



Falls Creek/Woollamia Deferred Areas

Investigations

Draft Preliminary Desktop Assessment

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1 Executive Summary

This report is a preliminary desktop planning analysis of land located in the falls creek area and identified in the *Jervis Bay Settlement Strategy* as an *Existing Rural Residential Deferred Area*. The purpose of the report is to analyse and assess the natural, built, social and economic environmental features of the Falls Creek/Woollamia area based on existing information available through planning strategies, policies and studies. This will be used to develop options to resolve the development potential, particularly in regard to increases in rural residential density, of this area and to determine the appropriate areas to pursue as a Planning Proposal (rezoning) via the Gateway process.

The following key principles have been used to identify land considered unsuitable for increased residential densities:

1. **Lot configuration/context** - Ability to accommodate and practically provide additional infrastructure, including roads and effluent disposal system and ability to provide adequate bushfire protection. Increase in direct vehicular access onto the Princes Hwy. Increased community vulnerability to bushfire and increased pressure on Strategic Fire Advantage Zones located on adjacent managed land (i.e. National Park).
2. **Lot size** - Ability to accommodate additional infrastructure, including roads and effluent disposal system and ability to provide adequate bushfire protection.
3. **Land Tenure** - Land managed by State Forest NSW, NPWS or SCC has been excluded from the planning proposal area.
4. **Environmental/Ecological** - Land identified in the JBREP as habitat corridor and land which is identified as being within the 1% AEP flood area.

On the basis of the outcomes of the initial desktop assessment carried out in relation to the Falls Creek/Woollamia Deferred Investigation Area, the areas suitable for further investigation for an increase in Rural Residential Living densities through the preparation of a planning proposal for consideration through the Gateway process are identified in Figure 1 below.

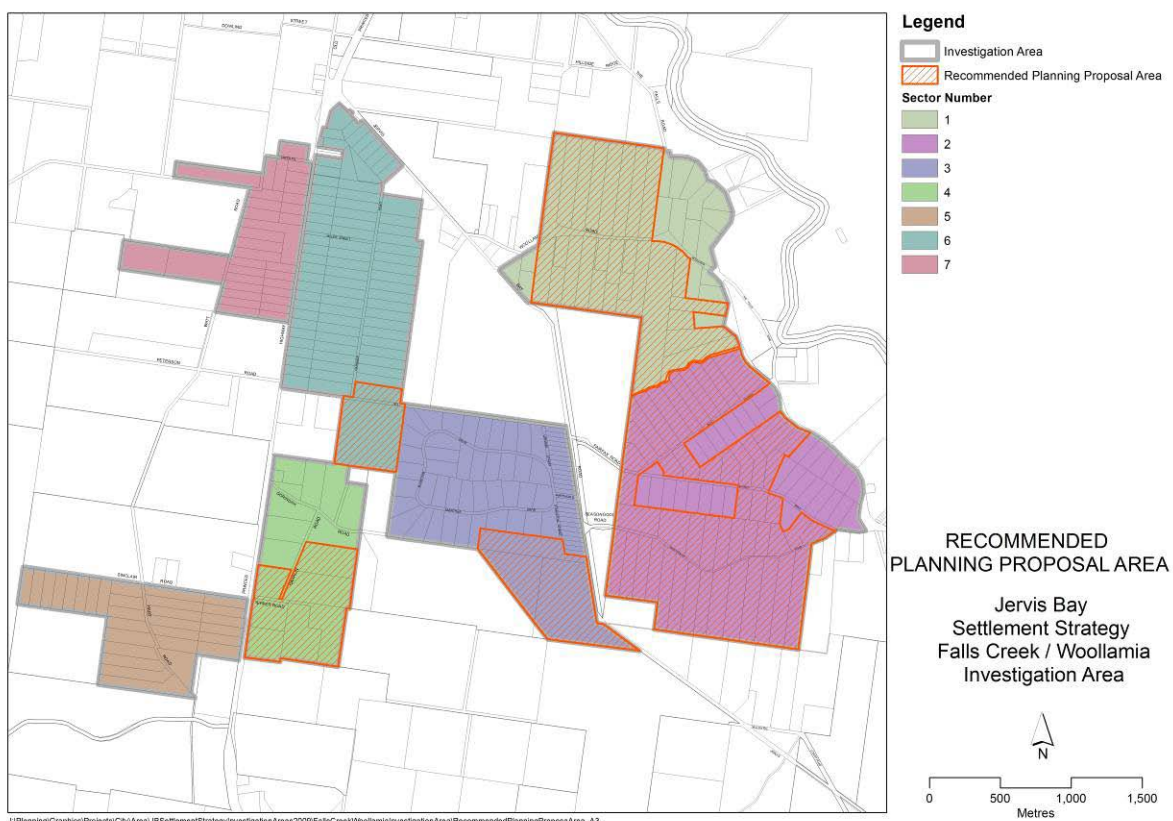


Figure 1: Recommended Planning Proposal Areas

2 Study Area

The Falls Creek/Woollamia Deferred Investigation Area is located approximately 12.5km south of Nowra in the Jervis Bay region. See Figure 2: Falls Creek/Woollamia Deferred Investigation Area.

The investigation area is split north-south by the Princes Highway, the major highway servicing the NSW south coast, and by Jervis Bay Road to the south east which provides access from the Princes Highway to the major town of Vincentia.

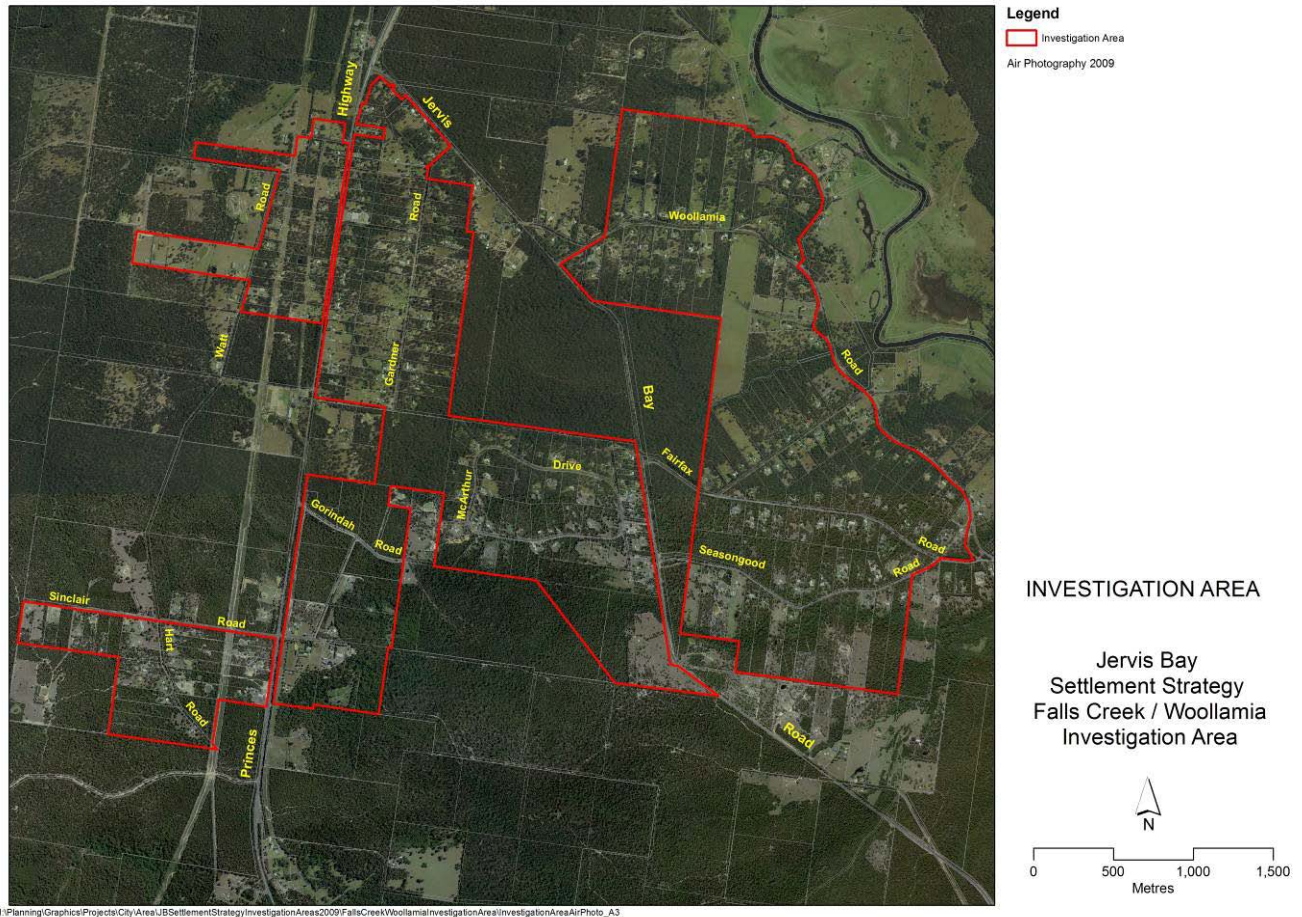


Figure 2: Falls Creek/Woollamia Deferred Investigation Area

The investigation area can be separated into six distinct sectors, based on existing land development characteristics related to lot size and configuration, topography and natural and physical boundaries. These sectors are identified in Figure 3.

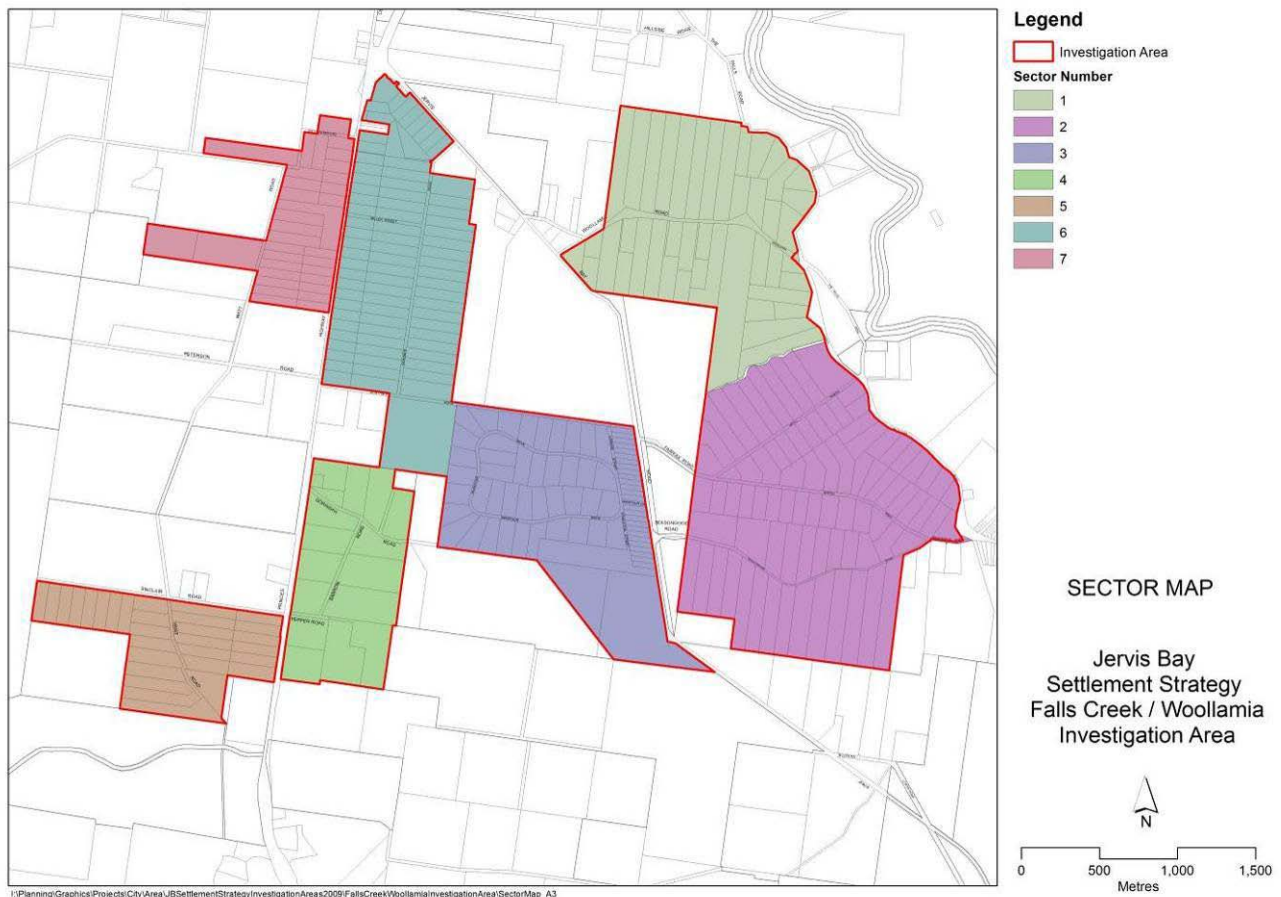


Figure 3: Falls Creek/Woollamia Deferred Investigation Area Sectors

3 Recent Site History

The subdivision of the majority of the investigation area commenced during the 1920's. Small lot subdivision initially took place in 1927 creating rural residential lots along Falls Road, Woollamia Road, Knoll Parade, Fairfax Road and Seasongood Road (DP15266). In 1928 more significant subdivisions occurred as part of the "*Princes Highway Estate*" (DP15507), "*Princes Highway Estate No. 2*" (DP15461) and "*Woollamia Estate*" (DP9289). Subdivision of some individual lots (approximately 10) took place from 1952 onwards throughout the area. In 1964 the land was given a "non-urban A" and "non-urban B" zoning under the Interim Development Order No. 1 (IDO No.1).

Most of the lots created as part of these subdivisions are now held in separate ownership, generally with entitlement to one dwelling per lot.

In 1985, the Shoalhaven Local Environmental Plan (SLEP 1985) commenced, resulting in the rezoning of the majority of the subject area to Rural Residential zones 1(c1), 1(c2) and 1(c3) which provides for minimum lot sizes of 1 hectare [1(c1) zone], 2 hectares [1(c2) zone], and 10 hectares [1(c3) zone] respectively. A small number of lots (4) retained rural zoning (1(a), 1(b) and 1(f) (Rural)) which require a minimum of 40ha for the erection of a dwelling.

In the early 1990's, the McArthur Road subdivision, located to the west of Jervis Bay Road, created 42 rural residential lots, each of approximately 2ha in size.

Soon after the gazettal of *Shoalhaven Local Environmental Plan 1985 (SLEP 1985)* Council began investigating all rural zoned land. Concurrent with the *Rural Plan* investigations, the NSW State Government gazetted the *Jervis Bay Regional Environmental Plan (1996)*. The NSW State Government subsequently placed a moratorium on further major residential or rural residential rezoning in the Jervis Bay region until a Settlement Strategy was prepared and endorsed.

In 1999, the city wide review of rural zoned land was completed. This became known as the *Rural Plan* and it proposed various amendments to rural zoned land in the Falls Creek Area under SLEP 1985. The *Rural Plan* anticipated a new zone known as rural 1(c) (Rural Lifestyle) which merged the before mentioned three rural residential zones into a new more flexible single zone. The objective was to provide rural residential opportunities based on strong ESD principles with the emphasis on maintaining rural character, minimising environmental and social risks and ensuring development did not place economic burden on the community or Council. The 1(c) Rural Lifestyle Zone enabled subdivision to a minimum of 1 hectare in appropriate locations throughout the City.

The rezoning of Rural Residential zones 1(c1), 1(c2) and 1(c3) to 1(c) (Rural Lifestyle) within the investigation area were subsequently deferred from the *Rural Plan* to amendments to SLEP 1985 pending the completion of the Jervis Bay Settlement Strategy (JBSS). Concurrently, the before mentioned Rural1(a) and Rural 1(b) lots had minor LEP rezoning proposals over them and as such it was determined to include these lots in the deferred area for further investigation.

The JBSS was endorsed by the NSW State Government in 2003. It identified the areas deferred from the Rural Plan Amendments in the Falls Creek and Woollamia areas as land that could be investigated for more intensive development while continuing to reflect the objective of these areas as rural living.

3.1 Current Planning Controls

The investigation area is currently zoned a range of 1(c2), 1(c3), 1(a), 1(b) and 1(f) (see Figure 4 below) under the pre Rural Plan version of Shoalhaven LEP 1985

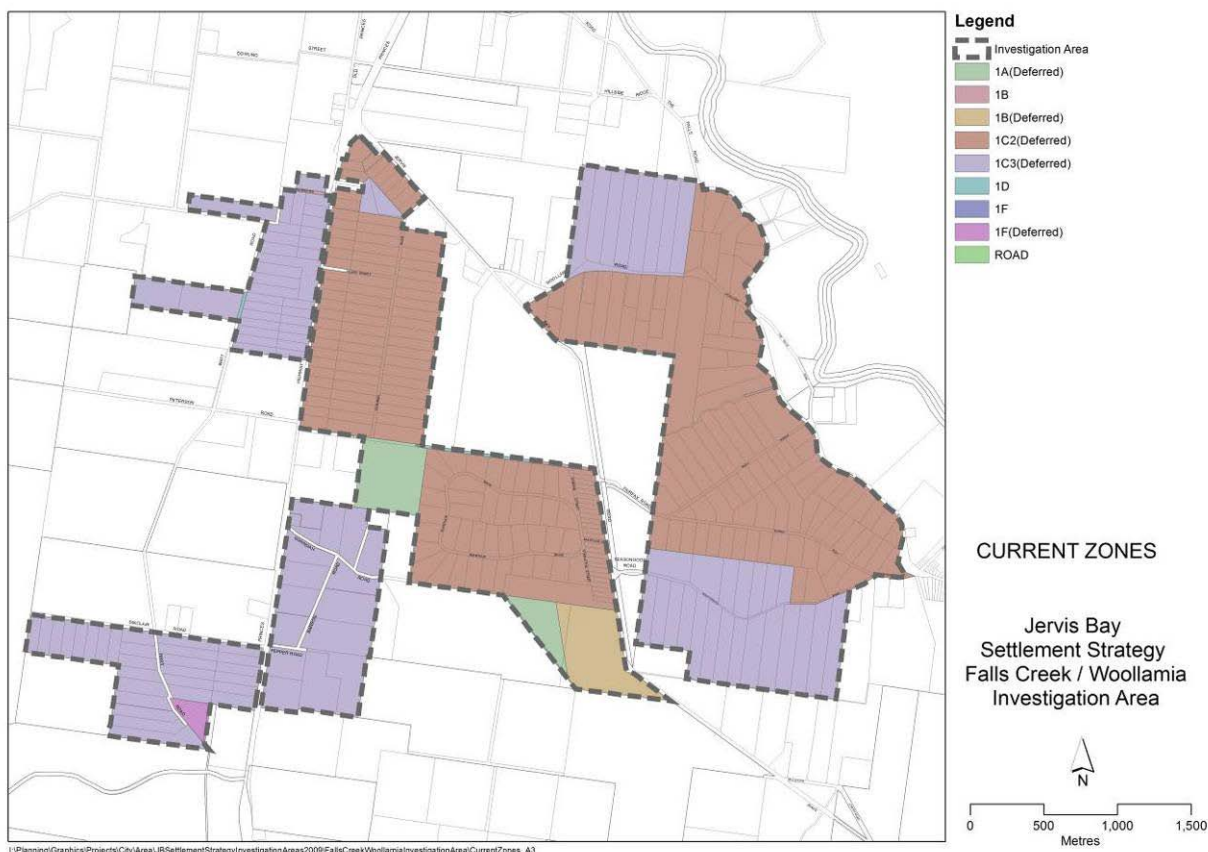


Figure 4: Investigation Area

The Draft Shoalhaven Local Environmental Plan 2009 is currently being prepared for exhibition and will generally match proposed zoning and lot size maps with current SLEP 1985 provisions. The exception are those lots which are currently zoned 1(a) and 1(b) (deferred) which are identified in the Draft SLEP 2009 for 2ha lot sizes in acknowledgement of prior minor LEP rezoning being prepared for them. It is anticipated that the one site zoned Rural 1(f), which forms part of the Yerriyong State Forest, will transpose to draft zoning of RU3 (Forestry) under the draft SLEP 2009.

In this regard, Table I below illustrates the existing lots, existing zoning provisions under SLEP 1985 and proposed provisions under Draft SLEP 2009.

Table I: Current and Draft Zoning Provisions – Lot Size

<i>SLEP 1985 deferred zoning</i>	<i>No. of lots</i>	<i>Current Minimum lot size</i>	<i>Draft SLEP 2009 proposed zoning</i>	<i>Proposed Minimum Lot Size Draft SLEP 2009</i>
1(c2)	240	2 ha	R5 Large Lot Residential	2ha
1(c3)	101	10 ha	R5 Large Lot Residential	10 ha
1(a), 1(b),	3	40ha	R5 Large Lot Residential	2ha
1(f)	1	40ha	R5 Large Lot Residential	10ha

Note: 1(c2) land includes 3 SCC sites. 1(c3) includes 7 NPWS, 2 Crown Land & 1 NSW State Forest sites.

