

Environmental Assessment Report



Stockland Bayswood Retirement Living

Prepared for: Stockland Development Pty Limited
Project No: 6532A
Date: May 2008



Printed: 19 May 2008
File Name: P:\PROJECTS\6532A Bayswood Vincentia\Reports\6532A.doc
Project Manager: David Kettle
Client: Stockland
Project Number: 6532A

Document history and status

Version	Issued To	Qty	Date	Reviewed
Draft	Project Manager	1	14/04/2008	David Kettle
Draft	Director	1	30/04/2008	Paul Grech
Draft	Stockland	1	2/05/2008	David Kettle
Draft	DoP Test of Adequacy	1	8/05/2008	David Kettle
Final	DoP	6-h 20-e	19/05/2008	David Kettle
Final	Stockland	1-h 1-e	19/05/2008	David Kettle
Final	Cardno	1-h	19/05/2008	David Kettle

Table of Contents

1	Introduction	1
1.1	Background	1
1.2	Purpose of this Report	1
2	The Locality and Site	2
2.1	The Locality	2
2.2	Site Description	3
3	Project Description	4
3.1	Project Details	4
3.1.1	Dwelling mix and data	5
3.1.2	Gross floor area and site cover	6
3.1.3	Construction	6
3.1.4	Operation	7
3.1.5	Staging	9
3.2	Consistency with the Concept Approval	11
4	Planning Provisions	14
4.1	Commonwealth Matters	14
4.1.1	Environmental Protection and Biodiversity Conservation Act (EPBC), 1999	14
4.2	State Legislation	14
4.2.1	State Environmental Planning Policy (Major Projects) 2005	15
4.2.2	State Environmental Planning Policy (Infrastructure) 2007	15
4.2.3	State Environmental Planning Policy No. 55 – Remediation of Land	15
4.2.4	State Environmental Planning Policy No. 71 – Coastal Protection	16
4.2.5	State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (SEPP 2004)	20
4.2.6	State Environmental Planning Policy – Building Sustainability Index (BASIX) 2004	20
4.2.7	Shoalhaven Local Environmental Plan (SLEP) 1985	21
4.2.8	Jervis Bay Regional Environmental Plan (REP) 1996	22
4.3	Local Matters	24
4.3.1	Shoalhaven Development Control Plan No. 18 – Car Parking Guidelines (DCP 18)	24
4.3.2	Shoalhaven Development Control Plan No. 78 – On-Site Sewerage Management in Unsewered Areas	26

4.3.1	DCP 93 Amendment No. 1 – Controls for Waste Minimisation and Management	26
4.3.2	Jervis Bay Settlement Strategy	27
4.3.3	South Coast Regional Strategy	27
4.3.4	Shoalhaven Housing Strategy	28
4.3.5	A Place for Ageing – Social Impacts	28
4.3.6	Draft Strategy for Shoalhaven Housing	29

5	Consultation	30
----------	---------------------	-----------

5.1	Formal Procedures for Consultation	30
5.2	Consultation with Stakeholders and Other Relevant Authorities	30
5.2.1	Shoalhaven City Council	30
5.2.2	Shoalhaven Water	31
5.2.3	Integral Energy	31
5.2.4	NSW Department of Primary Industries (DPI)	31
5.2.5	NSW Department of Environment and Climate Change (DECC)	31
5.2.6	NSW Roads and Traffic Authority (RTA)	31
5.2.7	NSW Rural Fire Service (RFS)	32
5.2.8	Commonwealth Department of Environment, Water, Heritage & the Arts (DEWHA)	32
5.2.9	Jervis Bay Marine Park Authority	32
5.2.10	Emergency Services	32

6	Environmental Assessment	33
----------	---------------------------------	-----------

6.1	Traffic and Parking Impacts (Construction and Operation)	33
6.1.1	Operational Traffic Impacts	34
6.1.2	Parking Provision	35
6.1.3	Construction Equipment	36
6.1.4	Construction Vehicle Trip Generation	37
6.1.5	Vehicle Access in Relation to Stage of Construction	37
6.2	Bushfire Assessment	38
6.2.1	Part C - Asset Protection Zones (APZs)	39
6.2.2	Part D – APZ Maintenance	40
6.2.3	Part E – Building Construction Standard (AS3959-1999)	41
6.2.4	Part F – Access	41
6.2.5	Part G – Services	41
6.2.6	Part H – Staging	41
6.3	Urban Design, Visual Impact and Sustainability	42

6.3.1	Coastal Design Guidelines for NSW 2003	42
6.3.2	Pedestrian and Cycle Network	43
6.3.3	Urban Design and Visual Impacts	44
6.3.4	Crime Prevention	50
6.4	Accessibility Strategy	51
6.4.1	Access	51
6.4.2	External linkages	52
6.4.3	Internal pathways to common facilities	52
6.4.4	Housing Design	52
6.5	Acoustic Considerations	53
6.5.1	Road Traffic Noise	53
6.5.2	Mechanical Noise	54
6.5.3	Noise from District Centre	54
6.5.4	Construction Noise	55
6.6	Site Preparation Works	55
6.7	Subdivision & Titling Details	56
6.8	Water Quality	56
6.9	Utility Services and Infrastructure	58
6.9.1	Water	58
6.9.2	Sewer	58
6.9.3	Electricity, Gas and Telecommunications	58

7	Ecologically Sustainable Development (ESD)	59
7.1	Sustainable Attributes of the Project	59
7.1.1	Passive thermal design generally in the dwellings	59
7.1.2	Passive thermal design in the east-west dwellings	60
7.1.3	Passive thermal design in the north-south dwellings	60
7.1.4	Passive thermal design of the 2 storey residential building	60
7.1.5	Passive thermal design of the Village Centre	60
7.1.6	Low energy design generally in the dwellings	61
7.1.7	Water and landscape design generally in the master plan	62
7.1.8	Materials use generally	62
7.2	Principles of ESD	62
7.2.1	Precautionary Principle	62
7.2.2	Intergenerational Equity	63
7.2.3	Conservation of Biological Diversity and Ecological Integrity	63

7.2.4	Improved Valuation, Pricing and Incentive Mechanisms	63
8	Climate Change	63
8.1	Impacts of Project on Climate Change	64
8.2	Impacts of Climate Change on The Project	65
9	Developer Contributions	65
10	Draft Statement of Commitments	67
11	Project Justification	76
12	Conclusion	78

Figures

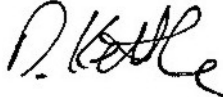
- 1 Regional Context
- 2 Location of the Retirement Living Village within the VCV & DC site
- 3 Staging and Housing Delivery
- 4 Approved Product Diversity Plan with notation relating to subject site
- 5 Environmental Zone
- 6 SEPP 71 Coastal Zone
- 7 Current zoning under Shoalhaven LEP 1985
- 8 Road Hierarchy Plan
- 9 APZs as dwellings subject to performance criteria
- 10 Colour palette
- 11 RLV viewed from Halloran Avenue
- 12 RLV viewed from Moona Creek Road/Halloran Avenue intersection
- 13 RLV including larger scale buildings along Moona Creek Road
- 14 Central avenue character
- 15 Village Centre
- 16 Typical local street within RLV

Appendices

- 1 Director-General's Environmental Assessment Requirements
- 2 Architectural plans, materials and artist's impressions
- 3 RLV Operations and Management Overview, prepared by Stockland Retirement Living
- 4 Environment Protection Biodiversity and Conservation Act approval
- 5 Services and Infrastructure Report prepared by Cardno Forbes Rigby
- 6 BASIX certificates
- 7 Water Management Study prepared by Cardno Forbes Rigby
- 8 Landscape Masterplan prepared by Lange Design
- 9 Traffic Report prepared by Masson Wilson Twiney
- 10 Correspondence from DFP to Government agencies
- 11 Letter from Shoalhaven City Council dated 28 April 2008
- 12 Letter from Roads and Traffic Authority dated 10 April 2008
- 13 Letter from Rural Fire Service dated 21 April 2008
- 14 Bushfire Protection Assessment prepared by Bushfire Environmental Services
- 15 Accessibility Report prepared by Morris Goding Accessibility Consulting
- 16 Noise Impact Assessment prepared by Heggies Pty Ltd
- 17 Sustainability statement prepared by Environa Studio, Architects
- 18 Climate Change Report prepared by Cardno Forbes Rigby
- 19 Title Details – LegalStream Australia Pty Ltd

CERTIFICATION

SUBMISSION OF ENVIRONMENTAL ASSESSMENT Prepared under Part 3A of the Environmental Planning and Assessment Act 1979

PREPARED BY Name: Address:	DFP Town Planners (Don Fox Planning Pty Ltd) 11 Dartford Road, Thornleigh, NSW, 2120
PROJECT PLAN APPLICATION Applicant Name: Applicant Address: Land to be developed: Proposed development:	MP 08_0096 Stockland Development Pty Limited Level 25, 133 Castlereagh Street, Sydney, 2000 Lot 802 DP 1022286 Residential development comprising the subdivision of the land to create one allotment of land upon which will be sited a retirement living village comprising 166 dwellings (including 148 predominantly detached dwellings and 18 dwellings in a 2 storey residential building with basement car parking); - a Village Centre containing administration, resident only facilities such as dining and lounge rooms, entertainment auditorium, meeting rooms, community kitchen, library, medical consulting rooms, swimming pool, lawn bowls, mail/post room, café, a men's shed, an on-site manager's residence and on-site nurses residence. - Internal roads, access points and car parking.
ENVIRONMENTAL ASSESSMENT	An Environmental Assessment Report is attached which addresses all matters listed under Part 3A of the Environmental Planning and Assessment Act 1979.
CERTIFICATE Signatures: Name: Qualifications: Name: Qualifications: Name: Qualifications: Date:	We certify that we have prepared the contents of this Environmental Assessment Report and to the best of our knowledge: - it contains all available information that is relevant to the environmental assessment of the development to which the Environmental Assessment Report relates; and - it is true in all material particulars and does not, by its presentation or omission of information, materially mislead. Paul Grech BTP (Hons1) MPIA, CPP  David Kettle BSc MTCP MPIA, CPP  Katherine Price BSc MURP (Honours) MPIA, CPP  15 May 2008

GLOSSARY

APZ	Asset Protection Zone
AS	Australian Standard
BES	Bushfire Environmental Consultants
DCP	Development Control Plan
DECC	NSW Department of Environment and Climate Change
DEWHA	Commonwealth Department of Environment, Water, Heritage and the Arts
DGRs	Director General's Requirements
DoP	NSW Department of Planning
DFP	Don Fox Planning Pty Limited
DPI	NSW Department of Primary Industries
EAR	Environmental Assessment Report
EPA	NSW Environmental Protection Authority
EPBC Act	Environment Protection Biodiversity and Conservation Act, 1999
EP&A Act	Environmental Planning and Assessment Act, 1979
ESD	Ecologically Sustainable Development
GHG	Greenhouse Gas
GPT	Gross Pollutant Trap
ILU	Independent Living Unit
MGAC	Morris Goding Accessibility Consulting
MUSIC	Model for Urban Stormwater Improvement Conceptualisation
LEP	Local Environmental Plan
LGA	Local Government Area
PAD	Potential Archaeological Deposit
PBP 2006	Planning for Bushfire Protection, 2006 prepared by NSW Rural Fire Service
REMS	Reclaimed Water Management Scheme
REP	Regional Environmental Plan
RFS	NSW Rural Fire Service
RTA	NSW Roads and Traffic Authority
RLV	Retirement Living Village
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
VCV & DC	Vincentia Coastal Village and District Centre
WSUD	Water Sensitive Urban Design
WwTP	Waste Water Treatment Plant

EXECUTIVE SUMMARY

Background and Purpose

This Environmental Assessment Report (EAR) has been prepared by Don Fox Planning Pty Limited (DFP), on behalf of Stockland pursuant to Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act).

On 25 January 2007, the Minister granted Stockland approval under Part 3A of the EP&A Act to develop land located on the northern corner of the intersection of Jervis Bay Road (Naval College Road) and The Wool Road, Vincentia. The approval comprises:

- concept approval for a 604 lot residential subdivision, a residential development for an adaptable housing area, commercial development being a district town centre and display village; and
- project approval for a 604 lot residential subdivision and a display village.

The approved development is referred to in this EAR as the Vincentia Coastal Village and District Centre (VCV & DC).

This EAR has been prepared to accompany an application for Project approval under Part 3A of the EP&A Act to develop the adaptable housing area referred to by Stockland as the Bayswood Retirement Living Village (RLV). Approval is sought as a Major Project under Part 3A of the EPA & Act and not under the provisions of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

Methodology

The previous Part 3A concept and project applications 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.

This project application builds on these previous investigations and addresses additional issues pertaining to the proposal including; accessibility, traffic, utility services and infrastructure provision, architecture and urban design, visual impacts, landscape architecture, acoustics, water quality and waste management and sustainability.

The Site and Locality

The site upon which the Retirement Living Village is proposed to be constructed is located within the VCV & DC site which itself is located approximately two kilometres south west of the existing Vincentia township. The VCV & DC site is bounded by the Jervis Bay National Park to the west, to the north and to the north-east, the Wool Road to the east and Naval College Road to the south.

Consistency with Concept Plan Approval

The approved Concept Plan and Project application included an adaptable housing area in Village East adjacent to the Bay and Basin Leisure Centre. The declaration of the Environmental Zone now includes former Village East and accordingly it is proposed that the adaptable housing approved in Village East be transferred to Village Central. The transfer of the adaptable housing component is contained within the approved urban footprint. The subject Project application is considered to be generally consistent with the approved Concept Plan and Project applications as it maintains the approved residential use, will result in a similar urban outcome and only requires minor amendments to the subdivision layout lot yield and road hierarchy.

Environmental Assessment

The EAR assesses the environmental impacts of the key issues identified in the Director-General's Requirements, identifies the proposed mitigation measures and makes an assessment of any potential residual impacts after the implementation of the proposed mitigation measures.

The previous concept plan application under Part 3A of the EP&A Act addressed in detail a range of environmental issues including flora and fauna, hydrogeology, social planning, environmental acoustics, geotechnical assessment and heritage. The subject application for Project approval is submitted in the context of the DoP's Concept approval issued under Part 3A of the EP&A Act.

This EAR focuses on the environmental issues that require further investigation for the design of the Retirement Living Village proposal, including:

- traffic implications (construction and operational),
- bushfire impacts,
- urban design, visual impact and sustainability,
- acoustic impacts of traffic related noise and noise from the District Centre on occupants of the Retirement Living Village,
- Site preparation works,
- Subdivision and titling details,
- Ecologically Sustainable Development, and
- Climate Change.

Traffic Impacts

The approved residential subdivision has a higher traffic generation rate than the proposed retirement living form of housing. Traffic generation will therefore be less than the approved residential subdivision. The road improvements approved as part of the Concept Plan and Project application for the VCV & DC include substantial improvements to Naval College Road off which the RLV will be accessed. Those improvements form part of the Statements of Commitment under the Project Application approval for the residential subdivision and will establish a road network suitable for the RLV.

Parking provision with RLV has been found to be adequate and more than complies with the provisions of State Environmental Planning Policy (Housing for Seniors or People with a Disability), 2004 and Council's Development Controls Plans.

Bushfire Impacts

The Bushfire Assessment has found that 145 of the independent living units and all of the Village Centre buildings comply with the acceptable solutions within PBP, 2006. Three of the ILUs (No.s 75-77) and the 2 storey residential building meet the performance criteria requirements of PBP, 2006. Mitigation measures are proposed to ensure defensible spaces to the east of these buildings are maintained and managed. Further all buildings within 100m of bushfire prone land will be constructed to Level 1 standard under AS3959 - *Construction of Buildings in Bushfire Prone Areas*.

Disabled Access

The Project has considered the relevant design criteria of SEPP (Housing for Seniors or People with a Disability), 2004 given the nature of the development for retirement living. The gentle grade of the site and limited cut and fill assist in achieving grades to achieve access within and external to the site to meet the relevant design criteria. This ensures that access can be achieved throughout the site to the external streets including a bus stop and the District Centre which will ultimately provide retail facilities and makes provisions for medical suites. Stockland also propose to operate a residents only mini-bus service that will provide access to services and facilities within Vincentia, Nowra and potentially Wollongong or Sydney. This service will operate upon commencement in the event that a bus service or the full range of anticipated services are not available in the District Centre when the first residents move in.

136 of the dwellings in the Bayswood Retirement Living Village are designed as adaptable dwellings. In addition, the dwellings and the Village Centre buildings are all designed to achieve compliance

with AS1428.1, with minor modifications recommended as reflected in the Statements of Commitment.

Urban Design, Visual Impact

The buildings will utilise light weight construction materials which will reflect the housing materials proposed for the surrounding residential subdivision. Dwellings and buildings are sited to address the two street frontages of Moona Creek Road and Halloran Street. The larger scale 2 storey residential building and Village Centre buildings front Moona Creek Road complementing the larger form buildings of the District Centre. Houses fronting Halloran Street are single storey and generally adopt the 5m setback control applied to the residential subdivision opposite. The siting, scale and materials all operate to complement the future housing in the residential subdivision. This approach to the design of the RLV ensures that the development does not dominate or create unacceptable visual impacts in the context of the approved subdivision or future District Centre.

Sustainability

A strong ESD approach has been adopted for the design of the RLV including overall layout and individual dwellings and buildings taking into consideration the attributes of the coastal location and the local climate.

The layout of the village is based around having the maximum number of lots facing either east-west for north exposure of side walls, or north south orientation for north exposure of living areas facing the street or rear private open space. Road patterns that give rise to blocks facing unpleasant orientations of north-west and south-west have been avoided.

Houses are designed to maximise areas of glazing facing north or north-east and are capable of being opened up to the north-east to capture the summer afternoon on shore breeze. Openable windows are used in all dwellings to promote the flow of air through the dwelling. All dwellings achieve or exceed the targets for thermal comfort, energy and water use of BASIX.

The Village Centre is oriented to all four aspects to gain maximum natural light, with deep overhangs and balconies to reduce unwanted sun penetration, whilst permitting the low angle early morning sun to ensure that the thermal mass of buildings is warmed early and retain its heat during the day.

The highlight windows of the Village Centre enable the buildings to capture as much of the cooling northeast breezes and to exhaust the heat build up in the buildings. The buildings are also fitted with mechanical exhausts to provide "night flushing". This uses the cooler night air in summer to "flush" heat from the buildings. Air conditioning is proposed to only be fitted to the wellness centre/management building and the café building.

Acoustic Impacts

Heggies Pty Ltd has carried out an acoustic assessment, including road traffic noise, mechanical noise from plant within the RLV, noise from the District Centre and construction noise. Internal road traffic noise is acceptable due to low traffic volumes and speeds. An acoustic fence 1.8m in height is proposed along part of Moona Creek Road to shield dwellings from Moona Creek Road and traffic entering/exiting the District Centre. This fence is designed to be a combination of materials in an alternating arrangement to provide visual interest and reduce visual impact. Maximum sound power outputs are set for any future mechanical plant within the RLV.

Site Preparation Works

The site has gentle slopes of between 0% and 5%. Indicative sections through the site have been prepared by Cardno Forbes Rigby establishing that cut and fill of up +/-0.5m at the worst affected parts of the site. A balanced cut and fill method will be adopted for the RLV site, and it is therefore not anticipated that there will be a need to import or export any fill. The gentle grades will ensure that the RLV can achieve the accessibility requirements for the RLV and comply with Shoalhaven DCP 100 – Subdivision.

Subdivision and titling Details

Stockland proposes to maintain ownership of the RLV in one title. The tenancy of the dwellings will be by way of a loan/lease arrangement whereby Stockland grants a lease to occupy the dwelling. All common facilities, open space and roads will be owned by Stockland and maintained by the Resident Village Association (comprising resident and Stockland representatives). The residents will retain 70% of voting rights and Stockland the remaining 30%. The Residents Village Association will set the rules for the RLV, appoints a manager and nurse, and manages finances for the day to day operation of the RLV with Stockland providing assistance where necessary, in effect operating in a similar manner to an Owners' Corporation of a strata plan.

Climate Change

A climate change report has been prepared by Cardno Forbes Rigby which considers both the impacts of the Project upon climate change, and the impacts of climate change on the Project.

In terms of impacts of the Project on climate change, a range of mitigation measures are integrated into the development. Energy consumption is targeted to be reduced through BASIX initiatives which will reduce Greenhouse Gas (GHG) emissions. Water conservation is similarly targeted to achieve a reduction in water consumption through BASIX initiatives such as water efficient appliances and fittings, use of rainwater tanks, WSUD measures and water-wise landscaping. Reduced water consumption indirectly reduces GHG emissions by eliminating potential for grey or black water treatment plans and associated pumping equipment. Waste management targets during construction, choice of building materials and recycling of waste once operational reduces the demands for putrefaction on site thereby reducing GHG emissions. Transport usage will be significantly lower than traditional residential subdivisions as documented in Masson Wilson Twiney's Traffic Report, due to differing travel patterns and also facilitated by the proximity and convenience of the District Centre which is located directly opposite the RLV. Reduced vehicle use will minimise GHG emissions.

In terms of impacts of climate change on the RLV site, Cardno Forbes Rigby has considered a range of predicted climate change impacts including an increase in annual average temperatures, projected sea level rises, more variations in rainfall patterns (including increased frequency and severity of droughts and increased occurrences of flooding and storms) and increased risk of fires. The effects of these potential climate change impacts have not been found to adversely impact upon the Project.

Consultation

Considerable consultation took place in relation to the overall Vincentia Coastal Village & District Centre proposal prior to the original Concept Plan and Project Applications being approved by the Minister. All agencies listed in the Director General Requirements have been consulted and some additional agencies have also been consulted to ensure consistency with previous consultation undertaken by Stockland. The agencies consulted include (Shoalhaven City Council, Shoalhaven Water, Integral Energy, NSW Department of Primary Industries, NSW Department of Environment and Climate Change, NSW Roads & Traffic Authority, NSW Rural Fire Service, Commonwealth Department of Environment and Heritage and Jervis Bay Marine Park Authority and Emergency Services). All were invited to comment specifically on the Retirement Living proposal and comments received from agencies have been considered and addressed in this EAR.

It is expected that further consultation will take place as part of the formal exhibition of the Project Application under Part 3A of the Act.

Director General Requirements

This EAR has addressed the Director General's requirements issued on 6 December 2007 and revised on the 14 May 2008. Table 1 below provides a cross reference to the Sections of this EAR where each of the Director General's requirements has been addressed.

Table 1 – Director General's Requirements

	REQUIREMENT	SECTION OF EAR
General Requirements	Executive Summary	Executive Summary provided at beginning of EAR
	Description of the proposal including construction, operation and staging	Section 3
	Compliance with approved Concept Plan	Section 3.2
	Consideration of all relevant SEPPs, relevant legislation and policies and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999	Section 4
	Draft Statement of Commitments	Section 9
	Capital investment value as calculated by quantity surveyor	Provided under separate cover
	Certification	Page vi
	Consistency with the Concept Plan	Section 3.2
Key Assessment Requirements	Statutory and other requirements	Section 4
	Traffic Impacts (construction and operation)	Section 6.1
	Bushfire Impact	Section 6.2
	Urban Design, visual impact and sustainability	Section 6.3 Section 7
	Acoustic Impact	Section 6.5
	Site preparation works	Section 6.6
	Subdivision and titling details	Section 6.7
	Ecologically Sustainable Development	Section 7
	Climate Change	Section 8
Consultation Requirements	• Shoalhaven City Council • Shoalhaven Water • Integral Energy • NSW Department of Primary Industries • NSW Department of Environment and Climate Change • NSW Roads and Traffic Authority • NSW Rural Fire Service • Commonwealth Department of Environment and Heritage • Jervis Bay Marine Park Authority	Section 5

1 Introduction

1.1 Background

Stockland Developments Pty Ltd (Stockland) has received approval under Part 3A of the Environmental Planning & Assessment Act 1979 (EP&A Act) for:

- concept approval for a district town centre, adaptable housing areas and a display village; and
- project approval for a 604 residential lot subdivision of including a display village on land located on the northern corner at the intersection of Jervis Bay Road (Naval College Road) and The Wool Road, Vincentia.

