a commercial centre to meet increasing demand associated with anticipated population growth.

The site has been identified in numerous regional planning documents for residential and commercial growth area as set out below. Recognition of the site as being appropriate for commercial and residential development is evident in the SLEP, which has zoned the land to facilitate those uses.

Jervis Bay Our Future Our Heritage (1992)

The Jervis Bay Our future Our Heritage was a discussion paper released by Shoalhaven City Council and DoP in 1992. It predicted a land shortage for Vincentia and Erawal Bay and nominated the site for urban expansion, pending an environmental planning assessment.

Jervis Bay Regional Environmental Plan (JREP)

As discussed in section 4.7.1 of this report the site is identified as a proposed urban expansion area in the JREP.

Jervis Bay Settlement Strategy (2003)

The Jervis Bay Settlement Strategy (2003) was a major policy initiative between Shoalhaven City Council and the State Government and provides the strategic framework to guide future urban and rural residential development across the Jervis Bay for the next 15 – 20 years.

The Strategy identified the site as a district centre in the settlement hierarchy for the region. It concluded that the site would be able to accommodate up to 850 new houses for the area and identified the need for a district centre to provide a range of community and retail services for the region. The proposed development of the site however responds to the environmental assets of the site and proposes 604 lots plus future housing in the adaptable housing area.

8.2.2 Conservation

The proposed development presents the unique opportunity to protect natural resources of the site as a significant portion of land will be transferred to the DEC or to another appropriate form of public ownership, facilitating the restoration and ongoing care of regionally significant ecological assets.

The site is able to provide part of a regional habitat corridor identified in *Jervis Bay Our Future Our Heritage* (DoP, 1992) which essentially links major habitat areas within the Jervis Bay region. The habitat corridor provides a link between JBNP and the Booderee National Park to the south-east on the Bherwerre Peninsula. The core environmental areas and the Jervis Bay region provide habitat for a number of rare and threatened flora and fauna and a number of vegetation communities are of conservation significance due to their limited distribution (ERM, 2006).

The proposed development provides the opportunity to achieve sustainable integration of employment, residential and conservation uses.

8.3 Appropriate Planning Provisions

The proposal seeks to amend the zoning of the site to reflect the proposed development footprint.

The 2(c) Residential (Living Area) zone would apply to the residential subdivision and the adaptable housing components of the proposed development as the objective of the zone is “to provide for new residential areas with a range of housing types with provision for urban facilities to serve the local community”. A minor a re-configuration of the existing zone boundary is proposed reflect of the residential development footprint of the site, having regard to the ecological assessments undertaken for the site.

The land incorporated in the core environment zone in the proposed development is proposed to be zoned 7(a) Environment Protection “A” (Ecology). The objectives of zone 7(a) are to:

- a) “protect and conserve important elements of the natural environment, including wetland and rainforest environments;
- b) maintain the intrinsic scientific, scenic, habitat and educational values of natural environments;
- c) protect threatened species and habitats of endangered species;
- d) protect areas of high biodiversity value; and
- e) protect and enhance water quality in the catchment”.

The 7(a) zone would replace the 7(d2) Environmental Protection Zone (Special Scenic) and 9(a) Natural Hazards Zone (Urban Flooding) applying to the site. It would also result in the back zoning of some land that is currently zoned 2(c) and 3(a) Business (Retail) to restrict development opportunities on that land and increase the retention and preservation of critical habitats and threatened species. It is anticipated that the rezoning of this portion of the site will be implemented once the transfer of the the land is gifted to DEC.

The proposed zonings for the district town centre are:

- Zone No. 3(a) Business ‘A’ (Retail) for Stages 1 and 2;
- Zone No. 3(b) Business “B” (Transitional) for Stage 3.

The proposed 3(a) zone is a re-configuration of the existing zone boundary to reflect the commercial development potential of the site. The objective of the 3(a) zone is “to allow for retail, commercial and business activities”. It allows for a range of uses, including the opportunity for shop top housing. This provides the flexibility for appropriately located housing to integrate with the district town centre to create vibrant commercial centre.

The objective of zone 3(b) is “to provide for forms of business activities normally located on the fringe of central business districts which require large sites, including bulky goods retailing”. This is appropriate for Stage 3 of the district town centre as it is a large site at the junction of two main roads. It provides opportunities for large handling, storage and display areas as well as easy and direct vehicular access to enable goods to be collected by customers after sale.

The current 9(a) Natural Hazards Zone (Urban Flooding) prohibits the location of part of the district town centre. An amendment of this zoning is justifiable as there is limited proposed development into flood liable land and flood flows are generally restricted to narrow stream channels. Water quality modelling conducted by Forbes Rigby indicates that the WSUD measures would ensure that development on land currently zoned 9(a) would not adversely affect the quality of water entering the heathland and downstream Jervis Bay National Park wetlands.

8.4 Consistency with the SEPP 71 – Coastal Protection

Table 8.1 demonstrates that the proposal complies with the matters for consideration set out in Parts 2 and 4 of SEPP 71. Compliance with this policy provides justification for the form of the proposed development.

Table 8.1 Consistency with SEPP 71

Part / Clause / (subclause) number	Consideration	Comments
Part 2 Clause 8		
(a)	The aims of this policy set out in clause 2.	
	(a) To protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast.	The proposal would enhance the recreational and economic attributes of the Vincentia area through the appropriate provision of additional housing and a district town centre which would accommodate a range of community, leisure and commercial activities and introduces opportunities to manage the natural attributes of the site. Refer to section 7 of this report, which discusses the management and mitigation measures.
	(b) To protect and improve existing public access to and along coastal foreshores to the extent that this is compatible with the natural attributes of the coastal foreshore.	The site is approximately two kilometres from Collingwood Beach and the development would not affect any existing public access to and along coastal foreshores. Extensive vehicle, pedestrian and cycle networks provide links to external roads and tracks, which access Collingwood Beach.
	(c) To ensure that new opportunities for public access to and along coastal foreshores are identified and realised to the extent that this is compatible with the natural attributes of the coastal foreshore.	Refer to comments in (b) above.
	(d) To protect and preserve Aboriginal cultural heritage, and Aboriginal places, values, customs, beliefs and traditional knowledge, and	Refer to section 7 of this report and <i>Vincentia Master Plan Archaeological Test Excavation Report</i> , January 2006, prepared by Mary Dallas, Dan Tuck and Emeritus Professor RVA Wright
	(e) To ensure that the visual amenity of the coast is protected.	The site is not visible from Collingwood Beach. Refer to section 6 of this report which sets out concept principles, including built form controls.
	(f) To protect and preserve beach environments and beach amenity.	Water sensitive urban design measures are incorporated in the proposed development to ensure the concentration of water borne pollutants in stormwater runoff from the development do not cause a decline in the ecological health of downstream water bodies. The site is at least one kilometre from Collingwood Beach and would therefore not affect the beach environments and beach amenity.
	(g) To protect and preserve native coastal vegetation.	Refer to section 6 of this report which sets out concept principles, including tree retention zones, tree retention in public spaces. Existing vegetation will be retained in the core environment zone, which will be gifted to DEC or the appropriate form of public ownership.
	(h) To protect and preserve the marine environment of New South Wales.	Refer to section 7.2.3 of this report for discussion on various stormwater management measures that are proposed to minimise impacts on the receiving environments.
	(i) To protect and preserve rock platforms.	No rock platforms are located in the vicinity of the site.
	(j) To manage the coastal zone in accordance with the principles of ecologically sustainable development (within the meaning of section 6 (2) of the <i>Protection of the Environment Administration Act 1991</i>).	The proposed development of the site promotes the principles of ecological sustainability by: • incorporating energy efficient subdivision design; • adopting the water sensitive urban design philosophy; • retaining a core environment zone that incorporates threatened flora and fauna species, and their habitats, and numerous vegetation communities; • creating opportunities for public transport in the area; • providing additional housing to meet increasing demand; • providing a district town centre which would service a focal point for the surrounding communities. The reports prepared by Cundall, Johnston and Partners Pty Ltd 2006 set out ecologically sustainable development (ESD) initiatives considered for the commercial and residential components of the proposal. The resource conservation targets established for the proposal relate: • energy conservation; • water conservation; • waste management.
	(k) To ensure that the type, bulk, scale and size of development is appropriate for the location and protects and improves the natural scenic quality of the surrounding area.	Refer to section 6 of this report which sets out concept principles, including built form controls.
	(l) To encourage a strategic approach to coastal management.	Refer to section 8.2