Assuming Draft SLEP 2009 is exhibited and gazetted, it is anticipated that any subsequent Planning Proposal will be an amendment to the Lot Size Map. The outcome of Draft SLEP 2009

may also result in three sites currently zoned 1(a) and 1(b) being removed from any planning proposal, as further rezoning will no longer be required.

3.2 Land Use History, Lot Size and Lot Structure

Residential development within the Falls Creek/Woollamia Deferred Investigation Area has largely occurred in an uncoordinated manner. The existing development pattern generally reflects the subdivisions which occurred between 1917 up until the early 1950's and the subsequent land ownership holdings which established dwelling and concessional lot potential from the IDO in 1964. The exception to this is the McArthur Drive subdivision, located in sector 3 of the investigation area which was developed in the early 1990's creating 42 lots of approximately 2ha each (the minimum allowed under the deferred 1(c2) zone.)

Land use within the investigation area can be described as "rural living" which provides housing in a rural area with relatively larger lot sizes (2 to 4 hectares and above), in an area which is not within close proximity of a town and has limited accessibility to services within and adjacent to the investigation area itself. A broad land use survey has been carried out within the investigation area which demonstrates that the majority (84.3%) of the lots are used for the purpose of a single dwelling with a scattering of uses compatible to the rural setting such as home activities and small scale tourist accommodation.

The total number of freehold lots, excluding SCC, NP&WS, State Of NSW, State Forests of NSW, is three hundred and forty-four (344). By mapping the lots based on a range of lot sizes, a distinct pattern of development becomes evident.

Figure 5 (Lot Size Map) shows the existing development pattern within the investigation area in terms of lot size and configuration.

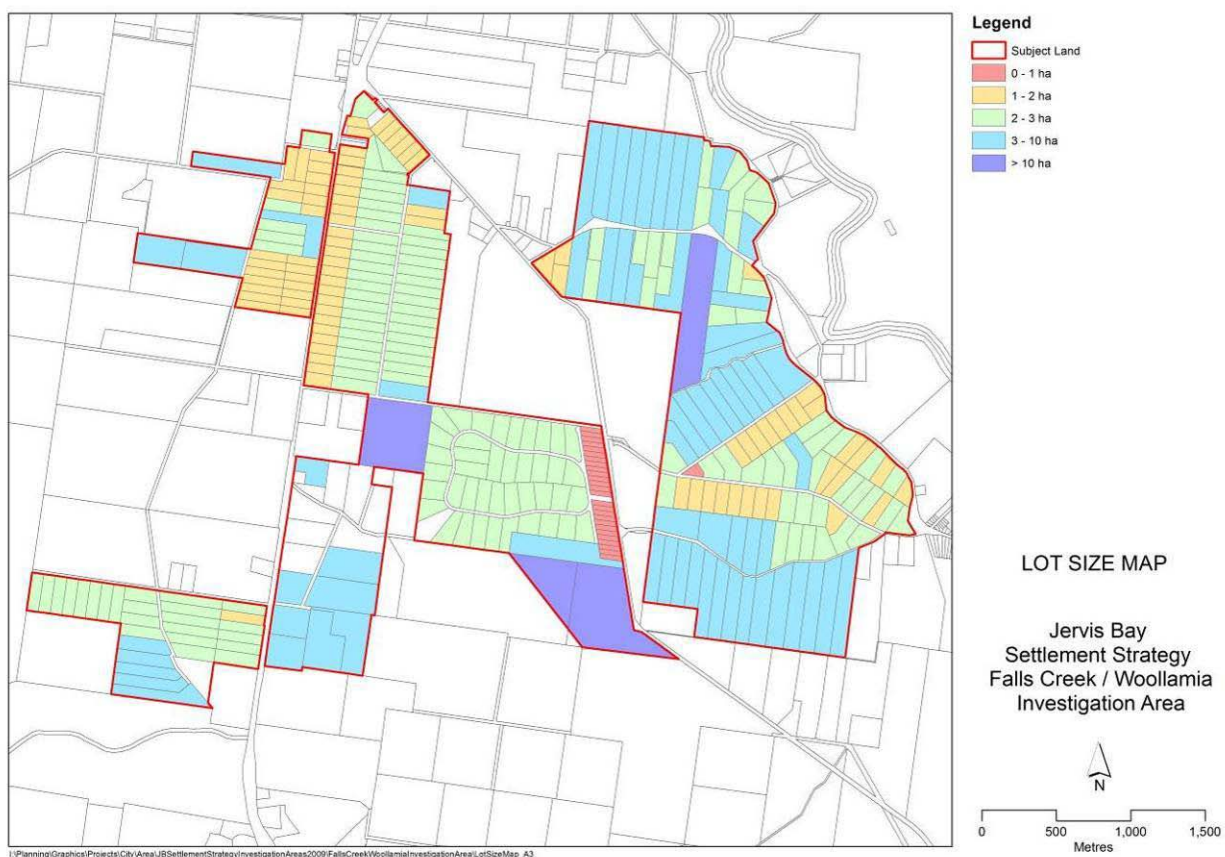


Figure 5: Lot Size Map

The JBSS indicates that there is a perceived demand for rural living opportunities however; to date an analysis into the supply and demand for rural residential land has not been undertaken to determine the adequacy of rural residential land supply.

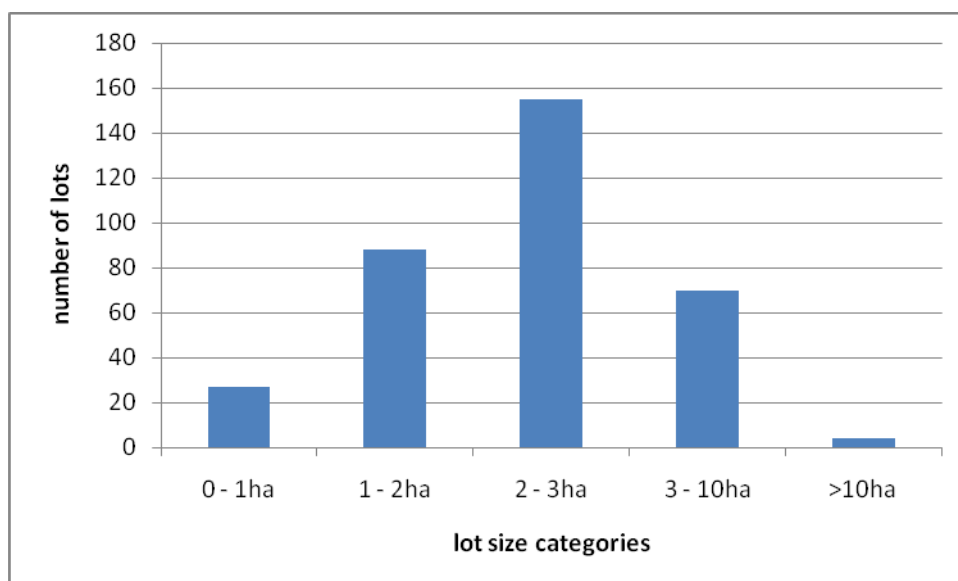


Figure 6: Lot Size Graph

Of the lots which have been developed, the majority are being used for residential purposes, with a small number of lots being used for commercial activities, generally in association with an authorised dwelling.

The following table (Table 2 – Lot Size Analysis) below, splits the lots within the study area into 5 size ranges as follows:

Table 2: Lot Size Analysis

Lot Size	Number of Lots	Number of Vacant Lots
0 – 1ha	27	1
1 – 2ha	88	3
2 – 3ha	155	5
3 – 10ha	70	7
>10ha	4	1

In terms of the existing configuration, the investigation area is largely exhausted in terms of its ability to supply vacant land for rural living. Approximately seventeen (17) vacant blocks are currently available for development within the investigation area. There are currently ten (10) lots zoned 1(c2) which have the potential to supply an additional 33 lots should they be subdivided into 2ha lots (based on the current lot size minimums associated with the 1(c2) zones). Figure 7: Current Subdivision Potential identifies those lots that notionally have the potential for further subdivision based on the current zoning and minimum lot size.

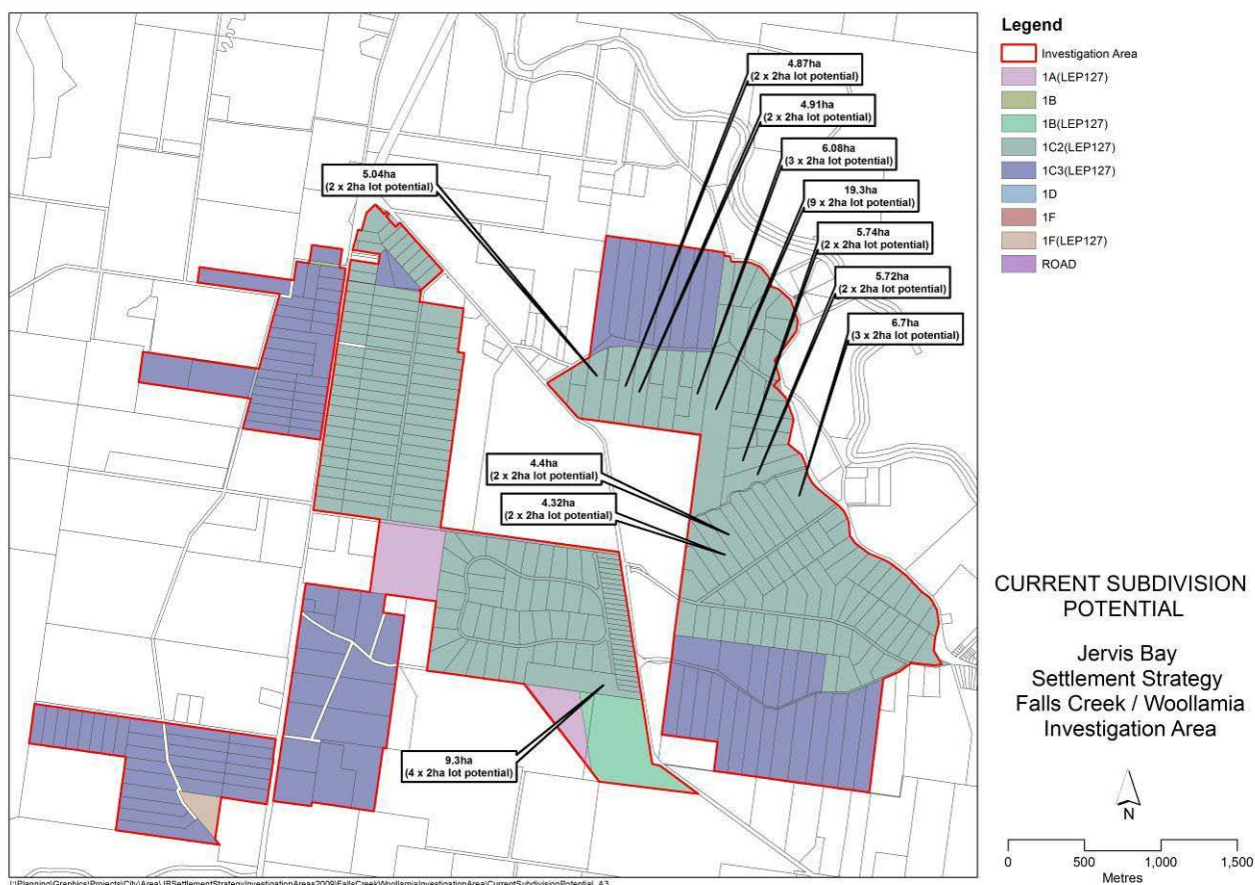


Figure 7: Current Subdivision Potential

Of the three (3) lots zoned 1(a) and 1(b) deferred, there is the potential for these sites to achieve a 2ha minimum through the Draft SLEP 2009 process which recognised Council's previously accepted position of these sites supporting more intense rural residential living. In this regard, should the Draft SLEP 2009 progress with the proposed R5 Large Lot Residential zoning and 2ha minimum specified in the lot size map, it may not be necessary for a planning proposal over these sites to progress.

4 Statutory and Policy Framework

4.1 Background to Jervis Bay Settlement Strategy

The *Jervis Bay Settlement Strategy* (2003) (JBSS) identifies the need to investigate existing Rural Residential Deferred Areas for increased density. It sets out parameters to review and investigate lot capacity, yield, size and configuration, along with other issues which will influence capacity for increased density.

The Settlement Strategy is a non-statutory plan adopted by Council and endorsed by the NSW State Government and reinforced via the *South Coast Regional Strategy* (2006). It forms a strategic framework that provides guidance in terms of the conservation and development of the Jervis Bay region. The document does not rezone land for development, it does, however, identify potential development areas that will need to be further investigated; outlines issues that will need to be addressed in more detail during the investigation and rezoning process; and also provides a tool to help manage residential and rural residential growth in the area.

In terms of the Falls Creek/Woollamia Deferred Investigation Area, the *Principles Plan* identifies the investigation and resolution of this area, with a focus on achieving additional densities for existing rural residential land.

The following Objectives and Actions relevant to the deferred rural residential areas are set out under the strategy:

Objective: *To ensure that rural residential deferred areas are resolved, and that new opportunities for rural residential development are in keeping with the region's natural and cultural attributes.*

Actions:

- i. The potential for the existing rural residential deferred areas to accommodate increased densities will be resolved in accordance with guiding principles and policy actions outlined in this Strategy. In order to achieve increased densities, an understanding of the baseline environmental condition should be investigated and the potential cumulative impacts should be addressed.*

The Settlement Strategy goes on to set out a framework around which increased densities in the deferred rural residential areas be investigated as follows:

- Investigate increased rural residential density (minimum 1ha).
- Use process to achieve environmental outcomes including biodiversity and riparian areas.
- Detailed investigation required in relation to;
 - o Catchment impacts and water quality
 - o On site effluent capacity
 - o Bushfire protection
 - o Native vegetation
 - o Flooding
 - o Potential impacts on existing character
 - o Protection of riparian buffers.

Appendix V contains a summary of the overarching principles for development, objectives and actions contained in the JBSS. It includes an analysis of the consistency of proposed rural residential growth within the Falls Creek/Woollamia Deferred Investigation Area when considered against these objectives and actions. The outcomes of this review has contributed to determining suitability or otherwise of sectors for further investigation and also for determining the parameters for more detailed investigations and studies.

5 Environmental Characteristics

The investigation area is located within the major water catchment that feeds Jervis Bay. The area is diverse in terms of its topographical characteristics which include low lying areas that rise to less than 10m AHD to the north east and south east which drain to the floodplains, adjacent SEPP 14 Wetlands and Currumbene Creek through to the more moderate slopes located within the centre, southern and western sections of the investigation areas which rise to a maximum of approximately 70m AHD.

Additional survey work is required to provide a greater understanding of elevation ranges and contours across the site. Greater investigations into the Geology and soils on the site are required in relation to erosion (and impact on water quality), acid sulphate soils and onsite effluent disposal.

The investigation area is located within the Jervis Bay Region which is acknowledged for its complex and diverse native vegetation communities and land, marine and estuarine based biodiversity.

5.1 Constraints and Potential Impacts

There are a number of constraints which affect the investigation area including vegetation, effluent disposal capacity, water quality/catchment, flooding, flora & fauna, cultural heritage, bushfire, access to infrastructure and road network limitations.

5.2 Bushfire

Council has mapped bushfire prone land across the LGA according to the Rural Fire Service (RFS) *Guidelines for Bushfire Prone Land Mapping* (see Figure 8 – Bushfire Prone Land). The Bushfire Prone Lands map indicates that a significant proportion of the investigation contains Category 1 vegetation.

This is the most hazardous vegetation category, largely comprising Forest Vegetation and as a result, building setbacks, landscaping and construction requirements would apply to most residential development in the investigation area in accordance with the provisions of *Planning for Bushfire Protection* under the *EP&A Act*. The directions set out the objectives and considerations a relevant planning authority must consider during the preparation of a planning proposal. The protection of life, property and the environment from bushfire fire threat by discouraging the establishment of incompatible land uses on bushfire prone land is a key objective of the Direction. In this regard parts of the investigation area are considered to be unsuitable for residential development given their lot location, configuration and layout and the limitations these features place on implementing bushfire protection measures sufficient to protect life and property.

The Directions further stipulate that the relevant planning authority must have regard to, amongst other things, *planning for Bushfire Protection (2006)* when preparing a Planning Proposal.

The Jervis Bay Settlement Strategy objective in terms of Bushfire is as follows:

Objective: To ensure that settlements are protected from bushfire risk.

It seeks to achieve this objective by:

- *The provision of appropriate Asset Protection Zones*
- *Asset Protection Zones associated with new development being contained within developable areas, and excluded from protected areas (wildlife corridors, riparian areas etc.);*
- *New settlement to be planned to include bushfire risk management measures that are relative to the associated risk of the locality;*
- *Bushfire risk arrangement measures associated with new development will comply with relevant assessment and policy requirements.*

The Falls Creek/Woollamia area is identified in the *Shoalhaven Risk Management Plan* as an asset threatened by bushfire approaching from the west. In this regard, land managed by the NPWS located on the western side of the Princes Highway forms part of an identified Strategic Fire Advantage Zone, which constitutes a section of land managed as an asset protection zone and as a point from which fires can be attacked. When considering intensifications in rural residential land uses, particularly on the western side of the Princes Highway, increased pressure on the

existing Strategic Fire Advantage zone should be taken into account and in this regard, increases in rural residential land use should not be encouraged on the western side of the Princes Highway.

In considering the preparation of a planning proposal, a detailed bushfire study will be required to determine provisions required to protect life, property and the environment from bush fire hazard (APZ's, perimeter fire trails, access provisions) and to determine the compatibility of land uses in bush fire prone areas and the implications of bushfire protection measures on related factors (e.g. impact of creation of APZ's on flora and fauna, water quality etc).

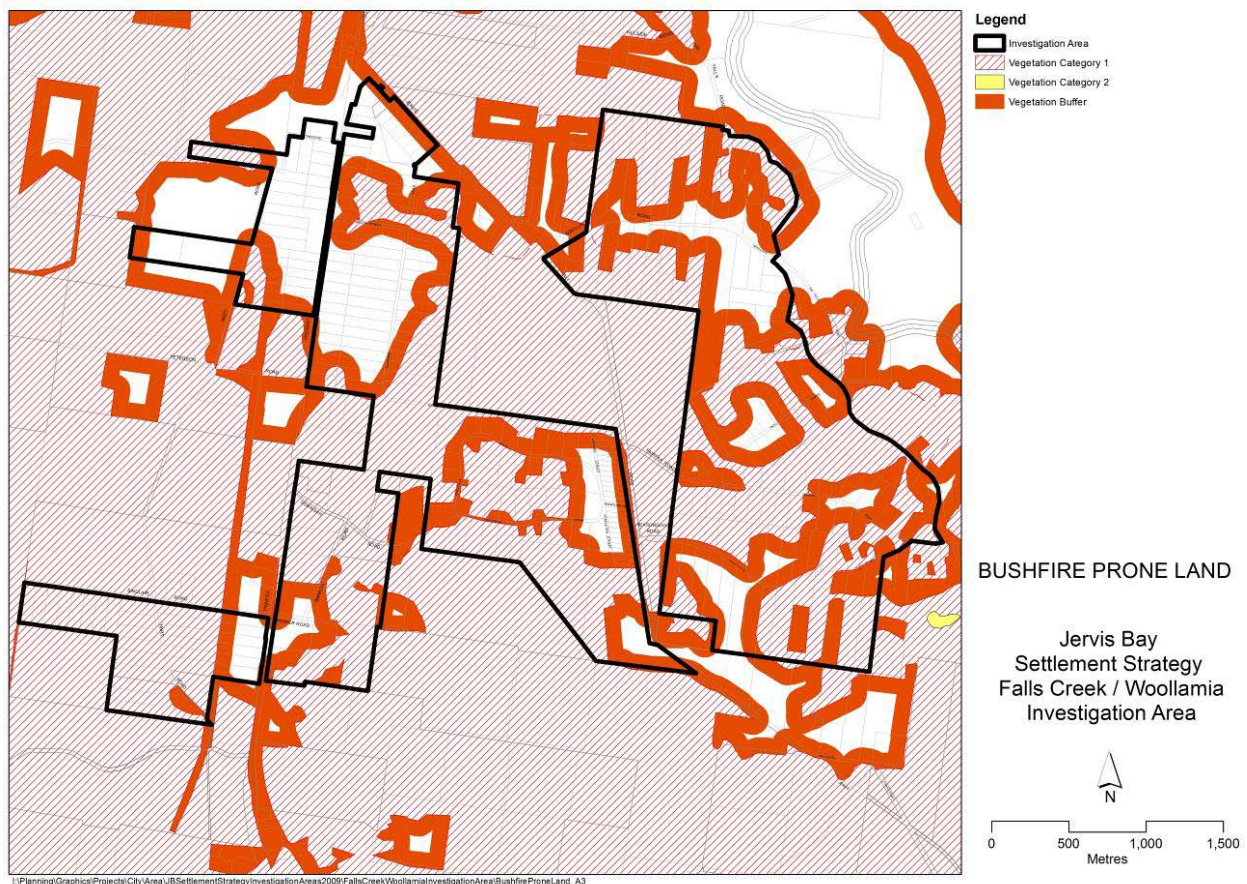


Figure 8: Bushfire Prone Land

5.3 Water quality

Catchment Description

The subject land drains to Currumbene Creek which flows into Jervis Bay at Huskisson. The subject land is in the centre of and comprises 16% of the Currumbene Creek catchment which compromises 60% of the Jervis Bay catchment. See Figure 9: Currumbene Creek Catchment..