This development is referred to in this EAR as the Vincentia Coastal Village and District Centre (VCV & DC).

This Environmental Assessment Report (EAR) has been prepared by DFP on behalf of Stockland under Part 3A of the EP&A Act in support of the application for project approval for the Bayswood Retirement Living Village (RLV).

The consultant team involved in the preparation of supporting documentation to this EAR includes:

- | | |
|--|-----------------------------------|
| • DFP Town Planners | - Town Planners |
| • Environa Studio | - Architects |
| • Cardno Forbes Rigby Pty Ltd | - Civil WSUD & Infrastructure |
| • Masson Wilson Twiney | - Traffic & Transport Consultants |
| • Morris-Goding Accessibility Consulting | - Accessibility |
| • Environa Studio | - Sustainability |
| • Lange Design | - Landscape Architects |
| • Richard Heggie & Associates | - Acoustic |
| • Page Kirkland | - Quantity Surveyor |
| • Bushfire & Environmental Services | - Bushfire Consultant |

The previous Concept Plan application under Part 3A of the EP&A Act addressed in detail a range of environmental issues including flora and fauna, hydrogeology, social planning, economic impact, environmental acoustics, geotechnical assessment and heritage. The subject application for project approval is submitted in the context of the Minister's Concept Plan approval under Part 3A of the EP&A Act.

A Project application has recently been submitted by Stockland for the District shopping centre. The District centre proposal has been taken into account when designing the RLV and preparing this EAR.

1.2 Purpose of this Report

This EAR accompanies the application for project approval under Part 3A of the EP&A Act for the RLV. Section 2 provides a full description of the subject site and the context within the overall Vincentia site. Further, in accordance with section 75M of the EP&A Act, the EAR:

- outlines the scope of the project and development options;

- sets out the proposed staging of the project; and
- addresses the matters contained in the Director-General's Environmental Assessment Requirements issued on 6 December 2007 and revised on 10 April 2008 and further amended on 14 May 2008 (attached at **Appendix 1**).

2 The Locality and Site

2.1 The Locality

The locality as described in the ERM *Environmental Assessment Report* that accompanied the original concept plan/project plan application (ERM EAR Feb 2006) follows:

"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."* (ERM, EAR, Feb 2006).

Figure 1 illustrates the site in the regional context. **Figure 2** illustrates the site in its local context as superimposed on an aerial photograph indicating the natural and built environment.



Figure 1 – Regional Context

2.2 Site Description

The overall site description for the VCV & DC provided by ERM in their Environmental Assessment Report generally remains valid for this proposal and is reproduced below.

"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 inter section of Jervis 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 Jervis 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." (ERM, EAR, Feb 2006).

The proposed Village is specifically located on Lot 802 DP 1022286 and occupies an area of 8.73ha. **Appendix 19** contains a copy of the title diagram and title search for Lot 802 DP 1022286. The RLV is located to the west of Moona Creek Road and as indicated on the title diagram, is not affected by any easements, covenants or similar. The RLV is contained within the footprint of the approved VCV& DC site within that part of the development referred to as Village Central opposite the proposed District Centre. Moona Creek Road adjoins the eastern extent of The RLV and the approved residential subdivision adjoins the northern, southern and western edges of The RLV.

Figure 2 highlights The RLV within the overall VCV & DC site.



Figure 2 – Location of RLV within the overall Vincentia Coastal Village and District Centre Site

3 Project Description

Details of the proposed Village and the modifications necessary to the Concept Plan approval are detailed below.

3.1 Project Details

The Project will involve the creation of one super lot with an area of approximately 8.73ha upon which The RLV will be sited. The RLV will comprise a total of 166 dwellings.

Plans of the Project are contained at **Appendix 2**. The RLV will comprise:

- 140 single storey self contained dwellings;
- 8 two storey self contained dwellings;
- 18 dwellings within a two storey residential building comprising:-

- o 14 x 2 bedroom dwellings
- o 4 x 2 bedroom + study dwellings
- the dwellings will be located on their own sites of approximately 288m² and 297m² in area;
- the single storey and two storey dwellings (aside from type B1) will be designed to be adaptable (ie. 132 dwellings);
- the 4 x 2 bedroom + study dwellings in the 2 storey residential building are designed to be adaptable (ie. 4 dwellings);
- landscaping will be carried out throughout the RLV;
- a group of buildings forming a residential Village Centre within the RLV is proposed to incorporate “resident only” facilities such as reception and administration, dining and lounge rooms, village hall, meeting rooms, community kitchen, library, computer facilities, medical consulting rooms, swimming pool, barbecue facilities and mail room/post room;
- a ‘men’s shed’ being a facility for residents to pursue their hobbies and socialise with other residents within in a workshop environment;
- private internal roads with carriageways varying from 3.5m to 8.0m in width depending on the internal road hierarchy;
- utility services (water, sewer, electricity etc) for each dwelling; and
- a manager’s residence and nurse’s residence.

The RLV will be sited on one allotment of land and Stockland will retain the title to the dwelling with the resident entering into a lease/loan arrangement.

3.1.1 Dwelling mix and data

Five house types are proposed for the RLV. The numerical data for each dwelling type is documented on the architectural plans attached at **Appendix 2** and is summarised in Table 2 below.

A mix of dwellings is proposed in the form of detached, attached and multi-unit housing. Given the demographics of the future residents, the dwellings will be predominantly single storey houses in a 2 bedroom plus study configuration. Eight two storey dwellings are proposed which will contain 4 bedrooms plus study. A 2 storey residential building is proposed to contain smaller dwellings in 2 bedroom and 2 bedroom plus study configurations to cater for residents who prefer or require a smaller more manageable dwelling.

Table 2: Dwelling data

House Type	Number Proposed	Storeys	Bedrooms	Approx. Dwelling Floor Area (excl garage)	Terrace or Balcony Area
Detached and Attached Dwellings					
B	28	1	2 + study	124m ²	29.8m ²
B1 (f)	16	1	2 + study	122m ²	26.9m ²
C	37	1	2 + study	131m ²	25.9m ²
D	29	1	2 + study	127m ²	25.6m ²
Da	6	1	2 + study	127m ²	33.9m ²

House Type	Number Proposed	Storeys	Bedrooms	Approx. Dwelling Floor Area (excl garage)	Terrace or Balcony Area
DS (h)	8	2	4 + study	186m ²	31m ²
M	24	1	4 + study	150m ²	26.4m ²
Two Storey Residential Building					
-	14	1	2	90m ²	14.9m ²
-	4	1	2 + study	115m ²	14.7m ²

3.1.2 Gross floor area and site cover

The gross floor area of the various components of the RLV is set out in Table 3 below. The figures are summarised from the master plan area calculations prepared by Environa Studio.

Table 3: Gross floor area and density

Component	GFA m ² (excluding garages)
148 Houses	19838.6
2 storey residential building	1721.0
Village Centre (including men's shed)	1629.0
Total Area	23188.6
Site Area	87,317
Floor space ratio	0.27:1

Overall the RLV equates to a low FSR and relatively low density of approximately 19 dwellings per hectare which is a marginally higher density than traditional residential subdivision and is reflected in the open space areas provided throughout the RLV. The higher density is offset by smaller buildings in comparison with standard residential housing, and this is reflected in a FSR of 0.27:1 (including all buildings) which is considered to be a low density outcome.

The low density is also reflected in the overall site cover which Environa Studio has calculated as 59% (including building footprints, roads and hard surfaces). This allows a permeable area of 41% over the RLV site.

3.1.3 Construction

The RLV comprises three different building forms; detached/attached houses; a 2 storey residential building and the Village Centre each having their own character but similarly themed construction materials.

Houses

The houses are proposed to be constructed of light weight materials including a combination of

- lightweight sheeting for the walls,
- metal sheet roofing,
- recycled wood composite decking and battens in selected locations for gable ends

- timber battens are used to provide privacy to the decks of each dwelling where visible from a public pathway or road.

Two Storey Residential Building

Similar materials have been selected such as roof sheeting, lightweight sheeting and glass balustrades. Light weight construction materials are also used as wall cladding for this building, but masonry elements will also be considered at the detailed design stage if required and considered appropriate. The building has a different form and massing to the remainder of the dwellings within the RLV and the selection of similar construction materials will assist the building to tie in with the remainder of the RLV buildings.

Village Centre

The Village Centre is contained within four broad low scale buildings. Three of the buildings are single storey with clerestory style roof forms achieving the appearance of pavilions. One building contains a two storey element housing the Village manager's and nurse's residence and a communal staff room.

The Village Centre will read as four separate buildings although they are all connected by wide covered walkways and verandas to provide sheltered and accessible paths of travel between each element and maintain a resort-style feel.

The buildings will be constructed of similar materials including lightweight sheeting, timber and metal sheet roofing. A greater use of glass is used to maximise light penetration and views within the RLV and across the heathland to the east.

3.1.4 Operation

A full time on-site manager will manage the day to day operation of the RLV. A full time resident nurse will also be available to residents. Stockland has prepared an Operations and Management Overview which is attached at **Appendix 3**. This report details the legal ownership and management structure of the RLV which is summarised below.

Legal ownership and titling

The RLV including all dwellings, communal areas and buildings will form a private development, owned and managed by Stockland, occupying one title and the dwellings will not be individually subdivided.

Stockland will upon the enactment of the Retirement Villages Amendment Bill 2006 in its form as at April 2008, take all necessary steps to register the lot as a retirement village pursuant to the proposed section 24A of the Retirement Villages Amendment Bill 2006.

Following completion of the development, Stockland Retirement Living as the first operator of the retirement village, will enter into village contracts with residents as those terms are defined under the Retirement Villages Act 1999.

The contractual arrangements for the tenancy of residents at Bayswood Retirement Village will be by way of a 'loan/lease' arrangement whereby Stockland grants a lease to occupy a dwelling to the resident. All areas within the village including communal open space and roads are private property and shall be constructed by Stockland and maintained by the Village Service Association for the exclusive use of the village residents.

Village Service Association

All Stockland Villages are managed by a not-for-profit Service Association incorporated under the *Associations Incorporation Act 1984* (NSW.)

There are two classes of members of the Service Association, the Permanent Members (who are from Stockland) and the Resident Members (who are residents entitled for the time being to possession of a Unit at the Village and admitted to membership).

The Service Association is managed by a Committee of Management that may comprise up to seven (7) Resident Members (who are elected by the Resident Members of the Service Association at each annual general meeting), and three (3) Stockland Members (who are appointed by the Permanent Members and represent Stockland).

The Committee of Management has a wide range of functions such as:

- Calling and conducting meetings of residents to consider and vote on matters requiring consent;
- Reporting to the operator decisions made by residents on matters requiring residents' consent;
- Receiving financial accounts;
- Forming sub-committees;
- Proposing amendments to the village rules or the level of village services and facilities;
- Acting as another contact point for prospective residents; and
- Employment of staff such as a Manager and a Nurse.

The functions of the Service Association are prescribed under the Service Agreement and the Rules of the Service Association and effectively the Committee of Management manage the Village. In Stockland's experience this method of management has proven to be extremely successful because it gives residents more say over matters that affect their day to day lives, makes them feel in control, allows for operational support from the head office (compiling budgets, maintenance schedules etc) and allows the weekly levies paid by residents to manage the village to be kept low as there are limited overheads passed down to the residents by Stockland as the operator.

The role of Stockland

At the commencement of a new village, Stockland undertakes the lease of dwellings and the administration of the Service Association during the 'settling in' period. Until the Village construction is completed, a Manager is employed and Resident Members elected to the Committee of Management, Stockland carries out the management role. When a Village is completed and all dwellings leased, Stockland (with the help of the Manager) has the responsibility to ensure that dwellings are refurbished or upgraded, and re-leased upon being vacated and the outgoing residents (or their beneficiaries) receive their financial entitlements. For the purpose of refurbishments, upgrades and re-leasing of dwellings the Manager is under Stockland's direction and control.

In addition, Stockland maintains an overview of Village Management through the Stockland Members of the Committee of Management. The role of the Stockland Members is to assist Resident Committee Members in the making of policy decisions that benefit the village community as a whole.

The role of Stockland can be generally summarised as follows:-

- To refurbish, upgrade and lease dwellings with the assistance of the Manager, who for these purposes is under Stockland's direction and control
- To provide administrative support
- To have representation at Committee and General Meetings of the Service Association
- To disseminate appropriate relevant information
- To give advice on industrial relations issues
- To give advice to residents and families

- To assist with creation of financial budgets.

3.1.5 Staging

There will be two distinct phases in the construction of the RLV, being site preparation and infrastructure provision, and construction of the houses. **Figure 3** below illustrates the proposed delivery of the houses within the RLV, but also relates to the site preparation works.

Site preparation and infrastructure provision

The clearing of land, earthworks and provision of infrastructure including all services and roads will be constructed in two stages. Stages 1 to 4 will be constructed first, followed by Stages 5 to 8 as indicated in **Figure 3**. As part of Stage 1 to 4, the clearing of land into part of Stages 5 to 8 will also be undertaken in accordance with the recommendations of the Bushfire Protection Assessment prepared by Bushfire Environmental Services and discussed in Section 6.2 of this EAR. This is to ensure that a fire trail is provided between the remaining bushfire hazard and dwellings.

Stage 1 of the site preparation (i.e. Stages 1 to 4 in **Figure 3**) will take place approximately 4 to 6 months prior to the commencement of work on construction of the houses. Site preparation and infrastructure provision is anticipated to commence around January 2009.

Housing staging

Construction of the dwellings in Stage 1 is anticipated to take approximately 9 months from completion of site works and infrastructure. Stockland anticipates that each subsequent stage will be rolled out over a 9 month period, subject to demand. The project would therefore have a life of approximately 5 to 6 years from early 2009 and a completion in approximately 2013 to 2014. This would see the RLV being completed at approximately the same time as Stage 2 of the District Centre. **Figure 3** illustrates that the proposed housing will be delivered in eight stages, as summarised below. However if demand for accommodation within the RLV is greater than that released in each stage, Stockland elect to combine stages to deliver more homes per stage.

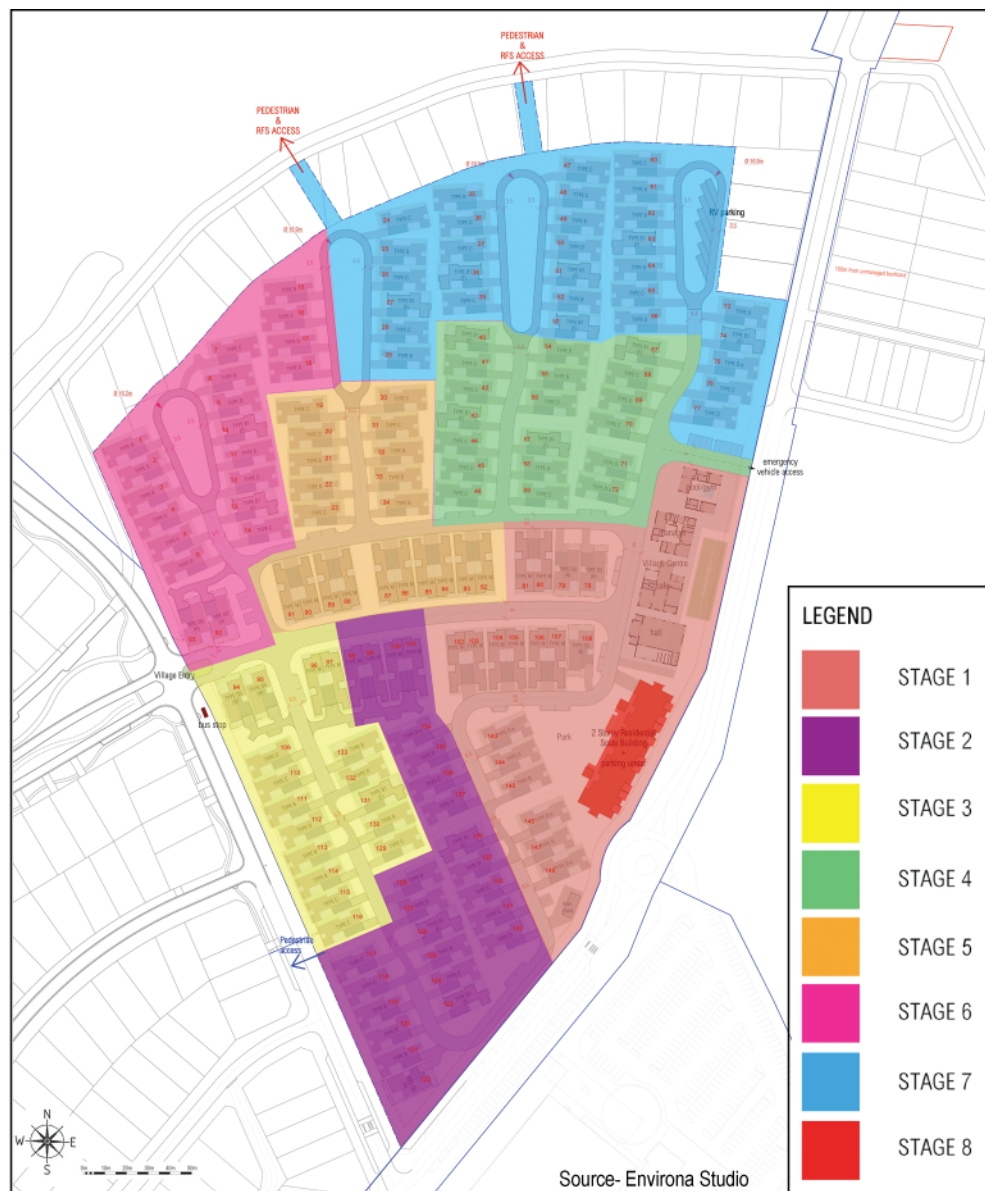


Figure 3 – Staging plan illustrating delivery of dwellings

Table 4: Staging of dwellings

Stage	Proposed No. of Dwellings	Description
1	17	Stage 1 will commence with a small number of detached dwellings. Construction of the Village Centre will commence in Stage 1 but will be confined to the Administration building and manager's and nurses residence given the small number of dwellings and low demand at this early stage. The completion of the Village Centre administration building is not expected until Stage 2. During the intervening period the manager and nurse will occupy a dwelling in the RLV as a residence and administration office. The emergency access and visitor car parking area will also be

Stage	Proposed No. of Dwellings	Description
		constructed as part of Stage 1. The main entrance to the RLV will be constructed in Stage 1 to ensure that the presentation to Halloran Street complements the adjoining residential subdivision which is likely to be in place, and provide a pleasant entry into the RLV and secure access. Clearing beyond Stages 1 to 4 will be undertaken to provide the temporary fire trail for bushfire protection purposes as discussed in Section 6.2.6 of this EAR.
2	27	The acoustic fence will be deferred to Stage 2 as only one dwelling in Stage 1 will potentially benefit from the fence. Stage 2 will see a significant section of the Moona Creek Road interface established as well as part of the Halloran Street streetscape. The secondary pedestrian only access to Halloran Street will be provided in Stage 2.
3	15	Stage 3 will complete a significant proportion of Halloran Street completed and one side of the Central Avenue within RLV constructed.
4	19	Provision of housing will progressively be delivered in small amounts to respond to market demand.
5	20	
6	20	
7	30	Stage 7 will see the formalisation of the pedestrian and fire access pathways at the northern end of the site. The recreational vehicle (RV) parking area is delivered in Stage 7 as Stockland do not anticipate a great demand generated from the preceding stages.
8	18	Construction of the two storey residential building is timed for the end of the staging program. The intention is that this building will be constructed several years after the first residents have been established. This will enable any of the initial residents to relocate within the RLV if they desire or have a need for a lower maintenance form of accommodation.

3.2 Consistency with the Concept Approval

The approved product diversity plan included in the Preferred Project report identified an area of land within the approved subdivision that *“may be the subject of a further project plan approval for adaptable housing for retirement living.”* **Figure 4** is a copy of the approved product diversity plan which includes the notation.



Figure 4 – Approved Product Diversity Plan with notation relating to subject site.

Subsequent to obtaining approval, Stockland consulted with the Australian Government Department of the Environment and Water Resources to establish the Environmental Zone for the site. A copy of Environmental Zone agreed upon is illustrated in **Figure 5**.

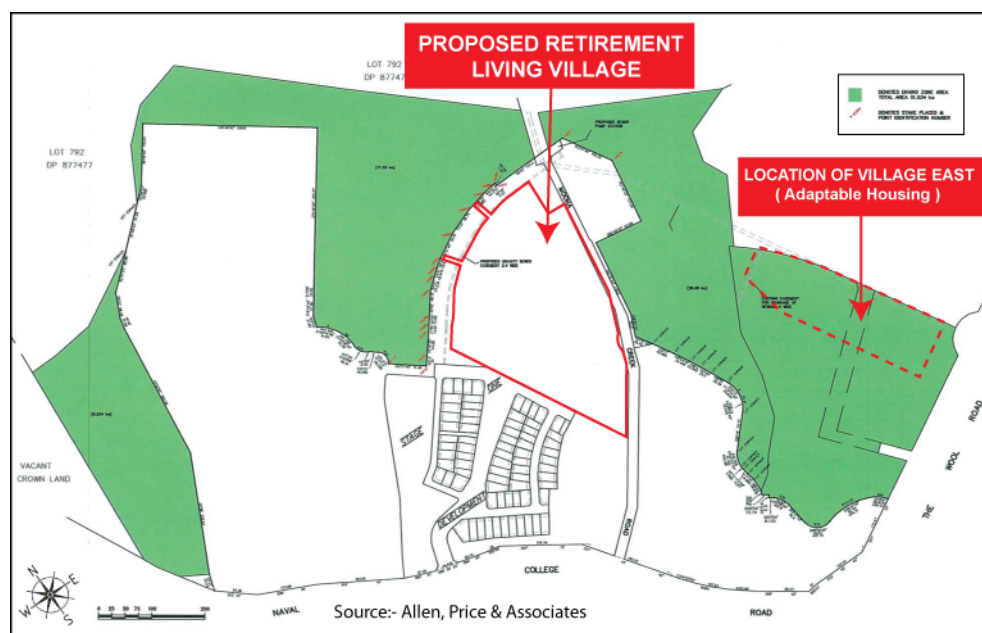


Figure 5 – Environmental Zone

Figure 5 highlights that Village East (the approved adaptable housing area) adjacent to the Bay and Basin Leisure Centre is located within the Environmental Zone. Accordingly it is proposed that the adaptable housing approved in Village East be transferred to Village Central. The RLV as now proposed is also indicated in **Figure 5**.

Dwelling/Lot Yield

Table 5 below sets out the variations between the dwelling/lot yield between the Concept Plan/Project approval and the subject Project application.

Table 5: Comparison of approved and proposed dwelling yields

Precinct	Concept/Project Approval	Proposed
Village East	136 adaptable dwellings	0
Village Central & Village West	604	479
Retirement Housing	0	166 dwellings
TOTAL	740	645

The Concept Plan approved up to 604 residential lots and up to 136 adaptable dwellings adjacent to the Bay and Basin Leisure Centre. In total 740 dwellings were approved within VCV&DC.

The number of approved residential lots within that part of Village Central proposed to be occupied by the Bayswood Retirement Living Village is 125. The RLV proposes 166 dwellings therefore there is an increase in this part of the VCV and DC of 41 dwellings.

However, over the entire VCV & DC, the total number of lots/dwellings will be 645, being considerably less (95 dwellings) than the total of 740 dwellings that were originally granted Concept Plan and Project approval maintaining compliance with the overall approved dwelling yield.

Street Hierarchy & Layout

The RLV fits within the approved street structure retaining the higher order street hierarchy and replacing only local roads.

The 30m wide ridge road leading north from Naval College Road will maintain its function as the main feeder road serving as the main vehicular entry point into the RLV. The ridge road will continue through the RLV although its character will change to a narrower carriageway given the lower speed traffic environment. Avenue planting will continue the landscape theme of the ridge road outside the RLV. The ridge road will not connect through to the local street on the eastern edge of the site. The overall objective of the ridge road as a spine and visual link will be retained. The principle of this road as a connector road is retained by taking on the role as the connector within the RLV and then directing traffic back to the east-west 20m connector road.