(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.	This is not relevant to the proposal as the site is approximately two kilometres from Collingwood Beach.
(c)	Opportunities to provide a new public access to and along the coastal foreshore for pedestrians or persons with a disability.	Refer to above comment. A pedestrian and cycle path is proposed to join with an existing track north of the site, providing a link between the new residential community and Collingwood Beach.
(d)	The suitability of development given its type, location and design and its relationship with the surrounding area.	Refer to section 6 of this report which sets out concept principles, including built form controls.
(e)	Any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore.	This consideration is not relevant as the site is not located on the coastal foreshore.
(f)	The scenic qualities of the New South Wales coast, and means to protect and improve these qualities.	Refer to section 6 of this report which sets out concept principles for the proposed development.
(g)	Measures to conserve animals (with the meaning of the <i>Threatened Species Conservation Act 1995</i>) and plants (with the meaning of that Act), and their habitats.	Refer to section 7.2 of this report.
(h)	Measures to conserve fish (within the meaning of Part 7A of the <i>Fisheries Management Act 1994</i>) and marine vegetation (within the meaning of that Part), and their habitats.	Refer to section 7.2.3 of this report for discussion on various stormwater management measures are proposed to minimise impacts on the receiving environments.
(i)	Existing wildlife corridors and the impact of development on these corridors.	Refer to section 7.2.1 of this report.
(j)	The likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards.	This is not relevant to the proposal as the site is approximately two kilometres from Collingwood Beach.
(k)	Measures to reduce the potential for conflict between land-based and water-based coastal activities.	The proposal will not result in any conflict between land – based and coastal activities as it is not located on the foreshore.
(l)	Measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals.	Refer to section 7.3.6 of this report.
(m)	Likely impacts of development on the water quality of coastal waterbodies.	Refer to section 7.2.3 of this report for discussion on various stormwater management measures are proposed to minimise impacts on the receiving environments.
(n)	The conservation and preservation of items of heritage, archaeological or historic significance	Refer to comments on matter (d) of the aims of SEPP 71.
(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 relevant to this project.
(p)	Only in cases in which a development application in relation to proposed development is determined: (i) the cumulative impacts of the proposed development on the environment, and	Refer to section 7.2.1 of this report the ecological implications for the site.
	(ii) measures to ensure that water and energy usage by the proposed development is efficient.	Refer to sections 7.2.3 and 7.4 of this report for discussion on water sensitive urban design and the promotion of ESD principles to reduce water and energy consumption. The reports prepared by Cundall, Johnston and Partners Pty Ltd 2005 set out ecologically sustainable development (ESD) initiatives considered for the commercial and residential components of the proposal.
Part 4 Clause 13	A provision of an environmental planning instrument that allows development within a zone to be consented to as if it were in a neighbouring zone, or a similar provision, has no effect.	The proposal does not rely on flexible zoning provisions.
Part 4 Clause 14	A consent authority must not consent to an application to carry out development on land to which this Policy applies if, in the opinion of the consent authority, the development will, or is likely to, result in the impeding or diminishing, to any extent, of the physical, land-based right of access of the public to or along the coastal foreshore.	The site is more than one kilometre from Collingwood Beach and would therefore not restrict or inhibit public access to the coastal foreshore.
Part 4 Clause 15	The consent authority must not consent to a development application to carry out development on land to which this Policy applies in which effluent is proposed to be disposed of by means of a non-reticulated system if the consent authority is satisfied the proposal will, or is likely to, have a negative effect on the water quality of the sea or any nearby beach, or an estuary, a coastal lake, a coastal creek or other similar body of water, or a rock platform.	Effluent from the residential subdivision would be disposed of via a reticulated sewer system.
Part 4 Clause 16	The consent authority must not grant consent to a development application to carry out development on land to which this Policy applies if the consent authority is of the opinion that the development will, or is likely to, discharge untreated stormwater into the sea, a beach, or an estuary, a coastal lake, a coastal creek or other similar body of water, or onto a rock platform.	Refer to section 7.2.3 of this report for discussion on various stormwater management measures are proposed to minimise impacts on the receiving environments.

8.5 Consistency with Shoalhaven City Council Development Control Plan 100 – Subdivision Code

Development Control Plan (DCP) 100 – *Subdivision Code* applies to the site. Compliance with the DCP is not a statutory consideration for a Part 3A application. However, to demonstrate the appropriateness of the project and consistency with local Council policy, an assessment of the subdivision in terms of the DCP has been prepared.

8.5.1 (DCP) 100 - Site Analysis, Neighbourhood Design and Streetscape (Elements RE1, RE2 and RE13)

The design of the residential subdivision achieves the objectives of Elements RE1, RE2 and RE13 as it is based on an analysis of the site and locational context, which included investigations of, amongst others, the ecological values of the site, landscape character, heritage significance, traffic management, flooding and drainage constraints, hydrogeology, economics, social planning, bushfire management, environmental acoustics and geotechnical assessment. As set out above the subdivision footprint and pattern respond to the findings of technical investigations of the site to ensure that it provides for an ecologically sustainable subdivision and a safe and interesting residential environment. This is illustrated in sections 6 and 7 of this report.

To preserve the bushland setting, existing trees are to be retained in proposed streetscapes and backyards where possible. The approach for streetscape vegetation is based on achieving urban design objectives set out in section 6 of this report.

8.5.2 (DCP) 100 - Major and Local Street Networks and Pedestrian and Cyclist Facilities (Elements RE3, RE4 and RE5)

The street network can accommodate traffic volumes expected to be generated by the future residents of the subdivision. It includes a road hierarchy that clearly defines the function of each street and reduces the potential for through traffic.

The local intersections comply with the minimum spacing recommended in E4, with the exception of the location of laneways and streets around proposed public parks.

The road network takes account of the existing topography and is designed to run along the site ridges and perpendicular to the contours to minimise excavation. This layout is also orientated to promote solar efficient lots and takes account of natural drainage and open space systems.

Pedestrian and cycle networks are integrated with the proposed road network. The proposed ridge and connector road reservations include cycle and / or pedestrian paths that are at least 1.2 metres wide within the 4.5 metres verge. This provides north – south and east – west pedestrian and cycle connections through the subdivision. The road network encourages walking along quieter local streets, as minor roads include four metres wide verges providing for pedestrian movement through the residential streets. (DCP) 100 - Public Transport (Element RE6)

The road hierarchy includes roads to accommodate bus routes that would link the subdivision with the proposed district town centre and the wider Bay and Basin area. The carriageway widths of the bus routes vary from the minimum nine metres suggested by the acceptable solution of RE6. The reason for this variation is to achieve urban design outcomes for the site. The variations are minor with the connector road comprising a carriage way width of seven metres, with 2.5 metres parking bays and the Ridge Road comprising two 4.2 metres wide carriageways with 2.5 metres parking bays.

The road network would provide potential bus routes within 400 metres of 90 per cent of future dwellings in the subdivision.

The proposed district town centre provides an activity focal point for the area and could substantially strengthen the viability of the local bus services by providing a logical point for a bus interchange.

8.5.3 (DCP) 100 - Public Open Space (Element RE7)

The residential subdivision achieves the objectives of Element RE7 as it incorporates a range of public open spaces including a village park, smaller urban parks and a substantial core environment zone, which would provide for the retention of trees, protection of the riparian reserve, opportunities for passive recreation and increase the extent of adjoining national park.

To provide an attractive outlook from future residences and opportunities for passive surveillance the subdivision is designed so that residential lots front open space areas. This layout also precludes the potential for back or side fences along open space areas.

8.5.4 (DCP) 100 - Street Design and Street and Driveway Construction (Elements RE8 and RE9)

The design features of each street type would cater for safe and efficient movements for all users by providing carriageway widths that allow for vehicles to proceed safely. The street reservations meet or exceed the recommended minimum acceptable solution in RE8 as set out in table 8.2. The street verge widths vary through out the subdivision to enable the retention of trees.