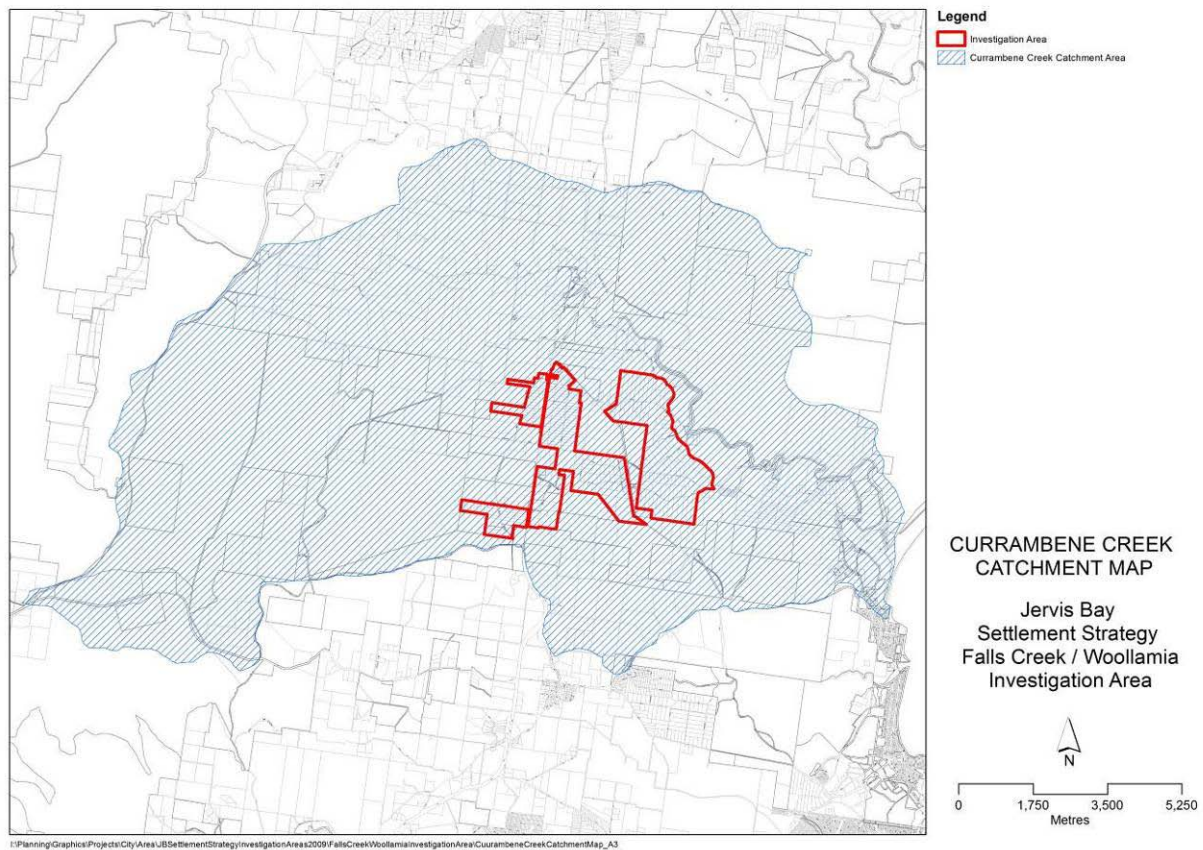


Figure 9: Currambene Creek Catchment

Total Area of Currambene Catchment = 158.59 km²

Total Area of Investigation Area = 9.95 km²

Percentage of Investigation Area within Currambene Sub-Catchment = 16 %

Jervis Bay contains the largest area of seagrass beds in NSW and several salt marshes and wetlands occur along Currambene Creek. Seven (7) wetlands are protected under State Environmental Planning Policy No. 14 (SEPP 14). Figure 10 shows the proximity of these in relation to the subject land. None occur directly within the subject land.

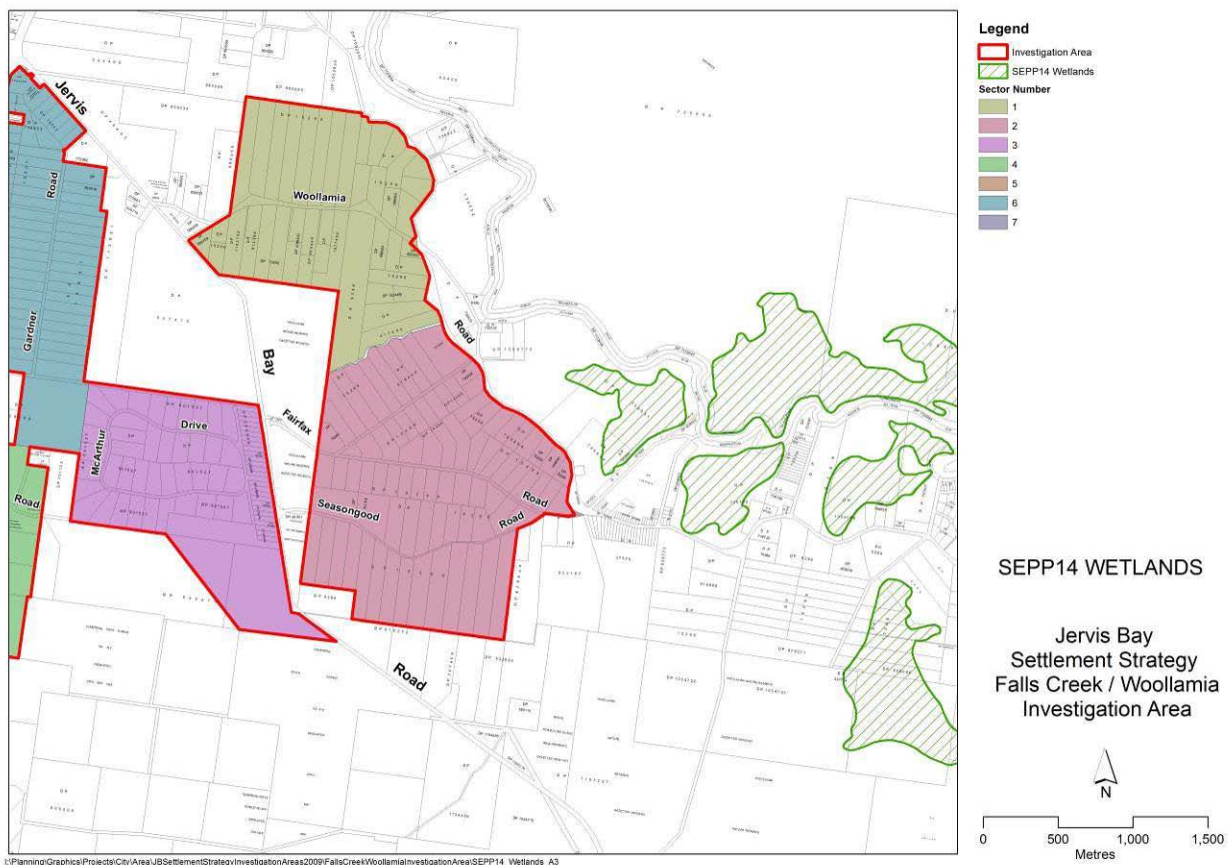


Figure 10: Wetlands

Currambene Creek is listed on the Commonwealth Directory of Important Wetlands in Australia Currambene Creek and is a Sanctuary Zone within the Jervis Bay Marine Park.

Maintenance of existing water quality and hydrological regimes is important to protect Currambene Creek, Jervis Bay and their associated ecosystems.

Potential Impacts of Landuse Intensification on Receiving Waters

Intensification of rural residential development can impact on catchment hydrology and water quality. Removal of native vegetation and replacement with impervious surfaces such as roads, paths and roofs can alter hydrographic behaviour. Activities such as onsite effluent disposal, fertiliser and pesticide use, livestock grazing can result in increased concentrations of pollutants in both surface water runoff and sub-surface drainage. This can lead to nutrient enrichment in receiving waters, which in turn can cause prolific plant growth, clogged waterways, nuisance algal blooms, anoxic events, fish kills and a general deterioration in water quality.

Nitrogen and phosphorus are key pollutants of concern, but nitrogen is most important in controlling plant growth in temperate estuaries. Other factors influence plant growth and the build-up of nutrient concentrations, and hence modify (or buffer) the response of a system to increased nutrient loads. These factors include hydrologic residence times, mixing characteristics, water temperature and water clarity/light availability.

Land use planning is central to catchment management and protection of receiving waters. Provision of adequate riparian buffers and their management is also important for protection of water quality and providing bed and bank stability. Riparian corridors also serve to maintain wildlife corridors and biodiversity at a broader scale.

Strategic Planning Framework

Water quality and catchment issues are dealt with across a range of statutory and non-statutory strategic planning documents including:

- Deemed SEPP Jervis Bay Regional Environmental Plan 1997 (JBREP)
- Jervis Bay Settlement Strategy 2003 (JBSS)
- South Coast Regional Strategy 2006 (SCRS)
- South Coast regional Conservation Plan 2010 (SCRCP)
- Southern Rivers Catchment Management Authority – Catchment Action Plan (CAP)
- Currumbene Creek Catchment Plan (Shoalhaven Catchment Management Committee, 1999)

The *Jervis Bay Regional Environmental Plan 1997* (JBREP) is now a deemed SEPP and includes specific provisions in relation to catchment protection (clause 11) and the protection of water quality. The plan provides objectives for protecting aquatic ecosystems, drinking water for livestock and recreation. The tidal section of Currumbene Creek is identified on Map 2 with “two uses”; protection of aquatic ecosystems; and recreational use.

Clause 11 states that a proposal must:

- (a) for the water quality in any waterbody it may affect, either:
 - sustain uses identified on map 2 and as defined by the Australian National Water Quality Guidelines for Fresh and Marine Water 1992, or
 - demonstrate how the water quality will be maintained or improved, if the water quality in those waterbodies does not at that time sustain the uses identified on map 2, and
- (b) outline a water quality management strategy for surface water to demonstrate how paragraph (a) will be achieved, and
- (c) rehabilitate and restore any degraded areas along a waterbody on the site, and
- (d) provide sewerage for all new development (unless the development is within an existing unsewered area). If alternate systems of sewage disposal have been approved by health and environment protection authorities, they may be provided, and
- (e) protect ecosystems and natural habitats, including waterbodies, from degradation.

The *Jervis Bay Settlement Strategy 2003* (JBSS) has the following objective in terms of water quality and flow: “*To ensure that the water quality and flow of waterways and their aquatic, marine and estuarine ecosystems is not detrimentally affected as a result of new settlement in the region.*”

The JBSS outlines six actions to achieve this objective, in summary including:

- *Development to meet the requirements of the Jervis Bay REP in terms of catchment protection.*
- *New development be located and designed to avoid detrimental impacts on waterbodies and watercourses, including groundwater.*
- *Domestic effluent should not have a detrimental impact on water quality and flow.*
- *New development, including infrastructure, be located, designed and constructed in a manner that does not degrade land based or aquatic ecosystems or processes.*
- *Catchment health indicators be established to supplement interim environmental objectives and assist monitoring and assessment of cumulative impacts of development.*
- *Infrastructure works should not have a detrimental impact on water quality of receiving waters in the region.*

The *South Coast Regional Strategy 2006* (SCRS) was prepared by the State Government to guide sustainable growth throughout the South Coast over the next 25 years. Ministerial Direction 5.1 under Section 117 of the Environmental Planning and Assessment Act requires that draft local environmental plans be consistent with nominated Regional Strategies including the SCRS.

The relevant requirement of the SCRS is that future development in the catchments of SEPP 14 wetlands will need to demonstrate no net impact on the hydrology, water quality or ecology of these wetlands. Currumbene Creek is named in Appendix IV of the SCRS but the requirement that relates to this only concerns undeveloped urban zoned land and is therefore not relevant to this proposal.

Currumbene Creek is also identified in the *South Coast Regional Conservation Plan 2010* (SCRCP) as a vulnerable estuary.

Assessment of Potential Impacts on Currumbene Creek and Jervis Bay

Future land use decisions within the Falls Creek/Woollamia Investigation Area have the potential to impacts on the aquatic environment of the Currumbene Creek and associated SEPP 14 Wetlands and Jervis Bay.

Insufficient information is available on existing water quality and hydrological regimes to determine existing pollution loads on Currumbene Creek and whether any adverse impacts would result from intensification of rural residential development within the subject land.

Relevant NSW Government agencies such as the Office of Environment & Heritage, the Southern Rivers Catchment Management Authority (SRCMA) and the Jervis Bay Marine Park Authority (JBMPA) will be consulted to determine a timely and cost-effective methodology and decision support system for assessing the requirements and objectives outlined above, in particular the “no net increase” in pollution loads and potential impacts on the health of receiving waters.

It is anticipated that some form of catchment modelling will be required in addition to site specific land capability investigations. Given the paucity of data, a comprehensive water quality and flow monitoring program may also be required to undertake such an assessment.

5.4 Flooding

Council is part way through the process of preparing a Floodplain Risk Management Plan for the Currumbene Creek floodplain. In November 2006, Council adopted the *Currumbene Creek and Moona Moona Creek Flood Studies* (Lyll & Associates Consulting Engineers) which defined flood levels in the Woollamia area. Council is about to commence the preparation of a Risk Management Study and Plan, however, this is a lengthy processes and will take up to two years to finalise.

Flooding extents are currently based on the 2006 *Currumbene Creek and Moona Moona Creek Flood Studies* which used contours derived from surveyed cross sections of the creek and floodplain and available limited contour data, however these are only approximate. The extent of inundation on individual study areas near the flood fringe may need to be determined by more specific and accurate levels and survey data. Flooding in the north western area of sector seven is based on the Flood Line contained within SLEP 1985

Council has previously undertaken Airborne Laser Scanning (ALS) surveys where rezoning was being considered within the floodplain to obtain more accurate height data. This method will be considered, in conjunction with other strategic projects that may also value from access to such data.

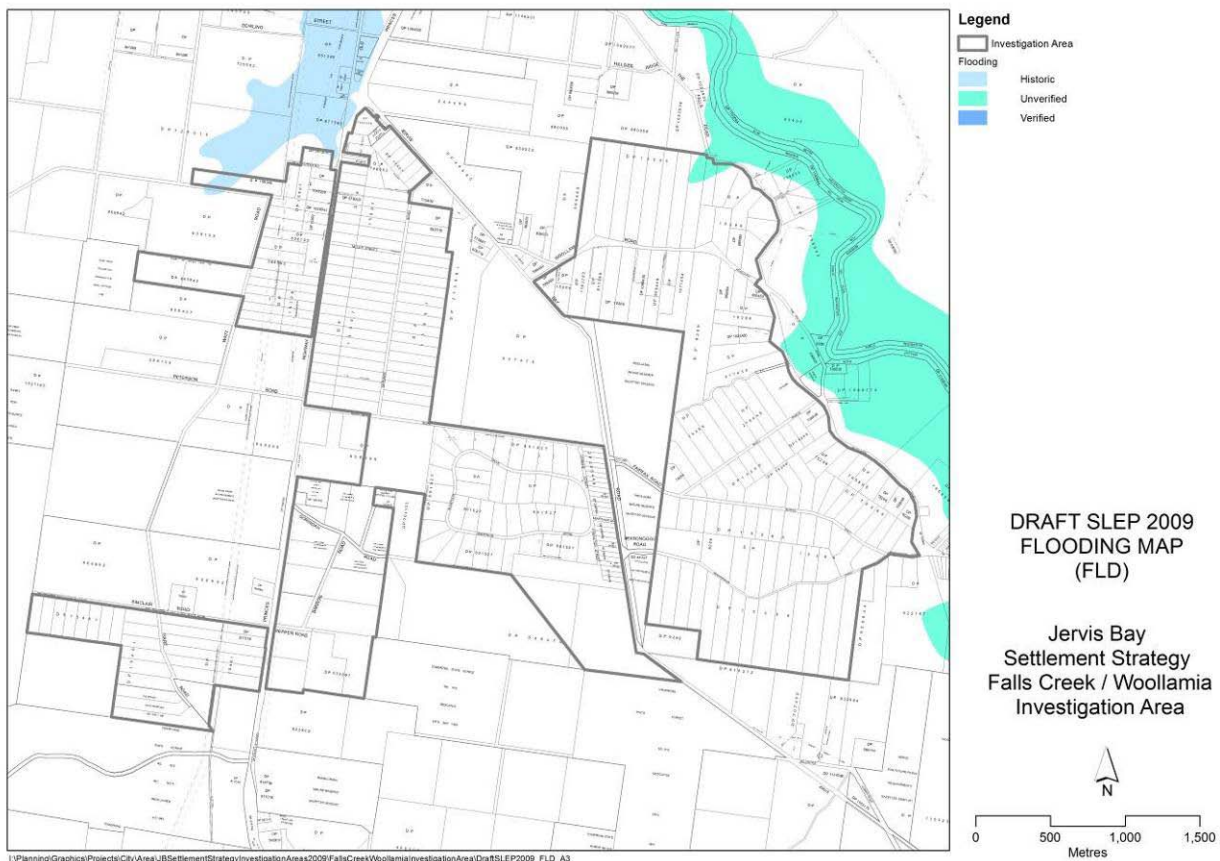


Figure 11: Flooding

The *Currambene Creek and Moona Moona Creek Flood Study* (2006) defines flood behaviour and predicts flood activity in future flood events, however, this study does not currently take into account the potential impacts of Climate Change or the implications arising from the *NSW Sea Level Rise Policy Statement* (2009). The Statement includes benchmarks which are a projected sea level rise of 0.4m by 2050 and 0.9m by 2100. Correspondence from Office of Environment and Heritage in relation to other rezoning investigations in the Currambene Creek, indicate that Councils will be required to adopt sea level rise benchmarks in land use planning. In addition, correspondence from the NSW Department of Planning & Infrastructure in December 2009 required Councils to incorporate those levels in its planning for land which was flood prone and below 4 meters AHD and for which there was no Flood Risk Management Plan in place (or if there was, then such a plan had not taken into account the latest sea level rise and climate change assessment). In order to determine potential impact of the sea level rise impact on those areas at the floodline interface, additional detailed survey work is required to determine elevations and extent of future flooding.

The Jervis Bay Settlement Strategy states that *"It is not proposed to rezone land below the flood planning level for new residential development"*. The Flooding objective set out on page 55 is:

To identify and acknowledge flooding of land as a constraint to future development.

Action ii in relation to flooding specifies:

"Land within the Flood Planning Area (1% AEP) will not be rezoned to provide for residential development. The zoning of existing urban areas will be reviewed in accordance with relevant Floodplain Management Studies...."

The 1% year flood extent is shown in Figure 11: Flooding.

The Section 117 direction related to flood liable land reinforces that Council shall not rezone land within the flood planning level from Rural to Residential, however, a planning proposal may be inconsistent with this direction, but only if Council can demonstrate that the rezoning is in accordance with a floodplain risk management plan prepared in accordance with the principles and guidelines for the Floodplain Development Manual 2005 or, the provisions of the planning proposal that are inconsistent are of minor significance.

Land located within the 1% flood level is significantly constrained by both the Jervis Bay Settlement Strategy objectives and the Section 117 Directions that, in circumstances where the whole of a lot falls is flood affected, the land will be excluded from any planning proposal for the investigation area.

5.5 Land Based Biodiversity

The area supports significant tracts of native bushland, which sustain a diverse range of flora and fauna species. Endangered ecological communities (EEC) and habitat corridors identified via the Jervis Bay REP and the South Coast Regional Strategy are located within the investigation area and preliminary consultation with both Office of Environment and Heritage and the South Coast CMA have reiterated the importance of retaining existing vegetated areas within the investigation area given the role it plays in maintaining habitat corridors along the Currumbene Creek riparian corridor and within the catchment and with maintaining vegetation linkages with the NPWS estate to the south and west of the investigation area.