The following roads forming the perimeter of the RLV remain unaltered:

- the 20m Connector Road along the southern edge of the RLV;
- the 20m connector road and 16m local street along the eastern edge separating the RLV from the District Centre; and
- the 12m park edge road along the northern edge of the RLV.

The series of local streets forming the subdivision pattern are to be amended. However, the internal roads to the RLV will retain pedestrian linkage to the perimeter roads to achieve pedestrian permeability similar to that of the approved subdivision layout.

Overall the street hierarchy is largely unaffected, with only the local streets being amended to any extent, with other roads remaining in place or performing the same function in the approved road hierarchy. Importantly, the connector roads are retained in their approved

location. Further, the potential bus route is still feasible with the connector roads remaining in their approved location. The nominated bus route is also well placed to service the RLV.

Conclusion regarding consistency

The Project application is considered to be generally consistent with the approved Concept Plan and Project applications as it maintains the approved residential use, will result in a similar urban outcome and only requires minor amendments to the subdivision layout lot yield and road hierarchy. For these reasons, an amendment under Section 75W of the EPA Act is not considered warranted.

The amendments proposed will reduce the level of environmental assessment and consultation required as the adaptable housing has been removed from within the Environmental Zone. Accordingly, the primary remaining issues requiring environmental assessment relate to bushfire planning, accessibility, traffic and parking, acoustic considerations, urban design, visual impact and sustainability considerations.

4 Planning Provisions

The legislation and planning instruments relevant to the site are itemised below. Many of these Acts and planning instruments were previously addressed in the EAR prepared by ERM and submitted in conjunction with the approved Concept Plan and Project applications.

4.1 Commonwealth Matters

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

The approved Concept Plan and Project applications were supported by a Species Impact Statement (SIS) prepared by ERM that covered the overall VCV & DC Site. Because Concept Plan and Project approval has been issued, and the proposed Village occupies part of the residential footprint already approved for housing, a further SIS is not considered necessary. The mitigation measures identified in the SIS will have application to this Project application. These are reflected in the Draft Statement of Commitments.

The EPBC Act was addressed during the assessment of the Concept Plan application. The then Minister for the Commonwealth Department of the Environment and Heritage (now known as the Department of the Environment, Water Heritage and the Arts) has approved the taking of an action, being the construction of a residential and commercial development at Vincentia. A full copy of the approval is attached at **Appendix 4**. The RLV will not encroach upon the Environmental Zone established by the Department of the Environment and Water Resources.

Figure 5 above and Annexure 2 forming part of the EPBC Act approval illustrates that the Project falls inside the outer edge of the development footprint. Condition 3 of the approval (as set out in Annexure 1 of the approval) requires Stockland to prepare a plan addressing a number of matters relating to the Environmental Zone indicated on Annexure 2. This plan will need to be prepared before land clearing takes place and construction of the RLV commences, as required by Condition 4. This has been reflected in the draft Statement of Commitments.

4.2 State Legislation

This EAR addresses the following environmental planning instruments as outlined Director General's requirements.

4.2.1 State Environmental Planning Policy (Major Projects) 2005

SEPP (Major Projects) is the principal instrument for nominating projects of State or regional environmental planning significance and declaring the Minister to be the Consent Authority for these projects under Part 3A of EP&A Act.

On 16 December 2005, the VC & VDC was declared to be a Major Project to which the provisions of Part 3A apply. The Concept Plan and Project Application approvals establish that a project or stages of the approved Project with a capital investment value of \$5 million or more are subject to Part 3A of the Act.

The RLV has an estimated capital investment value of approximately \$54 million and as such the subject proposal is therefore considered to be a development to which the provisions of Part 3A apply.

4.2.2 State Environmental Planning Policy (Infrastructure) 2007

Subdivision 2 of Division 17 of the Infrastructure SEPP relates to development in or adjacent to road corridors and road reservations.

Shoalhaven LEP 1985 identified both Naval College Road and The Wool Road as being arterial roads. The RTA has confirmed that neither road is defined as a *classified road* under the Infrastructure SEPP.

Clause 104 (Traffic Generating Development) of the Infrastructure SEPP details the circumstances in which the RTA must be given written notice of an application as well as the matters that must be taken into consideration by the consent authority before determining an application. Clause 104 applies to the type of development listed in the table at Schedule 3 of the SEPP. The table at Schedule 3 specifies development for the purposes of apartments or residential flat building(s) with access to any road if 300 or more dwellings are proposed. It also lists land subdivision on sites with access to any road where the subdivision involves the creation of 200 or more allotments and where the subdivision includes the opening of a public road. The RLV proposal does not involve the construction of more than 300 dwellings or 200 allotments. Accordingly, the provisions of the Infrastructure SEPP are not considered to apply to the application.

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

Network Geotechnics Pty Ltd has carried out various geotechnical investigations of the land. Their report entitled "Proposed Residential and Commercial Development The Wool Road and Naval College Road, Vincentia, Masterplanning Study (Geotechnical) Report" dated November 2003 considered potential contamination issues.

Network Geotechnics found that the land title records and historical aerial photographs suggested little evidence of site disturbance (other than the formation of Moona Creek Road track and the electricity and sewer easements). There were two localised instances of possible contaminants. One was concluded to be associated with a dumped vehicle on the Moona Creek Road ridge near TPH2 and the other involved broken fibro sheets 50 metres east of the intersection of the Moona Creek Road track and the sewer easement track.

Network Geotechnics concluded that "*based on experience and the site history associated with this study, it is considered likely that any contamination would be localised and could be managed/or remediated in such a way as to permit future development.*"

These are localised occurrences that are not located on the RLV site. There is therefore no known constraint to the development of the land for adaptable housing purposes.

4.2.4 State Environmental Planning Policy No. 71 – Coastal Protection

SEPP 71 aims to ensure that all development in the NSW coastal zone is appropriate and suitably located to ensure that there is a consistent and strategic approach to coastal planning and management and to ensure there is a clear development assessment framework for the coastal zone.

SEPP 71 applies to the land within the “coastal zone” of NSW. The land to which the Project application relates falls within the “coastal zone” but within a “sensitive coastal location” as illustrated in **Figure 6** below. An assessment of the proposal against the matters for consideration under clause 8 of SEPP 71 has been carried out in Table 6 below.

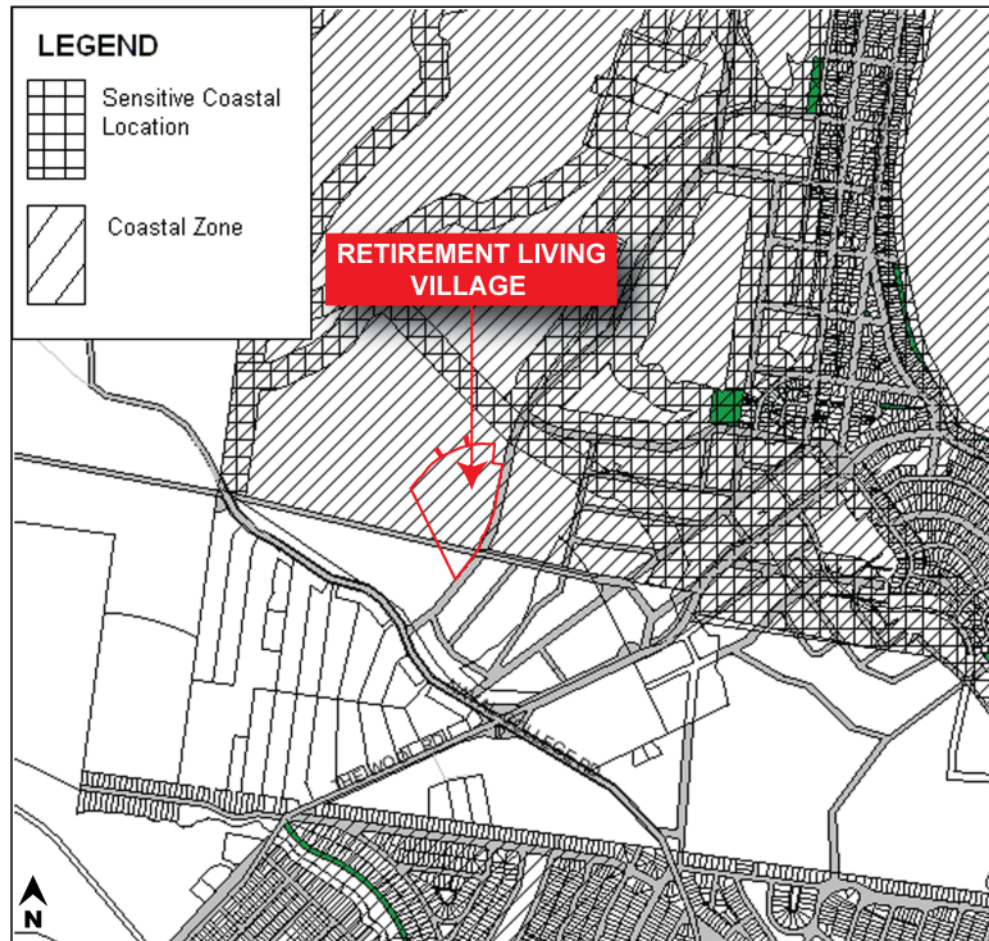


Figure 6 – SEPP 71 Coastal Zone

Table 6 – Matters for Consideration under Clause 8 of SEPP 71

Matter for Consideration under Clause 8	Comment
(a) the aims of the Policy set out in Clause 2,	The previous Environmental Assessment carried out for the Concept Plan and Project Approval demonstrated consistency with SEPP 71. This EAR has built upon those assessments to ensure that consistency with the aims of SEPP 71 is maintained, particularly by:

Matter for Consideration under Clause 8	Comment
(b) existing public access to and along the coastal foreshore for pedestrians or persons with a disability should be retained and, where possible, public access to and along the coastal foreshore for pedestrians or persons with a disability should be improved,	The site is at least 2km from Collingwood Beach and this consideration is therefore not pertinent. The approved Concept Plan and Project Application makes provision for a pedestrian and cycleway connection to Collingwood Beach which is unaffected by this Project application.
(c) opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability,	
(d) the suitability of development given its type, location and design and its relationship with the surrounding area,	Low scale predominantly single storey housing is proposed which will be compatible with the scale of future housing in the residential subdivision. The RLV which will cater for retirees is well located being directly opposite the proposed District Centre which will provide for a wide range of retail and community needs. The architectural detail of proposed houses will use lightweight materials for roofs and walls and incorporate porches/decks or verandahs. This detailing is consistent with the design controls in place for the future housing of the residential subdivision.
(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,	The site is not located along the foreshore and this consideration is therefore not relevant.
(f) the scenic qualities of the New South Wales coast, and means to protect and improve these qualities,	The scenic qualities of the VCV & DC site have been addressed in the Concept Plan and Project Approvals. By confining the RLV to within the approved footprint and not encroaching on the Environmental Zone, the RLV will remain consistent with the scenic quality outcomes expected as part of the Concept Plan approval.
(g) measures to conserve animals (within the meaning of the <i>Threatened Species Conservation Act 1995</i>) and plants (within the meaning of that Act), and their habitats,	The range of considerations under the Threatened Species Conservation Act has been addressed as part of the Concept Plan and Project Application approvals process. In this regard a Species Impact Assessment was prepared and a referral under the Environment Protection and Biodiversity Conservation Act to obtain approval to carry out an Action under the EPBC Act was actioned. The outcome of these studies was
(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	

Matter for Consideration under Clause 8	Comment
(i) existing wildlife corridors and the impact of development on these corridors,	the identification of the Environmental Zone as part of the EPBC Act approval. The proposed Village is located within the developable footprint and does not encroach into the Environmental Zone. Wildlife corridors were also identified as part of the SIS and EPBC Act approval process. The corridors form part of the Environmental Zone and were one of the range of considerations in determining the developable footprint.
(j) the likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards,	The location of the RLV approximately 2km from the coast provides a generous distance from coastal process and coastal hazards.
(k) measures to reduce the potential for conflict between land-based and water-based coastal activities,	The RLV is located approximately 2km from the coast removing the likelihood of such conflicts.
(l) measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals,	An archaeological survey for items of Aboriginal and European heritage was carried out in August 2003. No items of Aboriginal heritage were identified, although this was considered to be the result of poor surface exposure rather than necessarily a true reflection of Aboriginal site use. The report documenting the survey recommended two areas that should be the subject of preliminary test excavation. Both Potential Archaeological Deposits (PADS) were assessed in the Vincentia Master Plan Archaeological Test Excavation Report prepared by Mary Dallas, Dan Tuck and Emeritus Professor RVS Wright January 2006. Further the Vincentia Master Plan Archaeological Test Excavation Report concluded that <i>"PAD 1 and 2, also referred to as DEC Site # 58-2-0392 and 58-2-0393 have been shown on test excavation to retain minimal evidence for a sporadic Aboriginal use of these places. Further archaeological investigation is not warranted."</i> No measures were therefore required to protect Aboriginal heritage.
(m) likely impacts of development on the water quality of coastal water bodies,	Cardno Forbes Rigby has prepared a WSUD Study for the approved Concept Plan / Project application and has prepared a further WSUD study for the RLV project. The 2008 WSUD study confirms that the conceptual design for typical arrangement approved in the 2006 will not change for the RLV. The approved stormwater quality treatment

Matter for Consideration under Clause 8	Comment
	measures have been tested through MUSIC modelling which confirms that the average pollutant concentrations in post-development conditions match the water quality expected from a natural forest, and therefore achieve the stated objective. Further details are provided in Section 6.8 of this EAR.
(n) the conservation and preservation of items of heritage, archaeological or historic significance,	As detailed above, the Vincentia Master Plan Archaeological Test Excavation Report found that further archaeological investigation is not warranted. The Jerrinja community were consulted throughout the excavation process and they supported the findings particularly that active preservation of the excavation sites was not warranted.
(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
(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 (ii) measures to ensure that water and energy usage by the proposed development is efficient.	(i) All facets of the environment have been comprehensively examined in this EAR and the earlier Concept Plan and Project Plan EAR. The recommendations of each consultant have been circulated amongst members of the project team to provide an understanding of the inter-relationships, to address the cumulative impacts of the proposed development and to guide the design of the proposal. (ii) Each dwelling has been designed to maximize solar access and, provide cross ventilation to minimize heating, cooling and lighting costs. Each dwelling is also to be provided with a water tank. Further details of the sustainable aspects of the proposal are documented in Section 4.2.6 of this EAR.

Clause 14 of the policy requires assessment of an application to ensure it does not impede or diminish the right of access of the public to or along the coast or foreshore. The site is approximately 2km from the coast and therefore this clause does not have relevance.

Clause 15 requires special consideration of development that proposes the disposal of effluent by means of a non-reticulated system. The proposed development will be

connected to the reticulated sewerage system as documented in the Services and Infrastructure Report prepared by Cardno Forbes Rigby and attached at **Appendix 5**.

Clause 16 of the policy requires that no untreated stormwater is discharged from the development into the sea, coastal creek or similar body of water. All stormwater will be treated through a WSUD treatment train as discussed in Section 6.8 of this EAR.

Discussion on the Coastal Design Guidelines under SEPP 71 is considered in Section 6.3.1 of this EAR.

4.2.5 State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (SEPP 2004)

The Project application is not made under the provisions of SEPP 2004. However, the proposed housing has been designed to cater for occupants to 'age in place.' The EAR demonstrates how the site and the individual dwellings have been designed with regard to the provisions of SEPP 2004 to achieve a high level of consistency with the SEPP and to ensure that the dwellings meet the likely requirements of future occupants.

The EAR has considered the site related requirements contained in Part 2 of SEPP 2004 and in particular the provisions relating to location and access to facilities, bushfire prone land, water and sewer. The design requirements of Part 3 of the SEPP have also been considered as they relate to neighbourhood amenity and streetscape, visual and acoustic privacy, solar access and design for climate, stormwater, crime prevention, accessibility and waste management. These matters are addressed separately in Section 6 of this EAR.

4.2.6 State Environmental Planning Policy – Building Sustainability Index (BASIX) 2004

Under the Environmental Planning and Assessment Regulation 2000, the dwellings that will comprise the RLV are defined as *BASIX affected buildings*.

The proposal comprises 5 typical house designs and a series of dwellings in a 2 storey residential building. Each typical dwelling is sited in one of two orientations (i.e. east or west and north or south).

A BASIX certificate has been prepared for each dwelling for each orientation. A copy of the BASIX certificates is attached at **Appendix 6**. A summary of the targets is provided in Table 7 below.

Table 7: Summary of BASIX Scores

Independent Living Units			
Dwelling Type	Water (Target 40)	Thermal Comfort (Target – Pass)	Energy (Target 40)
House B1 (East Entry)	40	Pass	40
House B1 (West Entry)	40	Pass	40
House B (East Entry)	41	Pass	40
House B (West Entry)	41	Pass	40
House C (East Entry)	41	Pass	41
House C (West Entry)	41	Pass	41
House D (East Entry)	42	Pass	40
House D (West Entry)	42	Pass	41
House H (North Entry)	40	Pass	40

Independent Living Units			
Dwelling Type	Water (Target 40)	Thermal Comfort (Target – Pass)	Energy (Target 40)
House H (South Entry)	40	Pass	40
House M (North Entry)	43	Pass	40
House M (South Entry)	43	Pass	40
Two Storey Residential Building			
	Water (Target 40)	Thermal Comfort (Target – Pass)	Energy (Target 40)
	48	Pass	47

The BASIX certificates demonstrate that the typical house in either orientation is capable of achieving the minimum targets for water, thermal comfort and energy. There are likely to be very minor variations in orientation by a few degrees or some instances where dwellings received differing levels of sunlight. The documentation satisfies the DGR to confirm that the dwellings are capable of achieving BASIX requirements. However, to ensure that the stated targets are achieved in each instance, Stockland proposes to prepare further BASIX certificates for each dwelling prior to the issue of a construction certificate for each stage of the development.

4.2.7 Shoalhaven Local Environmental Plan (SLEP) 1985

The Shoalhaven LEP is expected to be amended by Schedule 3 of SEPP (Major Projects) in relation to the land use zonings applying to the VCV & DC site. If the proposed zonings are adopted, then following amendment of the SLEP 1985, the Zone R1 – General Residential of the Standard Instrument (Local Environmental Plans) Order 2006 will apply to the land identified for adaptable housing on the approved plan for the VCV & DC.

Seniors Living (including adaptable housing) is permissible development within the R1 zone.

In the event that the site is not rezoned (i.e. not included under Schedule 3 of the SEPP 2005 (Major Projects)), then the proposal is located wholly within Residential 2(c) (Living Area) zone under the SLEP 1985 as illustrated in **Figure 7**. The proposed use is not prohibited within the Residential 2(c) zone, and would also be permissible under SEPP 2004, although the Project application is not made under this SEPP.

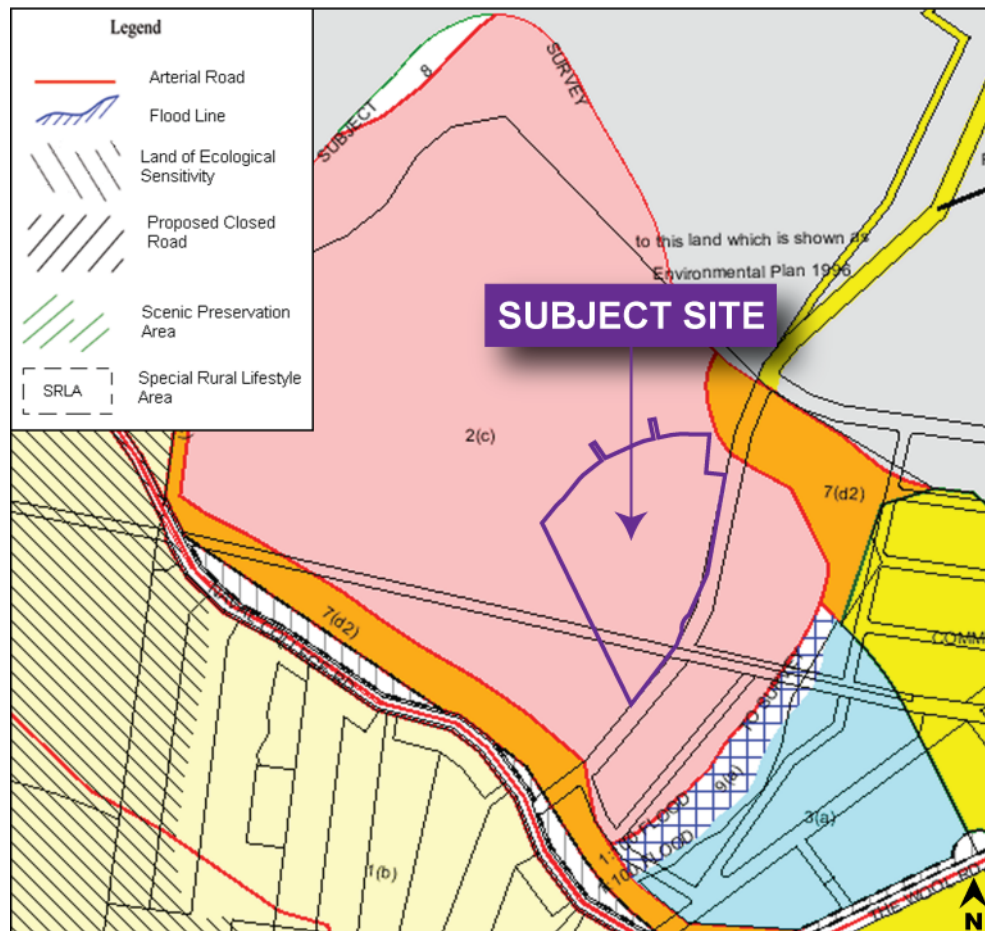


Figure 7 – Current zoning under Shoalhaven LEP 1985

4.2.8 Jervis Bay Regional Environmental Plan (REP) 1996

The Jervis Bay REP 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.

Clauses 11–17 set out the outcomes expected from any proposal for a range of environmental and planning issues. The relevant clauses are addressed below.

Catchment Protection

The *Vincentia Coastal Village and District Centre, Water Sensitive Urban Design Study (WSUD)* prepared by Cardno Forbes Rigby (CFR) in 2006 and submitted with the EAR for the VCV & DC project addressed the issues of water supply management, stormwater quality control and ground water management. CFR has provided a further assessment of these issues with respect to the RLV. Further discussion is provided at Section 6.8 of this EA. Their report is attached at **Appendix 7**.

CFR have also assessed the sewerage system in Vincentia that forms part of the Northern Shoalhaven Reclaimed Management Scheme (REMS). This system was designed to cater for future development within the catchment of Lot 801 DP1022286 (i.e. land within the overall VCV & DC). The SHVC and SHVE will connect with the sewer reticulation systems approved as part of the *Approved Project* for VCV & DC. Conceptual sewer reticulation plans are included with the CFR Utility Services and Infrastructure Report attached at **Appendix 5**.

Landscape Quality

In accordance with the Concept Plan approval, significant areas of the overall site will be preserved as an environmental zone that will give the Vincentia Coastal Village a distinct character. The environmental zone has also been reflected in the Commonwealth Department of the Environment and Water Resources approval issued under the provisions of the EPBC Act 1999.

A Landscape Masterplan has been prepared by Lange Design which is attached at **Appendix 8**. This Masterplan has taken into consideration the principles contained in the *Vincentia Coastal Village and District Centre Jervis Bay, Landscape Masterplan Report, February 2006* submitted with the Concept Plan application.

Species selection for the RLV reflects the plant species palette in the Bayswood Design Essentials prepared by Stockland for the surrounding residential subdivision. The selection of endemic and native species continues the coastal bushland theme established for the VCV & DC to create a landscape treatment that relates both to the future landscape character of surrounding residential areas and the surrounding Environmental Zone.