All street verges, with the exception of laneways, are at least three metres wide. The proposed verge widths for the ridge road, connector road and local streets are three metres in part, which is a variation from the recommended minimum acceptable solution in RE8 however; are sufficient to accommodate services and street trees. The alignment of the carriageway within the road reservations is defined to retain trees and add interest to the street pattern.

The residential subdivision includes a range of speed reduction design measures, including a roundabout at the western entrance to the subdivision, limiting street lengths, curved alignments and introducing slow points.

Refer to section 5 of this report for details of street layout, sections and hierarchy.

Table 8.2 Road Reservation Widths

Proposed Street Type (Reservation Width)	Recommended (Reservation Width RE8)	Comment
Ridge Road (30 metres)	Collector (20 metres)	Exceeds the minimum to accommodate existing trees and achieve urban design objectives.
Connector and Main street (20 metres)	Collector (20 metres)	Meets recommended minimum
Local Roads (16 metres)	Access Street (16 metres)	Meets recommended minimum.
Local Road – wedge type (16 metres or more)	Access Street (16 metres)	Meets recommended minimum and in some instances exceeds the requirement to accommodate existing trees and achieve urban design objectives.
Park Edge (varies between 20 metres to 40 metres which includes a 12 metres wide reserve, APZ and Tree Retention zone).	Access Street (16 metres)	Exceeds the minimum to accommodate APZ and WSUD measures.
Laneway (7 metres)	Laneway (7 metres)	Meets recommended minimum.

8.5.5 (DCP) 100 - Utility Services (Element RE10)

The design of the residential subdivision has involved an extensive assessment of the availability of services to the site which concluded that the subdivision could be serviced by existing water, sewer, electricity and telecommunication infrastructure. The widths of the road reservations provide sufficient verge width to cater for utility infrastructure and the proposed staging program ensures that services are provided in a timely, coordinated and efficient manner. Refer to section 7.4.5 of this report.

8.5.6 (DCP) 100 - Stormwater Drainage and Quality Management (Elements RE11 and RE12)

The proposed development achieves the objectives of RE11 and RE12 as it adopts a water sensitive urban design (WSUD) approach to protect the natural and built environment and intercept and treat pollutants through the use of appropriate water quality control measures. Details relating to WSUD are discussed in section 7.2.3 of this report.

8.5.7 (DCP) 100 - Allotment Layout (Element RE14)

The proposed subdivision provides lots that are well orientated for good solar access and are of sufficient size to accommodate different housing types. It is a fully planned development incorporating design controls that reflect the proposed lot mix.

Of the 604 lots proposed, 378 lots (62 per cent) are greater than the recommended minimum lot size in E14, which is 500 square metres and 131 lots would be greater than 600 square metres. This range of conventional and large lots is appropriate to promote tree retention and retain the 'bush' setting.

Lots with areas of less than 500 square metres provide housing opportunities for persons looking for more manageable housing with small private open space areas. These include 187 lots with areas between 350 and 499 square metres and 39 lots with areas less than 350 square metres. Lots that are less than 350 square metres are located close to the district town centre, proposed public transport routes or public open space.

The widths of some lots are less than the recommended minimum width of 16 metres in E14. All but 20 of these lots have depths that meet or exceed the recommended minimum 30 metres in E14.

The variation to the recommended minimum lot size and dimensions is considered justified as indicative built form typologies indicate that adequate area is available for building envelopes, private open space and access. The smaller lot sizes are consistent with objectives of achieving more compact urban areas with dwellings located close to services and facilities.

8.5.8 Bushfire Management (Element RE15)

Refer to section 7.2.4 and the *Bushfire Assessment*, December 2004, prepared by Bushfire and Environmental Services Pty Ltd.

8.5.9 Geotechnical (Element RE16)

To ensure safe buildings conditions for future development Network Geotechnics completed an assessment and geotechnical review of the site, which considered soil salinity, pavements, AS2870 classifications, acid sulfate soils and contamination. The investigations concluded that there are no major geotechnical limitations for the proposed development. Details of the geotechnical assessment are in the report prepared by Network Geotechnic, 2003.

An analysis of the soil collected from the site indicates that there is minimal risk of encountering acid sulphate soils in the area and minimal risk in developing salinity hazards.

A construction management plan would be prepared and document appropriate mitigation measures.

8.6 Conclusion

The site and proposed development is regionally significant in terms of providing residential areas, district centre for the area and providing an opportunity for conservation of high value ecological assets. Accordingly it is appropriate for classification as a State Significant Site in accordance with Section 8 of SEPP (Major Projects) and the draft *Guidelines for State Significant Sites, 2005*.

The project is justified as it contributes to achieving the strategic objectives for the region in manner that is consistent with the objectives of Shoalhaven City Council for residential subdivision.



9.0 Statement of Commitments

INTRODUCTION

STATEMENT OF COMMITMENTS

9.1 Introduction

The commitments listed in the following section have been compiled based on the environmental assessments undertaken in the preparation of this EA.They provide a commitment from Stockland, indicating responsibilities and timing, to implement measures to prevent all potential environmental impacts that have been identified through this assessment and ensure that the project is environmentally, socially and economically sustainable.

9.2 Statement Of Commitments

Stockland is committed to minimising the potential for environmental impacts from the proposed residential subdivision.Table 9.1 outlines the measures that Stockland will implement to minimise any potential environmental, social and economic impacts.

Item	Commitment	Timing
Scope of Development	Stockland will carry out the development in accordance with this Environmental Assessment Report (EAR), prepared by ERM, January 2006, plans in the Appendix and supporting reports., except where amended by other items of this Statement of Commitments.	For the duration of subdivision
Statutory Requirements	Stockland will obtain and maintain the following licences, permits and approvals for the residential subdivision: • Shoalhaven Council Construction Certificates for engineering works (including earthworks, soil and water management, clearing roadworks, drainage, landscape, water supply, and sewerage) for each stag of the subdivision; • Shoalhaven Council Subdivision Certificates for each residential stage; • Roads and Traffic Authority Road Occupancy Licence; • Road Opening Permit; • Section 138 Consent for roadworks (Roads Act 1993); • Integral Energy Design Certification; • Integral Energy notification of Arrangement; • Telstra Compliance Certificate; • Shoalhaven Water Compliance Certificate; • Department of land and Property Information registration of the subdivision	For the duration of subdivision
Conveyancing	Stockland will prepare a final plan of subdivision and Section 88B instrument for each stage of the development. The Section 88B Instrument will provide easements for utility services that encroach onto private land or public reserves.	
Public Open space	Areas to be dedicated as public reserves will be embellished by Stockland in accordance with the principles of the landscape masterplan and documented in the detailed landscape design plans to be approved by Shoalhaven Council as part of the construction Certificate.	Prior to release of certificate for subdivision for each stage
	Stockland will provide additional <i>Allocasuarina Littoralis</i> trees as part of the detailed landscape design plans to provide feeding habitat for the glossy black cockatoo.	
	Stockland will recycle timber as mulch throughout the landscape strategy.	
	A landscaping plan will be prepared and implemented generally in accordance with the landscape masterplan prepared by Clouston Associates and include the use of local provenance trees and, <i>Allocasuarina Littoralis</i> as detailed in the landscape masterplan	
Public Open Space Management and Maintenance	Stockland will enter a maintenance contract with Shoalhaven Council for the maintenance of public open space containing water sensitive urban design (WSUD) structures and bushfire asset protection zones (APZs) until such time that 80 percent of the houses within the residential stage containing the WSUD structures have been constructed. Stockland will then arrange for the handover of the WSUD infrastructure.The WSUD infrastructure will be located within the public road reserve and thus will be dedicated as public land upon registration of the linen plan.	To be maintained by Stockland until to 80 percent of the houses within the residential stage containing the open space has been constructed.
Tree Management	Stockland will identify on engineering subdivision plans submitted to Shoalhaven City Council with the Construction Certificate Application all trees to be retained within the proposed public roads and reserves with the development. Stockland will provide an arborist report for the trees to be retained near public and private assets which identifies the species and condition of the tree and any remedial works required to render the tree appropriate for retention in the urban environment. All trees that are unsuitable for retention or are unable to be retained due to the provision of services and infrastructure will be removed and mulched onsite.	Prior to the release of the Construction Certificate for each stage.
Construction	Stockland will prepare a Construction Management Plan that will include: : • an education strategy for construction contractors; • description of the work program outlining relevant timeframes for activities. • details of statutory and other obligations that must be met during construction and operation, including all approvals and agreements required from authorities and other stakeholders. • description of the roles and responsibilities for all relevant employees involved in the construction phase. • details of the environmental management procedures, monitoring and reporting requirements during the construction or operation phase. • details as to what incident management procedures will be undertaken during construction or operation • the minimisation of rubbish and debris at the site from development activities during the construction phase.	Prior to the commencement of construction.