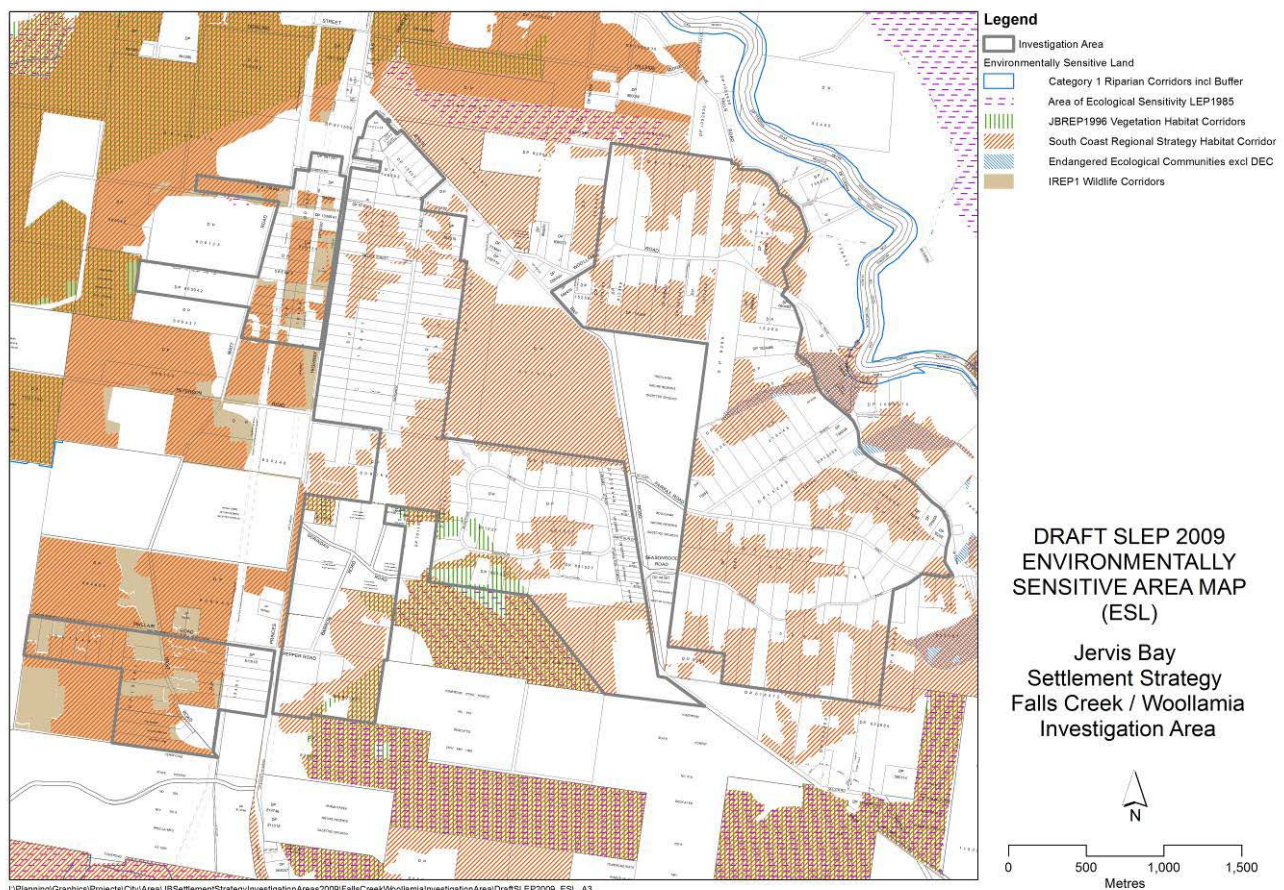


Figure 12: Environmentally Sensitive Land

The Jervis Bay Settlement Strategy outlines twelve actions to achieve the following objective with regard to land based biodiversity;

Objective: To ensure that significant areas of land-based biodiversity, ecosystems and the function of natural processes are conserved and sustainably managed as a major contribution to the achievement of ecologically sustainable development.

The South Coast Regional Strategy further indicates that parts of the investigation area could function within a habitat corridor. The Strategy requires local environmental plans to protect regionally significant corridors by maximizing the retention of native vegetation.

Currambene Creek is listed in Appendix IV of the *South Coast Regional Strategy (SCRS)* as having significant habitat values. Map 2 within the SCRS shows biodiversity and conservation assets. In this regard, the Strategy requires that:

The location and conservation significance of areas shown as “Biodiversity Assets Outside Conservation Areas” on Map 2 will be verified by councils in consultation with the Department of Planning and Infrastructure and Department of Environment and Conservation; and

Local Environmental Plans zone all coastal wetlands identified in SEPP 14 to achieve environmental protection and that, future developments in these catchments will need to demonstrate no net impact on the hydrology, water quality or ecology of these wetlands.

The South Coast Regional Conservation Plan (SCRCP) (Office of Environment & Heritage 2010) also contains 5 key principles and 3 key priorities with regard to biodiversity planning in the South Coast region. The maintenance and improvement of biodiversity is central to these principles and priorities and it is intended that these guide local-level strategic planning. The SCRCP (2010) identifies parts of the investigation area as having high conservation value. Draft SLEP (2009) utilises a composite of verified data drawn from the above mentioned strategies and planning instruments to create a draft Environmentally Sensitive Area Map (Draft ESL). Significant parts of the investigation area are identified as environmentally sensitive land through this process.

The data available in relation to the vegetation habitats in the investigation area at this stage is based on primary sources which have been verified either through ground truthing or aerial photo verification. In order to accurately review lot size and configuration, and to determine the impact of infrastructure and bushfire protection zones, initial ground survey work is required as part of a larger flora and fauna required to support a planning proposal for the area. These investigations need to be carried out within the context of the provisions of the SCRS which states as follows:

New urban development is to be prohibited by local environmental plans on land assessed as being of high conservation value; and

Appropriate planning controls are to be incorporated into local environmental plans to protect biodiversity values on land of lower conservation value.

Preliminary discussions with the Office of Environment & Heritage indicated that the rezoning of parts of the study area may constitute a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. Potential habitat for several federally listed threatened species known to occur in the Jervis Bay Region. Approval is required from the Commonwealth Minister for the Environment for actions that have, will have or are likely to have a significant impact on a matter of “*national environmental significance*” and this should be addressed as part of further flora and fauna investigations for the investigation area.

5.6 Marine Based Biodiversity

The Jervis Bay Marine Park was established in 1998. The park covers the whole of Jervis Bay, including Currumbene Creek to its upstream tidal limit. The northern boundary of the study area is adjacent to the part of Currumbene Creek designated as a Sanctuary Zone.

Preliminary discussions with the Jervis Bay Marine Park Authority indicate that the potential impacts of rezoning on aquatic biodiversity, including impacts on water quality, vegetation management, erosion and sedimentation as a result of clearing, water, storm water and effluent management, protection of riparian vegetation and increase in demand for access to Currumbene Creek all need to be considered.

5.7 Wetlands and Riparian Corridors

SEPP 14 Wetland's (No's: 330, 331 + 332) are located adjacent to the northern and eastern sector of the investigation area.

A *Crown land Assessment - Currumbene Creek and Adjoining Riparian Reserve* was prepared by the NSW Department of Lands in 2003 and covers the 30.48 metre Reserve for public recreation which abuts Currumbene Creek and is in close proximity to the lots located on the northern edge of the investigation area. This reserve was assessed in the Crown Land Assessment as having the suitable use of Environment Protection and Recreation (natural).

5.8 Aboriginal and European Archaeology

No known aboriginal archaeological investigations have been carried out within the study area and detailed investigations may need to be undertaken to support any Planning Proposal. No Known items of European heritage are located in the investigation area.

5.9 Infrastructure

The Falls Creek/Woollamia Investigation Area is a dispersed area of rural settlement which does not currently offer the same level of services for future residents as those that are closer to retail, commercial and structural infrastructure in existing major towns and regional centres. As a result, and given the limited public transport options, current and future residents are heavily reliant on motor vehicles to access commercial, community and retail infrastructure located in Nowra and Vincentia. (See Figure 13: Infrastructure Map).

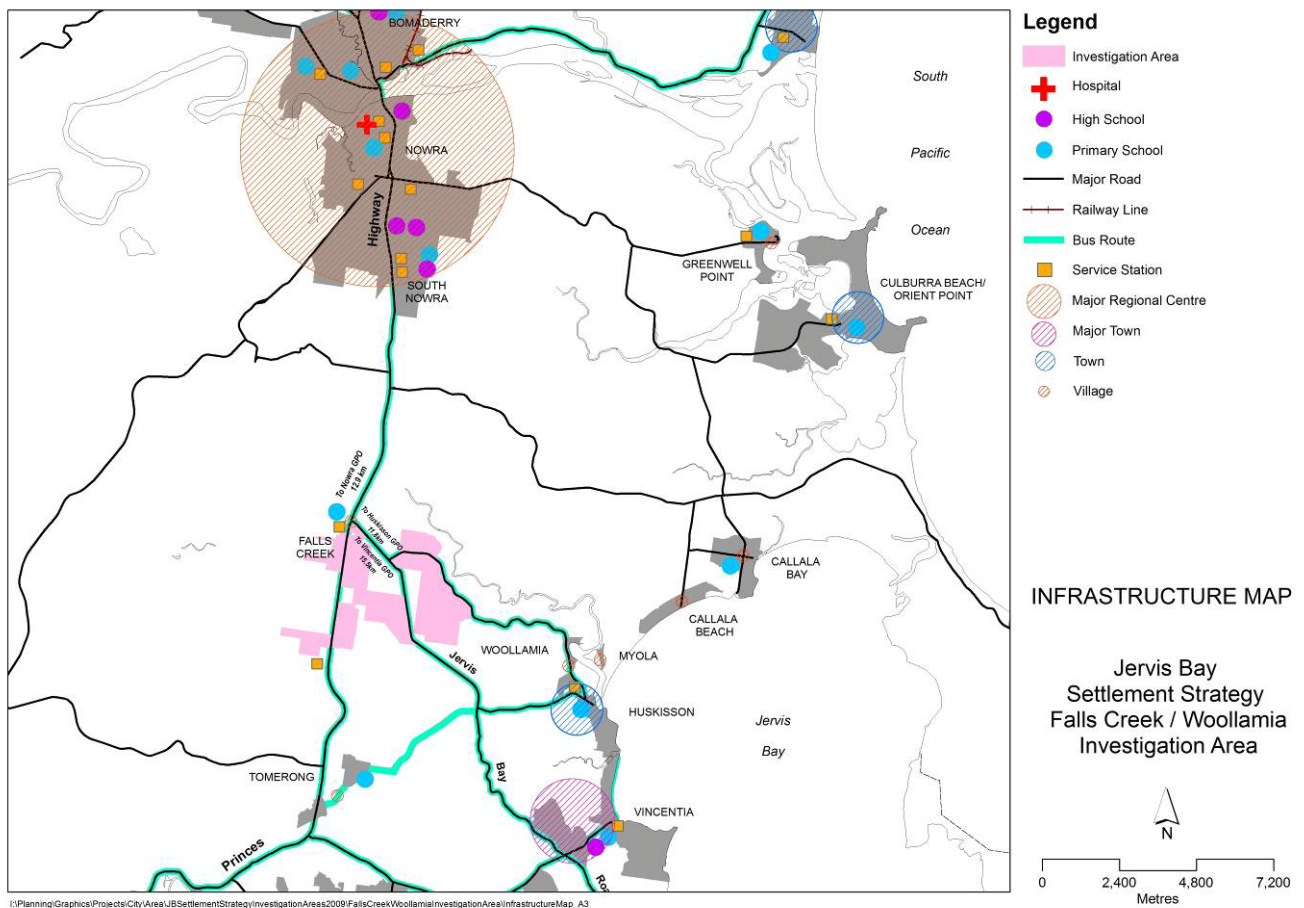


Figure 13: Infrastructure Map

The existing level of physical infrastructure, including sewage, is of a lower order than those areas within close proximity to major towns and regional centres and this will impact on the potential density which can be achieved within the investigation area.

5.10 Sewage

Given that reticulated sewerage is not available in the locality, the ability to manage effluent disposal on site will be a key consideration in any investigation of increased rural residential density.

Detailed studies will be required to assess the suitability of the site and soil for onsite effluent disposal. This is likely to influence lot size and configuration and will also inform any assessment of impacts on Currumbene Creek and Jervis Bay.

The ability to manage effluent disposal has a significant initial impact on the increase in rural residential densities.

5.11 Water

A 100mm reticulated water main is available though the majority of the study area.

Preliminary discussions with Shoalhaven Water indicate that the existing water main infrastructure has additional capacity to service additional development in the investigation area, however, this should be re-assessed once the method of effluent disposal has been established and further confirmed should the Planning Proposal progress.

5.12 Electricity

Whilst there is an existing reticulation system, advice has not yet been sought from Integral Energy in regard to the capacity of the existing infrastructure or any upgrades required catering for additional loads.

5.13 Telecommunications

Telecommunications are available via the existing systems advice has not yet been sought from Telstra in regard to the capacity of the existing infrastructure any upgrades required to cater for additional loads.

5.14 Other services

Reticulated Gas is not available in the areas and is unlikely to be provided. Bottled LPG is available from local suppliers.

5.15 Transport, Road and Traffic Flows

Consideration of the cumulative impacts on both the local and State road networks will be considered along side potential costs and timing of Road upgrades should the planning proposal for the investigation area progresses. Careful consideration of the internal road network design is required to avoid the cumulative negative impacts of battleaxe style subdivisions being used to obtain access. A local traffic plan in the form of DCP controls will be needed to support the rezoning to ensure maximum accessibility is provided to the existing road network with a minimum of access points.

5.16 Impacts on community services, infrastructure and social and economic considerations

The investigation region is located within one of the fastest growing parts of the region. The likely demand, availability and accessibility to community services and infrastructure including public transport, schools and health care will be considered as the rezoning progresses.

5.17 Impact on character of the area

The Jervis Bay region is recognized for its natural and recreational values. The abundance of bushland, the juxtaposition of its waterways and the existing settlement patterns all contribute to the area's human and natural environmental values. The area remains relatively undeveloped in comparison with other areas. An increase in rural residential densities in the Falls Creek/Woollamia Deferred Investigation Area would potentially change the character of the area in that current bushland would be removed to make way for housing, associated infrastructure and for bushfire protection and vegetation management purposes. The impacts on any visual catchments, along with the cumulative visual impact of vegetation removal will be considered as part of the planning proposal.

6 Preliminary Consultation

A Councillor Briefing was held on 3 June 2010, during which background information in relation to the Investigation Area was provided and discussed.

Preliminary scoping discussions were held with representatives from NSW Office of Environment & Heritage, Jervis Bay Marine Park Authority, NSW Rural Fire Service, Southern Rivers Catchment Management Authority and the NSW Department of Planning & Infrastructure on 5 August 2010. Issues identified through these discussions and the desktop analysis included:

- Legislative requirements under *Rural Fires Act 1997*, *Threatened Species Conservation Act*, *Environment Protection & Biodiversity Conservation Act 1999*, *Native Vegetation Conservation Act 1997*, *State Environmental Planning Policy No 71 (Coastal)* and *State Environmental Policy No 14 (Wetlands)*.
- Land and Aquatic based biodiversity
- Water quality - specifically the impact on Currumbene Creek, adjacent SEPP 14 Wetlands and total catchment management
- Effluent Disposal - investigate options for sewer extension and/or on site effluent disposal capacity
- Archaeological issues
- Impacts of climate change on flooding
- Infrastructure demand

Preliminary discussions have also been undertaken separately with the Department of Planning & Infrastructure. Discussion centred on the desire to increase densities in the rural residential development around the Falls Creek/Woollamia investigation area.

7 Sector Issues

The key principles for identifying those lots that need to be excluded from the Planning Proposal at this stage can be summarised as follows:

1. **Lot configuration/context:** Ability to absorb practically provide additional infrastructure, including roads and effluent disposal system and ability to provide adequate bushfire protection.
2. **Lot size:** Ability to absorb additional infrastructure, including roads and effluent disposal system and ability to provide adequate bushfire protection.
3. **Land Tenure:** Land owned by State Forest NSW, NPWS or SCC have been excluded from any planning proposal area.
4. **Environmental/Ecological:** Land identified in the JBREP as habitat corridor and as being located within the 1% AEP flood area.

8 Outcomes

Sector One

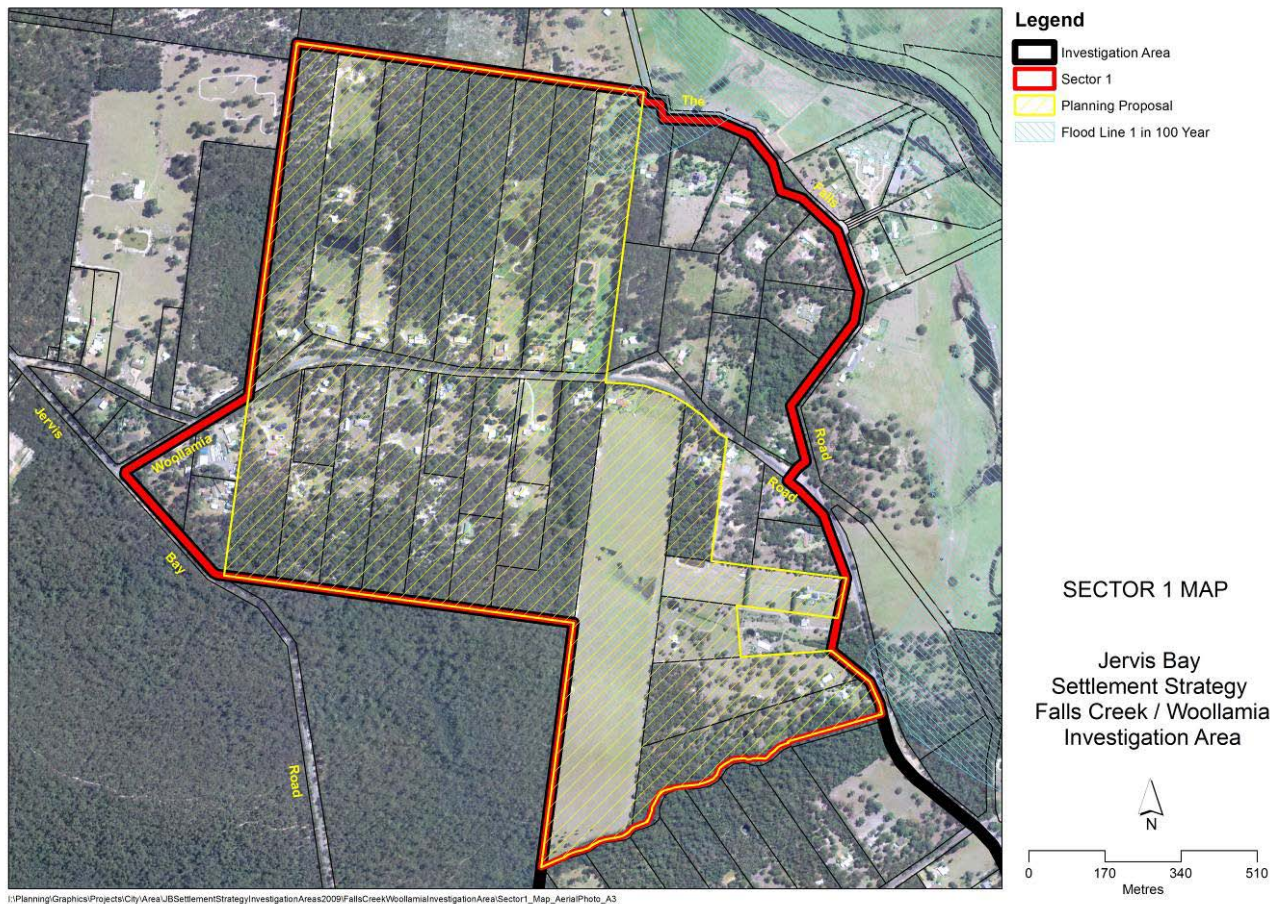


Figure 14: Sector 1 Map

Description

Sector 1 is located at the north eastern end of the investigation area and is dissected east west by Woollamia Road. The area comprises of 43 lots covering a total area of 172ha. Access to a majority of the lots is via Woollamia Road along with 7 lots gaining access via The Falls Road, which is an unsealed road.

The north western part of Sector One consists of 8 lots on Woollamia Road part zoned 1(c3) which currently allows for a minimum lot size of 10ha (average lot size is just under 6.5 ha). The remaining lots in Sector 1 are zoned 1(c2) which allows for a minimum lots size of 2ha. The size of the remaining lots varies from 1ha to 10ha. The 43 lots in Sector 1 are used for residential purposes. There are 39 single dwellings, 1 multiple dwelling and 3 home activities. All lots have been partially cleared for development with exception of 2 lots that are completely cleared.

Under the current SLEP provisions, there is currently no potential for further subdivision of the lots located on the northern side of Woollamia Road. Based on the minimum 2ha lot size provisions under the current 1(c2) zone, there is an existing potential to create an additional 22x 2ha lots for those lots located on the southern side of Woollamia Road.

Planning Proposal Justification

The planning proposal area suggested for Sector 1 includes 26 of the total 43 lots which comprises of 131ha. The area recommended for inclusion in the Planning Proposal generally comprises lots

over 3ha in size which have the potential to be accessed via a shared road access (so as to avoid a repetition of battleaxe allotments along Woollamia Road).

The lots adjacent to The Falls Road are currently zoned 1(c2) which allows for a minimum lot size of 2ha. These lots average between 2-3ha in area and are considered unsuitable for further subdivision because of their current size and their lot configuration, making provision of a shared access road problematic. Other discrete lots located on the eastern and western edge of the sector are proposed to be excluded from the Planning Proposal due also to their lot size and configuration and the difficulties this presents in providing infrastructure and road access, particularly as the area is bushfire prone.