The Landscape Design Statement prepared by Lange Design at **Appendix 8** has established principles for the management of existing vegetation. Where possible existing vegetation will be retained. The 'tear-drop' shaped park and perimeter areas of the RLV are areas identified for tree retention. These areas will need to be assessed during site preparation works to ensure that unsafe or unstable trees are removed with replanting of the same genotype tree species proposed to complement the retained vegetation.

The Landscape Design Statement contains a list of plant species proposed to be used in the planting and throughout the RLV and revegetated areas.

Cultural Heritage

Cultural heritage was considered as part of the EAR prepared by ERM for the VCV & DC. ERM summarised the findings of the archaeological survey performed as part of the EAR as follows:

"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."

No further assessment has been identified as being necessary in the technical reports submitted with the Concept Plan application, nor required in the Concept Plan approval, Statements of Commitment or the DGRs issued in respect of this Project application. Stockland will however ensure that the relevant Statements of Commitment of the Concept Plan application as they relate to cultural heritage will be followed through to the Project Approval and construction process of the RLV, and have accordingly been repeated in the draft Statements of Commitment contained in this EAR.

New Urban Releases

The site is identified as a proposed urban expansion area in clause 16 of the Jervis Bay REP.

The EAR for the VCV & DC prepared by ERM dated February 2006 found that the residential subdivision and district centre (together with the adaptable housing components) was justified as it met the objectives of the Jervis Bay REP. The proposal fits within the approved footprint of the Concept Plan approval.

4.3 Local Matters

Compliance with development control plans DCPs and local policies is not a statutory consideration under Part 3A of the EP&A Act. However in order to assess the appropriateness of the proposal and consistency with the applicable policies, an assessment against the following DCPs and local policy documents is provided: -

- Shoalhaven Development Control Plan No. 18 – Car Parking Guidelines
- Shoalhaven Medium Density Housing Development Control Plan No. 71
- Shoalhaven Development Control Plan No. 78 – On-Site Sewage Management in Unsewered Areas
- DCP 93 Amendment No. 1 – Controls for Waste Minimisation and Management
- Shoalhaven Subdivision Development Control Plan 100 - Subdivision Code
- Jervis Bay Settlement Strategy
- South Coast Regional Strategy
- Shoalhaven Housing Strategy
- A Place of Aging – Social Impacts

Whilst the Minister will not be bound by these DCPs they are reviewed to ensure local considerations are addressed where appropriate.

4.3.1 Shoalhaven Development Control Plan No. 18 – Car Parking Guidelines (DCP 18)

This DCP provides guidelines for the provision of adequate off street car parking and standards for the design of off street parking areas. The relevant provisions of DCP 18 are addressed in Table 8 below.

Table 8 - Matters for Consideration under DCP 18

DCP Clause	Comment
Part 1	
Objectives • To ensure that adequate off street car parking is provided in conjunction with development. • To discourage the use of streets for the parking of vehicles associated with traffic generated by new development. However, where there are site constraints which make it difficult for on-site parking, formalised parking in the road reserve may be considered. • To ensure that car parking areas are functional and operate efficiently. • To ensure that car parking areas are visually attractive. • To ensure that car parking facilities are safe and meet the needs of users.	Consistency with these objectives is demonstrated in the remainder of this Table.

DCP Clause	Comment
Part 2	
2.1 Car Parking Requirements The DCP references the car parking spaces in the now repealed SEPP 5 – Aged and Disabled Persons	SEPP 5 has been repealed by SEPP 2004. The provisions of SEPP 2004 have been applied in this instance as they relate to self contained housing. As documented in the Traffic Report at Appendix 9, the car parking rate of 0.5 spaces per bedroom is more than satisfied. All except 24 dwellings are provided with at least 2 car parking spaces in the form of a single or double garage and hard stand space forward of the carport. The 18 dwellings contained in the 2 storey residential building are provided with 22 resident car parking spaces each more than meeting this requirement. 36 visitor car parking spaces are distributed throughout the RLV as indented parking bays in the roads and a further 7 in the basement of 2 storey residential building. This includes a provision for 2 disabled car parking spaces. In addition visitors can also park in the hard stand space serving each dwelling. Six staff parking spaces are provided in the basement of the 2 storey residential building, and parking for 7 recreational vehicles is also provided.
2.2 Parking Layout and Dimensions	The car parking layouts (including parking bay dimensions and aisle widths) have been designed in accordance with AS/NZS 2890.1-2004 as confirmed in the Traffic Report at Appendix 9.
2.3 Access	The Project approval for the subdivision has approved the road network and hierarchy. Consistency with the approved street network is discussed in Section 3.2 of this EAR. The primary vehicular access point is located off the southern boundary of the RLV. This access is a continuation of the 30m wide ridge road which serves as a connector road. Vehicles within the RLV will use the local roads to access their individual dwellings. An emergency vehicle access point is also located at the northern end of the RLV accessed directly off Moona Creek Road.
2.4 Manoeuvrability	Roads within the development are between 3.5m and 8.0m wide depending on the hierarchy. The 3.5m wide roads are one-way loop road and chicanes to narrow the carriageway to control speed. The internal
2.5 Service Areas	

DCP Clause	Comment
	roads are low speed traffic environments and fit within the range of either an Access Place or Access Street under Shoalhaven DCP 100 – Subdivision Code. The widths of internal streets have been designed in accordance with DCP 100. An 'auto-turn' analysis has been carried out on the road layout confirming that the design of the internal roads adequately allows for the manoeuvring of vehicles including service and emergency vehicles.
2.6 Landscape Design	Car parking spaces and areas are set within a landscape setting to reduce visual impact and provide shading, particularly with the use of street trees.
2.7 Drivers with a Disability	Each dwelling is provided with a car parking space that meets the accessibility criteria of SEPP 2004 and AS1428.1. An accessible visitor car parking space is also located just north of the Village Centre.
2.8 Construction Requirements	The car parking spaces can be constructed in accordance with the specifications of the DCP in terms of grades, line marking, wheel stops etc.
2.9 Driveway Types	Internal roads will remain within Stockland's ownership and management. Driveway crossing to each dwelling will have a minimum width of 3m meeting the requirements of DCP 18 in this regard.
2.10 Miscellaneous Requirements	The car parking area will be constructed to incorporate appropriate signage, line marking and lighting.

4.3.2 Shoalhaven Development Control Plan No. 78 – On-Site Sewerage Management in Unsewered Areas

This DCP applies to all land in the City of Shoalhaven that is not connected to a reticulated public sewerage system. At present, the site is not connected to a reticulated public sewerage system. However, it is proposed that the development will be serviced by a reticulated sewerage system.

The existing sewerage system in the Vincentia area forms part of the Northern Shoalhaven Reclaimed Water Management Scheme (REMS). As detailed in the Utility Services and Infrastructure Report prepared by Cardno Forbes Rigby (**Appendix 5**), the RLV will be connected to a reticulated sewerage system which is due to be provided with the soon to be constructed pump station at the northern end of Moona Creek Road.

4.3.1 DCP 93 Amendment No. 1 – Controls for Waste Minimisation and Management

DCP 93 requires the submission of a Waste Minimisation Management Plan (WMMP) with a Construction Certificate for developments that require a Construction Certificate

Application. The WMMP will detail the waste minimisation measures to be employed during the construction phase of the development.

4.3.2 Jervis Bay Settlement Strategy

The Jervis Bay Settlement Strategy, October 2003 is a strategic document to guide conservation of the region and manage residential and rural residential growth in the area for the next 15-20 years. Vincentia is located within Area 3 of the Strategy.

One of the actions of the Strategy involves adopting a settlement hierarchy which includes new residential development at the intersection of Jervis Bay/Naval College Road and The Wool Road. The Strategy recognises the potential of residential development for up to 850 dwellings. The RLV is consistent with the actions and objectives of the Jervis Bay Settlement Strategy and is necessary to support the needs of the area's growing and aging population.

4.3.3 South Coast Regional Strategy

The South Coast Regional Strategy was released on 9 February 2007. Generally the aims of the Strategy are to:

- Protect high value environments.
- Cater for housing demand of up to 45,000 dwellings by 2031 of which 25,000 dwellings will be provided in Shoalhaven over the next 25 years. The Strategy notes that 15,800 of these dwellings will be located in existing vacant urban areas or investigation areas, including Vincentia.
- Increase housing in existing centres.
- Prioritise and manage the release of future urban land.
- Use the recommendations of the Sensitive Lands Panel to guide development of 17 sensitive urban lands (Vincentia is not identified as one of the 17).
- Manage the environmental impact of settlement by focussing new urban development in existing identified growth areas. In this regard Vincentia has been identified as a new urban area.
- Apply the Sustainability Criteria for additional development sites and new towns or villages. This is not applicable to Vincentia which has been identified and zoned for urban development.
- Rural-residential zones to be consistent with an agreed structure plan or settlement strategy. This is not relevant to the Project application.
- Ensure an adequate supply of land to support economic growth and provide capacity to accommodate a projected 25,800 new jobs, particularly in the areas of finance, administration, business services, health, aged care and tourism. The Strategy identifies that an additional 14,400 new jobs will be provided in Shoalhaven.
- Limited development in constrained coastal environments.
- Protect cultural and aboriginal heritage.

The protection of high value environmental attributes has been resolved through the creation of the Environmental Zone, which is not affected as part of the RLV. Impacts upon the Environmental Zone are limited to stormwater runoff which is managed through WSUD measures established as part of the Project approval for the residential subdivision. RLV will connect into the approved treatment WSUD measures with WSUD measures also incorporated within the RLV.

The loss of adaptable housing potential by the declaration of the former Village East as Environmental Zone has been transferred to the RLV as nominated in this Project application. This ensures that overall dwelling yield is as far as possible consistent with that approved under the residential subdivision Project application thereby assisting in achieving the housing targets of the Strategy.

4.3.4 Shoalhaven Housing Strategy

Council adopted the Shoalhaven Housing Strategy in 2000 to address specific housing problems including the need to ensure suitable and affordable housing to meet community needs. The Strategy focussed on particular needs groups including the aged and disabled. In relation to these target groups the Strategy sets the following objectives:

Older Families

- Encourage relocation to manageable housing by ensuring villas and integrated development is permissible in small and large centres.
- Ensure sufficient appropriate housing is available close to required services.

The Aged

- New purchasers to be advised of remote locations.
- Ensure appropriate alternative housing is available in close proximity to the services needed.
- Permit villas and integrated housing in small portions of the Bay and Basin centres close to retail and community services.

The proposed Seniors Housing development can achieve these objectives by providing manageable small lot housing close to a future District Centre to provide access to services and facilities. In addition, access to support services will also be made available to the residents within the RLV as detailed in the Operations and Management Overview contained in **Appendix 3**.

4.3.5 A Place for Ageing – Social Impacts

A Place for Ageing? – An Assessment of the Social Impacts of an Aging Population in the Shoalhaven: Implications for Housing, Services and the Community was prepared by Judith Stubbs and Associates, April 2004 for Shoalhaven City Council. The purpose of this study is “to inform Shoalhaven City Council in its planning for appropriate housing options for older people and those with a disability, and particularly for developments proposed under the former State Environmental Policy No. 5 (SEPP 5), and the newly gazetted ‘Seniors Living’ SEPP. Its principal focus is on the adequacy of the range of services required by these target groups. “

The Study identified a number of recommendations relating to increasing the supply of appropriate housing for older people and those with a disability and developments that are age or disability restricted (i.e. housing provided under the SEPP (Seniors Living)).

The Study found that generally there is a demand for housing for aged that is appropriately designed, well located, accessible and affordable. The RLV proposal is consistent with these general findings being targeted at older residents who wish to maintain independence by living in their own house, but not have the responsibilities of maintaining a large house and grounds. The RLV is well located where there is a growing demand for housing for older people. Locally, the RLV, and is well sited being close to the future District Centre, accessible and provides a range of housing options to allow a range of price points for residents.

4.3.6 Draft Strategy for Shoalhaven Housing

The Draft Strategy for Shoalhaven Housing is a review of the existing Housing Strategy adopted in July 2000. The draft Strategy was placed on exhibition between 9 March 2006 and 21 April 2006. The purpose of the draft Strategy is to *“develop a set of broad objectives and identify a range of possible actions towards improving the availability of appropriate housing in the Shoalhaven.”*

The draft Strategy considered four mainstream and six special needs population groups.

Mainstream Population Groups	Special Needs Population Groups
Newly formed households	The aged
Young families	Aboriginals
Established families	Youth
Older Families	Women
	Sole parent families
	People with Disabilities

The six broad objectives identified in the draft Strategy are:

1. Increase the supply of housing appropriate for people whose needs are poorly met by the existing stock (eg aged, disabled, youth)
2. Manage local housing supply to minimise unsustainable peaks and troughs in dwellings prices
3. Support local providers to increase the supply of housing for special needs groups
4. Increase the supply of affordable housing in the Shoalhaven and retain existing affordable housing
5. Ensure maximum accessibility of available community services and facilities to Shoalhaven residents, particularly those with special needs
6. Pursue an active housing strategy for the Shoalhaven.

The relevant actions to the Seniors Housing proposal are listed in Table 9 below with a comment on how this proposal assists towards achieving the Council's actions and therefore its housing objectives.

Table 9 – Relevant Objectives of Draft Shoalhaven Housing Strategy

Broad Objective or Action	Comment
2 Monitor supply compared with need to determine whether adaptable housing standards should be mandatory for all new villa homes.	Dwellings are designed to be adaptable where required by SEPP 2004. Objective achieved.
7 Consider seeking exemption from the Seniors Living SEPP based on a package of controls, policies and practices that will meet the needs of this group to 2016	This objective was not supported by Council. The proposal assists in achieving the overall objective of meeting the needs of aged and disabled persons in Shoalhaven LGA.
21 Actively support the development of self care units, hostels (low care) and nursing homes (high care) consistent with need.	The proposal provides self care dwellings with access to support services such as nursing, meals or cleaning assistance, but only if required.

Broad Objective or Action	Comment
24 Lobby the Department of Housing for 10% of all new dwellings to meet adaptable standards (AS 4299)	Dwellings are designed to be adaptable where required by SEPP 2004. Objective achieved.
34 Consider consent conditions requiring the provision of transport for developments targeting older people and which are more than 2km from the Ulladulla or Nowra town centre	Stockland propose to operate a shuttle bus service to connect the RLV with services and facilities provided in the Vincentia and Nowra as well as to Wollongong and Sydney for social trips.

Stockland's Seniors Housing proposal can assist in achieving the broad objectives of the draft Housing Strategy providing an adaptable housing choice for the special needs population groups of the aged and/or disabled close to future retail, commercial and community facilities, with a transport service and support services if required.

5 Consultation

5.1 Formal Procedures for Consultation

Part 3A of the EPA Act sets out the formal procedures for public consultation in relation to the EAR and the Project Application.

In preparing the environmental assessment requirements under Section 75F of the EP&A Act, the Director-General is to consult with the relevant public authorities.

Section 75H(3) requires that *"the Director-General must, in accordance with any guidelines published by the Minister in the Gazette, make the environmental assessment publicly available for at least 30 days."*

The Project Application including the EAR will therefore be made publicly available for 30 days during which time any person including a public authority may make submissions with respect to the matter.

It is therefore anticipated that further consultation will be undertaken as part of the Project application assessment process.

5.2 Consultation with Stakeholders and Other Relevant Authorities

Considerable consultation was undertaken by Stockland as part of the Concept Plan and Project application process. The DGRs require consultation with particular agencies and the consultations undertaken are documented below. On 4th April 2008 Don Fox Planning invited all agencies set out in the DGRs to comment on the proposal. A copy of the correspondence forwarded to the agencies is attached at **Appendix 10**.

5.2.1 Shoalhaven City Council

Shoalhaven City Council was consulted extensively during the previous Concept Plan and Project Applications. These consultations continued after the approval to ensure Council was kept informed as the plans for the District Centre progressed.

Don Fox Planning has received comments from Shoalhaven City Council in response to the invitation to comment on the proposal. A copy of this letter is attached at **Appendix 11**. The response to the issues raised by Council is provided below.

- **Traffic generation** – the Concept Plan and Project approval for the residential subdivision and District Centre, including the associated road infrastructure

improvements has been designed to cater for the traffic generation of the residential subdivision and retail traffic. The Traffic Report prepared by Masson Wilson Twiney as discussed in Section 6.1 of this EAR sets out that the traffic generation of the RLV is less than the approved residential subdivision. The approved road network has therefore been designed to cater for the RLV. Emergency access can be achieved either through the main entrance off Halloran Avenue or a second emergency only access from Moona Creek Road.

- **Pedestrian network** – the pedestrian network in discussed in Section 6.3.2 of this EAR. Pedestrian networks are provided throughout the RLV with external connections to the surrounding future residential areas and the District Centre.
- **Community facilities** – an assessment of the proposal against the relevant provisions of SEPP 2004 has been carried out, including access to services, facilities and transport as discussed in Section 6.4 of this EAR.
- **Services provision** – has been addressed in Section 6.9 of the EAR.
- **Stormwater drainage** – builds upon the strategy approved as part the Project approval for the residential subdivision and maintains consistency with the established objectives. Section 6.8 provides further discussion on the WSUD measures and water quality.

5.2.2 Shoalhaven Water

Shoalhaven Water has been consulted extensively during the development of the residential subdivision, the preparation of the Project application for the District Centre and more recently for the preparation of the subject Project application for the RLV.

The Services and Infrastructure Report at **Appendix 5** and Section 6.9 of this EAR document the water requirements for the RLV. Water supply works will ensure that water main access will be available to all dwellings in the RLV

5.2.3 Integral Energy

Integral Energy has been consulted as part of other stages of the development of Bayswood residential and District Centre Project applications. These consultations have established the works necessary to supply electricity to Bayswood which will also be capable of servicing the RLV. Stockland has not received any comments in response to the invitation to agencies to comment on Stockland's RLV proposal.

5.2.4 NSW Department of Primary Industries (DPI)

DPI was consulted as part of the Concept Plan and Project Application, and they have also been invited to comment upon the proposal, however no feedback has been received to date.

5.2.5 NSW Department of Environment and Climate Change (DECC)

DECC has been consulted extensively in the past. More recent consultations involved the preparation of the plans to manage the Environmental Zone, as required by the EPBC Act approval. DECC has been invited to comment on the proposal, but no feedback has been received to date.

5.2.6 NSW Roads and Traffic Authority (RTA)

Shoalhaven Council has previously been the authority that assumed responsibility for negotiations on the Concept Plan roads and traffic works. However the RTA will be consulted in relation to the final design of work on Naval College Road and in respect of the proposed traffic signals on The Wool Road.

The RTA was invited by DFP to comment upon the RLV proposal. A letter from the RTA dated 10 April 2008 has been received by Stockland which is attached **Appendix 12**.

The RTA has made two recommendations:

- that a traffic impact study be undertaken in accordance with the RTA Guide to Traffic Generating Developments to examine the impact of the development on the external road network, pedestrian infrastructure requirements and connections between the site and existing public transport services; and
- that additional infrastructure required to accommodate the RLV should be included in the Project including additional public transport services, upgrades to pedestrian infrastructure and infrastructure necessary to ameliorate the impact of additional vehicle trips upon the network.

Section 6.1 of this EAR addresses traffic impacts. Essentially the approved residential subdivision has a higher traffic generation rate than the proposed RLV form of housing which will therefore not create any greater traffic impacts on the existing and future road network than has previously been approved. The pedestrian networks are detailed in Section 6.3.2 of this EAR.

5.2.7 NSW Rural Fire Service (RFS)

The RFS was consulted as part of the Concept Plan and Project Application. The RFS has responded to the invitation to comment upon the proposal a copy of which is attached at **Appendix 13**. The RFS note that the land is mapped as bushfire prone land and is required to meet the requirements of a special fire protection purpose under the Planning for Bushfire Protection 2006. The proposal is considered to meet the acceptable and performance standards of PBP, 2006 as detailed in Section 6.2 of this EAR.

5.2.8 Commonwealth Department of Environment, Water, Heritage & the Arts (DEWHA)

Stockland liaised closely with The Australian Government DEWHA during the establishment of the Environmental Zone. This process necessitated a referral under the EPBC Act to obtain approval for an activity under the EPBC Act which has since been obtained. This approval has defined the Environmental Zone. Subsequent to establishing the Environmental Zone Stockland has further consulted with the Department in relation to the plans to manage the Environmental Zone which is a condition of the EPBC Act approval. This condition also requires Stockland to consult with DECC and Shoalhaven City Council. The Department was also invited to comment upon this proposal however no response has been received to date.

5.2.9 Jervis Bay Marine Park Authority

The Jervis Bay Marine Authority was consulted as part of the Concept Plan and Project Application and they have also been invited to comment upon the proposal, however no feedback has been received to date.

5.2.10 Emergency Services

Emergency services (including SES, Police, Fire and Ambulance) were all invited to comment upon the proposal. To date Stockland has not received any comment from any of these agencies.

6 Environmental Assessment

6.1 Traffic and Parking Impacts (Construction and Operation)

The proposed road hierarchy within RLV is illustrated in **Figure 8**. The central avenue is the highest order street, with road widths reducing on the secondary feeder roads. Table 10 sets out the road widths and function of each street within the RLV.

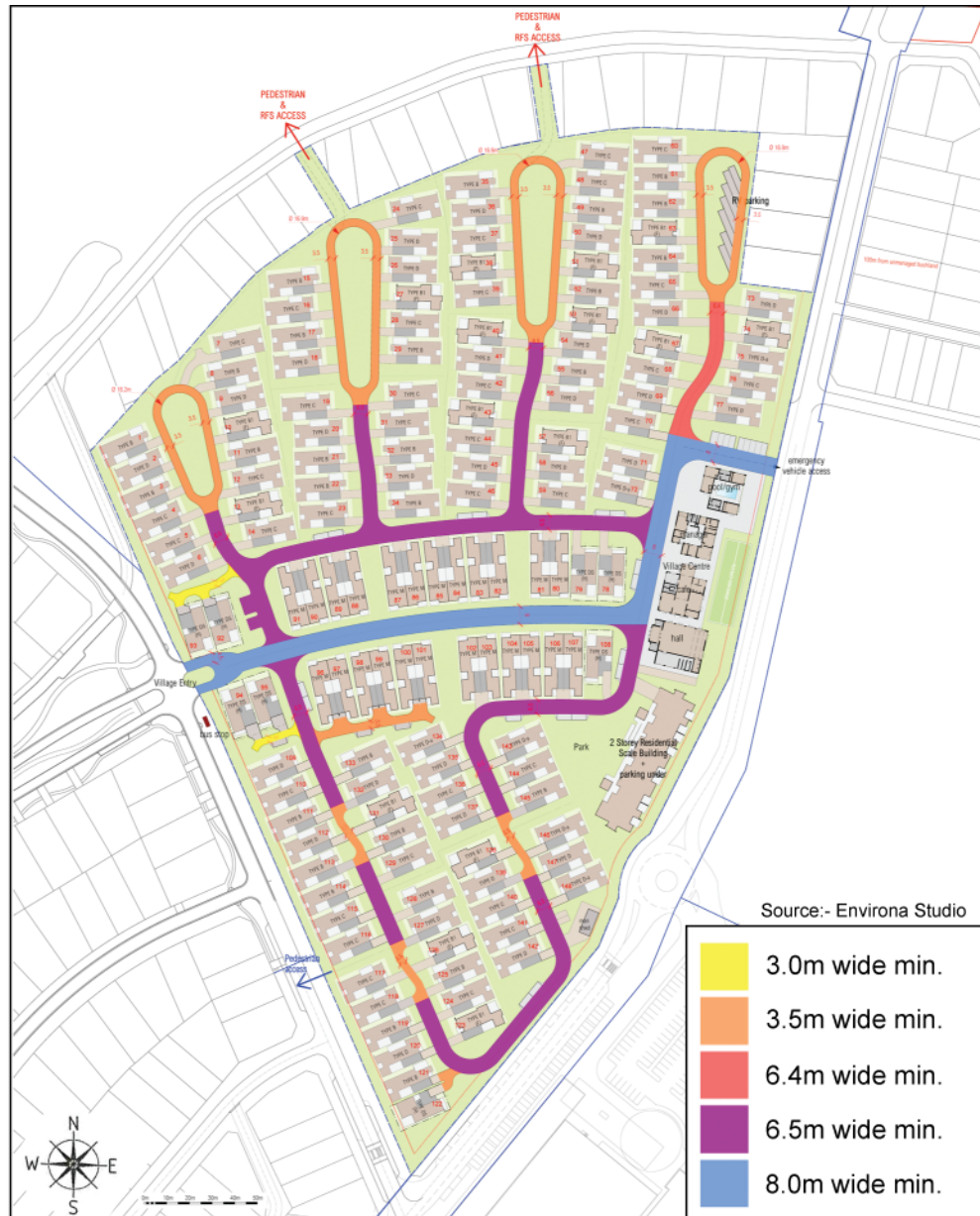


Figure 8 – Road hierarchy plan

Table 10 – Road Hierarchy

Hierarchy	Carriageway Width	Function
Central Avenue	8.0m	The central avenue is the main arrival point and forms the spine of the RLV leading to the Village Centre. A 1.4m wide footpath is provided along the eastern side of the Central Avenue.
Local Street	6.5 & 6.4m	These form the main access network connecting the majority of dwellings. They are generally short in length and chicanes are used in selected locations to break their length to control traffic speed making them suitable for the shared zone traffic/pedestrian zone. Indented parallel and perpendicular visitor car parking bays are provided along the local streets with the car parking distributed throughout the RLV.
Access Loop	3.5m	These are minor one-way streets located at the end of the local streets and serve a lower number of dwellings. They are separated by landscaped open space which combined with their width and one-way traffic flow establishes a low speed traffic environment conducive to being a shared way.
Access driveway	3.0m	Two access driveways are provided serving the rear of 2 dwellings in each case.