Item	Commitment	Timing
	Stockland will repair any defective workmanship in each stage of the residential subdivision for a defects liability period of 12 months from the date of registration of the final plan of subdivision for that stage.	For a period of 12 months from the date of registration of the final plan of subdivision for each stage.
	Stockland will prepare work as executed plans for construction work in each stage and provide such plans to Shoalhaven City Council.	Prior to the release of the Subdivision Certificate for each stage.
	Stockland will prepare works as executed plans in a format compatible with the geographic information system (GIS) of the Shoalhaven City Council to assist with the Council asset management database.	Prior to the release of the Subdivision Certificate for each stage.
Design	Design controls will be prepared by Stockland and implemented for the residential lots through the use of a positive covenant on the titles to the lots. The Design Controls will be generally in accordance with the Design Controls and Requirements in the EAR and specify: • building setbacks; • architectural form; • architectural detail; • landscape design.	Prior to the release of the Construction Certificate for each stage.
	Stockland will create a positive covenant on the titles to the lot that will require homebuilders to lodge plans with Stockland Design House to demonstrate compliance with the concept plan character before lodging plans with Shoalhaven City Council. Where there are inconsistencies between Shoalhaven City Council requirements and dwelling design controls contained in the EAR the latter will take precedence.	Prior to the release of the Subdivision Certificate for each stage
Fire Management	Stockland will establish Asset Protect Zones (APZs) in accordance with the Bushfire Assessment, January 2006, prepared by Bushfire and Environmental Services Pty Ltd and dedicate to Shoalhaven City Council, as part of the WSUD infrastructure	Prior to the release of the Subdivision Certificate for each stage
	Stockland will install fire hydrants in accordance with Australian Standard S2419.1-1994. Hydrants will be made accessible and located so that a tanker can park within a distance serviceable by a 20 metres hose and that all houses are within 70 metres of a hydrant	Prior to the release of the Subdivision Certificate for each stage.
	Fuel management within the Asset Protection Zones and Asset Protection Zones maintenance plans are to be in accordance with Bushfire Assessment, January 2006, prepared by Bushfire and Environmental Services Pty Ltd.	Prior to the release of the Subdivision Certificate for each stage.
Ecological Management	Stockland will introduce a covenant on the titles to the lots that stipulates the banning of all cats from the development	Prior to the release of the Subdivision Certificate for each stage
	Dedication of the core environmental area to the DEC or an appropriate form of public ownership: Stockland will prepare the following management and maintenance plans. Responsibility for implementing the weed management plans and the vegetation management plan will be vested in the landowner.	Prior to the release of the Subdivision Certificate for each stage. The responsibility of Stockland during the maintenance period.
	Weed Management	
	Stockland will prepare a weed management plan for the land that addresses: - a resident education strategy; - identification of invasive weeds - monitoring of exotic plant distribution and effectiveness of management controls, particularly adjacent to the Jervis Bay National Park.	Prior to the release of the subdivision Certificate for the first residential stage
	Vegetation Management	
	Stockland will prepare a vegetation management plan for land in the core environment area that address monitoring of: - rare and threatened communities and species; - threatening processes associated with changed in habitat conditions.	Prior to the release of the Subdivision Certificate which creates the environmental zone to be transferred to DEC
	Stockland will prepare a Vegetation Management Plan for public open space (including public reserves, WSUD and APZs).	Prior to the release of the subdivision certificate which creates the lot(s) containing the public open space
Flooding	Stockland will create flood free building envelopes for all residential allotments in the subdivision.	Prior to the release of the subdivision certificate for each stage

Item	Commitment	Timing
	Stockland will provide safe vehicular ingress and egress for all residential allotments in the 1% AEP flood event.	Prior to the release of the subdivision certificate for each stage
Water Supply and Quality Management	Stockland will design and install water quality control measures in accordance with the principles of the Water Sensitive Urban Design Study report prepared by Forbes Rigby, January, 2006 and Construction Certificate Plans approved by Shoalhaven City Council and include: Bio retention swales, detention ponds and artificial wetlands to be located in the APZ and Gross Pollutant traps.	Prior to the release of the subdivision certificate for each stage.
	Stockland will prepare a soil and water management plan to control run off during construction in accordance with the principles of the <u>Water Sensitive Urban Design Study</u> report prepared by Forbes Rigby, January, 2006, the Landcom publication Managing Urban Stormwater (MUS): Soils and Construction Volume 1, 4 th Edition and Construction Certificate Plans approved by Shoalhaven City Council and DCP100.	Prior to release of the construction certificate for each stage
	Stockl containing the soil and water management measures have been constructed At that time the maintenance of stormwater quality control measures and the riparian corridors will be transferred to the Shoalhaven City Council.	To be maintained by Stockland until to 80 percent of the houses within the residential stage have been constructed.
Social	Stockland will prepare a community development program which will include: - welcome initiatives for residents of the subdivision and provide local information; - consultation with the new community in regards to planning and development of future stages; - opportunities for resident involvement in environmental restoration and maintenance initiatives; - a Feral and Domestic Animal Management Plan that includes a resident education strategy to recognise the importance of dogs being kept on a lead and out of conservation areas - community education in regards to recycling initiatives	Prior to the sale of residential lots.
Cultural Heritage	Stockland will ensure all artefacts retrieved during the excavations of Site #58-2-0392 and Site #58-2-0393 will be retained under a Care and Control Agreement by the Jerrinja community.	During construction
	Stockland will inform the Jerrinja Local Aboriginal Land Council of progress of the development.	Ongoing through the construction of the subdivision.
	Stockland will engage the local community and facilitate employment opportunities where possible between contractors and Jerrinja Aboriginal community.	Ongoing through the construction of the subdivision.
Infrastructure	Reticulated Services	
	Stockland will provide reticulated water supply, sewerage and underground electricity to each residential lot.	Prior to the release of the subdivision certificate for each stage.
	Stockland will provide a reticulated water connection to each public reserve.	Prior to the release of the subdivision certificate for each stage.
	Stockland will relocate existing high voltage electricity cables parallel to Naval College Road where they conflict with the development footprint.	Prior to the release of the subdivision certificate for the affected stage
	Stockland will relocate existing high voltage electricity cables along Moona Creek Road where they conflict with the proposed road realignment.	Prior to the release of the subdivision certificate for the affected stage
	Stockland will provide for infrastructure services generally in accordance with Drawing Number 4105 rev 2 <i>Electricity, Telecommunications and Interallotment Drainage Concept Plan</i> , Drawing Number 4103 rev 2 <i>Sewer Reticulation Concept Plan</i> and Drawing number 4104 rev 2 <i>Water Reticulation Concept Plan</i> prepared by Forbes Rigby Pty Ltd.	Prior to the release of the subdivision certificate for the affected stage
	Stockland will relocate the existing sewerage rising main and treated effluent transfer main where they conflict with the development footprint.	Prior to the release of the subdivision certificate for the affected stage
	Stockland will provide a minor system street drainage network designed to accommodate the 20%AEP storm event in accordance with design plans approved by Shoalhaven Council in the Construction Certificate.	Prior to the release of the subdivision certificate for each stage
	Stockland will provide a major system street drainage network designed to accommodate the 1%AEP storm event in accordance with design plans approved by Shoalhaven Council in the Construction Certificate.	Prior to the release of the subdivision certificate for each stage
	Stockland will bear the cost of the relocation of utility services required as a result of construction of the development.	Prior to the release of the subdivision certificate for each stage
	Roads	
	Stockland will relocate existing unformed public roads to suit the subdivision layout at nil cost and nil compensation to state or local government.	Prior to the release of the subdivision certificate for the affected stage
	Stockland will upgrade the existing The Wool Road and Naval College Road roundabout to two lanes in accordance with design plans approved by Shoalhaven City Council in the Construction Certificate.	Completed prior to the opening of Stage 1 of the district town centre