Sector Two

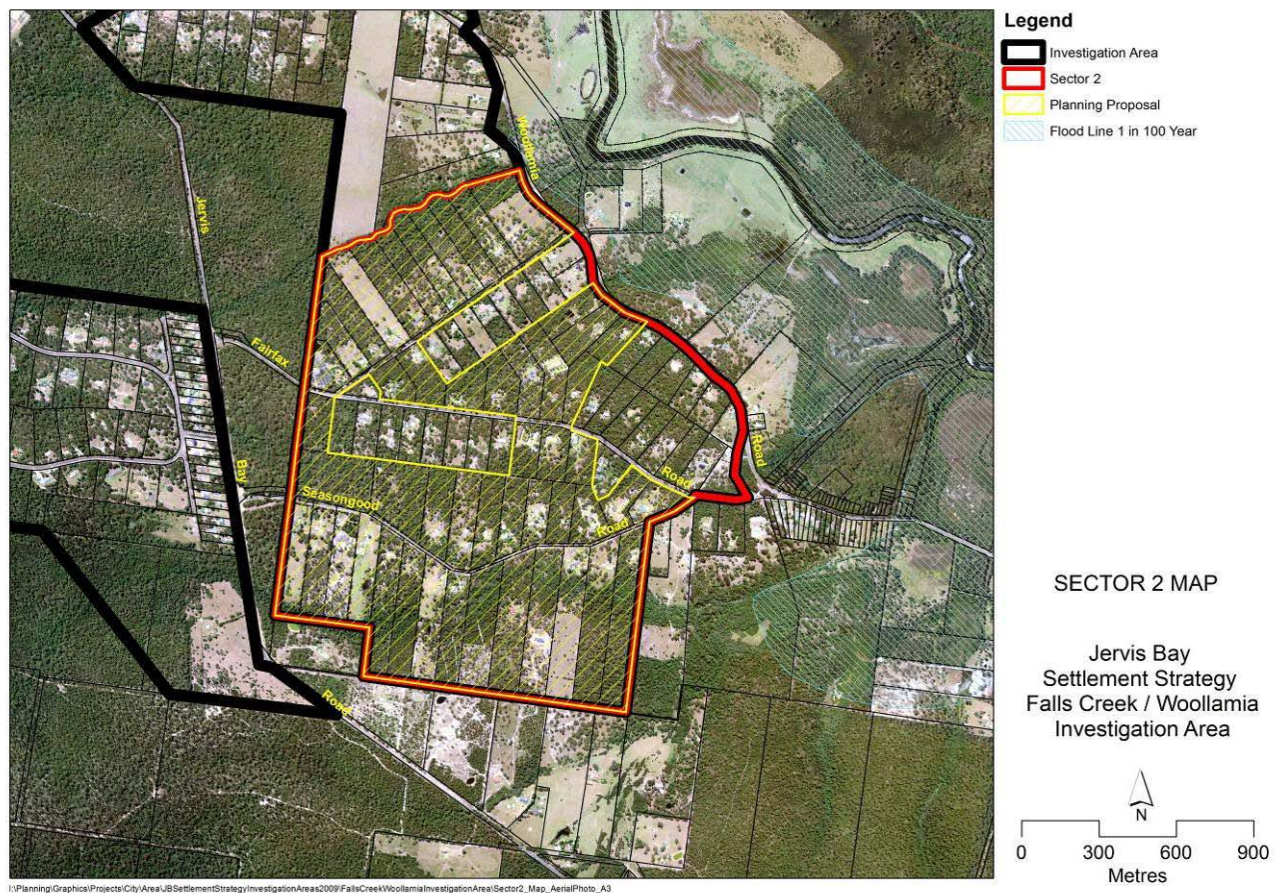


Figure 15: Sector 2 Map

Description

Sector 2 covers land adjacent to Seasongood Road, Fairfax Road and Knoll Parade comprising 83 lots covering a total area of 248ha.

75% of the lots in this sector are currently zoned 1(c2) which allows for a minimum lot size of 2ha. The average lot size of the 1(c2) zoned land is between 1-3ha. There is a current subdivision potential to create an additional 7 lots based on the existing zoning in this area.

The remaining 21 lots, located in the southern part of the sector have a combined total area of 102ha and are zoned 1(c3) allowing for a lot size minimum of 10ha. Lot sizes in this area currently range between 3-10ha and there is no current subdivision potential based on the existing zoning within the 1(c3) zoned land.

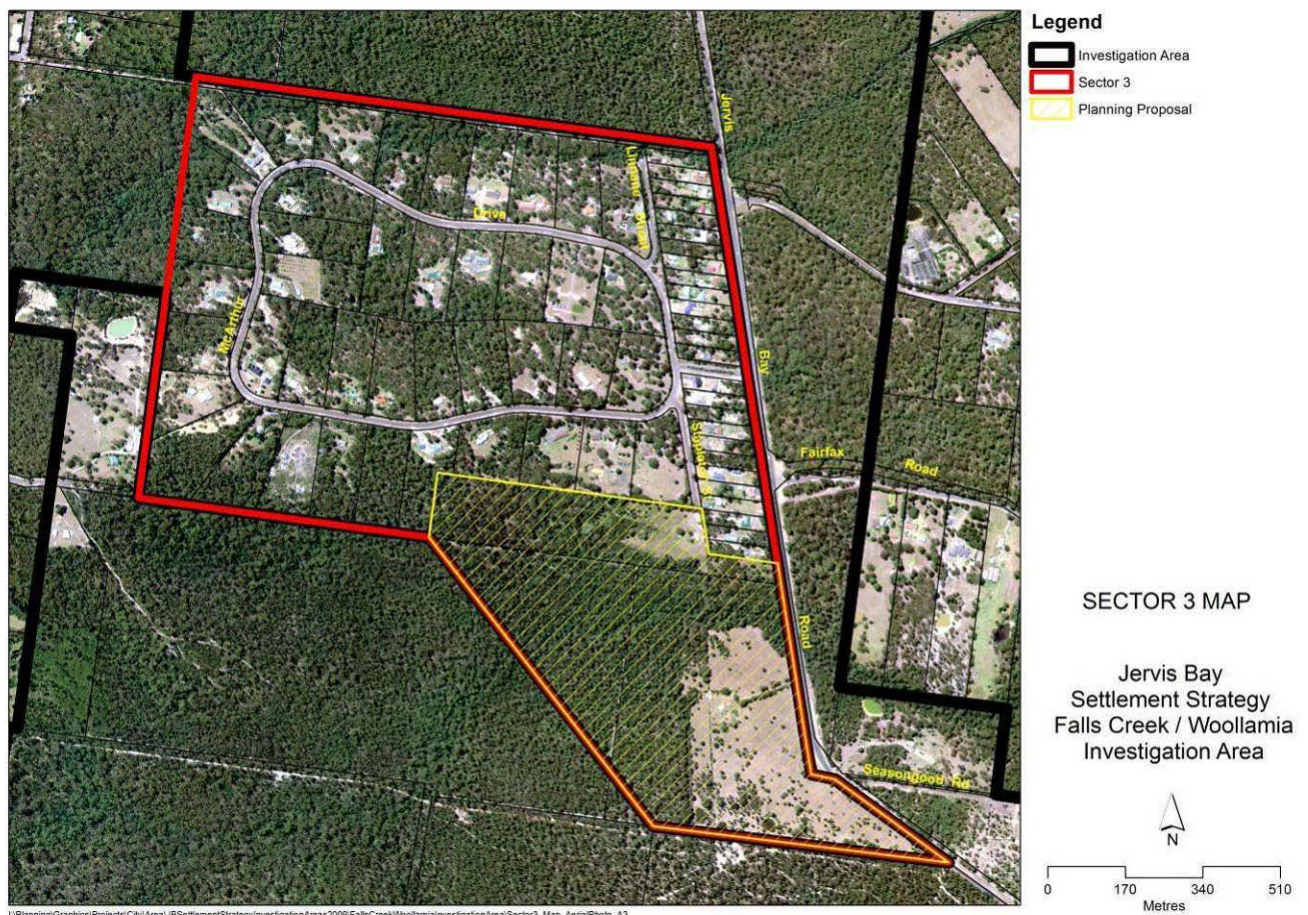
Of the 83 lots in Sector 2, seventy-one (71) are occupied by single dwellings with the remaining 12 lots being either multiple dwellings, tourist accommodation, transient lodging, home activities or are still vacant. The majority of the lots are partially vegetated with areas cleared for structures, with some lots still having full vegetation cover. Access to the lots in Sector 2 is from Knoll Parade, Woollamia, Fairfax, and Seasongood Roads.

Planning proposal Justification

The planning proposal area identified for Sector 2 includes 50 of the total 83 lots comprising an area of 188ha.

The remaining 33 lots have been excluded from the planning proposal area on the basis of their lot size (generally <2.5ha or surrounded by lots <2ha), lot configuration and the difficulties in providing infrastructure and road access (particularly between Knoll Parade and Fairfax Road) considering the bushfire prone nature of the area.

Sector Three



Map 16: Sector 3 Map

Description

Sector 3 covers the Macarthur Drive subdivision (2ha average lot size), twenty-six small lots (0.5ha average lot size) adjacent to Jervis Bay Road and two holdings each greater than 10ha in size which are deferred 1(a) and 1(b) land. The sector comprises a total of 71 lots (including one part

lot). The Macarthur Drive subdivision and adjacent small rural lot area within the sector are zoned 1(c2) allowing for a minimum lot size of 2(ha).

The defined Rural 1(a) and 1(b) areas currently have a minimum lot size of 40ha. These sites were previously included in draft LEP's under consideration by Council for rezoning to 1(c) to allow for a rural/residential densities of 1ha. These draft LEP's were incorporated into the Rural Plan LEP Amendments in 1998, and as such, were ultimately deferred by the NSW State Government whilst the Jervis Bay Settlement Strategy was finalised.

There is the potential for these two sites to achieve a 2ha minimum through the Draft SLEP 2009 which recognises Council's previously accepted position of these sites supporting additional rural residential living. Should the Draft SLEP 2009 progress with the proposed R5 Large Lot Residential zoning and 2ha minimum specified in the lot size map, it may not be necessary for a planning proposal over these two sites to progress.

Planning Proposal Justification

The small lots fronting Jervis Bay Road are too small to consider for further rural residential subdivisions. The circular layout/design of McArthur Drive combined with the steep and heavily vegetated slopes and lot size (average 2ha) in this area is considered inappropriate for increased rural residential densities.

The deferred Rural 1(a) and 1(b) land is of sufficient size to warrant inclusion in the planning proposal for the area to facilitate increased rural residential densities, should the Draft LEP 2009 proposed 2ha lot size ultimately not proceed.

Sector Four

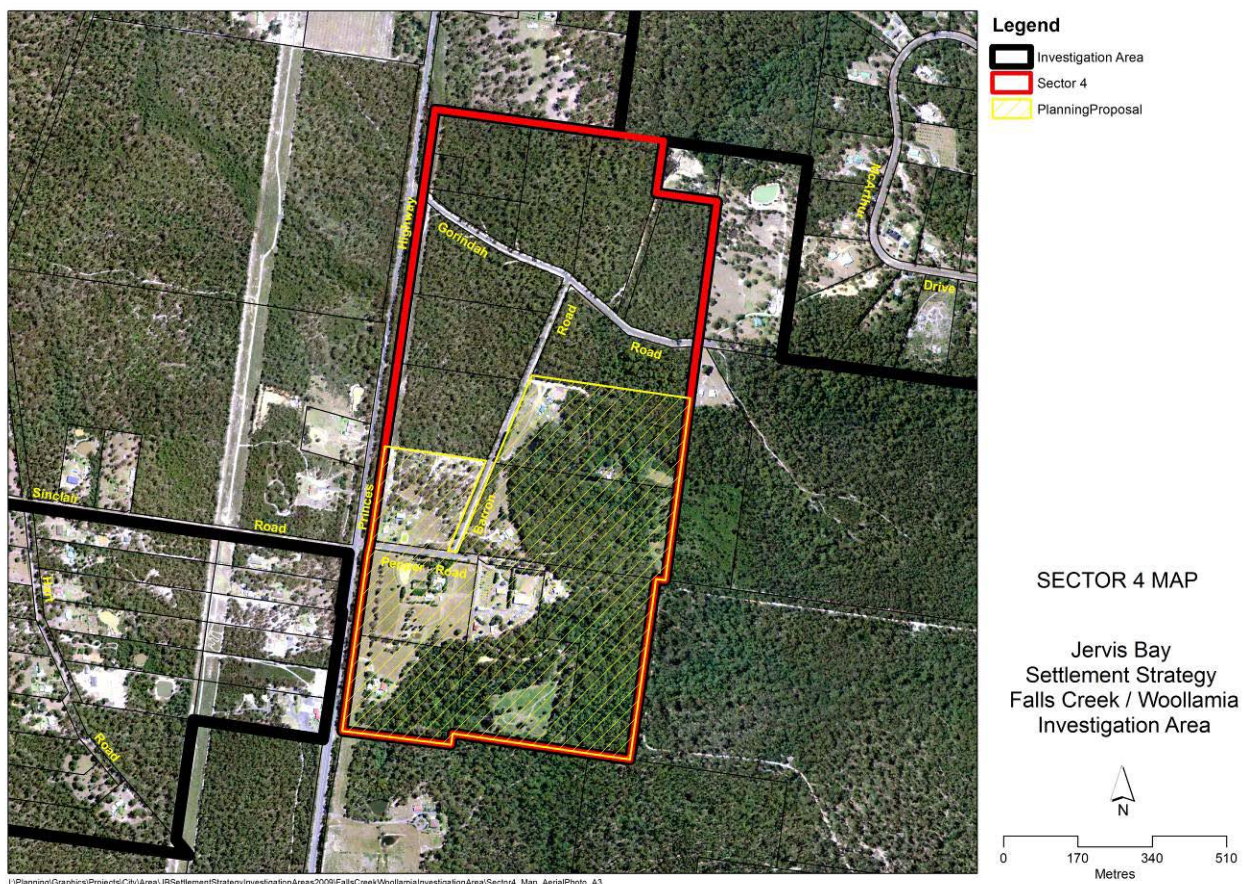


Figure 17: Sector 4 Map

Description

This section covers 89ha, and consists of 17 lots ranging in size from 3 to 10ha. Sector 4 is located on the eastern side of the Princes Highway and is currently zoned 1(c3) allowing for a minimum lots size of 10ha. The northern portion contains lots which form part of the Parma Creek Reserve owned by NSW NPWS, the Land and Property Management Authority and the local Jerringa Aboriginal Land Council. The remaining 7 lots have minimal or partial clearing and each contain a single dwelling with one of the sites also used as a home activity.

Planning Proposal Justification

The lots that are part of the Parma Creek Reserve have been excluded from the Planning Proposal for this area. In addition, Lot 182 DP 1091933 (Jerringa Aboriginal Land Council), located in the north western corner, is identified as a Vegetation Habitat Corridor under the JBREP 1996. The JBSS specifically identifies such land as being unsuitable for rezoning for the purposes of increased densities and it is therefore not included in the Planning Proposal.

The remaining 7 lots (49ha) currently have dwellings constructed on them and will be considered in the planning proposal for increase in density. Consideration will be given to issues such as access, flora and fauna and bushfire threat.

Sector Six

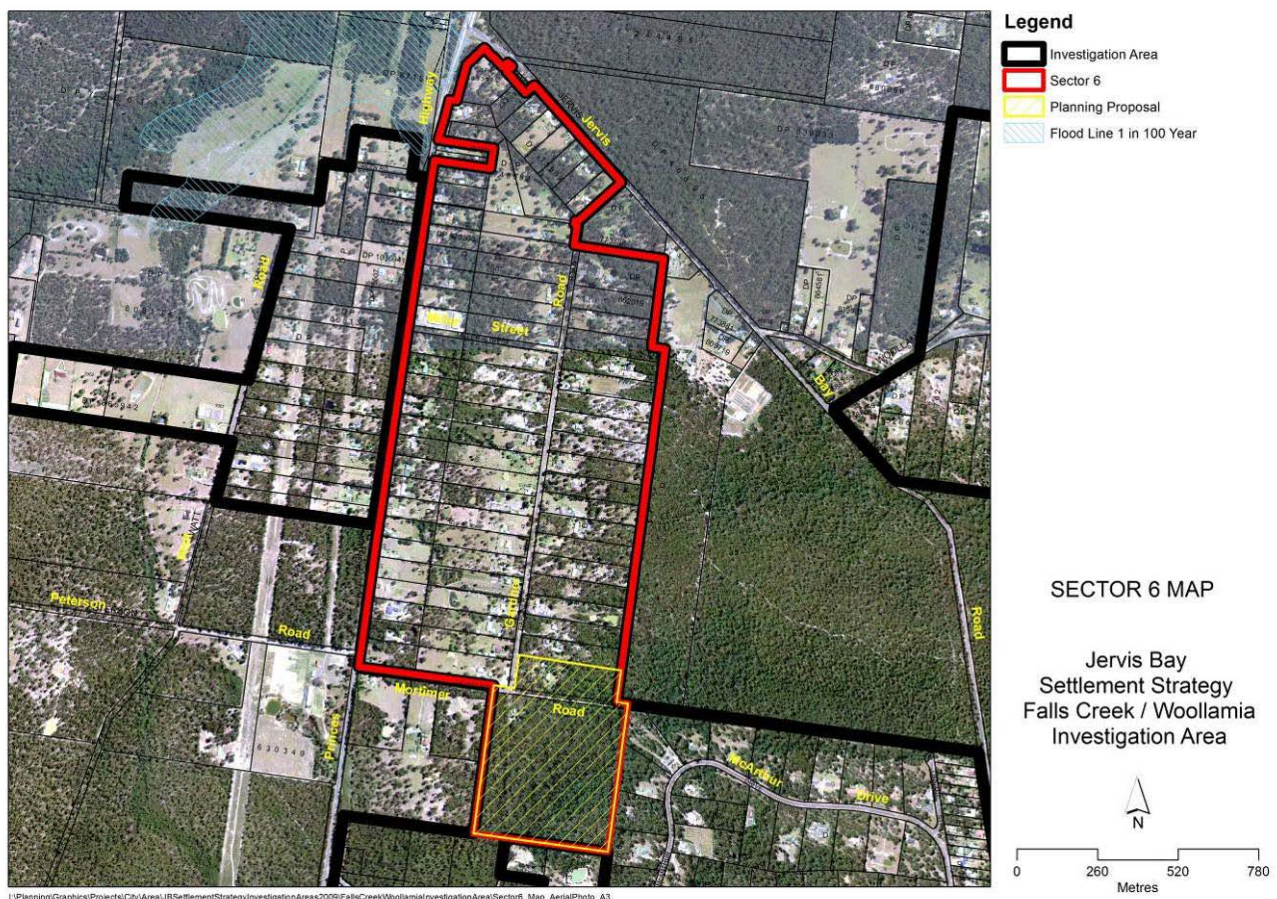


Figure 19: Sector 6 Map

Description

This Sector is located to the east of the Princes Highway and consists of 80 lots covering an area of 157ha. Seventy-seven (77) lots within the sector contain are between 1 and 3ha in area with a further two (2) lots of over 3ha. These lots are zoned 1(c2) and 1(c3) with minimum lots size of

2ha and 10ha respectively. The size of the remaining lot to the south of Sector 6 is 20ha. This lot is zoned deferred Rural 1(a).

The predominant land use in Sector 6 is residential (detached single dwelling). In addition there are six (6) home activities, three (3) multiple dwellings, one (1) industrial manufacturing, one (1) vacant lot and one (1) public reserve lot, managed by Shoalhaven City Council.

Planning Proposal justification

Seventy-eight (78) lots with area sizes between 1 and 3.5ha have been excluded from the recommended planning proposal area on the basis that their lot size, lot orientation and lot layout make it particularly difficult to provide road access and other infrastructure within this configuration.

Furthermore, the removal of vegetation to cater for infrastructure, access and bushfire protection on these smaller lots would be altered to such an extent that it is likely to have a negative cumulative impact on the scenic landscape and treed character of the area. These factors all combine to suggest that these smaller lots are not considered to be conducive to increases in rural residential living densities.

The two larger parcels of land zoned Rural 1(c2) and Rural 1(a) located in the south eastern corner of the investigation area are large enough to warrant consideration for increase in density to rural residential living in the planning proposal for the area.

The deferred 1(a) SLEP 1985 provisions currently allows for a minimum lot size of 40ha. This site was previously included in draft LEP's under consideration by Council for rezoning to 1(c) to allow for a rural/residential densities of 1ha. This draft LEP was incorporated into the Rural Plan LEP Amendments in 1998, and as such, was ultimately deferred by the NSW State Government whilst the Jervis Bay Settlement Strategy was finalised.

This site has the potential to achieve a 2ha minimum through the Draft SLEP 2009 which recognised Council's previously accepted position that this lot can support additional rural residential subdivision. In this regard, should the Draft SLEP 2009 progress with the proposed R5 Large Lot Residential zoning and 2ha minimum specified in the lot size map, it may not be necessary for a planning proposal over these sites to progress.