6.1.1 Operational Traffic Impacts

Masson Wilson Twiney prepared a Transport Report dated January 2006 in relation to the approved VCV & DC Concept Plan and Project applications. This report identified a series of road improvements for the VCV & DC including substantial improvements to Naval College Road off which the RLV will be accessed. Those improvements form part of the Statements of Commitment under the Project Application approval for the residential subdivision and will establish a road network suitable for the RLV.

Masson Wilson Twiney has carried out a further traffic and parking assessment for the RLV to address traffic access requirements, traffic generation, internal road network design and car parking provision. Their report is attached at **Appendix 9**.

In terms of traffic implications, the RLV is a replacement of 133 approved residential lots. The January 2006 report allowed for a traffic generation of 0.85 vehicles/hour/dwelling or a total of 113 vehicle trips per peak hours. Based on RTA surveys, peak traffic generation for seniors living type developments is significantly lower than conventional housing. The recommended rate is 0.2 vehicle trips per dwelling per peak hour. Masson Wilson Twiney increased this traffic generation rate to 0.3 vehicle trips/dwelling/peak hour to allow for visitors. This would equate to 50 vehicle trips per hour for the 166 dwellings. Therefore

although the total number of dwellings has increased slightly, the traffic generation is estimated to be approximately half of the approved residential subdivision.

The improvements to Naval College Road under the Project approval for the subdivision will therefore establish a road network that will more than cater for residential subdivision, the RLV and the District Centre.

The RLV will be a secure site with a combination of fencing, gates, buildings or landscaping forming the perimeter security in order to provide security and peace of mind for the residents. One vehicular access point will be provided into the RLV at its southern boundary along Halloran Street. A secondary emergency vehicle access point is proposed off Moona Creek Road.

The internal road layout has narrower carriageway widths and slow points in key locations to create a low speed traffic environment. All roads will be constructed, owned and maintained by Stockland. Masson Wilson Twiney has reviewed the road layout and confirmed that the carriageway widths and kerb return radii meet the standards of the Shoalhaven Subdivision Code (DCP 100).

6.1.2 Parking Provision

Parking provision within RLV is summarised in Table 11 below.

Table 11 – Car Parking Summary

	SEPP 2004 Requirement	Proposed
Residential Car Parking	0.5 per bedroom	
140 x 2 bedroom dwellings (1 garage & 1 hard stand space – except type M)	140	256
8 x 4 bedroom dwellings (2 garages & 1 hard stand space)	16	24
18 x 2 bedroom/ 2 bedroom plus study dwellings in 2 storey building	18	22
Recreational vehicle car parking		7
Visitor Car Parking	Minimum 2	
Parking within roadways		36 (including 1 disabled)
Basement in 2 storey residential building		7 (including 1 disabled)
Staff Car Parking	Not Specified	
Basement in 2 storey residential building		6
TOTAL	176	358

Shoalhaven DCP 18 – Car Parking Guidelines does not contain car parking standards for retirement living development, but instead cross references the now repealed SEPP 5 which has been replaced with SEPP 2004. The SEPP sets a minimum standard of 0.5 car parking spaces per bedroom as shown in Table 11 above. The provisions of SEPP 2004 have been applied to the proposal, although the application is not made under the

provisions of the SEPP. The SEPP operates such that car parking provision cannot be used as a ground for refusal if this standard is achieved.

As shown in Table 11 above, the RLV meets the minimum car parking requirement under SEPP 2004.

Each detached or attached dwelling will be provided with a single garage with its own driveway crossing. The driveway crossing also contains a hard stand space forward of the garage providing additional off street car parking for each dwelling (excluding Type M houses) if required by the occupant or visitors. The residential car parking provision is therefore considered to be satisfactory.

As noted above, the hard stand spaces forward of each garage can also serve as visitor car parking area for each dwelling. Provision has also been made for 36 indented car parking bays around the site. These are most likely to be used by visitors to the houses, which equates to a rate of approximately 1 space per 4.6 houses. In addition the 2 storey residential building has 7 dedicated visitor car parking spaces inclusive of a disabled car parking space. These spaces are most likely to be used by visitors to the 18 dwellings equating to a rate of 1 visitor space per 2.6 dwellings. Overall the visitor car parking rate is approximately 1 per 4 dwellings.

This rate more than complies with the minimum 2 visitor car parking spaces under the provisions of SEPP 2004. This rate is however considered unrealistically low for 166 dwellings. Shoalhaven DCP 71 – Medium Density Housing requires car parking to be provided at the rate of 1 space per small dwelling, 1.5 spaces per medium dwelling and 2 spaces per large dwelling. These rates include an allowance for visitor car parking. The RLV provides car parking that meets these standards and provides for additional visitor car parking spaces. The visitor car parking is therefore considered satisfactory.

Provision is also made for seven dedicated caravan or RV parking spaces in the northern end of the RLV for use by residents.

6.1.3 Construction Equipment

The Services and Infrastructure Report prepared by Cardno Forbes Rigby attached at **Appendix 5** has estimated the type of plant and construction vehicles that will need to access the site both during excavation and construction phases.

Earthworks

Construction plant will be brought to the site via float and will remain on site for the duration of the work tasks for each piece of equipment.

Estimates of plant to be installed on site for each stage would indicatively include: -

- 1 x Dozer – D7 or D8
- 1 x 815 Compactor
- 2 x Articulated Dump Trucks- 30tonne – D300E
- 2 x Excavator – 25 or 30 tonne – 325 or 330
- 1 x Grader – 12H
- 2 x 6-wheeler tipper trucks
- 1 x water cart

There is also the possibility that two Caterpillar 627 Scrapers will be used in lieu of 1 dump truck and 1 excavator depending on site conditions.

Roadworks and Services Construction

Once the roadworks and service phases commence the plant size reduces, and is estimated below.

- 1 x 20 tonne excavator
- 1 x smooth drum compactor
- 1 x grader
- 1 x 10 tonne excavator
- 2 x backhoes
- 1 x skid steer mini loader
- Concrete Agitator trucks
- 1 x Kerbing machine
- 3 x Asphaltic Concrete supply trucks
- 1 x Asphaltic Concrete spreader /layer
- 1 x Rubber tyred roller
- 2 x 6 wheeler Tipper trucks delivering road making and services backfilling aggregates

Cardno Forbes Rigby estimate that the roadworks and services construction will take approximately 4 months per stage. The asphalt and kerbing plant will be on site for approximately 3 weeks of the construction period. It is anticipated that during the road works and services construction and the commencement of future stages, the bulk earthworks equipment would be moved to the next subdivision stage so that the 2 groups of plant would be on the general development site at the same time. This will reduce the movement of plant on and off the site.

6.1.4 Construction Vehicle Trip Generation

Based on the construction requirements for each stage outlined above, there will be a period at the start and end of each stage of construction where heavy machinery is either arriving at or departing the site respectively. The actual number of vehicle trips generated during these periods would be low, based simply on the number of pieces of machinery required on-site.

The movement of vehicles at the start and completion of each stage to/from the respective access point would be fully controlled by on-site traffic management staff; this will include traffic control at the site itself, and will extend to partial control of the Moona Ck Road / Naval College Road intersection.

The movement of plant machinery at the start and end of each construction phase may require the use of oversized vehicles which will be confined to off-peak periods, and would be accompanied with the appropriate safety controls in consultation with the RTA.

Cardno Forbes Rigby estimates that up to 20 staff would be working on the site at any one time. The majority of staff would arrive prior to the morning peak period, and departing over an extended afternoon peak period. There would also be minor movements by some staff during the day for meal or miscellaneous material collections. These trips would not impact on the performance of the local traffic network or intersections.

Deliveries of materials will occur on a daily basis. This includes materials such as concrete, sand, roadbase materials, pipes & fittings, asphalt and any other building material required to complete the site works. Cardno Forbes Rigby anticipates that the number of movements would have no significant impact on the local traffic network or intersection performance.

6.1.5 Vehicle Access in Relation to Stage of Construction

In order to control construction traffic impacts to the residential area currently being constructed, access to the RLV site will be via Moona Creek Rd and the Moona Creek Road / Naval College Road intersection. The construction and traffic management documentation that will form part of the construction contract documentation for each stage of the development will prohibit the existing Bayswood Avenue and adjacent residential streets from being used as a construction access for the RLV development.

6.2 Bushfire Assessment

The site and its surrounds are currently undeveloped land with vegetation including woodland, sedgeland and heathland. There is a gentle slope from the south-west to the north-west across the whole of the VCV & DC site. The site and surrounding land is mapped as bush fire prone land as certified by the RFS and mapped as vegetation category 1.

This existing environment and the bush fire prone land map will change with the redevelopment of the VCV & DC under the approved residential subdivision which will result in removal of vegetation and therefore alter the location of bush fire risk relative to the subject site, particularly where future residential subdivision is approved. After redevelopment the RLV will only adjoin tall heath to the east of the site on the opposite side of Moona Creek Road, and will be separated by standard residential allotments from the tall heath to the north of the RLV site.

A Bushfire Protection Assessment has been prepared by Bushfire and Environmental Services (BES) which is attached at **Appendix 14**. This assessment has considered the Rural Fires Act, EP&A Act and the Planning for Bushfire Protection, 2006 (PBP, 2006). The assessment determines the appropriate asset protection zones (APZ), building construction standards, roads and access, emergency procedures, provision of utilities and staging of development having regard to the RLV and the future occupants. The Bushfire Protection Assessment also reviews the proposal against PBP 2006 and has determined that the proposed development is a Special Fire Protection Purpose under PBP, 2006.

The Assessment has found that 145 of the ILUs and all of the Village Centre buildings comply with the acceptable solutions within PBP, 2006. Three of the ILUs (No.s 75-77) and the 2 storey residential building meet the performance criteria requirements of PBP, 2006. These dwellings and buildings are highlighted in **Figure 9** below. This figure also shows the proposed APZ for RLV.

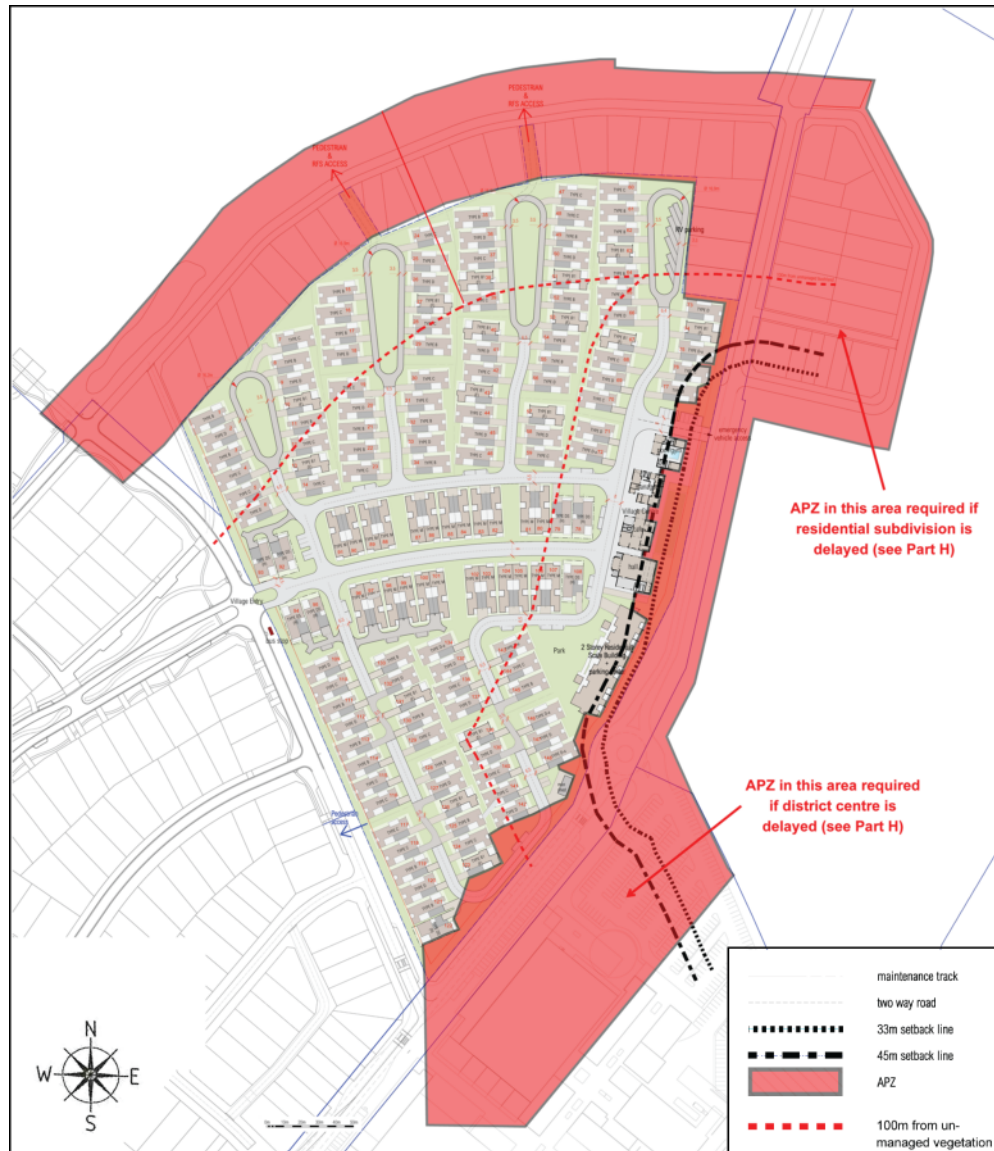


Figure 9 – APZ and dwellings subject to performance criteria

The Assessment has considered Parts C to H of the PBP, 2006 which are summarised in turn in the following sections.

6.2.1 Part C - Asset Protection Zones (APZs)

The Assessment has determined that all 3 ILUs and the 2 storey residential building meet the APZ performance criteria on 3 primary grounds

1. Egress on shielded side of the buildings.

The main entrance/egress to all buildings is greater than 45m from the tall heath and is located on the shielded side of the buildings. Occupants will therefore egress away from the 10kW/m² radiant heat flux zone. Occupants will also be familiar with the egress route which meets the acceptable criteria within PBP, 2006. Further an emergency response and evacuation system will operate within the RLV.

2. Firefighter Activity in the 10kW.m² radiant heat flux zone

Adequate defendable space of 5m width is available outside the 10kW/m² radiant heat flux zone on the eastern side of all buildings to allow for effective and safe fire fighting without the need to move into the 10kW/m² zone to spray water on to burning debris.

All buildings will be constructed to withstand damage from radiant heat. East facing balconies will also require non-combustible furniture. Landscaping within the eastern setback will also be designed to reduce burning debris attack. The Bushfire Protection Assessment considers that this is a reasonable approach given that the RLV is a managed estate where policies can be consistently implemented and regular maintenance can take place. In addition, hydrant systems will be connected in accordance with AS2419.1-2005 and hoses will be provided with a water jet of at least 10m in length.

3. Maximum width of flame front during bushfire attack on dwellings 75-77

The APZ and Bushfire Attack Assessor calculators are based on a 100m wide flame front. The relationship of dwellings 75-77 to the tall heath does not allow a full 100m wide front directed at the dwellings at 45m from the buildings. As a result there is a lower radiant heat flux than the predicted 10kW/m^2 which in effect provides for a wider defendable space for fire fighting purposes, adding to the achievement of the key performance criteria.

In addition to the above primary grounds of justification BES provides the following further grounds for justification and demonstration of achievement of the acceptable performance criteria:

- The four buildings are located on the shielded (east) side of the development relative to the predominant direction of bushfire attack, which is borne out by bushfire history in Shoalhaven since 1938 which shows that there has been no record of buildings being damaged or lost from bushfire attack from the east. These 4 buildings are therefore subject to a lower level of risk.
- Evacuation of the RLV would take place prior to the arrival of the fire front. In the event that occupants of the four buildings had not evacuated, then firefighter assisted evacuation would not be necessary due to radiant heat flux being less than 10kW/m^2 and the safest place for occupants would be within their homes.
- Bayswood RLV will be a managed estate and management staff can coordinate evacuation with assistance from suitably trained residents providing a higher level of protection than if the RLV was not managed. An Evacuation and Emergency Response plan will be prepared for the RLV.
- Evacuation is not likely if there is a bushfire attack from the east as the fire duration will be short lived, and if required, occupants of the buildings on the eastern side could be evacuated to other buildings within the RLV.
- Implementation of measures to ensure no combustible furniture is stored on the eastern side of the building nearest the 10kW/m^2 zone, and landscaping with fire resistant species within the APZ adjoining the zone can be selected, which is reflected in the landscape plans at **Appendix 8**. Stockland proposes that this will be managed through the lease agreement for each dwelling.

6.2.2 Part D – APZ Maintenance

The following measures are recommended for maintenance of buildings and landscaping within the APZ

- Mature trees (>150mm trunk at chest height) are not to overhand buildings and shall have separation between crowns such that canopies are discontinuous between the hazard and the buildings
- Smaller trees (<150mm trunk at chest height) and all understorey vegetation within the APZ to be well spread out and do not form a contiguous pathway to the development

- Minimal ground fuel such as mowed grass, mulch or managed ground covers of less than 4 tonnes/ha
- Landscaping to be lower flammable species
- Structures (eg fencing, sheds, decks, pergolas) to be non-combustible under AS1530.1 and C1.12 of the BCA
- Structures with stored combustible material shall be sealed
- Gutters, roofs and roof gullies to be kept clear of leaves and debris.
- Landscaping east of dwellings 75-77 and the 2 storey building to be as above but with greater use of non-combustible materials & sparser planting of trees and ground covers.

6.2.3 Part E – Building Construction Standard (AS3959-1999)

All buildings (including dwellings and the Village Centre buildings) within 100m of the bushfire prone vegetation will need to be constructed to a Level 1 standard under AS3959-1999.

6.2.4 Part F – Access

Access to and egress from the RLV meets the acceptable solutions standards of PBP, 2006. A perimeter road along the northern edge of the residential subdivision (i.e. external to the RLV site) of at least 8m in width is proposed around the RLV and will be constructed prior to occupation of any of the dwellings.

Egress from RLV is achieved through the main entrance onto Halloran Street on the western side, an emergency exit onto Moona Creek Road on the eastern side and two emergency vehicle fire trails to the north.

Access roads within RLV will be owned and managed by Stockland. The Bushfire Protection Assessment has assessed these roads and found that they meet the acceptable solutions for public roads within PBP, 2006 (refer **Appendix 14**).

6.2.5 Part G – Services

Electricity and water will be provided to RLV, which is documented in the Services and Infrastructure Report at **Appendix 5** and discussed in Section 6.9 of this EAR. In order to comply with Section 4.1.3(4) of PBP, 2006, the sizing and pressures of water supply is to comply with AS2419.1-2005, hydrants are not to be located within any road carriageway or parking bay and above ground water pipes external to buildings are to be metal including and up to any taps.

There will be no reticulated gas supply available to the site, and bottled gas may be installed. This will need to be maintained in accordance with AS1596 and the requirements of the relevant authorities.

6.2.6 Part H – Staging

The RLV will be developed in stages. In order to ensure that each stage has adequate bushfire protection measures consistent with PBP, 2006 BES has determined that the following measures are necessary for each stage:

- An APZ for each stage that is at least 63m wide where it adjoins forest and 45m wide where the stage adjoins tall heath (except for Dwellings 75-77 and the two storey residential building which are provided with alternate solutions)
- An APZ of 100m for dwellings located beyond the 100m line from the managed bushfire hazard as indicated in Figure 1 of the BES Bushfire Assessment (Figure 9 of this EAR).

- A perimeter road is to surround all buildings (this will be provided by the perimeter public road external to RLV)
- Staged internal roads are to provide access to all buildings
- Where bushland remains between the perimeter road and the staged development, a temporary fire trail to the standard of Table 3 is to separate the buildings from the hazard.

6.3 Urban Design, Visual Impact and Sustainability

6.3.1 Coastal Design Guidelines for NSW 2003

The Coastal Design Guidelines were prepared by the NSW State Government to illustrate how urban design approaches can be implemented to ensure that future development is sensitive to the unique natural and urban settings of coastal locations in NSW. The document was published in February 2003.

The Coastal Design Guidelines, developed jointly by the NSW Coastal Council, Planning NSW's Urban Design Advisory Service and Tourism NSW provide direction for the sustainable future of the NSW coast and provide a best practice framework for ensuring that urban design reflects the character of different places. Diversity in design is encouraged and the Guidelines distinguish between different types of settlements so that no single design solution is preferred. The hierarchy detailed in the Guidelines notes that there are 7 types of settlements being:

- Coastal cities
- Coastal towns
- Coastal villages
- Coastal hamlets
- Inland coastal centres – cities, towns and villages
- New coastal neighbourhoods – hamlets and villages
- Isolated coastal dwellings.

The VCV & DC falls within the Coastal Villages category. The Guidelines note that coastal villages are small settlements with a population of up to 3,000 people. The Guidelines also describe coastal villages in the following way:

"In coastal villages the natural environment dominates in terms of views, environmental systems and vegetation types. Ecological systems surrounding and penetrating the settlement are intact. Informal boundaries exist between urban and natural areas within the village. Extensive and well established landscaping is a feature of both public and private land."

Villages are differentiated from other settlement types by having a small vibrant centre set within a distinctive and intact natural environment. Villages are also characterised by:

- a surrounding environment with high ecological integrity
- a geographic location with distinctive and unique features
- views and vistas to the surrounding environment
- a distinctive access road characterised by a rural or natural setting leading to and through the settlement's main street
- a cohesive small-scale building context
- a main street with mixed-use commercial, retail and residential buildings

- small-scale residential development surrounding the main street
- built form established over a number of years through small-scale, incremental and infill development, rather than one off large scale development.

The Guidelines contain a number of design based principles that relate to defining the footprint and boundary, connecting open spaces, protecting the natural edges, reinforcing the street pattern and designing buildings appropriate for the coastal context. These broad principles underpinned the design process for the overall VCV & DC site undertaken in conjunction with the preparation of the approved Concept Plan documentation and commented on within the following table.