Item	Commitment	Timing
	Stockland will construct unsignalised intersections at Naval College Road in accordance with Austroroads Guidelines and Construction Certificate Plans approved by Shoalhaven City Council.	Prior to the release of the subdivision certificate for the affected stage
	Stockland will construct flexible road pavements in accordance with the Australian Road Research Board design criteria and Shoalhaven City Council DCP 100.	Prior to the release of the subdivision certificate for each stage
	Stockland will construct rigid road pavements in accordance with the Cement and Concrete Association design guidelines.	Prior to the release of the subdivision certificate for each stage
	Stockland will ensure that a standard 12.5 metres rigid vehicle can negotiate all public roads and intersections. Stockland will ensure that the AUSTROADS Design Service Vehicle (8.8 metre rigid) can negotiate all public roads and intersections and that the AUSTROADS Single Unit Bus (12.5 metre rigid) can negotiate all bus routes.	Prior to the release of the subdivision certificate for each stage
	Stockland will construct foot and cycle paths as documented in the EAR.	Prior to the release of the subdivision certificate for each stage
	Stockland will contribute funds equivalent to 5 percent of the upgrade cost of the Naval College Road intersections with Pine Forest Road and Huskisson Road in accordance with the calculations and methodology described in the Review of Developer Contributions Report by Don Fox Planning and the Transport Report by Masson Wilson Twiney.	To commence after stage 1 of the district town centre subject to a review of the intersection to ascertain its capacity.
	Stockland will contribute funds equivalent to 50 percent of the construction of an appropriate standard underpass beneath Naval College Road in accordance with the calculations and methodology described in the Review of Developer Contributions Report by Don Fox Planning and the Transport Report by Masson Wilson Twiney.	Prior to the opening of Stage 1 of the district town centre.
	Stockland will provide parking bays within the road reserve of the ridge and connect roads as show on drawing AAUD to provide.	Prior to the release of the subdivision certificate for each stage.
	Stockland will provide street signs for each new public road in accordance with the requirements of the Shoalhaven City Council.	Prior to the release of the subdivision certificate for each stage.
Geotechnical	Stockland will provide a lot classification geotechnical report to Shoalhaven City Council for each stage of development prior to the release of the final plan of subdivision for that stage.	Prior to the release of the subdivision certificate for each stage.
Staging	Stockland will construct the subdivision in accordance with the Proposed Staging Plan prepared by Forbes Rigby, 2006 or as otherwise approved in Construction Certificate plans approved by Shoalhaven City Council.	For the duration of subdivision
Monitoring	Stockland will undertake a water quality monitoring program in accordance with the Water Quality Monitoring Plan to measure performance of WSUD measures against ANZECC Guidelines throughout the development and for a period of two years following the registration of the final plan of subdivision for the final stage that drains into the monitoring location.	For a period of two years following the registration of the final plan of subdivision for the final stage that drains into the monitoring location.
	Stockland will undertake a weed monitoring progress in accordance with the Weed Management Plan during the maintenance period.	For a period of two years following the registration of the final plan of subdivision for each stage.
Developer Contributions	Stockland will pay Section 94 developer contributions in accordance with Appendix B of the Don Fox Planning Report: <i>Review of Developer Contributions and Associated Works Proposed Residential and Commercial Development Vincentia District Centre</i> , January 2006, which forms part of the EAR on a "per ET" basis for each stage of the residential subdivision.	Prior to the release of the subdivision certificate for each stage.
	Stockland will pay Section 64 water and sewer developer contributions in accordance with the development servicing plan applicable at the time of payment.	Prior to the release of the subdivision certificate for each stage.
	Stockland will contribute \$90,000 to Shoalhaven City Council towards the upgrade of The Wool Road, Beach Road, St Georges Road intersection in accordance with the calculations and methodology described in the Review of Developer Contributions Report by Don Fox Planning and the Transport Report by Masson Wilson Twiney.	Prior to the opening of Stage 1 of the district town centre.
Display village	Stockland will design, construct and operate a housing display village in Stage 1 of the residential subdivision in accordance with drawing (AAUD to provide) for the duration of the development or until such time as market conditions do not warrant such a village. Stockland will describe the detail of the display village in a subsequent development application to Shoalhaven City Council	
Signage	Stockland will provide estate marketing signs within The Wool Road and Naval College Road reserves in accordance with plans approved by Shoalhaven City Council as part of the Construction	
Noise	Stockland will provide a 1.8m high timber noise attenuation barrier on a 0.7m high landscaped earthen mound along the boundary of Lots 154 to 163 and 725 to 733 in accordance with the Noise Impact Assessment by Heggies Australia.	Prior to the release of the subdivision certificate for each stage.