Should this change not eventuate through the Draft SLEP 2009, the deferred Rural 1(a) land is of sufficient size to warrant consideration for further investigation as part of a planning proposal for the area.

Sector Five

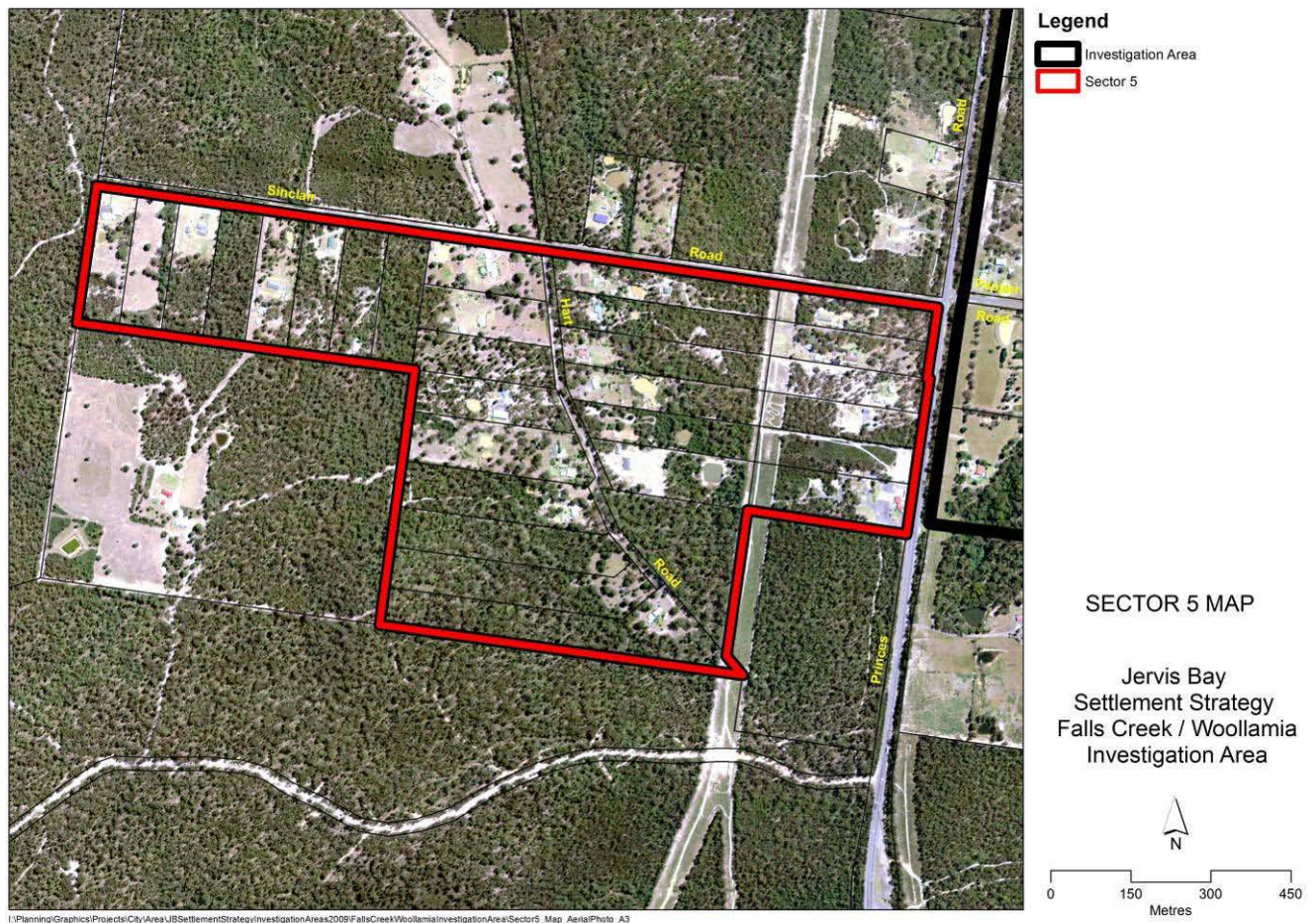


Figure 18: Sector 5 Map

Description

Sector 5 consists of 29 lots within a total area of 72ha. The average lot size in this area is 2.4ha. This sector is located on the western side of the Princes Highway, adjacent to Parma Creek Reserve which is directly adjacent to the western boundary of the site. Lot 173 DP 755965, located on the south eastern corner of the site, is currently zoned deferred 1(f) Forestry and forms part of the larger Yerriyong State Forest located to the south.

Planning Proposal justification

This sector is proposed to be excluded from the planning proposal. It is surrounded by heavily vegetated land (Yerriyong State Forest and Parma Creek Nature Reserve) and this raises significant issues in regard to adequate bushfire protection. Further, lot configuration and infrastructure provision (including road access to additional lots and increased traffic access to the Princes Highway), combined with the current 2.4ha average lot sizes mean that the intensification of this sector is not recommended as it would be difficult to facilitate.

Sector Seven

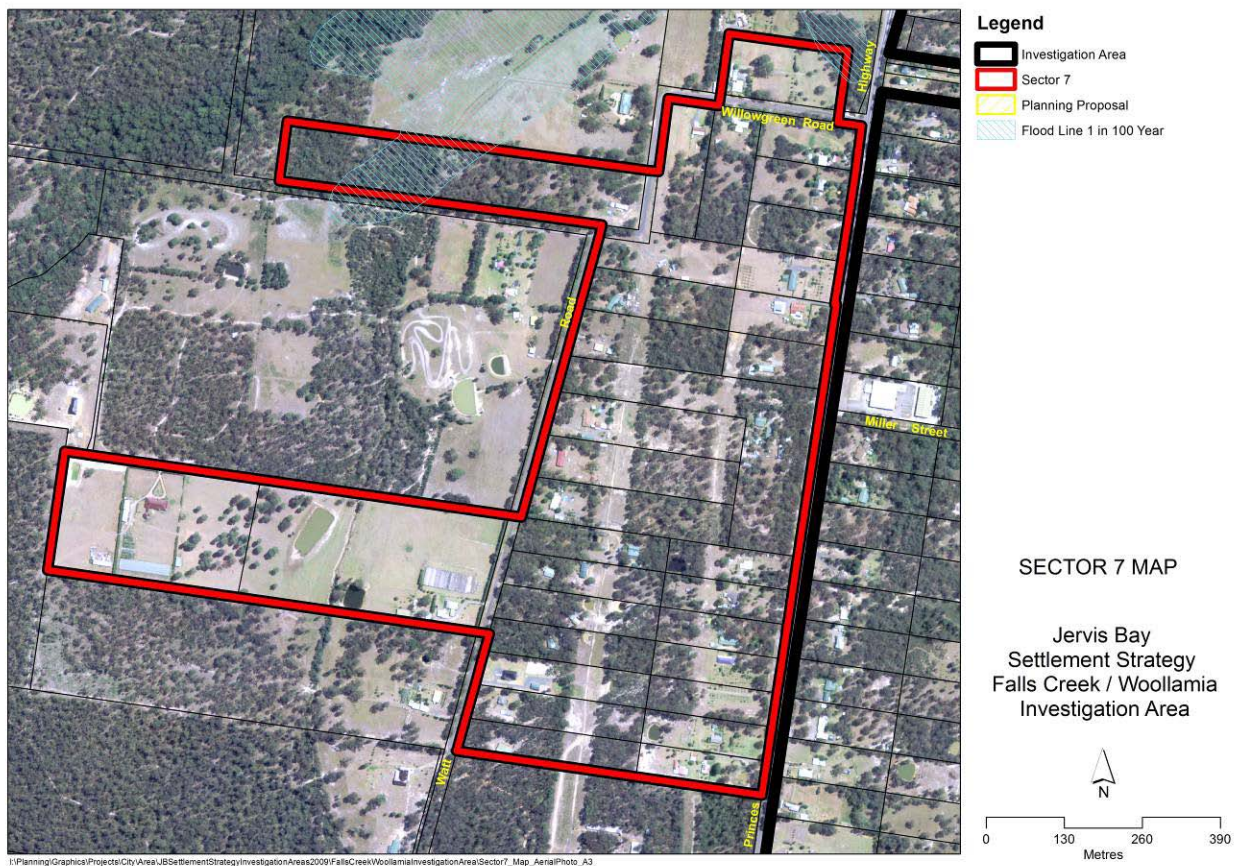


Figure 20: Sector 7 Map

Description

Sector seven is located on the western side of the Princes Highway and contains 33 lots covering 71ha. Twenty-nine (29) of these lots are between 1 and 3ha in area. The 4 remaining lots have areas from 5.3ha to 7.8ha. The current zoning of the area is Rural1 (c3) with a minimum lot size of 10ha. All lots in this Sector currently have single dwellings constructed on them.

Two large easements for electrical transmission and water supply split the sector from the north to south and this has resulted in significant clearing. Despite this, the area remains partially vegetated with clearing also occurring around constructed dwellings. Large parts of the Sector are identified as being bushfire prone with a significant threat existing from the western boundary of the site and the adjacent National Park and Crown Land estates. Part of Lot A DP 159045, located in the North Western area of the sector, is affected by the 1 in 100 year flood area.

Planning Proposal Justification

All lots have been excluded from the recommended planning proposal area on the basis of insufficient lot size, lot orientation and lot layout. Due to these lot characteristics there will be difficulties in providing road access and other infrastructure and, therefore, this configuration is not conducive to increases in rural residential living densities.

This sector abuts heavily vegetated land (Parma Creek Nature Reserve) which raises significant issues in regard to adequate bushfire protection. The Parma Creek Nature Reserve is identified as a Strategic Fire Advantage Zone (SFAZ) as part of the Shoalhaven Bushfire Risk Management Plan (2010, Shoalhaven BFM). The SFAZ assists in the protection of adjacent rural residential

assets. In this case, it provides protection for the Falls Creek rural residential area which is identified in the Shoalhaven BFRMP as being an asset at high risk from bush fires. Any increase in rural residential areas on the western side of the highway is considered likely to place increased pressure on the implementation on the SFAZ within the Parma Creek Nature Reserve and the Yerriyong State Forest and should be avoided.

Lot A, which is located in the north western area of the sector, has been excluded from the investigation area on the basis of a large proportion of the site being identified as being within the 1% AEP. The *Jervis Bay Settlement Strategy* specifically recommends excluding flood prone land. The size and orientation of the remainder of this lot makes it unsuitable for further intensification for rural/residential purposes.

The implications of increased residential densities on the western side of the Princes Highway, in terms of bushfire and traffic turning directly onto the Princes Highway, combined with lot configuration, and infrastructure provision (including road access to additional lots and the average lot sizes mean that the intensification of this sector is not recommended as it would be difficult to facilitate.

9 Recommended Planning Proposal Area

On the basis of the outcomes of the initial desktop assessment carried out in relation to the Falls Creek/Woollamia Deferred Investigation Area, it is recommended that a planning proposal considering an increase in Rural Residential Living densities be prepared for consideration through the Gateway process (See Figure 21: Recommended Planning Proposal Areas). Anticipated studies are set out in Appendix III and should be identified as part of the preparation of a planning proposal for the investigation area.

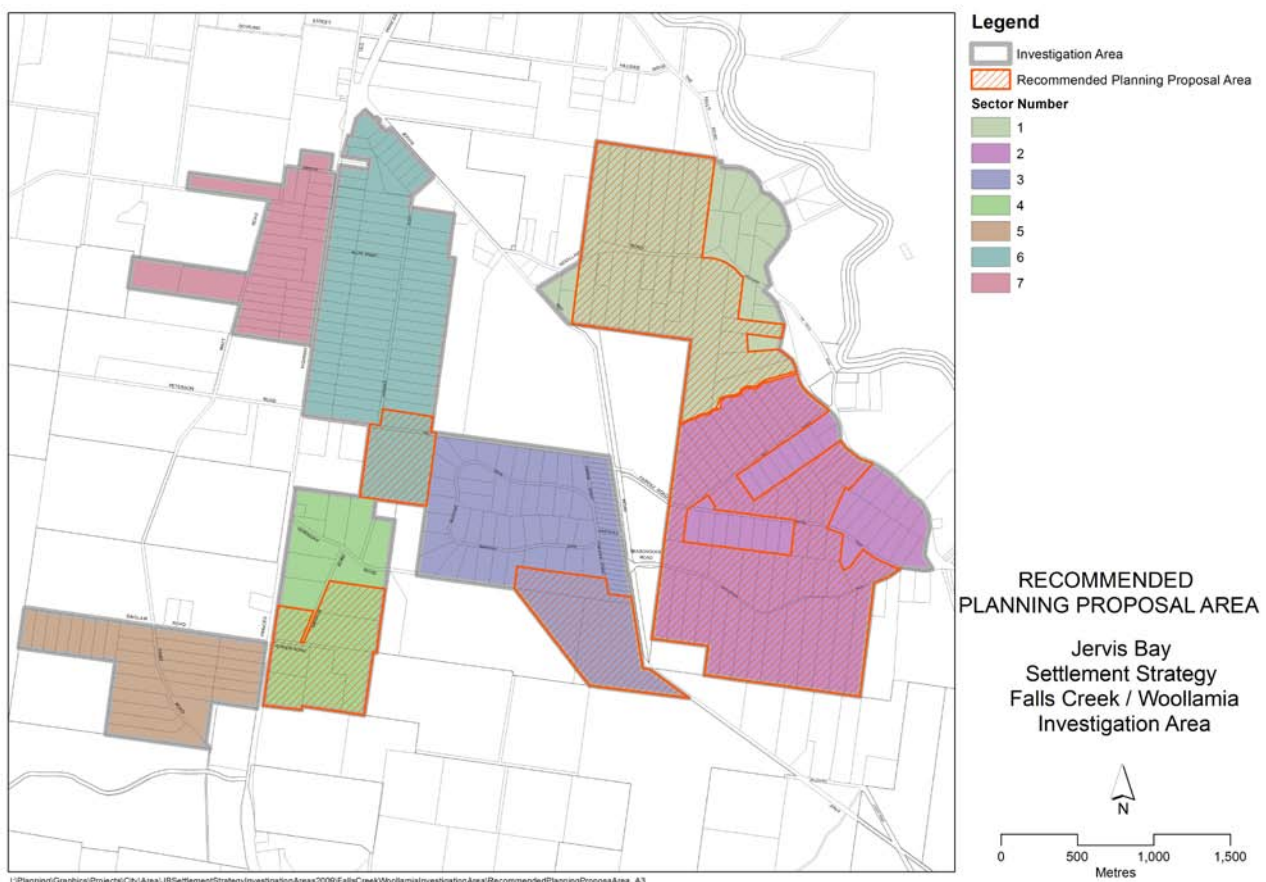


Figure 21: Recommended Planning Proposal Areas

10 Overview of outcomes

The preliminary desktop study considered various relevant environmental and socio-economic issues relating to the investigation area available at this point in time.

The main findings of this desk top study are as follows:

- *There are a number of biophysical constraints including vegetation, fauna, bushfire and flooding significantly affects the area.*
- *The area is environmentally significant in terms of vegetation conservation and water quality within the Currumbene Creek catchment.*
- *Large sections of the area are significantly constrained by flora and fauna, flooding, slope, bushfire, lot size and lot configuration to the extent that further investigation into rezoning on the land should not be pursued as part of any planning proposal.*
- *Large sections of the area have been developed for rural residential purposes. Further investigation is required to determine if there is a demand or need to pursue intensification of these sites.*
- *The land identified on Figure 21: Recommended Planning Proposal Area be investigated further for amendments to the lot size maps and potential rezoning for increased rural residential densities having regard to identified constraints.*
- *A clear process for investigating intensification should be established.*
- *The method for funding potential studies and investigations should be considered and agreed upon with owners prior to the commencement of any environmental studies.*
- *The social and economic impacts of an increase in density, and therefore population, should be considered.*
- *The visual impact of vegetation removal and subsequently the character of the area should be considered when investigating proposed densities.*
- *In preparing a Planning Proposal for the area, consideration should be given to the studies and investigations identified in Appendix III.*

APPENDIX I: LAND USE PLANNING AND STATUTORY FRAMEWORK

COMMONWEALTH LEGISLATION	<i>Commonwealth Environment Protection & Biodiversity Act (EPBC)1999</i>	The EPBC Act aims to protect those aspects of the natural and cultural environments which are of national significance and to maintain natural biodiversity. Approval is required from the Commonwealth Minister for the Environment for actions that have, will have or are likely to have a significant impact on a matter of “ <i>national environmental significance</i> ”. The EPBC lists numerous endangered species of flora and fauna.
STATE LEGISLATION	<i>Environmental Planning and Assessment (EP&A) Act 1979</i>	The EP&A Act provides the statutory framework for regulating land use planning in NSW. Any planning proposal must be consistent with the objectives of the EP&A Act 1979, which aims to enable the efficient use of land without compromising the natural, social and building environments. The preparation of a Planning Proposal must follow the process set out in the Act and consider the Ministerial Directions also set via section 117 of the Act.
	<i>Threatened Species Conservation Act (TSCA) 1995</i>	The TSC Act 1985 requires that certain matters be taken into account when considering whether a proposal is likely to have a significant effect on threatened species, populations or ecological communities, and whether a Species Impact Statement (SIS) is required.
	<i>National Parks and Wildlife Act (NPWA) 1974</i>	The NPW Act is the principle legislation for the management of national parks in NSW. The Act also provides for the management of Aboriginal sites in the State. The Act does not allow for such sites to be impacted without authority from the NSW National Parks and Wildlife Service. Further studies are required to determine their significance and the relevance of the NPWA.
	<i>Marine Parks Act (MPA)1997</i>	This document provides an overview of the zoning and management arrangements for the Jervis Bay Marine Park. The objectives of the <i>Marine Parks Act 1997</i>, are: • To conserve marine biological diversity and marine habitats by declaring and providing for the management of a comprehensive system of marine parks, • To maintain ecological processes in marine parks, and where consistent with the preceding objectives: • To provide for ecologically sustainable use of fish (including commercial and recreational fishing) and marine vegetation in marine parks, and • To provide opportunities for public appreciation, understanding and enjoyment of marine parks. The investigation area is adjacent to the Jervis Bay Marine Parks Upper Currumbene Creek Sanctuary Zone

	Rural Fires Act (RFA) 1997	The RFA aims to prevent, mitigate and suppress fires, co-ordinates bushfire fighting and protect people, property and the environment. The RFA requires Council to consider the threat of bushfire when considering development. Ministerial Directions under s117(2) of the <i>EP&A Act</i> , require the Responsible Planning Authority to have regard to <i>Planning for Bushfire Protection (2006)</i> when considering draft LEP preparation.
	Water Management Act (WMA) 2000	A controlled activity approval is required under the <i>Water Management Act (WMA)</i> for certain activities carried out in on or under waterfront land.
STATE PLANNING INSTRUMENTS, STRATEGIES AND POLICIES	South Coast Regional Strategy (SCRS)	The South Coast Regional Strategy (SCRS) was released by the Department of Planning & Infrastructure in 2007. One of the primary purposes of the SCRS is to ensure that adequate land is available and appropriately located to accommodate projected needs. Ministerial Directions under s117 (2) of the <i>EP&A Act</i> requires planning proposals to be consistent with regional strategies.
	NSW Coastal Policy 1997	The <i>NSW Coastal Policy: A Sustainable Future for the New South Wales Coast</i> (1997) is a State Government Policy that is relevant to the “coastal zone” as defined by the policy. The north eastern section of the investigation area is included in the Coastal Zone. The Policy contains principles for managing development in the coastal zone and has an overarching theme of ecologically sustainable development. The policy is a section 117 Direction under the <i>Environmental Planning and Assessment Act 1979</i>, which means Council must consider the Policy’s provisions when preparing planning proposals in the coastal zone.
	Jervis Bay REP (Deemed SEPP)	This Deemed SEPP aims to protect the natural and cultural values of Jervis Bay and to allow proposals that contribute to the natural and cultural values of the area. It includes specific provisions for identifying, assessing and ameliorating the impact of development in the area including: <i>Catchment protection (clause 11)</i> <i>Landscape quality (clause 12)</i> <i>Cultural heritage (clause 13)</i> <i>Habitat corridors (clause 14)</i> <i>Disturbed habitat (clause 15)</i> <i>New urban releases (clause 16)</i> <i>Tourism development (clause 17); and</i> <i>National Parks (clause 18)</i>
	State Environmental	This policy aims to “ensure that the coastal wetlands are preserved and protection in the environmental and economic interests of the state”. SEPP 14 Wetlands are identified in close proximity to this investigation area.