Table 12 – Desired Future Character Principles for Coastal Villages

Design Principle	Commentary
Relationship to the Environment	In developing the concept for the approved residential subdivision considerable assessment was undertaken of the natural environment to develop an urban footprint that appropriately responded to the natural environment. This has been more recently confirmed with the gazettal of the Environmental Zone. The RLV development fits within that approved urban footprint.
Visual Sensitivity	The view and vista opportunities that formed part of the street layout of the approved residential subdivision are maintained with the RLV. Further discussion on visual impacts is discussed in Section 6.3.3 below.
Edges to the water and natural areas	This aspect of the Guidelines relates to the coastal edge and natural areas around water bodies which is not relevant to the proposal. The RLV adjoins heathland although separated by Moona Creek Road. The RLV at this interface will be low scale so as not to dominate the visual attributes and opportunities of the heathland.
Streets	The RLV largely fits within the street pattern approved as part of the Project application for the subdivision. The vehicle, pedestrian and cycle networks are maintained and achieve the same level of permeability as the approved subdivision. The objectives behind the perimeter roads in terms of the function, streetscape and landscape treatment are consistent with the approved Project.
Buildings and Height	Houses are designed to respond to the design principles established in the EAR prepared by ERM, February 2006 with the use of light weight materials such as sheet metal roofing, light weight sheet claddings, verandah and porch elements recessed garaging as detailed in Section 3.1.3 of this EAR. The heights of the proposed housing being single storey will be compatible with the single and two storey scale houses in the surrounding residential subdivision.

6.3.2 Pedestrian and Cycle Network

Within the RLV, the pedestrian network has taken into consideration the likely traffic volumes along each of the streets according to their hierarchy and function.

Internal Networks

The central avenue forms the spine to the development and the main access route through to the Village Centre and 2 storey residential building where staff parking and visitor car

parking spaces are also located. The central avenue will therefore be the main feeder road within RLV and accordingly a pedestrian footpath of 1.4m in width has been provided to separate pedestrians and traffic.

On the remaining local streets and loop roads, the traffic volumes are expected to be lower and they will also be low speed environments appropriate for their function as shared traffic/pedestrian zones and connect all dwellings. However, residents will also have the choice of using the meandering pathways located between each of the dwellings. These feed through to the local streets.

External Connections

The main pedestrian entry is from Halloran Avenue providing access for visitors as well as access to the bus stop, the adjoining residential subdivision and the District Centre along a footpath to be provided on the eastern side of Halloran Avenue.

Pedestrians can also exit the RLV through a pedestrian gate located closer to the District Centre, again providing access onto Halloran Avenue. Pedestrians can access the District Centre by a pedestrian crossing proposed as part of the residential subdivision and District Centre.

The short fire trail access points to the north of the RLV provide external pedestrian connections. These are mainly secondary access points that do not provide a link to any services or facilities, but are more likely to be used by residents for exercise such as daily walks.

Cycle Network

Cycling as a mode of transport is considered to be very low given the demographic age group of the future occupants. Given the low demand, dedicated cycle networks have not been provided. The low speed traffic conditions of the proposed roads would be ideally suitable for the few residents or visitors that might cycle. This is no different to the use of the roads elsewhere in the adjoining residential subdivision and given the lower traffic volumes and speeds within the RLV this is considered to be an acceptable approach.

6.3.3 Urban Design and Visual Impacts

As detailed in Section 3.1.3 the houses will be constructed of light weight materials. This approach is carried through in to the Village Centre buildings particularly with its extensive use of glazing, metal sheet roofing and light weight panelling. More robust materials are introduced into 2 storey residential building, particularly the wall treatments, however light weight materials are also used for the roofing, balustrades and screening where possible.

The same palette of colours will be used for each building regardless of function. All are generally earthy tones of varying shades to allow for highlight colours to be used on each house. A range of three colours is proposed for the main construction components of each building as detailed in **Figure 10** below.

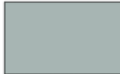
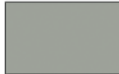
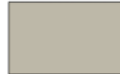
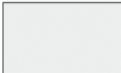
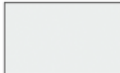
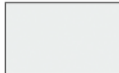
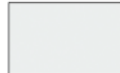
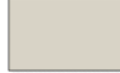
option 1	option 2	option 3	option 4	external item	material
 palmer PG1.C3	 coalition PG1.D3	 vindis PG2.D4	 oyster linen P16.B3	WALLS	LIGHTWEIGHT PANEL
 lexicon PW1.G9	 lexicon PW1.G9	 lexicon PW1.G9	 lexicon PW1.G9	TRIM	STEEL/TIMBER
 windspray	 windspray	 bushland	 dune	ROOF/D.PIPES GARAGE/FASCIA	STEEL TIMBER/FC
 hutland PG1.B6	 hildegard PG1.E3	 bronze fig P16.B7	 white duck P16.B1	FEATURE/TRIMS	TIMBER/STEEL
 hutland PG1.B6	 citrus boy PG1.G7	 juvenile PG1.E7	 scarlet ribbons PG2.H9	DOORS	TIMBER

Figure 10: Colour palette

The colour palette provides variety between buildings to avoid a uniform appearance to the RLV, whilst still providing continuity to establish a character and consistency with the materials and colours of the surrounding residential subdivision.

The RLV is bound to the north by residential allotments and therefore does not have an obvious presentation to the street along this edge. Glimpses of the RLV will be possible along the two fire trails; however the view will be to the pocket parks with houses beyond.

Western Frontage to Halloran Street

Along the western frontage the RLV has a presentation to Halloran Avenue. North of the main access Halloran Avenue curves away from the RLV boundary forming a pocket park between RLV and the street reducing its presence within the street. A visual connection between RLV and the residential subdivision along Halloran Avenue is reduced to the section between the main entry into RLV and Moona Creek Road.

Future houses along Halloran Avenue will primarily be controlled through the Complying Development Controls and Bayswood Design Essentials recently established for the residential subdivision. These controls permit two storey dwellings with minimum front setbacks of 5m and garages setback 6m. Fencing is generally not permitted along the front boundary.

As illustrated on the landscape plans, a 5m wide landscape strip is proposed between the boundary and the houses. An occasional house is sited forward of the 5m setback at 4.2m which is a deliberate method of breaking the building line without compromising landscape opportunity. Four houses face Halloran Avenue. Types B, C and D are single storey and Type DS are two storey houses located at corner positions either side of the main vehicle entry into RLV and at the corner of Halloran Avenue and Moona Creek Road. The scale and siting of RLV houses along Halloran Avenue will be compatible with that of the development controls established for the future housing in the residential subdivision.

Whilst the houses within RLV are orientated to the internal street, all feature articulated facades through the use of glazing, light weight sheeting with varied finishes and modulated elevations through the use of recessed decks. The design of the elevations and secondary access through the use of decks ensures that the houses do not turn their backs to the street. **Figure 11** below is an artist's impression of the character of the proposed housing along Halloran Avenue



Figure 11 – RLV viewed from Halloran Avenue

Fencing to Halloran Street is proposed to ensure that the RLV is secure for resident's peace of mind. The fence however is permeable with timber coloured vertical palisades to a height of 1.6m.

Eastern Frontage to Moona Creek Road

Moona Creek Road will have a mixed character where it fronts the RLV. The eastern side will be characterised by the District Centre and its northern car parking area. Further north is the retained tall heath before the residential subdivision resumes. The varied character provides flexibility for the form and character of buildings within the RLV.

Immediately opposite the District Centre, a solid fence of up to 1.8m is proposed as recommended in Heggies Acoustic Assessment, as discussed in Section 6.5.1 of this EAR. This is necessary in order to provide an acoustic screen to those dwellings closest to Moona Creek Road and traffic associated with the District Centre. The landscape plans detail that the fence will comprise a combination of alternating materials to provide visual interest. This fence extends from the intersection of Moona Creek Road and Halloran Avenue to just north of the 2 storey residential building. Whilst the fence extends for a length longer than is necessary for acoustic purposes, the transition from the residential to the Village Centre provides a logical place to terminate the fence, rather than midway along the elevation of the 2 storey residential building.

Beyond the fence, the two storey corner house will be setback a minimum of 7m to ensure it is visible from the street and marks the corner the RLV site. The single storey houses will recede in the streetscape being setback between 10m and 24m. **Figure 12** is an artist's impression of the RLV viewed from the intersection of Moona Creek Road and Halloran Avenue (outside the District Centre).



Figure 12 – RLV viewed from Moona Creek Road/Halloran Avenue intersection

Further north along Moona Creek Road is the group of buildings forming the Village Centre which will comprise a combination of single and two storey buildings. Collectively the 2 storey residential building and Village Centre buildings, whilst only two storeys in scale, are clustered to provide larger scaled buildings to form a stronger streetscape element than single storey housing. The 2 storey scale provides a focal point to the RLV whilst still being a comfortable scale to Moona Creek Road. **Figure 13** is an artist's impression of the 2 storey residential building with the Village Centre in the background.



Figure 13 – RLV including larger scale buildings along Moona Creek Road

Beyond the Village Centre, the scale reduced to single storey houses provides a transition back to the detached housing forms that will characterise the adjoining residential

subdivision. As for Halloran Street, the houses are sited and designed to be consistent with the future character of the residential estate.

Visual Character within RLV

The central avenue will have a carriageway width of 8m and a separation between houses of approximately 17 m. The central avenue will be characterised by a series of single storey semi-detached dwellings marked with 2 storey houses are each end. The scale of housing and distance separation provides a comfortable scale to the street. Car access is located at the rear to maximise street tree planting and provide a strong formal landscaped boulevard terminating at the Village Centre. **Figure 14** is an artist's impression of the central avenue with the Village Centre in the background.



Figure 14 –Central Avenue Character

The RLV Centre will have single and two storey scale buildings in a pavilion form as illustrated in the artists impression in **Figure 15**.



Figure 15 – Village Centre

The remaining local streets have narrower carriageway widths of 6.4 and 6.5m reducing to 3.5m for the one-way loop roads and chicanes. These will retain a landscape character but be more informal. The houses accessed from the local streets are predominantly single storey. The house types have been alternated along each street and their siting staggered to create a diverse streetscape character and avoid a homogenous appearance. An artist's impression of a typical street is illustrated in **Figure 16**.



Figure 16 – Typical local street within RLV.

6.3.4 Crime Prevention

The following demonstrates the proposal's consistency with the "*Crime Prevention Through Environmental Design*" principles.

Surveillance

All dwellings are provided with living rooms, bedrooms or decks facing the local streets. In all cases, dwellings have a second deck facing the internal pedestrian pathways. Natural surveillance from each dwelling is therefore possible to the public areas around the RLV.

All dwellings are clearly visible from the street or pedestrian pathways also facilitating natural surveillance from the public areas to the houses. Pole lighting is to be installed along the roads which will be supplemented with bollard style lighting along pathways to provide safe environments for residents and facilitate natural surveillance during the evening.

Bayswood RLV is designed to create an active community of which the Village Centre is the focal point. Providing the central location for community activities as well as daily needs such as the mail collection point encourages walking throughout the village. In addition, there are also smaller more intimate areas scattered throughout the RLV in which residents can socialise. The design encourages pedestrian movements throughout the Village to provide a good level of pedestrian activity facilitating surveillance throughout the Village.

The RLV is to be a managed estate with maintenance and landscaping staff that will visit on a regular basis further adding to the level of activity around the RLV to provide informal surveillance.

Access Control

In order to provide residents with a secure environment, Stockland proposes to construct perimeter fencing around the RLV. Vehicles are confined to the main entrance gate off Halloran Avenue, with emergency access possible from Moona Creek Road. Pedestrian access is also provided through the main access to Halloran Avenue, or resident only access gates along Halloran Avenue. These mechanisms control access points into RLV to provide a secure environment, but without creating the sense of an estate which is removed from the surrounding environment.

During the evening the access gates to the main entrance will be closed. Visitors will be able to use an intercom system to gain access to the RLV after dark, ensuring that night time access to RLV is managed.

Territorial Reinforcement

Perimeter fencing will define the RLV from public streets, which is softened and reinforced by the use of landscaping. The main entrance will control access points into the RLV with a clear avenue leading to the Village Centre guiding new visitors to the RLV.

The narrower local streets will create closer neighbourhoods which will create a semi private/public feel to the local streets, confining the more public areas to the central avenue.

Fencing around individual dwellings is not proposed within the RLV. Again landscaping is used as means to define private spaces for each dwelling.

Space Management

Bayswood RLV will employ a full time manager who is responsible for the day to day operation of the Village. This will include not only administrative functions but also the maintenance of the grounds and buildings.

The regular maintenance of the Village, tending to landscaping and cleaning will ensure that the RLV is maintained and kept in a good and clean condition to ensure that the RLV is a presentable and attractive environment in line with the image required of Stockland's national portfolio of retirement villages.

6.4 Accessibility Strategy

Morris-Goding Accessibility Consulting (MGAC) has reviewed the proposed RLV to ensure that the development has an accessible environment. MGAC's report is attached at **Appendix 15**. Whilst the Project application is not made under the Provisions of SEPP Housing for Seniors or People with a Disability, 2004 (SEPP 2004), the RLV has been designed with considerable regard to the provisions of the SEPP to achieve a high level of consistency and functionality with the SEPP's provisions. The assessment has taken into consideration the Federal Disability Discrimination Act (DDA) and the Australian Standards AS1428 series.

The RLV has been designed with a central avenue forming the main access spine to the Village. The central avenue has a carriageway width of 8m and connects the main entrance of RLV at Halloran Avenue with the Village Centre. The central avenue is designed with a 1.4m wide footpath on its eastern side which continues through to the Village Centre and the 2 storey residential building. Feeding off the central avenue is a series of shared ways of narrower widths of either 6.4m or 6.5m reducing to 3.5m at chicanes or one-way loop roads. These shared ways serve residents only and are low speed and low traffic volume roads. These roads are therefore not provided with a separate footpath.

Pedestrian access is also available to Halloran Avenue from pedestrian only access points closer to the District Centre. The fire trails along the northern edge of the RLV also provide pedestrian access through to the adjoining residential area, although are unlikely to be used frequently.

Footpaths connect each building within the Village Centre and 2 storey residential building.

6.4.1 Access

The site has a gentle gradient of approximately 1:20 facilitating all dwellings being capable of being provided with wheelchair access by a continuous accessible path of travel either by the footpath along the central avenue or shared ways. Indicative sections have been prepared by Cardno Forbes Rigby in the Services and Infrastructure Report attached at **Appendix 5**. These sections confirm that gradients of at least 1:20 are achievable across much of the site.

MGAC notes that under SEPP 2004, 100% of dwellings are required to have wheelchair access by an accessible path of travel to an adjoining public road and facilities within the site. As noted above, the majority of the internal roads are shared ways with the central avenue being provided with a footpath allowing safe connections within the site and to the public footpath that will be constructed along Halloran Avenue. The provision of the footpath along the central avenue provides a continuous accessible path of travel separated from the road to connect with Halloran Avenue (being the adjacent public road).

The internal road and footpath networks provide an obvious and safe pedestrian links from the site to public transport services or local facilities, consistent with the SEPP 2004 road accessibility requirement. The access requirements, including achievement of wheelchair access will be confirmed at the detailed design stage and confirmed with the issue of a Construction Certificate.

6.4.2 External linkages

The approved Project application for the residential subdivision nominated Halloran Avenue as a bus route with a potential bus stop located at approximately the main entrance to RLV. A bus stop has also been provided in the design of Moona Creek Road as documented in the Project application for the District Centre currently being considered by the DoP. The proposed Stage 1 of the District Centre will provide retail services (supermarkets and specialty retail) and makes provision for medical suites to be leased. Stockland intends for the District Centre to be operational around the same time as Stage 1 of the RLV.

MGAC note that the timing of the future bus service is unknown. Stockland will therefore provide a private shuttle bus service linking residents of RLV with community services, recreational facilities, general practitioners and local shopping services at Vincentia and beyond in line with the provisions of SEPP 2004. As detailed in Stockland's Operations and Management Overview attached at **Appendix 3**, Stockland anticipates that the shuttle bus will operate 7 days per week with 1 – 2 trips daily, dependant on the level of demand for the service by the residents. The bus is likely to go into Vincentia, Nowra and occasionally Wollongong and Sydney. It will primarily be available for shopping trips, community events such as competition bowls and site seeing/recreational day visits. The operation of the bus will also provide an alternate form of transport for residents to reduce car use and allow those residents who no longer drive to still interact and socialise with the surrounding community.

6.4.3 Internal pathways to common facilities

As noted previously accessible pathways are in the form of footpaths along the central spine and between the Village Centre and the 2 storey residential building. Elsewhere the local access roads function as shared ways with chicanes to control speed. The internal pathways will comply with AS1428.1.

MGAC notes that access has been provided between all dwellings and the Village Centre buildings. MGAC recommends that circulation areas and internal doorway widths within the Village Centre buildings need to comply with AS1428.1.

A unisex accessible toilet is provided as part of the common facilities and dedicated male and female accessible toilets are also provided in the hall, all of which MGAC confirm are compliant with AS1428.1.

The 2 storey residential building is provided with lift access from the basement car park to the ground and first floors, with continuous accessible paths of travel to each dwelling in accordance with SEPP 2004. An access ramp is also provided to connect the building with footpaths, which will need to comply with AS1428.1.

Visitor car parking is provided adjacent to the Village Centre near the emergency access. MGAC notes that an accessible car bay needs to be provided in this location which complies with AS1428.1. This will be ensured through the provision of statement of commitment. Visitor car parking is also provided in the basement of the 2 storey residential building including an accessible car bay near a lift compliant with AS1428.1.

6.4.4 Housing Design

132 houses and the four x 2 bedroom + study dwellings in the 2 storey residential building have been designed to be adaptable. MGAC has reviewed each of the typical house designs for compliance against SEPP 2004 and the relevant Australian Standards. The assessment has confirmed the following

- Each house type has an accessible entry in accordance with the SEPP. MGAC recommends that the entry door for Type D dwellings be re-handled to maximise latch side clearances.

- The units in the 2 storey building have suitable 850mm clear width entry doors and external latch side clearances that comply with the SEPP, however the internal circulation area around the door does not comply with AS1428.1.
- Interior circulation areas generally comply with SEPP 2004 and AS1428.1, and it is recommended that all internal doors to bathroom, bedroom, laundry and garage for all dwellings should be modified to achieve 800mm clear widths.
- Type DS dwellings do not have suitable corridor widths outside the main bedroom as required under the SEPP.
- Kitchens in Type B, B1, C, D, D-access, DS and M dwellings each have a separate wall mounted oven and cook-top with appropriate bench space that complies with the SEPP. Types C, D-access and M are able to be adapted to move the kitchen island benches to achieve the 1550mm required under the SEPP. Types B, B1, D and DS do not have 1550mm clearances between benches. This can be addressed with the issue of Construction Certificates. The units in the 2 storey building have kitchens that do not have appropriate circulation space to comply with the SEPP however the bench spaces are suitable in length to accommodate wall mounted ovens and cook-tops in accordance with the SEPP.
- The main bedrooms of the dwellings (except for the 2 bedroom units in the 2 storey building) have sufficient dimensions to accommodate a wardrobe and a queen size bed with a clear area of at least 1200mm at the foot of the bed as required by the SEPP. The dwellings (except for Type DS) have suitable clearances at the main bedroom door to comply with the SEPP.
- The dwellings (except for the units in the 2 storey building) have bathrooms with internal dimensions that allow pan, basin and shower circulation areas to comply with AS1428.1 and the requirements of the SEPP.
- The dwellings have laundries that have circulation areas that comply with the requirements of the SEPP. The dwellings (except for Types B1 and DS) have suitable clearances at the laundry door as required by the SEPP.
- The dimensions of the garages attached to the dwellings comply with the requirements of the SEPP. The basement level car bays below the 2 storey residential building do not have suitable widths to comply with the SEPP however there is 1 common use accessible car bay in the basement car park that complies with AS2890.1.

Whilst the above demonstrates a high level of compliance against the provisions of SEPP 2004, there are some minor detailed design modifications required which can be addressed as part of the Construction Certificates for the relevant stage.

6.5 Acoustic Considerations

A noise impact assessment was conducted by Heggies Pty Ltd as part of the Concept Plan Project Application. This report primarily considered the impact of Naval College Road and The Wool Road upon the residential subdivision.

A further assessment has been undertaken by Heggies Pty Ltd for the RLV proposal which considers internal road traffic noise, mechanical noise emissions from the Village Centre buildings and District Centre and construction noise impacts. Their report is attached at **Appendix 16**.

6.5.1 Road Traffic Noise

Road traffic noise has been based upon forecasted traffic flows along Moona Creek Road and internal roads within the RLV.

Due to the low speeds and low traffic flows, noise from internal roads (including the main avenue) upon the dwellings is acceptable during the worst case projected peak on-hourly traffic flows. Night time traffic flows were not considered to be sufficient to warrant assessment.

Part of RLV adjoins Moona Creek Road and the northern entrance to the District Centre. The acoustic assessment has found that traffic entering and exiting the northern access to the District Centre (for Stages 1 through to 3) exceed the criterion for daytime periods and the night time criterion when Stage 3 of the District Centre is operational. In order to mitigate against this impact, Heggies recommend the following ameliorative measures:

- Provision of an acoustic screen of approximately 1.8m in height extending from the Village Central Road along Moona Creek Road boundary past the roundabout to the northern entrance of the District Centre

The recommendation would result in the fencing terminating midway along the frontage of the 2 storey residential building. Stockland proposes to continue the fencing to just north the 2 storey residential building and before the Village Centre buildings to ensure that the fence relates to the built form.

Heggies note that the height of the screen will not reduce traffic noise from the upper level dwellings in the 2 storey residential building or the upper floor of the two storey dwelling in the south-eastern corner of the RLV. Increasing the height of acoustic screen to address the residual noise impact is considered to have adverse visual impacts. Heggies therefore recommends that the facade of the building is upgraded to adequately attenuate road traffic noise intrusions which can be further developed into the design of the building during detailed design, prior to issue of a Construction Certificate.

6.5.2 Mechanical Noise

Heggies has considered investigated potential mechanical noise sources associated with the Village Centre buildings. However, exact plant equipment has not been selected which will be undertaken during the detailed design stage. Heggies has however set target criteria to protect the dwellings closest to the Village Centre, assuming there is no shielding or directivity losses between the source and the dwelling. The maximum sound power output for single items of future mechanical plant should be;

- Day time 7.00am to 6.00pm 84dBA
- Evening 9.00pm to 10.00pm 81dBA
- Night time 10.00pm to 7.00am 73dBA

Heggies anticipate that standard engineering practices such as low noise emitting equipment, provisions of screens, enclosures or silencers will achieve these above goals should equipment have greater sound power outputs than stated above.

6.5.3 Noise from District Centre

Heggies has prepared a Noise Impact Assessment for the District Centre Project application and their report is attached at **Appendix 16** to the DFP Environmental Assessment Report dated April 2008. Their investigations focus on mechanical plant noise, on site traffic noise and operational noise from the loading docks for Stage 1 of the District Centre and the final District Centre at Stage 3. The assessment has taken into consideration the acoustic impacts upon the future residential properties on the western side of Moona Creek Road including the RLV.

Mechanical Plant

In terms of mechanical plant noise, Heggies has recommended for the District Centre that when specific items of plant are selected during the detailed design stage consideration of

noise control measures such as the use of “quiet plant” and acoustic enclosures can be fully resolved. They recommended that target noise emission from the mechanical plant be reduced to at least 5 dBA below the night time noise criterion. This has been reflected in the draft Statements of Commitment for the District Centre Project application.

On-Site Traffic

Heggies assessment considers the combined noise emissions from car park traffic, on site truck movements and associated loading dock activities for Stage 1 and Stage 3.

Only Stage 1 of the District Centre is located opposite the RLV. Their assessment draws the following conclusions for Stage 1.

- The predicted noise levels for Stage 1 during the daytime LAeq(15minute) criterion is complied with at all locations at both the ground and first floors.
- The predicted LMax noise levels from the loading dock area comply with the sleep disturbance criterion at all locations due to the loading docks not being operational during the night-time period.
- In relation to LMax noise levels associated with car and truck movements on site, no exceedance of the criterion is predicted from cars.
- Marginal exceedances of between 1 dBA to 3 dBA during the evening and night-time LAeq(15minute) criteria are predicted at the ground floor receivers of residential Lots 733 and 734 and Lots 811 to 813 located on the opposite side of Moona Creek Road. These are not located within the RLV.
- Exceedances of up to 7 dBA are predicted at the first floor during the evening period at Lots 733 and 734 and Lots 808 to 813 on the opposite side of Moona Creek Road. These are not located within the RLV.