Appendix

APPLICATION DEFINITION PLAN

PROPOSED STAGING PLAN

PROPOSED ZONING PLAN

DISTRICT CENTRE CONCEPT PLAN

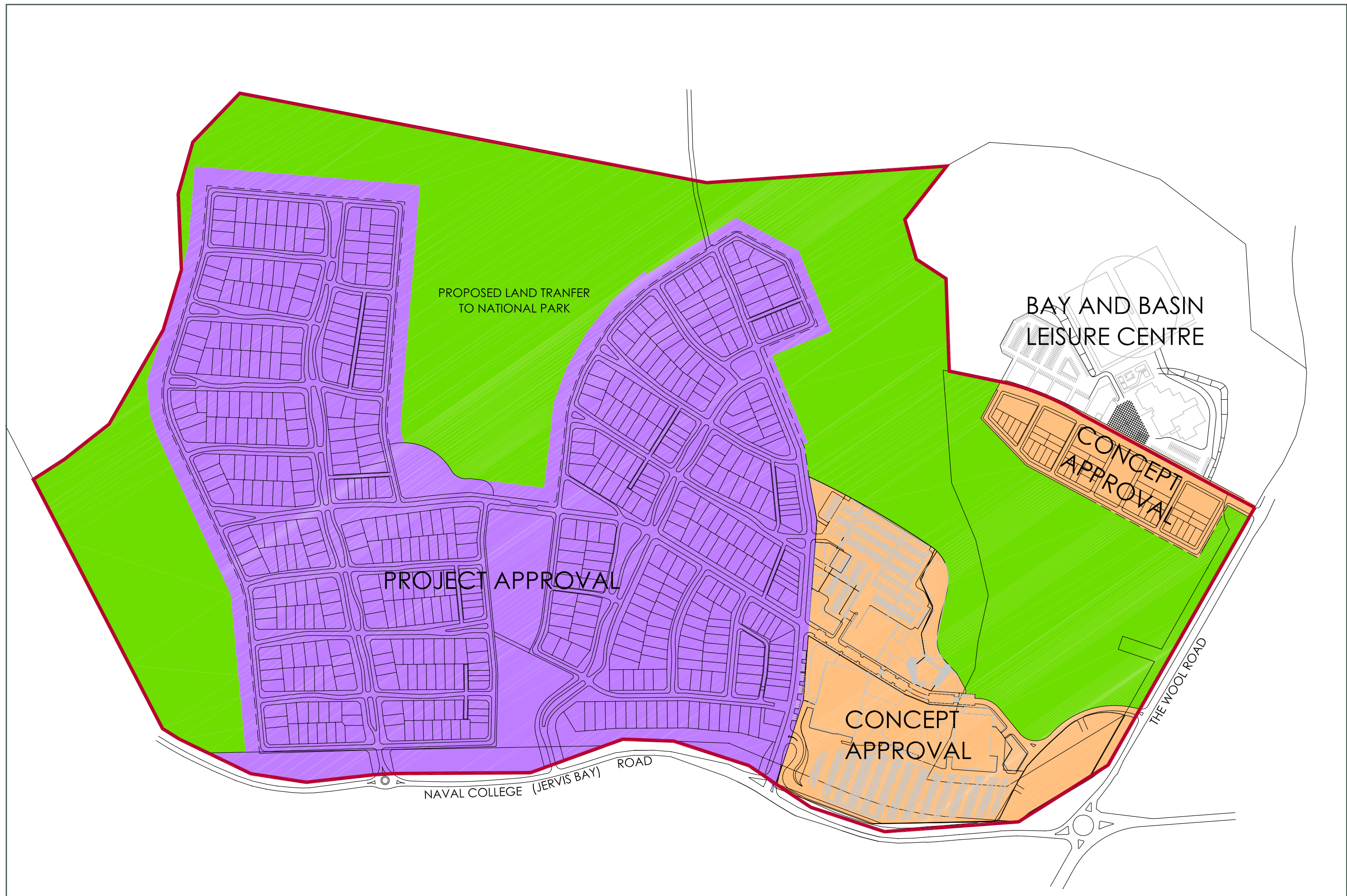
DISPLAY VILLAGE CONCEPT PLAN

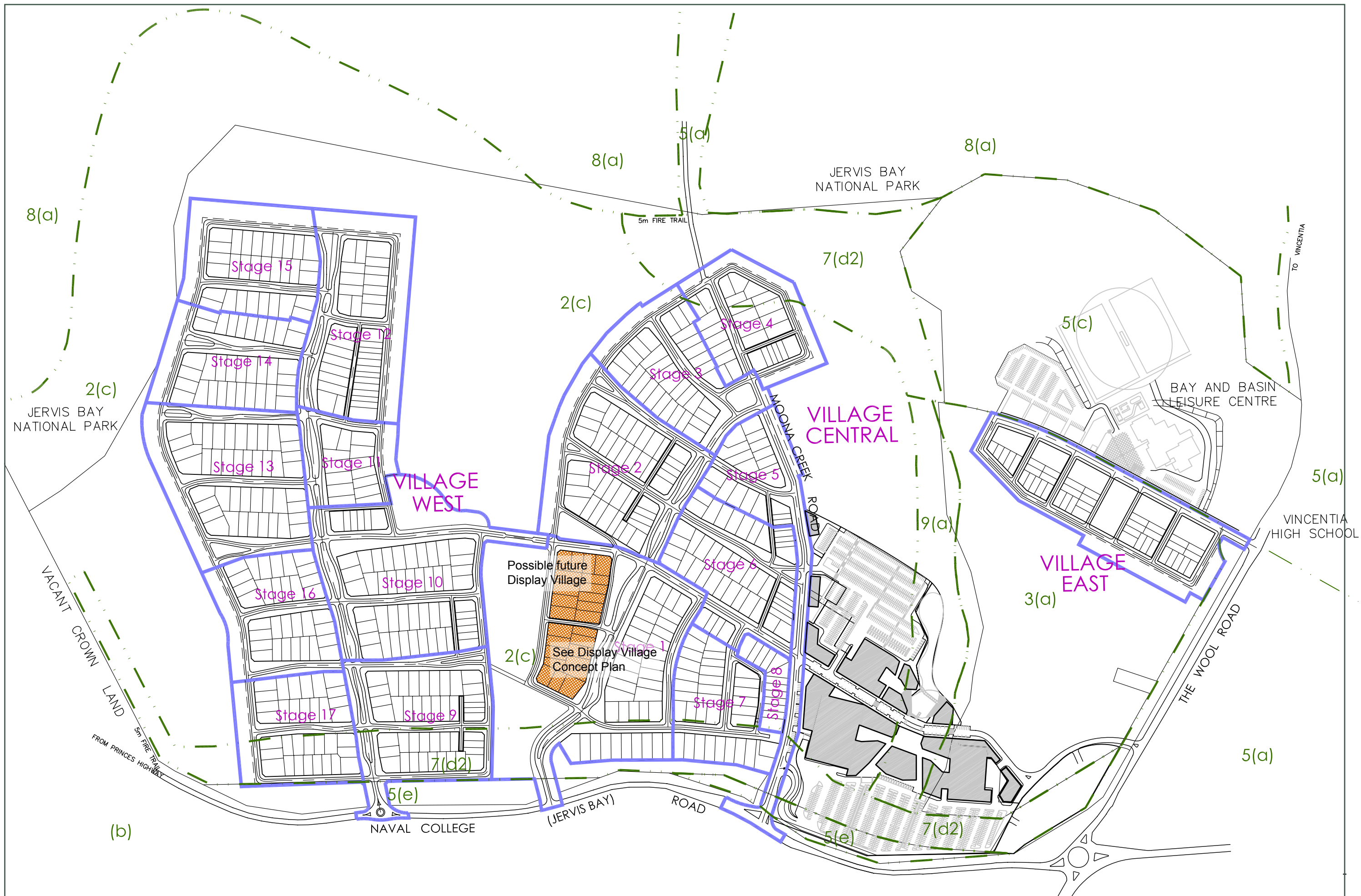
PRODUCT DIVERSITY PLAN

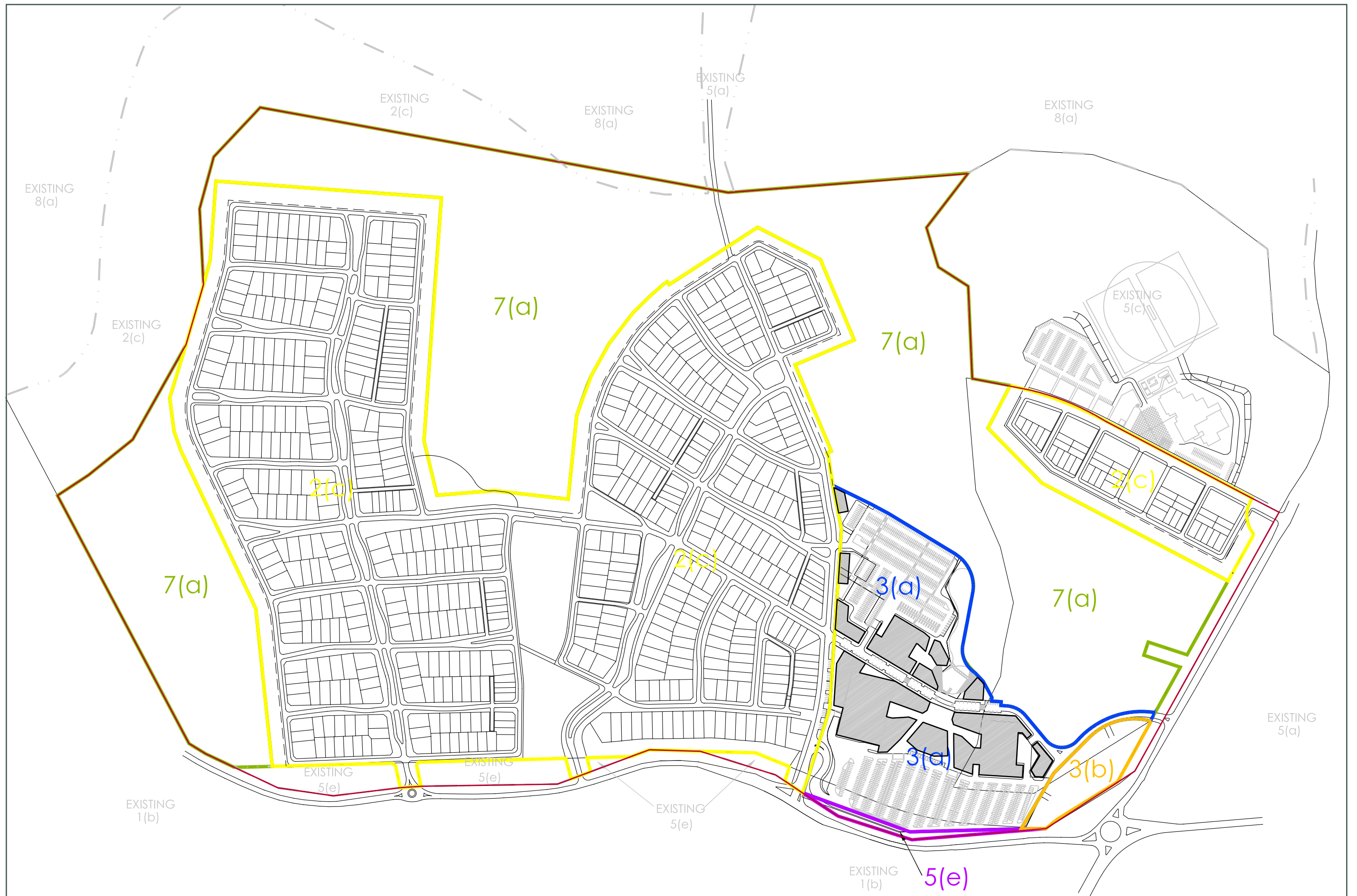
BUILDING SETBACKS PLAN

SUBDIVISION LAYOUT PLAN

GENERAL ENVIRONMENTAL RISK ANALYSIS TABLES





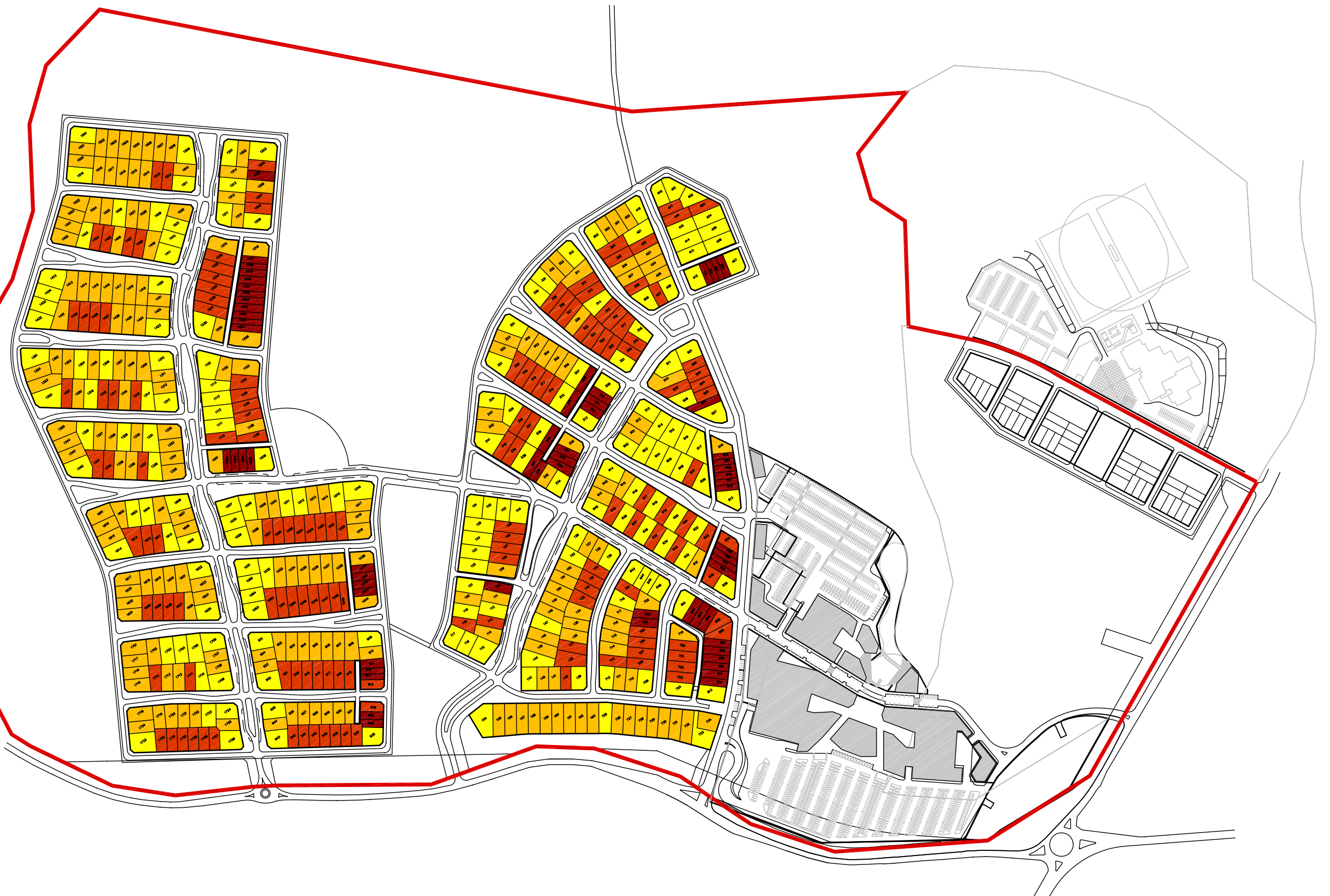






LEGEND

- Bushland Lots (17.5m)
- Traditional Lots (15m)
- Village Lots (13.5m)
- Village Homes



The zones and setbacks shown on this plan are indicative and will be confirmed upon registration of the linen plan on a staged basis. An arborist report that will confirm the ultimate tree retention zone locations. The 'Building Setbacks Plan' is intended as a framework for cohesive streetscape, with sufficient flexibility as consistent with a casual coastal bushland character.



- LEGEND**
- Tree Retention Zone (TRZ)
 - Articulation Zone (AZ)
 - Building Setback

BUILDING SETBACKS PLAN



Potential Environmental Risk	Project Phase	Objective	Proposed Mitigation and Significant Residual Environmental Impacts
Flora, Fauna and Corridor Values			
Development of the site has the potential to result in vegetation clearing which may fragment habitats and inhibit flora and fauna interactions between the site and surrounding area.	Construction and post construction	To minimise the loss of vegetation communities and habitats.	A core environmental zone including approximately 48 hectares will be gifted to DEC or placed in a suitable form of public ownership. The area will retain known habitat for the Glossy Black - cockatoo, Yellow – bellied Glider, Eastern Bristlebird, several threatened species of microchiropteran bats; Eastern Bristlebird, Ground Parrot, <i>Prasophyllum affine</i> and its pollinator, <i>Cryptostylis hunteriana</i>, Eastern Pygmy-Possum and several vegetation communities including the endangered ecological community (Sydney Coastal Estuary Swamp Forest Complex). It will also contain large hollow – bearing trees and habitat for Masked owl, Powerful owl, Square-tailed Kite, White – throated Needtail and the Rufus Fantail and provide an important corridor function connecting JBNP to areas to the south, including Booderee National Park. Additional areas of riparian corridors will be retained as open space areas and protected for the intrinsic value and as a source of fauna habitat and movement corridors. Trees within the residential subdivision will be retained within road reservations and tree retention zones will encumber individual lots. The proposed landscape masterplan for the public domain intends to retain significant areas of existing trees and understorey and incorporates heathland species in and around the immediate area of the heath, for botanical, visual and habitat contributions; and <i>Corymbia maculate</i> / <i>Eucalyptus globoidea</i> Open Forest along the north north–west border of the site, which incorporates <i>Allocasuarina Littoralis</i>, a food source for the Glossy Cockatoo. The construction of the subdivision is staged, allowing for the regeneration of important habitat and for fauna to relocate gradually. Refer to section 7.2.1 of this report.