	Planning Policy No. 14 (Coastal Wetlands)	
	State Environmental Planning Policy No. 71 Coastal Protection, 2002	This Policy seeks to ensure that development in the coastal zone is appropriate and suitability located and that there is a consistent and strategic approach to coastal planning and management. The SEPP sets out those matters which should be taken into account by a council, when it prepares a draft local environmental plan within the coastal zone.
	NSW Oyster Industry – Sustainable Aquaculture Strategy (2006)	Identifies the key water quality parameters necessary for sustainable oyster aquaculture and establishes a mechanism to maintain and where possible improve the environmental conditions required for sustainable oyster production. Ensures that the water quality requirements for oyster growing are considered in the State's land and water management and strategic planning framework.
	South Coast Regional Strategy (SCRS) 2006	Sets out a land use plan for the South Coast which aims to balance demand for future growth with the need to protect and enhance environmental values. The JBSS is endorsed by the Strategy.
	Jervis Bay Settlement Strategy (JBSS)	The Jervis Bay Settlement Strategy (JBSS) forms a strategic framework document that provides guidance in terms of the conservation of the Jervis Bay regional. The document does not rezone land for development; it does, however, identify potential development areas that will need to be further investigated and outlines issues that will need to be addressed in more detail during the investigation and rezoning process.
LOCAL PLANNING CONTROLS, POLICIES & STRATEGIES	Shoalhaven Local Environmental Plan 1985	Shoalhaven Local Environmental Plan 1985 is the principal planning instrument for the Shoalhaven, providing detailed controls on the use of land within the City, including Woollamia Farmlets. Land within the Falls Creek/Woollamia Deferred Investigation Area is currently zoned Rural 1(a), Rural 1(b), Rural 1(c2) and Rural 1(c3) under the pre Rural Plan version of the LEP. The investigation area was deferred from the Shoalhaven LEP (1985) Amendment 127 (Rural Plan). In this regard, the provisions of the pre-Amendment 127 SLEP apply in relation to clause 9 (zoning) and clause 12 (subdivision). See Appendix I – Extract Relevant Clauses - Shoalhaven Local Environmental Plan 1985.
	Draft Shoalhaven Local	The draft Shoalhaven Local Environment Plan 2009 (not yet exhibited) has been prepared in accordance with the <i>Standard LEP Instrument</i> issued by the NSW Department of Planning & Infrastructure in 2006. In its current form, the

	<i>Environmental Plan 2009</i>	Draft SLEP proposes zoning the bulk of the site as RU2 (Rural Landscape. Sections of the Study Area are identified on the draft Environmentally Sensitive Land Map (ESL).
	<i>Development Control Plans & Draft DCP's</i>	A range of development control plans apply to the Woollamia locality, the majority of which are indirectly relevant to this study and which play a greater role at the development application or physical construction phase.
<i>OTHER STUDIES</i>	<i>Currambene Creek and Moona Moona Creek Flood Studies (Lyll & Associates Consulting Engineers, Nov 2006)</i>	The study defines flood behaviour in the creeks and their main tributaries in terms of flows, levels and flooding behaviour for floods ranging between 5 and 200 years ago. The study will form the basis of the development of the Flood Plain Risk Management Plan which Council proposes to commence in 2011.
	<i>Currambene Creek and Adjoining Foreshore Reserve Crown Land Assessment (undated)</i>	Provides a natural resource inventory for Crown Land within and adjoining the Foreshore Reserve of Currambene Creek. Undertaken as assessment of the capabilities of the land and identifies suitable and/or preferred uses for the land.
	<i>Southern Rivers Catchment Management Authority – Catchment Action Plan (CAP)</i>	The CAP identifies the desired condition of natural resources and sets out priority targets towards achieving this condition over ten years. The objective of the water program is to protect, maintain and improve river and water body health through the implementation of priority management actions.
	<i>Currambene Creek Catchment Plan (Shoalhaven Catchment Management Committee, 1999)</i>	This plan is a tool to assist decision making in natural resource management for the Currambene Creek Catchment. It contains a number of recommendations in relation to the protection, restoration and enhancement of the water quality, vegetation and habitat within the Currambene Creek Catchment.

APPENDIX II: ANTICIPATED STUDIES AND INVESTIGATIONS

STUDY/INVESTIGATION NAME	STUDY DETAIL
Survey Information	Additional survey work is required to provide more accurate height data to determine flood levels/floodways. Airborne Laser Scanning (ALS) surveys could be considered to enable more accurate height data. Obtaining this data should be considered, in conjunction with other strategic projects which might gain value from access to such data.
Bushfire Study	Need to have regard to the provision contained with <i>Planning for Bushfire Protection 2006</i> Understand the asset protection zones (APZ's), access roads and other bushfire protection measures that may be required for rural residential development of the land containing small lots. When considering the implementation of APZ's and other bushfire protection measures, the Study needs to incorporate into its considerations the implications of any Land Based Biodiversity Study in regards to vegetation removal, maintenance of biodiversity, urban run off and erosion and water quality within the Currumbene Creek Catchment.
Assessment of water quality and flow monitoring requirements	Carry out an assessment to determine the studies/background monitoring required to achieve the objective of no net increase in the average annual load of key pollutants above the current load from the study area into the Currumbene Creek subcatchment.
Water Management Study	Investigate the impacts and management of run off, erosion and subsurface drainage on SEPP 14 wetlands and Currumbene Creek and its catchment.
Land Based Biodiversity Study	Review vegetation within the study area to determine conservation significance of threatened species, populations and endangered ecological communities and their habitats identified under the NSW <i>Threatened Species Conservation Act, 1995</i> (and amendments) and the Commonwealth <i>Environment Protection and Biodiversity Conservation Act, 1999</i> (as amended), and the <i>Jervis Bay Marine Parks Act</i>; and Outline site specific land management principals and practices, both essential and desirable , that will help achieve threatened species and biodiversity outcomes; and Recommend any other impact mitigation strategies as may be necessary to permit some form of development on the study area; and,

	Consider the impact of bushfire protection and infrastructure development works on land based biodiversity; and Consider whether development of the study area will trigger the need for an SIS under the Threatened Species Conservation Act, 1995 or Ministerial approval under the Commonwealth Biodiversity & Conservation Act, 1999 and if so, how development could be modified to avoid significant impact; and Indicate whether rural residential development of individual lots is feasible in respect of threatened species and biodiversity constraints and recommend minimum lot sizes that would be required to achieve satisfactory conservation outcomes; and Recommend, should it be decided to pursue biodiversity certification of the DLEP for the subject area, how this could be achieved as per provision s.126G in the Threatened Species Conservation Act, 1995, with specific reference to the “maintain and improve test”, the biometric tool and appropriate offsets. Review the boundary of the SEPP 14 wetland both within and on the adjoining sites. The review should be based on ground truthing/ field survey, aerial photography and detailed contour information. This task is necessary to progress effluent disposal investigations and has high priority. It should be scheduled for completion early in the project.
Aboriginal Archaeological and Cultural Heritage Study	Review and identify items of Aboriginal and European Cultural Heritage through a comprehensive archaeological survey.
Effluent Disposal Study and options	Consider options for on-site effluent system including capacity of land, in terms of lot size, vegetation removal, impact on water catchment and quality.
Servicing Investigation	Investigate capacity of existing service infrastructure including water supply, telephone and electricity and to determine details and costs associated with any identified upgrades which may be required.
Stormwater Management	Investigate management of stormwater across investigation area.
Feasibility Investigation – Funding	Investigate options to fund the required environmental studies, infrastructure provision and potential future subdivision
Economic & Social Assessments	Consideration to be given to population increase and additional demand on community needs, services and infrastructure and economic demand for small lot rural subdivision.
Visual Catchment Assessment	Consider the likely cumulative impact of land clearing on change in visual character of the area, particularly having regard to the provisions contained within the Jervis Bay REP deemed SEPP.
Transport & Access Studies	Investigate potential local traffic network to determine capacity to absorb an increase in rural residential densities in the area. Develop options for access for areas being considered for increases in rural residential densities.

APPENDIX IV: DRAFT LEP CHECKLIST

Draft LEP Checklist Section 117(2) Directions		Woollamia Farmlets Investigation Area	
Direction No:	<i>a) Subject</i>	Relevant	Comment
1	Employment and Resources		
1.1	Business and Industrial Zones	X	
1.2	Rural Zones	√	Review of rural zoning to be considered
1.3	Mining, Petroleum Production and Extractive Industries	X	
1.4	Oyster Aquaculture	√	Currambene Creek
1.5	Rural Lands	√	
2	Environment and Heritage		
2.1	Environmental Protection Zones	√	Parts of study area are ESL
2.2	Coastal Protection	√	Site is located within the Coastal Zone
2.3	Heritage Conservation	√	Potential Aboriginal relics or objects, places and landscapes located in the area.
2.4	Recreation Vehicle Areas	X	No proposal for recreational vehicle area to form part of planning proposal.
3	Housing, Infrastructure and Urban Development		
3.1	Residential Zones	√	Investigations may include consideration of creation of residential zoned land
3.2	Caravan Parks and Manufactured Home Estates	√	Need to consider maintaining provisions permitting caravan parks.
3.3	Home Occupations	√	Need to consider maintaining provisions permitting home occupations.
3.4	Integrating Land Use and Transport	√	Investigations may include consideration of creation of residential zoned land

3.5	Development Near Licensed Aerodromes	√	Investigation area located in the vicinity of HMAS Albatross
4	Hazard and Risk		
4.1	Acid Sulfate Soils	√	Low probability acid sulphate soils in investigation areas
4.2	Mine Subsidence and Unstable Land	X	Land is not within a Mine Subsidence District nor has it been identified as unstable land.
4.3	Flood Prone Land	√	Flood prone land is located within the investigation area
4.4	Planning for Bushfire Protection	√	The investigation area is identified as bushfire prone land.
5	Regional Planning		
5.1	Implementation of Regional Strategies	√	The area is covered by the South Coast Regional Strategy
5.2	Sydney Drinking Water Catchments	X	
6	Local Plan Making		
6.1	Approval and Referral Requirements	√	
6.2	Reserving Land for Public Purposes	√	
6.3	Site Specific Provisions	√	

APPENDIX V - JERVIS BAY SETTLEMENT (2003) STRATEGY CHECKLIST - FALLS CREEK/WOOLLAMIA DEFERRED INVESTIGATION AREA

Principles and Objectives	Action	Comments
<i>Growth Management Principles</i> Principles for Development The implementation of this Strategy in planning further settlement for the Jervis Bay Region will be guided by a number of growth management principles. These principles are:	• Conservation of the Region's environmental qualities is a principal objective in the planning and management of the area;	The overarching principles for the area will be a reference point for all studies carried out in association with the preparation of a planning proposal within the investigation area. Where it is clear at the initial stages that the overarching principles cannot be met, an area has been excluded from further investigation.
	• Future population growth should be sustainable, and the environmental, social and economic constraints to development should be assessed to determine how much growth can be accommodated in new areas. Issues to be assessed include: – Native vegetation – Threatened species – Proximity to water courses and bodies – identify buffers – Water quality controls – Flood liability – Bush fire risk/protection – Cultural heritage – Acid sulphate soils – Slope of the land – Provision of infrastructure	
	• Given the high level of biodiversity, future land use decisions must be supported by documentation which demonstrates a high level of scientific certainty, involving a comprehensive understanding of the biota and demonstrating the potential response to rezoning;	
	• Development should generally augment existing settlements and avoid the creation of new settlements;	
	• Development should provide a choice of living opportunities and types of settlement;	

	• No new rural residential areas should be established outside of areas identified for investigation in this Strategy; • Given the environmental and social limits (ie infrastructure and services) to growth in the Region, there is a need to identify and investigate opportunities for infill development, urban renewal and consolidation within existing urban areas in the longer term; • It will be essential to provide for the continued and improved social and economic well being of the whole community; and • Protection of water quality in Jervis Bay, St Georges Basin and Lake Wollumboola is of fundamental importance.	
WATER QUALITY AND FLOW Objective – To ensure that the water quality and flow of waterways and their aquatic, marine and estuarine ecosystems is not detrimentally affected as a result of new settlement in the region	i. All development will meet the statutory requirements of the Jervis Bay Regional Environmental Plan 1996 in respect of clause 11 – Catchment Protection. ii. New development will be located and designed so as to avoid detrimental impacts on waterbodies and watercourses, including groundwater. Where there are manageable impacts, erosion and sediment control measures and means to mitigate nutrient and other pollutants should be provided on the development site and be excluded from areas set aside for the protection of natural or cultural attributes (eg. riparian areas, habitat corridors, Aboriginal places/sites and so on).	Additional studies required to ensure intensification in land use will meet the statutory requirements of the Jervis Bay REP. A comprehensive water quality and flow monitoring program may be required to gather the necessary information and be used to further investigate the impacts and management of urban run off, erosion and subsurface drainage. Background water quality levels are currently not available in order to determine what is required to achieve the objective of “no net increase” in the average annual load of key pollutants above the current load from the investigation area. There is currently insufficient monitoring data available to determine the annual average current load of key pollutants from the investigation area and it is anticipated that in order to meet the provisions of the JBREP, monitoring may be required to provide adequate information for modelling of nutrient export.

WATER QUALITY AND FLOW continued	iii. New development will be designed so that domestic effluent management does not have a detrimental impact on water quality and flow, meets the Interim Environmental Objectives for the Jervis Bay Catchment (EPA, 1999), and is consistent with relevant State government guidelines.	The ability to manage effluent disposal has a significant initial impact on the increase in rural residential densities. In considering effluent management, options will be considered which result in on-site management, and this will influence lot size and configuration and have the potential to create adverse impacts on the Currumbene Creek Sub-Catchment. Preliminary effluent disposal study to be carried out in conjunction with water quality investigations.
	iv. New development, including infrastructure (eg stormwater controls), will be located, designed and constructed in a manner that does not degrade land based or aquatic ecosystems or processes.	Water quality investigations need to include recommendations in relation to location, design and construction of infrastructure.
	v. A set of catchment health indicators will be established, to supplement the Interim Environmental Objectives for the Jervis Bay Catchment (EPA 1999) and to assist monitoring and assessment of cumulative impacts of development on water quality and flow.	Catchment health indicators have not yet been established. Baseline water quality levels are required in order to meet these provisions.
	vi. Infrastructure works will not have a detrimental impact on the water quality of receiving waters in the region. In order to achieve this outcome, best practice soil and water management will be implemented when constructing various infrastructure, and the number of artificial barriers to flow and impediments to movements of aquatic biota will be minimised.	Water quality investigations need to include recommendations in relation to location, design and construction of infrastructure.

FRESHWATER, MARINE AND ESTUARINE BIODIVERSITY Objective – To ensure that the potential impacts/hazards associated with new settlement are recognised, avoided and managed to prevent detrimental impacts on freshwater, marine and estuarine biodiversity values of the region.	i. Freshwater, marine and estuarine attributes such as mangrove forests, salt marshes, sea grasses and other aquatic, marine or estuarine habitat will be protected from the impacts of new development in the region. In order to achieve this outcome, new settlement in the region will be assessed in accordance with relevant State Government and other policies for freshwater, marine and estuarine habitat management.	The investigation area is located in close proximity to the Upper Currumbene Creek Sanctuary Zone. The objectives of the <i>Marine Parks Act 1997</i> will be taken into consideration during the preparation of the planning proposal. The water quality study and flora and fauna work will need to be extended to include consideration of freshwater, marine and estuarine attributes and the impacts of any proposed development.
	ii. Significant populations of, and habitats for, threatened species, populations and ecological communities listed under the Fisheries Management Act 1994 (Schedules 4 & 5) will be conserved and managed under proposed planning instruments associated with new development.	
	iii. New settlement in the region will seek to minimise and manage activities that can be defined as, or contribute to, key threatening processes listed in Schedule 6 of the Fisheries Management Act 1994.	
	iv. Policies will be developed and implemented in order to reduce the impact of existing land based development on freshwater, marine and estuarine habitats.	
	v. Public access to riparian, marine and estuarine areas may be provided if such access can be achieved without or with minimal disruption to freshwater, marine or estuarine biodiversity.	There will be no new marine facilities or infrastructure in association with any planning proposal for the area. N/A
	vi. New proposals for public marine facilities or infrastructure will be located and designed to avoid unacceptable impacts on the marine and estuarine environment. New proposals should seek to address ongoing management of impacts that may occur and which, following detailed environmental investigation, are considered to be acceptable.	
	vii. The provisions of Estuary Management Plans, and the Jervis Bay Marine Park Zoning and Operational Plans, will be incorporated into planning, management and development processes where relevant.	

LAND BASED BIODIVERSITY Objective –To ensure that significant areas of land-based biodiversity, ecosystems and the function of natural processes are conserved and sustainably managed as a major contribution to the achievement of ecologically sustainable development.	i. New settlement in the region will meet the statutory requirements of the Jervis Bay Regional Environmental Plan 1996 in respect of clause 14 (Habitat Corridors) and 15 (Disturbed Habitat and Vegetation). Landuse planning in the region should explicitly recognise the value of lands as habitat corridors and seek to maintain the structure and composition of native vegetation within these areas. In some critical areas, corridor values may be enhanced or improved by replanting and rehabilitation of cleared and/or disturbed areas.	Land affected by Habitat Corridors mapped in the Jervis Bay REP is to be excluded from any recommended planning proposal.
	ii. New settlement will be located and designed so as to avoid detrimental impacts on land-based biodiversity. Disturbance to flora and fauna habitats by new or existing development will, as far as possible, be minimised, and any proposed clearing of vegetation will obtain the relevant approvals and be undertaken in accordance with relevant legislation, policies and best management practices.	Flora and fauna studies to be carried out which will identify significant flora and fauna habitats. These studies will include a review of existing studies carried out to date, and further verification on the ground.
	iii. Decisions regarding the location and design of new development in the region will recognise that the conservation of biodiversity is dependent on maintaining landscape connectivity through a native vegetation system of National Parks, habitat corridors established by the Jervis Bay REP, environment protection zones under the Shoalhaven LEP, and bushland on private land.	Habitat corridors identified under the Jervis Bay REP have been excluded from any recommended planning proposal. Additional detailed flora and fauna work will provide greater detail of the biodiversity values of bushland on private land, which will assist in determining areas suitable and unsuitable for increased rural residential densities.
	iv. Significant populations of, and habitats for, threatened species, populations and ecological communities listed in Schedules 1 & 2 of the Threatened Species Conservation Act 1995 will be conserved and managed under proposed planning instruments associated with new development. A range of policy options to conserve biodiversity on private land will also be explored, including restrictive covenants, voluntary conservation agreements and so on.	Additional flora and fauna work will provide greater detail of the biodiversity values of bushland on private land, which will assist in determining areas suitable and unsuitable for increased rural residential densities. Other mechanisms for biodiversity conservation such as Planning Agreements will be investigated as part of the preparation of any planning proposal.
	v. New settlement in the region will seek to minimise and manage activities that can be defined as, or contribute to, key threatening processes listed in Schedule 3 of the Threatened Species Conservation Act 1995.	Consideration to be given to key threatening processes, in particular land clearing, as part of flora and fauna work to be carried out and during the preparation of any planning proposal for the area.
	vi. Policy options to offset unavoidable impact(s) of new development on land-based biodiversity in the region will be explored. These options may include strategies for mitigation and compensatory habitat, and will be investigated at all levels of the planning system.	Consideration to be given to off sets, whilst flora and fauna work is carried out and during the preparation of any planning proposal for the area.

LAND BASED BIODIVERSITY continued	vii. New settlement in the region will consider and, where-ever possible, seek to implement the recommendations arising from any relevant approved Regional Vegetation Management Plan prepared under the Native Vegetation Conservation Act; and any relevant approved Recovery Plan or Threat Abatement Plan prepared under the Threatened Species Conservation Act.	Consideration will given to 'Priority Action Statements' for listed by Office of Environment & Heritage as part of the preparation of the Flora and Fauna Study.
	viii. The habitat values, ecological and hydrological processes of wetlands will be conserved and managed so that the impact of development in the catchments of wetlands (SEPP 14 and others) is minimised.	Flora and fauna work and the water quality and water impacts study will need to cross reference as the hydrological process through land clearing and infrastructure provision may impact on the biodiversity of SEPP 14 wetland. Flora and fauna work carried out in this regard may need to go beyond the study area to include impacts on the SEPP 14 wetlands.
	ix. Littoral rainforests in the region will be conserved and managed in accordance with SEPP 26.	There is no littoral rainforest identified in the study area under SEPP 26.
	x. Remnant vegetation, particularly that which occurs outside protected areas, will be conserved and protected where-ever possible to maintain and increase natural species diversity. Decisions regarding new settlement in the region should therefore aim to improve the condition of existing native vegetation and encourage the revegetation and rehabilitation of land with appropriate vegetation management.	Flora and fauna work will need to identify significant remnant vegetation in the early stages. This action has the potential to impact on the increase in density within the investigation area.
	xi. New settlement in the region will be encouraged to provide for biodiversity enhancements (or positive cumulative impacts), by incorporating requirements for, amongst others, weed control, habitat rehabilitation, and the use of local native species in landscaping.	Flora and Fauna report to make recommendations in this regard.
	xii. Locally significant habitat corridors not identified by the Jervis Bay REP will be addressed at all levels of the planning system, to protect locally significant biodiversity values.	Flora and Fauna report to identify locally significant habitat corridors and locally significant biodiversity values.