The draft Statement of Commitments for the District Centre contains a commitment that deliveries to Stage 1 of the District Centre loading docks will not take place between 10.00pm and 7.00am to control noise impact to the future residential areas on the western side of Moona Creek Road which includes the RLV site.

6.5.4 Construction Noise

Heggies advise that the greater noise impacts occur during site preparation works (clearing and levelling). In this instance, most of the site clearing will be undertaken before Stage 1 of the RLV is completed. The adjoining residential subdivision and District Centre are also planned to take place concurrently with Stage 1 of the RLV. Heggies has assessed potential construction noise impacts based on the Environmental Noise Control Manual published by DECC. They conclude that noise emissions associated with earthmoving plant and construction equipment for up to a 26 week period will achieve the environmental goals. As detailed in Section 3.1.5, the site preparation works are expected to take place over a 4-6 month period, therefore being within the 26 week period in order to achieve the environmental goal.

6.6 Site Preparation Works

The Services and Infrastructure report prepared by Cardno Forbes Rigby provides details of the site preparation works necessary for RLV. The RLV site has gentle slopes of between 0% and 5%. Indicative sections through the site have been prepared are attached as appendices to the Services and Infrastructure report at **Appendix 5**. Cardno Forbes Rigby note that in order to comply with Shoalhaven DCP 100 – Subdivision as well the accessibility requirements documented in the Accessibility Review prepared by MGAC, all internal roads will need to be designed at a minimum grade of 1% up to a maximum grade of 5%. This will require cut and fill of up +/-0.5m at the worst affected parts of the site.

The indicative design level of the site (refer to plans and cross sections in **Appendix 5**) demonstrate that the extent of cut and fill is minor. A balanced cut and fill method will be adopted for the RLV site, and it is therefore not anticipated that there will be a need to import or export any fill.

6.7 Subdivision & Titling Details

Stockland proposes to maintain ownership of the RLV in one title. The tenancy of the dwellings will be by way of a loan/lease arrangement whereby Stockland grants a lease to occupy the dwelling.

All common facilities, open space and roads will be owned by Stockland and maintained by the Resident Village Association (comprising resident and Stockland representatives). The residents will retain 70% of voting rights and Stockland the remaining 30%. The Residents Village Association will set the rules for the RLV, appoints a manager and nurse, and manages finances for the day to day operation of the RLV with Stockland providing assistance where necessary, in effect operating in a similar manner to an Owners' Corporation of a strata plan.

Appendix 19 illustrates that the RLV site is currently not affected by any easements, covenants or similar.

Stockland proposes as part of this Project application to create one allotment of land as outlined on the masterplan at **Appendix 2**.

As detailed in Section 6.9 of the EAR, water and sewer to the RLV will connect to the water and sewer mains running along either Moona Creek Road or Halloran Avenue (refer Appendices A and B to **Appendix 5** of this EAR for diagrams. Connections to the external mains will remove the need to create any easements through the proposed allotment upon which the RLV will be constructed. Further, Shoalhaven Water has advised that due to the titling structure and management of the RLV, one or more water connection points at the boundary will be necessary and the water reticulation within the RLV will be classed as an 'internal' design and therefore not require any easements.

Bushfire management measures have been addressed in Section 6.2 of the EAR. The management measures do not necessitate the need for any easements or covenants over the title. As noted in Section 6.2.1, the leases for each dwelling between Stockland and the resident will contain clauses to reflect the requirement for non-combustible furniture on the eastern side of the affected dwellings.

Bushfire management external to the RLV site will be carried out in accordance with the Project Approval for the residential subdivision.

The Landscape Design Statement prepared by Lange Design at **Appendix 8** has established principles for the management of existing vegetation. Where possible existing vegetation will be retained. All landscaped areas and retained vegetation will be managed by Stockland who will maintain ownership of these areas.

It is not envisaged at this stage that any other covenants or notations on the future super lot are likely to be necessary for the RLV.

6.8 Water Quality

As part of the Concept Plan / Project Application for the VCV & DC, Cardno Forbes Rigby prepared a Water Sensitive Urban Design (WSUD) Study, dated 2006. The 2006 Report modelled water quality and the results showed that

"the proposed wetlands and bio-swales are capable of reducing the mean pollutant loads to the same (or reduced) levels expected to occur under existing (mostly forested) conditions. The proposed wetland and bioswale system will therefore ensure

the low pollutant loads currently entering the wetlands downstream of the site are not increased beyond existing (low) levels. "

Stockland offered the following Statement of Commitment with the original Concept Plan/Project Application which subsequently formed part of the approval.

"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 modified in accordance with the attached Cardno Forbes Rigby plan (Drawing SK08 Rev P1 and SK18 Rev P3) and Construction Certificate Plans and include: Bio retention swales, detention ponds and artificial wetlands to be located in the APZ and Gross Pollutant traps."

The principal objective of maintaining water quality within receiving water bodies at pre-development levels (i.e. natural forest) is a very onerous target, but nonetheless has been applied to the residential subdivision. This is in line with the EPA's *Managing Urban Stormwater - Council Handbook (Draft 1997)* and is also in accordance with the Jervis Bay Settlement Strategy (DIPNR, 2003).

These stormwater quality treatment measures have been tested through MUSIC modelling which confirms that the average pollutant concentrations in post-development conditions match the water quality expected from a natural forest, and therefore achieve the stated objective.

Cardno Forbes Rigby has prepared a Supplementary WSUD Study for Bayswood Retirement Living which is attached at **Appendix 7**. This report contains a stormwater management plan (Appendix A of the report) and includes the following WSUD measures for the RLV:

- A permanent pond in the upper part of the sub-catchment, immediately downstream of Naval College Road ('off-line' for the western sub-catchment and 'online' for the central sub-catchment). The purpose of these ponds, from a water quality perspective, is to intercept flows and provide a sedimentation function with respect to runoff from the upper catchments south of Naval College Road. The pond on the western creek is located on the western side of the riparian corridor to reduce impact on the more valuable important riparian vegetation. Low to medium flows from the culvert under Naval College Road will be directed into this pond, with high flows (spilling over the road) bypassing it.
- Intermittently inundated wetlands (some with river gravel sub-strate) linked by bioretention swales to receive and treat stormwater runoff from the proposed residential areas located on the valley flanks. These facilities will be located in the APZs adjoining the riparian corridor, consistent with the approved 2006 WSUD report.
- Proprietary gross pollutant traps (GPTs) located on stormwater discharge lines at the point of discharge into the pond/wetland system within the APZ.

The permanent pond referred to at item has now been constructed. The intermittent wetlands and GPTs have also been installed for the Stage 1 subdivision which is immediately upstream of the RLV.

Cardno Forbes Rigby confirms in the 2008 WSUD Study that the conceptual design for typical arrangement approved in the 2006 WSUD Study will not change for the RLV.

The 2008 WSUD Study also incorporates a soil and water management plan for the construction stage of the development, including maintenance and water quality monitoring during and post construction-phase.

6.9 Utility Services and Infrastructure

Cardno Forbes Rigby prepared a Services and Infrastructure Report in 2006 for the Concept Plan / Project Application. Cardno Forbes Rigby has provided a further updated report as it relates to the RLV. The following is a summary of the services proposed for the Retirement Living Village as documented in the Cardno Forbes Rigby Services and Infrastructure Report attached at **Appendix 5**.

6.9.1 Water

The Vincentia Coastal Village and District Centre will require an extension of the existing water main located south of the site. This will involve the construction of a 1.35km water main to supply the District Centre and will potentially augment the existing water supply system in the local area.

The lead in water main from Naval College Road will supply water to the RLV and is due for completion in May 2008 ensuring that water main access will be available to all dwellings.

The master planned residential subdivision, of which RLV forms a part, is designed to lend itself to an efficient internal water distribution network. Due to the management and titling structure Shoalhaven Water has advised that one or more connections points will be provided for the RLV.

Cardno Forbes Rigby is continuing consultation with Shoalhaven Water for the approved residential subdivision inclusive of the proposed RLV to ensure water services are adequate for the Village.

6.9.2 Sewer

A conventional gravity feed and rising sewer main system is proposed for the Vincentia Coastal Village and District Centre. Discharge from the RLV will be via a gravity system to the soon to be completed pump station located at the northern end of Moona Creek Road. This will connect with the Vincentia Wastewater Treatment Plant (WwTP) and the Reclaimed Water Management Scheme (REMS) which Shoalhaven Water has advised can accommodate the additional load generated by the RLV.

As for the water reticulation, Shoalhaven Water has advised that due to the titling and management structure of the RLV, one or more sewer connection points will be provided to service the RLV and all internal sewerage will be maintained by Stockland.

Cardno Forbes Rigby has continued their consultation with Shoalhaven Council and Shoalhaven Water. The sewer pumping station is currently under construction which will also cater for the District Centre.

6.9.3 Electricity, Gas and Telecommunications

Electricity will be provided by the existing Huskisson Zone Substation (ZS). The Huskisson ZS will require augmentation of transformer capacity and switchgear availability in order to cater for the additional load. This augmentation work along with the installation of electricity services throughout the proposed development will be undertaken by Stockland.

Agility has advised that the extension of natural gas from the eastern gas pipeline to Vincentia is not commercially viable. Reticulated natural gas supply will therefore not be available for the development.

Telecommunication cables will be provided by Telstra and connected to an existing fibre optic junction at the intersection of Naval College Road and The Wool Road. This will provide telephone and ADSL internet connections. Mobile phone network coverage is already available, but will be required to be augmented which will be undertaken and funded by the network supplier.

An internal communication system will be established to provide a suitable nurse calling system and resident intercom for patrons to contact other residents. The system will be connected through a PABX interface.

7 Ecologically Sustainable Development (ESD)

7.1 Sustainable Attributes of the Project

Environa Studios has adopted a strong ESD approach to the design of the RLV including overall layout and individual dwellings and buildings. The ESD elements of the RLV are set out in sustainability statement prepared by Environa which is attached at **Appendix 17**.

The coastal location and the local climate of Vincentia calls for specific consideration of the best principles of master planning for natural or passive design, in particular

- houses should have maximum areas of glazing facing north or north-east, with minimum areas facing in any orientation west of 15 degrees off north;
- houses should be capable of being opened up to the north-east to capture the summer afternoon on shore breeze;
- openable windows (sliding or louvres) should be taken in all dwellings, with smaller openable windows on opposite walls to promote the flow of air through the dwelling;
- the 2 storey residential building and Village Centre have been located to take maximum benefit of access to early morning winter sun and cool summer afternoon breezes; and
- ground level dwellings are designed to have private outdoor space adjacent to the living area which will reduce thermal comfort energy demand (see below).

To achieve these objectives the layout of the village is based around having the maximum number of lots facing either east-west (for north exposure of side walls) or north south (for north exposure of living areas facing the street or rear private open space). Road patterns that give rise to lots facing unpleasant orientations of north-west and south-west have been avoided.

7.1.1 Passive thermal design generally in the dwellings

All the dwellings have been based on a combination of the following principles in consideration of good passive design including:

- maximum levels of insulation in the walls and roofs for the proposed construction;
- windows or glazed doors on the north for good solar gain into floor thermal mass;
- doors/windows to the east and west minimised and used primarily for light and external access;
- minimum windows on the south for good internal light and cross ventilation;
- concrete floor with hard surface coverings to maximise quick solar heat gain to exposed areas;
- deep overhangs of 900 mm used on the north elevations to provide effective summer shade whilst allowing winter sun to penetrate the windows;
- louvre and sliding doors/windows used to maximise cross ventilation; and
- living areas open through large sliding doors onto external covered deck areas, to promote the use of indoor/outdoor connections; research has shown that where access for residents is possible to an outside area, they are more likely to adjust

(through clothing or expectation) to the daily climate and less likely to use the air conditioning or heating.

7.1.2 Passive thermal design in the east-west dwellings

In addition to the above a combination of the following principles has been included in the east-west dwellings in promotion of good passive design:

- a long north façade for good solar gain and minimise east and west exposed walls;
- open plan flow through design for good cross ventilation;
- glazed doors on the north for good solar gain into floor thermal mass;
- upper level highlight windows (louvres) in centre wall positioned to maximise light to internal areas that are away from external windows/doors;
- upper level louvres in centre wall also positioned to maximise cross ventilation to otherwise internal rooms such as second bedroom;
- roof forms pitched to provide overhang shade on the north (all roof forms); and
- roof forms also pitched to the south to provide maximum sun penetration to the houses to the south

7.1.3 Passive thermal design in the north-south dwellings

In addition to the above a combination of the following principles has been included in the east-west dwellings in promotion of good passive design:

- living areas positioned at the north end of the house for good solar gain;
- minimise exposed areas of glazing in the east and west walls;
- open plan flow through design for good cross ventilation;
- roof forms pitched to provide overhang shade on the north; and
- two storey roof forms also arranged to provide maximum sun penetration to the houses to the south

7.1.4 Passive thermal design of the 2 storey residential building

The main fenestration of the dwellings is oriented to the east/southeast to pick up the low angle early morning sun throughout the year. Thermal comfort in winter is achieved through the use of maximum insulation and with the smaller areas of glazing to the west, and no exposed windows to the south.

The dwellings are raised by being located over the car park enabling the dwellings to capture as much of the cooling northeast breezes and to exhaust the heat build up in the buildings promoting passive cooling. The building has been designed with a "single loaded corridor" using an open walkway on the shaded side of the building. This access walkway allows for safe and sheltered access but also allows the dwellings to have operable windows onto the access walkway side, allowing for natural cross ventilation. Further, the dwellings are all designed to promote easy cross flow ventilation within the plan with all bedrooms and living rooms in the path of the cross breeze.

7.1.5 Passive thermal design of the Village Centre

The fenestration of the Village Centre is oriented to all four aspects to gain maximum natural light, with deep overhangs and balconies to reduce the unwanted sun penetration. Glazing is maximised and oriented to the northeast to pick up the low angle early morning sun and to ensure that the thermal mass of buildings is warmed early and retains its heat

during the day (maximum insulation), and particularly the smaller areas of gazing to the south, and nil to the east and west). In this way the buildings promote passive warmth.

The highlight windows of the Village Centre enable the buildings to capture as much of the cooling northeast breezes and to exhaust the heat build up in the buildings promoting passive cooling through stack ventilation. The buildings are also fitted with mechanical exhausts to provide "night flushing". This uses the cooler night air in summer to "flush" heat from the buildings greatly reduce the demand for air conditioning, which is only fitted to the wellness centre/management building and the café building. The Town Hall and the Pool/Gym areas are mechanically ventilated but not air conditioned.

7.1.6 Low energy design generally in the dwellings

All the dwellings use the following features to reduce energy use in addition to the passive design features:

- solar water heating used for every house (electric boost as gas is not available);
- all ground level dwellings have dedicated service courtyards fitted with drying lines to promote the easy use of fresh air drying and reduce down the demands for clothes dryers;
- the laundries are located next to the external drying areas to promote the easy use of clothes lines as above;
- all light fittings in all dwellings are fluorescent or LED based, with no 12 volt or incandescent lighting used anywhere;
- dimmable T5/T8 tubes are used in the habitable rooms of the dwellings, fitted in pelmets;
- all the fluorescent fittings are wall mounted to aid the ease of replacement with less risk to residents;
- the pelmets are not only a secure and discrete location for the light fittings, but also provide for the fitting of blinds and/or curtains over the windows to improve insulation performance;
- 3.5 or 4.0 star rated appliances are used throughout every dwelling; and
- 3.5 or 4.0 star rated air conditioning is fitted to the main living area only of every dwelling. In recognition of the likely need for air-conditioning for the age groups of the future residents, but confining its use to living areas only.

Water design generally in the dwellings

All the dwellings use the following features to reduce water use as part of or in addition to the BASIX requirements:

- solar water heating used for every house;
- the main roofs are connected to a water tank, centrally located to minimise the runs of gutters and drainage;
- the water tanks are connected to the external garden areas, to the WC's and cold water tap in the laundry;
- low flow tap ware and fittings are used throughout every dwelling to reduce water demand; and
- a 40,000 litre water tank under the 2 storey residential building is proposed with the water being used for flushing toilets, laundries and watering surrounding communal landscape areas.

7.1.7 Water and landscape design generally in the master plan

The landscape areas within the master plan have been maximised to ensure maximum return of water to the water table and the stabilisation of the water balance on the site. There are specific areas of landscape associated with each ground level dwelling to promote the use of planting by the residents, but the majority of the landscape is in communal areas to ensure a high level of landscape installation and maintenance. As indicated on the landscape plans, the plant species chosen are endemic and indigenous to the area to minimise the need for irrigation and to ensure continuity for the local fauna.

7.1.8 Materials use generally

The construction materials have been chosen to maximise performance thermally balanced with the needs for environmental performance and longevity to lower life cycle costs. Claddings are from lightweight concrete panelling (Matrix and Lines) to reduce timber use and to promote low maintenance. Pre-painted 'Colorbond' roofing, guttering and water tanks are used throughout to minimise material and energy use in the original installation and to promote longevity in maintenance. Timber substitutes are used throughout to reduce timber demand and the pressure for use of unsustainably sourced materials. Bamboo flooring is used internally and a Wood Plastic Composite timber replacement is used for all the decking externally.

7.2 Principles of ESD

The EPA Act adopts the principles of ESD as described by section 6(2) of the Protection of the Environment Administration Act 1991. This definition includes the precautionary principle, the principle of intergenerational equity, the principle of conservation of biological diversity and ecological integrity and the principle of improved valuation, pricing and incentive mechanisms. The Project is assessed against these four principles in the following section.

7.2.1 Precautionary Principle

A comprehensive environmental assessment undertaken with the Concept Plan approval process investigated a broad range of issues including flora and fauna impacts, geotechnical and hydrogeological investigations, bushfire impacts, social infrastructure, transportation, Aboriginal and European heritage impacts and sustainability opportunities. The District Centre has been sited having regard to these studies and consultations with the community and government agencies. The formal nomination of the Environmental Zone ensures that the footprint of the VCV & DC is clearly defined to preserve land of environmental significance.

Neither the studies undertaken as part of the Concept Plan, nor this Project Application have revealed any uncertainty regarding potential impacts sufficient to adopt a precautionary approach to either delay or prevent the project from progressing.

The findings and recommendations of the specialist consultant reports have identified and assessed potential environmental impacts and developed appropriate mitigation measures in addition to recognising the various positive impacts that the Bayswood Retirement Village can deliver to Vincentia.

The impacts that have been identified in the assessment of the Project can be appropriately managed and have not been found to result in serious or irreversible environmental damage as a consequence of the proposal.

7.2.2 Intergenerational Equity

The Project has been designed to ensure that the proposal does not impose a burden on future generations whilst realising benefits for both the existing and future communities including:

- the implementation of WSUD measures;
- water quality monitoring programs and vegetation maintenance beyond the construction phase of the proposal;
- the WSUD measures and water quality monitoring programs work towards protecting down stream environments reducing management needs for future generations;
- reducing traffic demands by providing on-site facilities and being conveniently located opposite the future District Centre; and
- providing on-site facilities in the form of the Village Centre including social, recreations, meals, access to medical services and community transport to reduce the burden on existing facilities within the area;

These measures will operate to ensure that the health and diversity of the existing environment is enhanced for the benefit of future generations.

7.2.3 Conservation of Biological Diversity and Ecological Integrity

This EAR has demonstrated how the relationship of the biophysical elements of the adjoining land has been considered in the design of the RLV whilst minimising potential impacts.

In particular stormwater is managed to control flows in to the adjoining heathland and wetland of the Environmental Zone. The WSUD treatment train will operate to remove sediment and ensure that the quality of water exiting the site into the Environmental Zone either meets or exceeds the current water quality conditions.

The Concept Plan has approved the broad land use for the site for either a residential subdivision or adaptable housing, of which the RLV is a form. Implicit in this approval is the removal of natural vegetation. The landscaping of the RLV is designed to integrate with the Environmental Zone by nominating species that will complement the adjoining land. A sediment and erosion control plan has also been prepared to minimise construction impacts on the Environmental Zone.

The selection of appropriate species in the landscape plan, planting densities, soil management and monitoring programs will assist in maintaining the biological diversity and ecological integrity of the adjoining Environmental Zone both during and after construction.

7.2.4 Improved Valuation, Pricing and Incentive Mechanisms

This principle seeks to include environmental factors into the valuation of assets and services. Presently, the site contains natural vegetation and there are no environmental resources on the site currently being exploited for commercial use or proposed as part of the development.

Environmental impacts arising as a consequence of the development will be managed by implementing appropriate safeguards to mitigate against potential adverse environmental impacts. The cost of implementing these safeguards is included in the total project cost and therefore not borne by a third party.

8 Climate Change

The DGRs require an assessment of the effects of the proposal upon climate change. Cardno Forbes Rigby has undertaken an assessment of the Project both in terms of the

effects of the Project on climate change and the effect of climate change upon the Project. A copy of this report is attached at **Appendix 18**.

8.1 Impacts of Project on Climate Change

The Cardno Forbes Rigby report has undertaken the assessment of greenhouse gas (GHG) in accordance with the *National Greenhouse Accounts Factors* and *Greenhouse Protocol 2004* and industry best practice. These documents establish guidelines that categorise GHG emissions into three “scopes “

- **Scope 1** covers *direct* emissions produced from within the boundary of an operation as a direct result of its activities, such as combustion of fuels, transport energy, removal of trees
- **Scope 2** covers *indirect* emissions from the operation’s consumption of purchased electricity produced by another organisation,
- **Scope 3** covers *indirect* emissions that are produced outside the operation’s boundary but are a direct result of the operation’s activities, such as manufacture of raw materials, transfer of raw materials and removal of waste generated on site.

Cardno Forbes Rigby has identified that Scopes 1 and 2 are most relevant to the Project, whilst Scope 3 emissions make only a minor contribution in this instance. Cardno Forbes Rigby has examined the performance targets for the following components of the development and compared these to baseline data.

Energy consumption is targeted to be reduced by 25% in line with BASIX energy savings targets through the use of energy efficient appliances, compact fluorescent light fittings, solar energy panels, passive building design, use of water saving fittings and measures to improve thermal comfort of dwellings as detailed in Section 7.1.

Water conservation is targeted to be reduced by 40% through BASIX initiatives such as water efficient appliances and fittings, use of rainwater tanks, WSUD measures and water-wise landscaping as documented elsewhere in this EAR. Reduced water consumption indirectly reduces GHG emissions by eliminating potential for grey or black water treatment plants and associated pumping equipment.

Waste management initiatives include recycling of waste generated on site during the construction phase and household waste during the operational phase through the use of community awareness and education, recycling facilities and regular collections of all wastes for removal to tips or recycling facilities to reduce putrefaction on site thereby reducing GHG emissions.

Materials will be selected to have a low volatile organic compound for better air quality and low emissions sources. Recycling of construction materials will be maximised where possible and practical. The materials selection is aimed at reducing PVC to reduce chlorine containing GHG by selecting materials such as bamboo flooring and composite wood products where possible, as detailed in Section 7.1.8.

Transport usage within the development will be significantly lower than traditional residential subdivisions. Masson Wilson Twiney has documented in their Traffic Report (**Appendix 9**) that dwellings in the residential subdivision would have approximately 0.85 peak hour trips/hour/dwelling compared to 0.2 peak hour trips/hour/dwelling in a retirement development. This is partly due to differing travel patterns, but also facilitated by the proximity of District Centre which is located directly opposite the RLV and the operation of a community bus. Reduced vehicle use will minimise GHG emissions.

Cardno Forbes Ribgy concludes that these measures will minimise GHG emissions consistent with ESD principles.

8.2 Impacts of Climate Change on The Project

Cardno Forbes Rigby has considered a range of predicated climate change impacts including an increase in annual average temperatures, projected sea level rises, more variations in rainfall patterns (including increased frequency and severity of droughts and increased occurrences of flooding and storms) and increased risk of fires.