Construction works have the potential to impact on the habitat quality of the conservation areas.	Construction	To protect areas of quality habitat.	Stockland will prepare Construction Management Plan that focuses on worker education and include guidelines for the management of construction activities. In addition any proposed buffer / conservation area to be fenced and signed to ensure construction works of the development do not encroach into those areas. Refer to section 7.2.1 of this report.
The development of the site has the potential to result in weed invasion, particularly during the construction phase when areas of vegetation area removed and through the spread of weed propagules.	Construction and post construction	To ensure that the quality of vegetation and habitat in conservation areas are not compromised.	Stockland will prepare a Weed Management Plan for the areas of the site that are not to be developed. The WMP will be implemented by Stockland in the WSUD areas which form the interface between core environmental zone and development areas until such time that 80 percent of the houses within the residential stage have been constructed. The WMP will be administered in the core environmental zone by the land owner. The weed management plan will focus on resident education, early identification of invasive weeds, monitoring of exotic plant distribution and effectiveness of management controls. Stockland will prepare a Vegetation Management Plan for the areas of the site not to be developed. The VMP will be implemented by Stockland in the WSUD areas which form the interface between core environmental zone and development areas until such time that 80 percent of the houses within the residential stage have been constructed. The VMP will be administered in the core environmental zone by the land owner. The proposed landscape masterplan for the public domain incorporates appropriate indigenous vegetation such as local provenance tree, shrub and ground cover species and discourages the use of exotic plants. Refer to section 7.2.1 of this report.
Development of the site has the potential to enhance feral, domestic / stray animal population on the site which can impact on native flora and fauna through predation, competition and disturbing foraging and nesting patterns,	Post construction	To minimise habitats for feral animals and the impact of domestic animals.	Stockland will prepare a Feral and Domestic Animal Management Plan. Cats will be banned from the residential subdivision via a Section 88B restriction included on lot titles. Refer to section 7.2.1 of this report.
Surface water, Groundwater and Hydrogeological Impact on the Leek Orchid			
Construction works have the potential to result in increased sedimentation and nutrient loading of creeks on site as	Construction	To minimise sedimentation and nutrient loading during construction.	To mitigate the potential environmental impact of sediment laden water from the construction zones of the residential subdivision being discharged into nearby watercourses a comprehensive soil and water management / erosion and sedimentation control plan will be prepared during the detailed design stage and implemented throughout the construction.