SOILS Objective – To ensure that soil characteristics, including potential acid sulphate soils, are identified and addressed in assessing the sustainability of new settlement in the region.	i. The calculation of development density will only be made following an assessment of soil attributes of the land, and some lands may be totally excluded from development on the basis of their soil attributes.	Preliminary soil assessment will be undertaken in order to carry out assessments of water quality impacts, hydrological impacts and the capacity for the soils in terms of on site effluent disposal systems.
	ii. Areas of potential acid sulphate soils will be identified and excluded from new development areas in the region. Assessment and management of acid sulphate soils issues will be undertaken in accordance with the NSW Acid Sulphate Soils Manual.	The investigation area is not identified as containing high or low probability of occurrence of acid sulphate soils.
	iii. Areas of potential acid sulphate soils will be identified and excluded, where possible, when considering the location and construction of infrastructure to serve settlements.	
	iv. Ameliorative measures will be undertaken for minor disturbances of potential acid sulphate soils in association with existing development/subdivision patterns.	
LANDSCAPE Objective – To ensure that the significant landscape character of the region is recognised and conserved, and that new settlement does not have a detrimental impact on natural areas or processes.	i. New settlement in the region will meet the statutory requirements of the Jervis Bay Regional Environmental Plan 1996 in respect of clause 12 - Landscape Quality and where-ever possible, landscape values should not be compromised by new development in the region.	A visual landscape study is to be carried out in association with any planning proposal prepared. This study will include, in the initial stages, identification of the visual catchments in the planning proposal area and recommendations as to how these can be maintained.
	ii. New subdivision and housing will be designed in sympathy with the landscape features of the locality. In order to achieve this outcome, design guidelines will be prepared as part of new development proposals in the region.	A development control plan will be prepared in association with any planning proposal for the area which will provide design and subdivision guidelines.
	iii. Important visual aspects of the landscape will be identified and conserved, including the aesthetic quality of the coastal landscape.	A visual landscape study is to be carried out in association with any planning proposal prepared. This study will include, in the initial stages, identification of the visual catchments in the planning proposal area and recommendations as to how these can be maintained.
	iv. Changes to planning controls which facilitate new residential development on undeveloped coastal dune areas will be avoided, and the impact of development on coastal foreshores should be minimised, in accordance with the NSW Coastal Policy.	The investigation area does not contain any coastal dunes.

LANDSCAPE continued	v. New settlement in the region should seek to avoid land liable to be unstable or prone to high or extreme erosion.	Unstable or highly erodible sites to be excluded from investigation area.
CULTURAL HERITAGE Objective –To ensure that significant natural and cultural heritage values of the Region are recognised, conserved and managed.	i. All development will meet the statutory requirements of the Jervis Bay Regional Environmental Plan 1996 in respect of clause 13 - Cultural Heritage.	Part of the investigation area is close to the Currumbene Creek line. Given this, the heritage significance of any Aboriginal object will be investigated through the preparation of an Aboriginal Heritage Study.
	ii. The Aboriginal and European heritage significance of the landscape will be recognised and assessed prior to new development proposals in the region. In particular, Aboriginal cultural heritage will be recognised as a living culture, with Aboriginal people having strong interests in the management of the land and waters of the Jervis Bay region. Archaeological assessment and survey, and the input of the Aboriginal people of Jervis Bay will be essential as part of investigations into new settlement in the region.	The heritage significance of the area subject to the planning proposal will be investigated through the preparation of a Heritage Study investigating both European and Aboriginal cultural heritage.
	iii. Funding will be sought to prepare a predictive model and/or sensitivity mapping for Aboriginal sites/places will be prepared for the Jervis Bay region in order to provide an indication of areas that will require detailed assessment.	Funding to prepare a predictive model/sensitivity mapping for Aboriginal sites has not been sought.
	iv. Significant cultural heritage places, items and landscapes will be conserved and managed, and not detrimentally affected by new development in the region. Consultation with the Aboriginal people of the Jervis Bay region will be undertaken early in the planning of new settlement in the region. This consultation is particularly important in relation to the traditional significance of landscape features, as these are often not reflected in site registers and databases.	The Heritage Study will identify places and items of cultural heritage. Consultation will be a key component in the preparation of the study.
	v. New settlement in the region will be carried out in sympathy with the landscape and heritage character of the values of the region.	The Visual and Landscape study will take into account the importance of cultural landscape within the planning proposal area.
BUSHFIRE Objective – To ensure that settlements are protected from bushfire risk.	i. Appropriate Asset Protection Zones (APZ), will be incorporated into planning instruments associated with new settlement in the Region, in accordance with the requirements of Section 117 (2) Direction G20 – Planning for Bushfire Protection	A Bushfire Study will be required as part of any Planning Proposal for the area.
	ii. Asset Protection zones associated with new development will be contained within the developable area, and will be excluded from areas set aside for the protection of natural or cultural attributes (eg. riparian areas, habitat corridors, Aboriginal places/sites and so on).	The implications of the implementation of APZ's and access/egress routes on vegetation removal, flora and fauna, heritage and visual landscapes will be considered.

BUSHFIRE continued	iii. New settlement will be planned to include bushfire risk management measures that are relative to the associated fire risk in the locality.	Bushfire risk should be managed within the planning proposal area, and in this regard, some sites contained within the investigation area are not considered feasible for intensification of residential living given their configuration, layout, slope and proximity to heavily forested land to the west of the highway.
	iv. The implementation of bush fire risk management measures associated with new settlement will comply with relevant assessment requirements and policies such as the EP&A Act, Rural Fires Act and the guideline Planning for Bushfire Protection (2001).	The principles contained within Planning for Bushfire Protection will be taken into consent in preparing the Bushfire Study. The Study will make recommendations in terms of subdivision design and development control plan provisions.
FLOODING Objective –To identify and acknowledge flooding of land as a constraint to future development.	i. Floodplain Management Studies and/or Plans will be prepared and implemented in accordance with the NSW Floodplain Management Manual (2001) for areas that are likely to be affected by flooding.	<i>Currambene Creek and Moona Moona Creek Flood Study</i> (2006) defines flood behaviour and predicts flood activity in future flood events, however, it is noted that this study does not currently take into account the potential impacts of Climate Change or the implications arising from the <i>NSW Sea Level Rise Policy Statement</i> (2009). A Flood Risk Management Plan is currently being prepared.
	ii. Land within the Flood Planning Area (1% AEP) will not be rezoned to provide for residential development. The zoning of existing urban areas will be reviewed in accordance with relevant Floodplain Management Studies, and development in new and existing areas will be compatible with the level of flood hazard over a whole range of flood events, up to and including the PMF (as such, development should not be located in areas that are considered to constitute a high hazard to life and property in time of flood).	A small portion of land located in the north eastern corner of the investigation area is within the 1% AEP. This area will not be rezoned for residential development. The extent of the 1% AEP should be investigated given the impact of sea level rise benchmarks in terms its extent.
	iii. Necessary changes to Council's statutory planning controls, policies and environmental plans etc., will be made as per the directions given in the NSW Floodplain Management Manual (2001), and the outcomes of relevant Floodplain Management Plans.	N/A

URBAN STORMWATER MANAGEMENT Objective – To ensure the protection of life and property and water quality, by providing best practice stormwater management in new and existing development in the region.	i. A hierarchy of sizes and types of stormwater infrastructure will be provided. This infrastructure should, as far as practicable, be contained within the developable area and excluded from areas set aside for the protection of environmental and cultural attributes (eg. riparian areas, habitat corridors etc).	In the initial stages of any planning proposal for the site, the Water Quality Study will include recommendations in terms of stormwater infrastructure. These can then be incorporated into any infrastructure plan for the area.
	ii. Stormwater infrastructure associated with new development in the region should be designed and constructed in a manner that does not degrade existing natural land-based or aquatic ecosystems or processes. Wherever possible, stormwater should be treated as close to the source as possible prior to any proposed discharges to natural systems.	
	iii. Monitoring programs to investigate and assess the effectiveness of stormwater controls will be considered and, where appropriate, implemented in association with new development in the region. A community education campaign targeted at improving attitudes and practices in relation to stormwater will also be developed and implemented as per the Shoalhaven Urban Stormwater Management Plan.	
	iv. The provisions of the Shoalhaven Urban Stormwater Management Plan will be incorporated into relevant planning instruments, works and development processes.	
RIPARIAN AREAS Objective – To ensure that riparian areas are conserved and sustainably managed, in order to provide for natural ecological and hydrological processes and to avoid detrimental impacts on habitat values and water bodies immediately adjoining and downstream.	i. The design and location of new development in the region (including infrastructure) will seek to protect riparian habitat values and their ecological and hydrological function (including flood risk reduction) in the landscape.	Riparian areas will be identified and managed as part of the preparation of a planning proposal for the area
	ii. Riparian areas will be identified in future planning instruments affecting Jervis Bay, St Georges Basin and their associated watercourses to provide a degree of certainty for future development and landuse changes in the region.	Several water courses which drain to Currumbene Creek are located in the investigation area. The Planning Proposal will identify, and protect where necessary, riparian areas
	iii. Riparian areas will be protected from ancillary detrimental uses (eg. clearing/underscrubbing) that undermine habitat values and their ecological and hydrological function in the landscape. Planning instruments should also seek to encourage the rehabilitation and repair of areas subject to detrimental impacts caused by past landuse practices.	
	iv. Policies for providing incentives to conserve and enhance riparian corridors throughout the Region will be investigated as part of this Strategy.	n/a
ECONOMIC RESOURCES Objective – To ensure that natural resources are sustainably managed in a manner that provides for long term viability and remediation.	i. Incompatible development will be excluded from areas established for extractive resources, including buffers, in the region.	There are no extractive industries located in the study area.
	ii. Timber extraction in the region will be maintained commensurate with outcomes achieved as a result of the Southern Regional Forest Agreement.	N/A
	iii. Statutory planning controls will include appropriate protection for any viable areas of prime crop and pasture land in the region.	There are no areas identified as having a high class of prime crop and pasture land in the investigation area.

SETTLEMENT HIERARCHY Objective – To establish a settlement hierarchy for the Region that relates to the size and function of each settlement, and clarifies community expectations with regard to the provision of infrastructure and services.	i. The following settlement hierarchy is adopted (Map 9): District Centre – New residential and commercial area at the intersection of The Wool Road and Jervis Bay Road/Naval College Road. Towns – Culburra Beach, Callala Bay, Huskisson, Vincentia, Sanctuary Point-St Georges Basin. Villages – Currarong, Callala Beach, Myola, Woollamia, Hyams Beach, Wrights/Bream Beach, Old Erowal Bay, Erowal Bay, Basin View and Tomerong. Rural Residential – Falls Creek-Woollamia and Tomerong (Parnell Road etc).	The investigation area is identified as rural residential within the settlement hierarchy.
	ii. The size of the District Centre will have regard to Council's current three-centre growth strategy for Shoalhaven, and the guiding principles and policy actions outlined in this Strategy.	n/a
	iii. The provision of community and recreation facilities/services will reflect the settlement hierarchy as outlined above.	
	iv. A list of facilities to be provided in each settlement in conjunction with Councils Section 94 Plan and Community Plan will be prepared and provided-for, subject to the guiding principles and policy actions of this Strategy.	A review of s94 projects affecting the investigation area will be carried out during the preparation of the planning proposal
RESIDENTIAL DEVELOPMENT	n/a	n/a
URBAN RENEWAL	n/a	n/a
RURAL RESIDENTIAL DEVELOPMENT Objective – To ensure that rural residential deferred areas are resolved, and that new opportunities for rural residential development are in keeping with the region's natural and cultural attributes.	i. The potential for the existing rural residential deferred areas to accommodate increased densities will be resolved in accordance with the guiding principles and policy actions outlined in this Strategy. In order to achieve increased densities, an understanding of the baseline environmental condition should be investigated and the potential cumulative impacts should be addressed.	
	ii. Worrowing - the possibility of limited development that also provides for the protection and management of the habitat corridor in the locality will be investigated.	n/a
	iii. The potential for contaminated land to be present within areas identified for new rural- residential development will be investigated and if necessary addressed early on in the rezoning process in accordance with the provisions of SEPP No.55 – Remediation of Land and Councils Contaminated Land Policy.	A preliminary report into potential contaminated land will be carried out as part of the planning proposal.

SMALL LOT RURAL SUBDIVISIONS Objective – To ensure that a process is established for resolving the development potential of existing small lot rural zoned subdivisions in accordance with this Strategy.	i. Heritage Estates – Consideration of development potential in the Heritage Estates will be undertaken in accordance with the findings and recommendations of the Commission of Inquiry, and the outcomes of any relevant environmental investigations completed in accordance with this Strategy.	n/a
	ii. Jerberra Estate – The development potential for rural residential development will be investigated through a review of lot sizes and configuration in order to accommodate on site effluent management and meet the guiding principles and policy actions of this Strategy.	n/a
	iii. Nebraska Estate – Park Road Section rezoned to Residential 2(a3) in June 2001 to provide for 13 dwellings in accordance with the detailed environmental investigations. The development potential of the remainder of the estate will be investigated through: a review of lot sizes and configuration in order to accommodate on site effluent management; having considered the performance and success or otherwise of environment measures at Park Road; and in accordance with the guiding principles and policy actions of this Strategy.	n/a
	iv. Woollamia Farmlets – The development potential of the Woollamia Farmlets, including Goodlands Road, will be investigated through a review of lot sizes and configuration in order to accommodate on site effluent management and meet the guiding principles and policy actions of this Strategy. Lots larger than 2 hectares may be able to provide for one dwelling to be built on each lot, provided the guiding principles and policy actions of this Strategy can be achieved.	n/a
INFRASTRUCTURE REQUIREMENTS Objective – To ensure that settlement areas are provided with adequate and efficient infrastructure and services.	i. A level of infrastructure for the region will be provided in line with the settlement hierarchy outlined in this Strategy.	Infrastructure provision will be addressed in the early stages of the preparation of a planning proposal as it has the potential to impact on lot capacity, vegetation removal and feasibility for rezoning.
	ii. Existing strategies for the provision of community and recreation facilities, and infrastructure etc will be implemented in consultation with responsible service agencies.	Consideration will be given to the Community Strategic Plan, Recreation Policy and s94 contributions plan in preparing and planning proposal.
	iii. All new urban development identified in this Strategy will be provided with reticulated water and sewerage systems.	Urban development is not being investigated.
	iv. All new rural residential development will be provided with reticulated water only if reticulated sewerage is available.	Reticulated sewerage is unavailable within the investigation area. A 100mm reticulated water main is available though the majority of the study area.

		Preliminary discussions with Shoalhaven Water indicate that the existing water main infrastructure has additional capacity sufficient to service additional development in the investigation area.
	v. On site effluent management for rural residential development will be implemented in accordance with: Development Control Plan No.78 – On Site Sewage Management; the NSW Environment & Health Protection Guidelines for On-site Sewage Management for Single Households; and the guiding principles and policy actions identified in this Strategy.	On site effluent management will have a significant impact on the rural residential densities that can be achieved in the investigation area.] An effluent report will be required in conjunction with the preparation of a planning proposal. The report will consider, amongst other things, capacity and attributes of the soil and impacts on water quality to the Currambene Creek Catchment.
	vi. Waste management and recycling services will be implemented in accordance with Council's existing policy. The provision of regular roadside garbage service for rural residential areas will be investigated and appropriate measures for the management of waste determined.	n/a
ACCESS Objective – To ensure that settlements are permeable and accessible to pedestrians, cyclists and public transport, and that adequate access is provided from within and outside of the region.	i. New development will be designed to provide for permeability and accessibility by pedestrians and cyclists within the local service network (ie. schools, shops, recreation areas and so on).	Given the rural/residential nature of the settlement, there will be limited opportunities to increase accessibility by pedestrians and cyclists as local services are located outside of a normal walking distance.
	ii. To ensure that the integrity of the State Road Network, and in particular the Princes Highway, is maintained the cumulative impacts of future development within the Region will be addressed at the rezoning investigation stage. Particular attention will be paid to the existing/proposed access points onto the Highway and to the alignment of Jervis Bay Road.	The cumulative impact of roads, particularly the creation of new crossings onto the existing road networks, is a key factor when considering the suitability of areas for intensification. In this regard.
	iii. Public transport within the region will be encouraged and promoted through the implementation of the Shoalhaven Integrated Transport Strategy. In particular, public transport will be encouraged between existing and new settlements and the District Centre.	n/a

ACCESS continued	iv. New development will attempt to minimise the need for car usage within the region, and be designed to maximise opportunities for alternative transport usage. Relevant policy principles arising from the NSW Transport Package Integrating Landuse and Transport (2001) will be investigated and explored in assessing new development in the region.	A Traffic Report will be prepared as part of the Planning Proposal having regard to the adopted road hierarchy. The report will also consider the capacity of existing local roads, cumulative effects of increased access points and vehicle movements and the creation of new local roads to accommodate increased rural residential living opportunities.
	v. New roads and traffic generating developments will be designed and implemented in accordance with State Government policies and environmental criteria for road traffic noise.	
	vi. The existing road network will be maintained with the following road hierarchy for the Region: Regional Roads – Princes Highway, Greenwell Point/Culburra Roads, Jervis Bay Road, St Georges Basin Bypass and the Currumbene Creek Crossing and Snowwood Road (if constructed). Collector Roads – Coonemia Road, Currarong Road, Callala Bay Road, Forest Road, Huskisson Road/Elizabeth Drive, The Wool Road/Larmer Avenue/Paradise Beach Road/Walmer Avenue/Lauren Avenue/Island Point Road/The Wool Road and Hawken Road. Local Roads – All other roads in the Region.	
COMMUNITY SERVICES AND FACILITIES Objective – To ensure that adequate community services and facilities are provided for each settlement.	i. An assessment to identify the current and likely future level of service (ie. community and recreation resources) for each settlement will be conducted in light of the settlement hierarchy adopted by this Strategy and the proposals contained within existing Council strategies and plans (eg Section 94 Plan, Community Plan, Recreation Strategy etc).	The City Wide Growth Management Strategy, in conjunction with the Community Strategic Plan, is investigating these issues.
	ii. Services and facilities that require upgrading or provision will be identified and, where appropriate, will be provided in Council's Section 94 Plan and relevant State Government programs.	A review of s94 projects will be undertaken as part of the planning proposal process.
	iii. The provision of services and facilities will be monitored, and the Community Plan regularly reviewed to ensure it is meeting the changing needs of the community.	More detailed investigation into infrastructure provisions will be undertaken once a clearer idea of the feasibility density increases is carried out.
	iv. Relevant community services actions of the Shoalhaven Housing Strategy will be implemented.	N/A
		The actions of the Shoalhaven Housing Strategy will be taken into consideration for implementation as the planning proposal progresses.

ECONOMIC DEVELOPMENT AND TOURISM Objective – To ensure the local economy complements and is responsive to the Region's cultural and natural environment.	i. Funding opportunities for the preparation of an economic development strategy for the region will be explored. Such a strategy would seek to identify and examine: existing economic activity in the region; strategic issues and locations; key opportunities and shortfalls for future economic activity; and measures to implement actions that are consistent with the guiding principles and policy actions of this Strategy.	An economic development strategy specific to the Jervis Bay region has not been developed, however, guiding principles for economic development have been provided in related documents such as the Community Strategic Plan.
	ii. Economic activity that focuses on, complements, and is responsive to the marine and natural resources of the Region will be promoted through, amongst others, the following industries: Eco-tourism, aquiculture/hydroponics, avionics (based around HMAS Albatross), marine research, boutique tourist based agriculture and forestry.	Consideration to the inclusion of these activities will occur during the preparation of the planning proposal for the area.
	iii. Access to the region's water bodies for tourist activities will be investigated by a strategic assessment of boating facilities, including a boat harbour, servicing the Jervis Bay region, in the context of the greater coastal setting of the south coast of NSW.	n/a
	iv. The potential of developing a marine environmental interpretive and education centre in the region will be investigated.	n/a
	v. The following important strategic sites within the Region will be further investigated as follows: Pine Forest – investigate capability of area to sustain longer-term demand for tourist/urban uses in accordance with existing zoning. Kinghorn Point – determine the suitability of the site for the establishment of a marine hatchery/aquaculture research and development facility as part of the overall review of potential sites in Shoalhaven for such uses. Comberton Grange – Continue investigation of capability and suitability for special purpose tourist/ residential use.	n/a

TIMING, STAGING AND MONITORING Objective – To ensure that development achieves performance benchmarks identified in this Strategy, and that an adaptive management approach can be implemented for new settlement in the region.	i. New development will be staged and monitored in accordance with its scale, and potential environmental, social and economic impacts.	Will be dealt with through preparation of DCP as planning proposal progresses.
	ii. For large scale staged projects, policy mechanisms will be implemented to ensure that the commencement and completion of latter stages will be dependent upon environmental and other performance benchmarks being met by previous stages.	
	iii. Council, PlanningNSW and other relevant state government agencies will commit to ensuring that the Settlement Strategy remains a live document that is responsive to new information and adopts an adaptive approach to managing settlement in the region. In order to achieve this, Council and PlanningNSW will ensure that appropriate arrangements are in place to monitor the progress and implementation of this Strategy.	N/A
	iv. Council and PlanningNSW will keep the Jervis Bay Settlement Strategy under periodic review. The purpose of this review is to ensure that the Settlement Strategy objectives and actions remain current and relevant, and that future settlement in the region can be undertaken mindful of the outcomes achieved during the life of this Strategy.	N/A