The site is between 2m and 23m above sea level. Predicated sea level rises of between 0.18m and 0.59m are unlikely to have any impact on the Project as documented in the WSUD study also prepared by Cardno Forbes Rigby. The WSUD study has found that

"In the case of the BRL [Bayswood Retirement Living] project the effects of climate change are relatively minor. The effects of climate change increases flood levels by an average of 100mm for the 1% AEP flood event, the event in which the Flood Planning Levels (FPL) is derived from (DIPNR, 2005).

Considering that all lots within the BRL precinct are above the 1% AEP flood level even under the climate change scenario, the already proposed 500mm freeboard to the 1% AEP flood level for finished floor levels is an adequate measure for dealing with the effects of climate change."

The Climate Change report also considers that predicted increases in temperatures of up to 2°C by year 2030 is not expected to have a significant impact as Vincentia is located within a temperate climate such that occupant comfort levels should not be affected. This will also be aided by the cross ventilating dwellings which will reduce the need for additional energy consumption and will reduce associated increases in GHG emissions.

Cardno Forbes Rigby has also estimated the GHG emissions from the development. Importantly, the average occupancy ratio for retirement living houses of approximately 1.3 persons per dwelling is significantly lower than traditional housing. The predicated emissions for traditional housing have therefore been adjusted accordingly. The abatement measures including BASIX water, energy and thermal comfort targets, measures to reduce waste and savings in transportation due to the on-site facilities and proximity of the District Centre all aid in further reducing energy consumption and GHG emissions.

9 Developer Contributions

The Concept Plan and Project approval for the residential and district centre development includes a statement of commitment regarding the payment of developer contributions. This commitment and timing is as follows:

Commitment	Timing
Stockland will pay Section 94 developer contributions in accordance with Appendix B of the Don Fox Planning Report: Review of Developer Contributions and Associated Works Proposed Residential and Commercial Development Vincentia District Centre, February 2006 as part of the Preferred Project Report which forms part of the EAR on a "ET" basis for each stage of the residential subdivision at the rate applicable at the time of payment, except for project 03 CFAC 0003 (Amendment 67 – Bay and Basin Recreation and Community Hall) which is a fixed amount of \$3,656 that would then fully recoup the developer share for that whole project.	Prior to the release of the Subdivision Certificate by Shoalhaven City Council or an accredited certifier for each stage of the residential subdivision and the Construction Certificate for each stage of the District Centre.

The contribution payments referenced above were agreed to by Shoalhaven City Council at its meeting of 24 October 2006, and are required to be progressively paid at each stage

of the overall development. The amount to be paid at each stage is the proportion of the total indexed contribution payable as determined by dividing the equivalent tenements (ETs) for that stage by the total ETs for the overall development. A standard housing lot is one (1) ET.

The RLV proposes the construction of 166 dwellings. The footprint of the RLV replaces 125 standard housing lots within the approved residential development. Therefore each dwelling in the RLV would have a proportional ET of 0.765 for the purposes of calculating developer contributions payable in accordance with the original Concept Plan and Project approval and agreement with Council. The Statements of Commitment for the RLV Project will reiterate the requirement of payment of contributions as agreed with Council and specify the method for the apportionment between stages.

10 Draft Statement of Commitments

The approved Statements of Commitment forming part of the Concept Plan and Project Approval as are relevant to the RLV Project application have been copied to the draft Statements of Commitment below.

In the event of any inconsistency the draft Statements of Commitment contained in Table 13 will prevail over the approved Statements of Commitment forming part of the Concept Plan/Project Approval, insofar as they relate to RLV.

Table 13 – Draft Statements of Commitment

Item Number	Commitment	Timing
Statutory Requirements		
1	Stockland will obtain and maintain the following licences, permits and approvals for the residential subdivision: • Construction Certificates for engineering works (including earthworks, soil and water management, clearing, roadworks, drainage, landscape, water supply, and sewerage); • Subdivision Certificates; • 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	Prior to the construction and registration of each stage within the development, and as required from time to time.
Conveyancing		
2	Stockland will prepare a final plan of subdivision and Section 88B instrument to create a separate allotment that will accommodate the Retirement Living Village development.	Registration prior to the issue of an Occupation Certificate for Stage 1.

Item Number	Commitment	Timing
Titling		
3	Stockland will, upon the enactment of the Retirement Villages Amendment Bill 2006 in its form as at April 2008, take all necessary steps to register the lot as a retirement village pursuant to the proposed section 24A; Stockland Retirement Living will, following completion of the first stage of the development, as the first operator of the retirement village, enter into village contracts with residents as those terms are defined under the Retirement Villages Act 1999; Stockland will as the first operator of the retirement village, provide and make available to the residents of the village, the services described in the development application.	Prior to the occupation of the first dwelling.
4	Stockland will prepare work as executed plans for construction work and provide such plans to Shoalhaven City Council.	Prior to the release of the Occupation Certificate by Shoalhaven City Council or accredited certifier for each stage.
5	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 Occupation Certificate by Shoalhaven City Council or accredited certifier for each stage.
6	Stockland will commit to ensuring that the movement of oversized vehicles will be confined to off-peak periods, and implement the appropriate safety controls developed in consultation with the RTA.	During the course of construction
7	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	Prior to the commencement of construction of stage 1, and updated prior to the commencement of construction for each subsequent stage of the development.

Item Number	Commitment	Timing
	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.	
Fire Management		
8	In order to manage potential bushfire attack from the east Stockland commits to: • constructing dwellings 75 –77 and the 2 storey residential building to Level 1 standard under Australian Standard AS3959 to withstand damage from radiant heat; • requiring residents to use only non-combustible furniture on the east facing balconies of the dwellings in the 2 storey residential building as part of the lease agreement for each dwelling; and • planting landscaping within the eastern setback that reduce the risk of burning from debris attack.	• Details to be provided with the construction certificate for the buildings • To be incorporated into each lease agreement. • To be carried out during landscaping of the development
9	Stockland will assist the village management in preparing an Evacuation and Emergency Response Plan which will include provisions for management staff to coordinate an evacuation with assistance from suitably trained residents.	The Evacuation and Emergency Response Plan will be prepared prior to the occupation of the first dwelling.
10	Stockland will ensure that regular maintenance of the APZ is undertaken to ensure that • Mature trees (>150mm trunk at chest height) do not to overhang buildings and are pruned to ensure a separation between crowns such that canopies are discontinuous between the hazard and the buildings • Smaller trees (<150mm trunk at chest height) and all understorey vegetation within the APZ is maintained to not form a contiguous pathway to the development • Grass is mowed and gardens beds are mulched • Landscaping to be lower flammable species	The landscaping requirements will be carried out during the landscaping of the APZ. Building specifications will be indicated with the Construction Certificate for any stage which includes buildings within the APZ. Management procedures will be in place prior to the occupation of the first dwelling.

Item Number	Commitment	Timing
	- Structures (eg fencing, sheds, decks, pergolas) will be non-combustible under AS1530.1 and C1.12 of the BCA - Structures with stored combustible material will be sealed - Gutters, roofs and roof gullies to be kept clear of leaves and debris. - Landscaping east of dwellings 75-77 and the 2 storey building to be as above but with greater use of non-combustible materials & sparser planting of trees and ground covers.	
11	In relation to water supply Stockland commits to ensuring that - the sizing and pressures of water supply comply with AS2419.1-2005; - that hydrants are not to be located within any road carriageway or parking bay ;and - above ground water pipes external to buildings are to be metal including and up to any taps.	Water supply requirements to be undertaken during construction.
12	In relation to bottled gas supply Stockland commits to installing and maintaining bottled gas in accordance with AS1596 and the requirements of the relevant authorities.	On-going
13	Stockland commits to undertaking the following measures for each stage of housing construction to ensure that each stage has adequate bushfire protection measures consistent with PBP, 2006: - An APZ for each stage is at least 63m wide where it adjoins forest and 45m wide where the stage adjoins tall heath (except for Dwellings 75-77 and the two storey residential building which are provided with alternate solutions) - An APZ of 100m for dwellings located beyond the 100m line from the managed bushfire hazard as indicated in Figure 1 of the BES Bushfire Assessment. - A perimeter road is to surround all buildings (this will be provided by the perimeter public road external to RLV) - Staged internal roads are to provide access to all buildings	Measures to be put in place during the course of site preparation works or construction and completed prior to the issue of an occupation certificate for each stage and on-going.

Item Number	Commitment	Timing
	Where bushland remains between the perimeter road and the staged development, a temporary fire trail to the standard of Table 3 is to separate the buildings from the hazard.	
Water Supply and Quality Management		
14	Stockland will design and install water quality control measures in accordance with the principles of the Supplementary WSUD Study prepared by Cardno Forbes Rigby, April 2008.	Design details to be provided prior to the release of the Construction Certificate by Shoalhaven City Council or an accredited certifier.
15	Stockland will undertake general WSUD during the course of construction in accordance with the Supplementary WSUD Study prepared by Cardno Forbes Rigby, April 2008	Maintenance is to take place at least every six months and after heavy rainfall for the duration of the construction phase.
16	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 three years following the completion of Stage 1 of the Retirement Living Village.	Prior to any occupation certificate being issued and the satisfactory completion of the last critical stage inspection required by Section 190E(3)(d) of the Environmental Planning and Assessment Regulation 2000 and then on-going for a period of 3 years.
17	Stockland will remain responsible for the maintenance of water sensitive urban design structures (WSUD) and open space areas within the Retirement Living Village and will undertake to carry out maintenance of the WSUD elements and ponds.	On going with regular maintenance scheduled at 6 monthly intervals or after heavy rainfall.
18	Stockland will implement the soil and water management plan (DWG SK05 rev P1 prepared by Cardno Forbes Rigby as contained in Appendix B to the Supplementary WSUD Study, April 2008) to control run off during construction in accordance with the principles of the Supplementary WSUD Study prepared by Cardno Forbes Rigby, April, 2008.	Prior to the release of the Construction Certificate by Shoalhaven City Council or accredited certifier.
Cultural Heritage		
19	Stockland will inform the Jerrinja Local Aboriginal Land Council of progress of the development.	Ongoing through the construction of the development.

Item Number	Commitment	Timing
20	Stockland will engage the local community and facilitate employment opportunities where possible between contractors and Jerrinja Aboriginal community.	Ongoing through the construction of the development.
Infrastructure		
21	Stockland will provide reticulated water supply, sewerage and underground electricity to the RLV.	Prior to the release of the Occupation Certificate by the Shoalhaven City Council or an accredited certifier for each stage.
22	Stockland will design and construct all internal water reticulation and internal sewerage systems in accordance with the Plumbing Code of Australia (December 2004 edition).	During the course of construction
23	Stockland will be responsible for the maintenance of the internal water supply network and internal sewerage systems upstream of the connection point(s) provided by Shoalhaven Water	For the duration of the development
24	Stockland will install an internal communication system to provide a suitable nurse calling system and resident intercom for patrons to contact other residents.	To be installed at Stage 1 of the RLV and then within dwellings of each subsequent stage.
25	Stockland will provide for infrastructure services generally in accordance with sewer reticulation, water reticulation, electrical & communications, WSUD & drainage, services footway GSM & CDMA Concept Plans attached to the Services and Infrastructure Report prepared by Cardno Forbes Rigby Pty Ltd, dated April 2008.	Prior to the release of the Occupation Certificate by the Shoalhaven City Council or an accredited certifier for the affected stage.
Roads		
26	Stockland will design and construct a roundabout with non mountable central island intersection at Access C along Naval College Road (Moona Creek Road intersection) to AUSTROADS standards, including approach and departure.	Prior to the occupation of the first stage of the District Centre of occupation of Stage 1 of the RLV, whichever occurs first.

Item Number	Commitment	Timing
27	Stockland will design, realign and upgrade Naval College Road between Access C (Moona Creek Road) and Access B (Bayswood Road) to two lanes and 80km/hr AUSTROADS standards.	In conjunction with the provision of Access C (Item 25 above)
Staging		
28	Stockland commits to staging the construction of the dwellings in accordance with the Staging Plan prepared by Environa Studio, Drawing No. 903MP004b, subject to market demand.	For the duration of the development
Accessibility		
29	Stockland commits to designing all internal roads to between a minimum grade of 1% and maximum grade 5% to achieve accessibility requirements that comply with AS1428.1.	Details to be confirmed at the detailed design stage and prior to the issue of a Construction Certificate
30	Stockland commits to designing the circulation areas and internal doorways within the Village Centre buildings to comply with AS1428.1.	Details to be confirmed at the detailed design stage and prior to the issue of a Construction Certificate
31	Stockland commits to amending the house designs as set out in Section 6 of the Accessibility Report prepared by Morris Goding Accessibility Consulting dated April 2008	Details to be provided with the Construction Certificates for each stage.
32	Stockland will ensure that one accessible visitor car parking space is provided in the car parking area north of the Village Centre with a minimum width of 3.2m and cross fall gradient of 1:33 and also ensure that a further disabled visitor car parking space is provided in the basement of the 2 storey residential building.	Details to be provided with the Construction Certificate.

Item Number	Commitment	Timing
33	Stockland commits to operating a private shuttle bus service linking residents of RLV with community services, recreational facilities, general practitioners and local shopping services at Vincentia in line with the provisions of SEPP 2004. The shuttle bus will operate 7 days per week with 1 – 2 trips daily, dependant on the level of demand for the service by the residents.	For the duration of the development.
Car Parking Design		
34	Stockland will construct the internal car parking areas in accordance with the specifications of the Shoalhaven DCP No. 18.	Details to be provided with the Construction Certificate.
35	The car parking area will be constructed to incorporate appropriate signage, line marking and lighting.	Details to be provided with the Construction Certificate.
Developer contributions		
36	Stockland will pay Section 94 developer contributions in accordance with Appendix B of the Don Fox Planning Report: Review of Developer Contributions and Associated Works Proposed Residential and Commercial Development Vincentia District Centre, February 2006 as part of the Preferred Project Report which forms part of the EAR on a "ET" basis for each stage of the residential subdivision at the rate applicable at the time of payment, except for project 03 CFAC 0003 (Amendment 67 – Bay and Basin Recreation and Community Hall) which is a fixed amount of \$3,656 that would then fully recoup the developer share for that whole project. For the purposes of calculating the proportion of this contribution payable, a RLV dwelling has an ET equal to 0.765.	Prior to the release of the Occupation Certificate for each stage.

Item Number	Commitment	Timing
Acoustics		
37	Stockland commits to constructing an acoustic screen of approximately 1.8m in height along the Moona Creek Road frontage from the south-western corner and terminating just north of the 2 storey residential building. The exact height of the acoustic screen will be determined when finished grounds levels have been determined during detailed design.	Details to be provided prior to the release of the Construction Certificate by either Shoalhaven City Council or an accredited certifier.
38	Stockland commits to upgrading the facade of the 2 storey residential building and the two storey dwelling in the south-eastern corner of the site to adequately attenuate road traffic noise from Moona Creek Road. The façade treatment will be determined during detailed design.	Details to be provided prior to the release of the Construction Certificate by either Shoalhaven City Council or an accredited certifier.
39	Stockland commits to selecting mechanical plant for the Village Centre which has a maximum sound power output for single items of plant: • 84dBA Day time 7.00am to 6.00pm; • 81dBA Evening 9.00pm to 10.00pm; and • 73dBA Night time 10.00pm to 7.00am, unless directivity losses or shielding reduce noise transmission to the nearest affected dwellings.	Appropriate mechanical plant is to be selected during the detailed design stage.
Sustainability		
40	Stockland commits to preparing BASIX certificates for each dwelling prior to the issue of a construction certificate for each stage of the development to ensure that the water, energy and thermal comfort targets of the BASIX certificate for the relevant typical dwelling type is achieved.	Prior to the issue of a construction certification for each stage of the development.

11 Project Justification

Numerous environmental assessments have previously been undertaken during the Concept Plan and Project applications. This EAR provides further assessment of the proposal against relevant statutory matters specific to the RLV. This EAR provides an assessment against the relevant EPIs and DCPs as required by the Director General Requirements. This EAR demonstrates a high degree of consistency with the relevant Commonwealth and State legislation, SEPP 71, the relevant sections of SEPP (Housing for Seniors or People with a Disability), the Jervis Bay Settlement Strategy and the recently adopted South Coast Regional Strategy 2006-2031, Shoalhaven LEP and the relevant Shoalhaven DCPs providing justification for the proposal.

In particular, this EA has demonstrated that the proposal has acceptable environmental impacts. It has also demonstrated how any impacts are capable of being managed to an acceptable level.

Traffic generation is lower than modelled for the approved Concept Plan and Project application, due to the lower traffic generation rate of the proposed retirement living form of housing compared to standard residential lots. The road improvements approved as part of the Concept Plan and Project application for the VCV & DC include substantial improvements to Naval College Road off which the RLV will be accessed. Those improvements form part of the Statements of Commitment under the Project Application approval for the residential subdivision and will establish a road network suitable for the approved residential subdivision, the District Centre and the proposed RLV.

Parking provision with RLV has been found to be adequate and more than complies with the provisions of State Environmental Planning Policy (Housing for Seniors or People with a Disability), 2004 and Council's Development Controls Plans.

Bushfire impacts have been assessed under the PBP, 2006. The Assessment has found that 145 of the independent living units and all of the Village Centre buildings comply with the acceptable solutions within PBP, 2006. Three of the ILUs (No.s 75-77) and the 2 storey residential building meet the performance criteria requirements of PBP, 2006. Mitigation measures are proposed to ensure defensible spaces to the east of these buildings is maintained and managed. Further all buildings within 100m of bushfire prone land will be constructed to Level 1 standard under AS3959 - Construction of Buildings in Bushfire Prone Areas. In the event that the surrounding developments (i.e residential subdivision and District Centre) are delayed, then a minimum 100m APZ is required for each proposed stage of the RLV for houses beyond the 100m line of the bushfire hazard. The proposal is therefore justified on the basis of the majority of housing within the RLV meets the acceptable solutions standards or the PBP, 2006 or the performance based measures with appropriate mitigation measures proposed and reflected in the Statements of Commitment to ensure these measures are effected.

The urban design of RLV has given taken into account the design controls contained in the complying development controls proposed for the surrounding residential subdivision. The siting, scale and materials of the RLV all operate to provide complement the future character of the surrounding residential subdivision. The larger scale buildings, albeit two storeys in height, have been located along Moona Creek Road to relate to the larger scale buildings of the District Centre which significantly contribute to the built form and scale of Moona Creek Road. The scale, siting and design of the buildings are therefore not considered to create any unacceptable visual impact when viewed from surrounding streets, open spaces or future neighbouring houses.

The landscape strategy aims to maintain the coastal identity by using primarily local indigenous and native planting with species selection borrowing from the planting schedule set out for the residential subdivision. The landscape treatment will tie in the RLV with the

surrounding development and the tall heathland on the opposite side of Moona Creek Road. The landscape strategy is also considered to be consistent with the NSW Coastal Design Guidelines establishing justification for the project's landscape character.

Sustainability has been an important consideration in the design of RLV. Buildings are designed to take advantage of orientation, cross ventilation and natural light. Opportunities to utilise the thermal mass and natural exhausting or cooling of buildings is also incorporated into the design of all buildings. Water conservation through use of water tanks, WSUD measures and native plantings has also been adopted. These principles have enabled the all dwellings to achieve or exceed the targets for thermal comfort, energy and water use of BASIX. The same principles have been applied to the Village Centre buildings, although not to subject to BASIX and air conditioning is only fitted to the wellness centre / management building and the café building. The sustainability attributes of the RLV buildings, combined with transportation benefits such as the proximity to the District Centre and provision of services and facilities within the RLV itself will reduce car usage and greenhouse gas emissions. Collectively the sustainable attributes of the development will minimise greenhouse gas emissions consistent with ESD principles providing justification for the Project on sustainability grounds.

Disabled access has been taken into account in the design of the RLV. The Project application is not made under the Provisions of SEPP 2004. However, given the nature of the development for retirement living and the demographics of the future population the Project has considered the relevant design criteria of SEPP (Housing for Seniors or People with a Disability), 2004. The gentle grade of the site and limited cut and fill assist in achieving grades to achieve access within and external to the site to meet the relevant design criteria of SEPP 2004. 132 of the independent living units (i.e attached or detached dwelling) and four dwellings within the 2 storey residential building are designed as adaptable dwellings. The dwellings and the Village Centre buildings are designed to achieve compliance with AS1428.1, with minor modifications recommended as reflected in the Statements of Commitment. The EAR has demonstrated compliance with the relevant design related provisions of the SEPP and AS1428.1 justifying the Project's suitability for the demographics of the future population of the RLV.

Water quality - Cardno Forbes Rigby has prepared a WSUD Study for the approved Concept Plan / Project application and has prepared a further WSUD study for the RLV project. The 2008 WSUD study confirms that the conceptual design for typical arrangement approved in the 2006 will not change for the RLV. The approved stormwater quality treatment measures have been tested through MUSIC modelling which confirms that the average pollutant concentrations in post-development conditions match the water quality expected from a natural forest. This is a very onerous target which is in line with the EPA's Managing Urban Stormwater – Council Handbook (Draft 1997) and also is in line with the Jervis Bay Settlement Strategy. The WSUD measures and water quality monitoring programs work towards protecting down stream environments reducing management needs for future generations.

Acoustic assessment has been undertaken including taking into account road traffic noise, mechanical noise from plant within the RLV, noise from the District Centre and construction noise. Internal road traffic noise is acceptable due to low traffic volumes and speeds. An acoustic fence 1.8m in height is proposed along part of Moona Creek Road to shield dwellings from Moona Creek Road and traffic entering/existing the District Centre. This fence is designed as a combination of alternating materials to provide visual interest. Maximum sound power outputs are set for any future mechanical plant within the RLV. Noise impacts have not been found to unreasonable to require any significant modification to the design of the Project justifying its proposed location and design..

Utilities and infrastructure have been assessed confirming that utilities can be readily provided to the RLV. The existing electricity, telecommunications and water infrastructure

can be readily extended to service the RLV. Sewer will require the completion of a nearby pump station to then allow connection to the Vincentia Wastewater Treatment Plant and Reclaimed Water Management Scheme.

In terms of the **regional strategies** for the Shoalhaven local government area the proposal will assist in achieving the stated objectives for the area. The Shoalhaven Housing Strategy 2000 identified the need for suitable housing for aged and disabled close to retail and community services. This was reiterated in the study conducted on behalf of Shoalhaven City Council: A Place for Aging, 2004. The draft Housing Strategy adopted by Council prepared in 2006 similarly identified a need for older families and disabled persons. The need for well placed housing for older persons has been consistently recognised in regional strategies providing the necessary justification for the Project on social grounds.

The **South Coast Regional Strategy** has identified Vincentia as an area to cater for future housing demand, with Vincentia specifically identified as a new urban area. Of relevance to the site is the protection of high quality natural environments. The approved VCV & DC incorporates an Environmental Zone which is not affected by the Project. The Project is therefore justified on strategic grounds by assisting in achieving the vision, aims and objectives of these strategies.

Proceeding with the Project will achieve the strategic planning objectives for the area and complement the approved residential subdivision and relate well with the future District Centre. The Project provides for a diversity of housing in a form that is consistent with the Concept Plan and Project approval for the VCV & DC as demonstrated in this EAR.

12 Conclusion

This EAR has been prepared in the context of the Approved Project issued by the Minister for the residential subdivision of the Vincentia Coastal Village and District Centre. The EAR relating to approved Concept Plan and Project application carried out a number of environmental investigations. Additional assessments have been undertaken as they relate to the RLV.

This EAR demonstrates how the Project addresses the key issues of set out in the Director-General's Requirements. Where potential impacts have been identified appropriate mitigation measures and environmental safeguards have been either designed into the Project, or will be managed by the use of management plans. These measures have been demonstrated to enable the impacts to be reduced or contained to within acceptable standards or levels.

Having regard to the conclusions and findings contained in this EAR, we recommend to the Minister for Planning that the Project Plan as detailed in this EAR be approved under Part 3A of the Environmental Planning and Assessment Act.