Potential Environmental Risk	Project Phase	Objective	Proposed Mitigation and Significant Residual Environmental Impacts
well as downstream.			To minimise the extent of bulk earthworks the proposed road network runs along the ridges and directly perpendicular to the contours.
Potential change in the type and concentration of water borne pollutants in stormwater runoff from the development could cause a decline in the ecological health of downstream water bodies.	Construction and Post construction	To achieve: - a high degree of protection for existing streams (including their riparian vegetation) and receiving water bodies; - a high level of amenity and safety for future residents.	The development will incorporate water sensitive urban design measures (WSUD), which includes a combination of proprietary litter / sediment traps, bio-retention swales and water quality control ponds / wetlands to create a 'treatment train' that commences at the early stage in the runoff cycle and has the flexibility to cater for a range of pollutants concentrations during varying rainfall intensity. The Model for Urban Stormwater Improvement Conceptualisation was used to optimise the configuration of the various WSUD measures and to ensure water quality objectives are met. Stockland proposes to be responsible for the monitoring and management of the macrophyte beds until 80 percent of the houses are constructed in each development stage. Water quality monitoring on site will occur at the completion of each development stage of the subdivision to ensure that water quality objectives are achieved. Refer to section 7.2.3 of this report.
Flood flows could be a risk to life and property in the residential subdivision.	Post construction	To protect life and property from potential flood flows.	The 1% exceedance probability (AEP) flood inundation extents are generally contained within the proposed riparian reserves in the residential subdivision.
Development of the site may affect groundwater regimes, which in turn could potentially impact on the Jervis Bay Leek Orchid (<i>Prasophyllum affine</i>).	Post construction	To alleviate the potential loss of groundwater recharge to mitigate the potential impact on the Jervis Bay Leek Orchid.	A Hydrogeological Study (ERM, 2006) concluded that rainfall recharge in the immediate vicinity of the orchid colonies will provide sufficient moisture to stimulate growth. The development incorporates WSUD measures to alleviate the potential loss of groundwater recharge (refer to section 7.2.2 of this report). In addition, monitoring of water levels will occur up to three months after, construction of the district town centre to provide a record of overall water level fluctuations at the site. The results will then be used as a basis for comparison to the potential influence of development. This will be considered as part of the project approval for the district town centre.
Bushfire			
Development of the site has the potential to change fire regimes and Shoalhaven area has one of the highest incidences of bushfires in New South Wales.	Post Construction	To manage bushfire risk to protect life and property.	The residential subdivision, the district town centre and the adaptable housing area adopt five critical design considerations to manage bushfire risk, namely Asset Protect Zones (APZs), construction standards, access, water supply and staging (<i>Bushfire and Environmental Services 2004</i>). These design considerations are in accordance with <i>Planning for Bushfire Protection Guidelines</i> , 2001. Refer to section 7.2.4 of this report.
Social Infrastructure, Cultural Values and the Community			
The development is a planned expansion of the existing Bay and Basin Community which may have potential social impacts, particularly on: - changes in population size and profile of the area; - changes to the availability of services and facilities; - changes to the amenity, character and identity of the area; - changes in employment	Post Construction	To assist in achieving balanced and sustainable communities in the Bay and Basin area and enhance community benefit.	Stockland is committed to developing a community development program that includes welcome initiatives to provide new residents with local information and help them develop a sense of belonging, provides an on-going program of two-way consultation with the surrounding community; and provides opportunities for involvement by the local community in environmental restoration and maintenance initiatives and the interpretive strategy. The residential subdivision includes a range of lot sizes that will suit different housing types and therefore different households including families with children and older people. The diversity of housing within the residential subdivision contributes to providing much needed housing options for older people who wish to move to a smaller house or more manageable site. The proposed development will meet the needs of the new population and existing unmet needs of the broader community in a number of ways, including: - a range of retail and commercial facilities and leisure and entertainment opportunities being provided in the district town centre; - the creation of a major focal point for community life and employment generation in the district town centre;

Potential Environmental Risk	Project Phase	Objective	Proposed Mitigation and Significant Residual Environmental Impacts
patterns and economic development.			- a network of public open spaces across the site which provides opportunities for community and cultural events and informal recreation activities; - promoting better public transport and movement between existing and proposed schools in proximity to the site; - contributing \$45,000 to the Bay and Basin Community Resources Inc to develop a detailed strategic plan for community services; - introducing more people to the region which will sustain a growth in services, which might otherwise not have been warranted. Refer to sections 7.3.2 to 7.3.5 of this report.
Development of the site may disturb items of Aboriginal or historic heritage as the landscape is relatively intact.	Construction	To avoid disturbing any items of Aboriginal or historic heritage.	A comprehensive archaeological survey for items of Aboriginal and European heritage in August 2003 concluded that all elements associated with European land use were relatively recent and none constituted significant items of European heritage under the terms of the <i>NSW Heritage Act 1977</i>. Further excavation revealed that although the landscape was relatively intact it was almost entirely devoid of Aboriginal artefacts, features or deposits. If artefacts are retrieved during the excavations they will be retained under a Care and Control Agreement by the Jerrinja community for inclusion in an Interpretation centre for Cultural Displays. Refer to section 7.3.6 of this report.
The development will generate traffic which has implications for the existing road network and transportation.	Post Construction	To create a development that provides for safe and efficient vehicle movement and minimises impacts on the existing road network.	The integration of a residential subdivision adjacent to a future district town centre will promote sustainable transport outcomes by minimising trip lengths and provide an activity hub that will allow trips for purposes to be combined. Stockland will contribute to the upgrade of The Wool Road and Naval College Road intersection and Naval College Road intersections with Pine Forest Road and Huskisson Road. The future district town centre will facilitate the improvement of the local public transport system by providing an activity hub for the local bus services. Certain streets within the residential subdivision have been designed to accommodate a bus route. Walkability and cycle access is a key feature of the development of the site, with a cycle / pedestrian network through the residential subdivision and integrated with the future district town centre and the wider area. Refer to section 7.3.7 of this report.
Development may be impacted by traffic noise from The Wool Road and Naval College Road.	Post Construction	To ensure traffic noise does not adversely impact on the amenity of the development.	Appropriate acoustic mitigation measures will be incorporated along a portion of Naval College Road. Stockland will provide a 1.8m high timber noise attenuation barrier on a 0.7m high landscaped earthen mound along the boundary of Lots 154 to 163 and 725 to 733 in accordance with the Noise Impact Assessment by Heggies Australia. The acoustic impact assessment concluded that mitigation measures are not required along The Wool Road. Refer to section 7.3.7 of this report.
Economic and Infrastructure Implications			
Development has implications for the economy in the Bay and Basin Region.	Post construction	To ensure the development contributes to the economic well-being of the Bay and Basin Region.	The future development of a district town centre will provide a number of positive economic benefits including: - improvements to the range of shopping facilities for local residents; - the provision of additional retail space to meet current unmet demand. In addition the development will create employment opportunities both during the construction period and once the district town centre is operating. The residential subdivision includes a mix of lot sizes, which provides opportunities for diversity of housing types and housing affordability. Refer to sections 7.4.2 to 7.4.4 of this report.
Development of the site has implications for existing utilities and services including sewer, water, electricity and telecommunications	Post construction	To ensure that utilities and services are sufficient to service the development.	An assessment of existing utilities and services concluded that the site can be serviced by sewer, water, electricity and telecommunications. The proposed development incorporates environmentally sustainable design (ESD) elements and strategies in conjunction with the Building Sustainability Index (BASIX), to provide positive economic benefits for the future community in terms of reducing energy, waste and water costs.