

MAJOR PROJECT 06_0276

ENVIRONMENTAL ASSESSMENT

PROPOSED RESIDENTIAL SUBDIVISION



LOT 1 DP 1087105 and LOT 4 DP1087106

Off Leo Drive Narrawallee for HAZCORP PTY LIMITED

Part Two: Sections 6.0 - 12.0

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6.0 KEY ASSESSMENT REQUIREMENTS

The Director-General, in correspondence dated October 2006, has identified the following key issues requiring assessment:-

1. General Consistency with the approved Master Plan;
2. Design & Visual Impacts;
3. Access to Public Open Space & Adjoining Residential areas;
4. Remediation;
5. Design of Parks;
6. Street Trees;
7. Footpaths / Cycleways;
8. Traffic, Parking & Access;
9. Staging and Infrastructure Provision;
10. Stormwater Maintenance & Monitoring Plan;
11. Maintenance of Native Vegetation;
12. Bushfire;
13. Management of Asset Protection Zones & Vegetation;
14. Infrastructure & Utilities;
15. Flora & Fauna;
16. Cultural Heritage; and
17. Soils & Contamination.

A full copy of the Director-General's Environmental Assessment Requirements is provided as **Annexure 2** and detailed assessment of these key issues follows in the next section of this report.

7.0 ENVIRONMENTAL ASSESSMENT

Each of the Director – General's Environmental Assessment Requirements is specifically addressed as follows:

7.1 General Consistency with the approved Master Plan

1.1 *The project application must be generally consistent with Master Plan No. MP 11-5-2003, for the site, approved by the Minister for Planning on 31 July, 2006.*

This proposal is generally consistent with the SEPP 71 Master Plan No. 11-5-2003 issued in August 2006. The number of allotments adopted in that plan was 163; this application proposes 168, through a reduction in width in some allotments to gain an additional five blocks. This does not impact upon the required provision of public open space, nor result in any adverse environmental consequences. Lot and road orientation remains the same as the adopted Master Plan, as detailed in the application and staging plans prepared Rygate & West (Ulladulla) dated October 2006 – Annexures 1A & 1B.

Adopted Master Plan variation requirement	Subject proposals consistency with the MP
<p>1. The adopted Master Plan required the expansion of the project design objectives to include:</p> <ul style="list-style-type: none">• <i>"Provision of a stormwater system which protects water quality to the adjoining sensitive areas;</i>• <i>Implementation of a total water cycle management system into the subdivision and subsequent housing development;</i>• <i>Ensuring the protection of flora and fauna in adjoining sensitive lands;</i>• <i>Provision of appropriate measures to ensure a suitable level of protection in the event of a bushfire;</i>• <i>Provide for connections of areas of open space within the site and with existing areas of open space;</i>• <i>Provide for improved accessibility to the coastal foreshore".</i>	<p>These project design objectives where previously omitted have been included in this Environmental Assessment.</p> <ul style="list-style-type: none">- To protect the natural environment, including the flora, fauna and the water quality of the locality without significant environmental harm or degradation through loss of biodiversity or environmental pollution, as a result of creating a liveable community;- To recognise the value of Aboriginal archaeological sites, objects or artefacts and to protect those of high local and regional significance;- To protect the built environment from the adverse impacts of bushfire through the provision of appropriate mitigation measures in accordance with adopted best practices measures.- To incorporate water sensitive urban design principles within the development;- To create a well linked and highly accessible residential precinct;- To provide development that responds to environmental topographical and site features;- To provide a clear urban structure and land use pattern;- To provide dwellings with excellent linkages to open space and recreation networks.
<p>2. The Master Plan required the provision of a pedestrian / cycle path, 2.5 metres wide to be provided through the reserve to the north of Blake Place, connecting to the northern end of the main loop road.</p>	<p>The path (as illustrated on Rygate & West (Ulladulla) Pathway concept Plan Annexure 7 - December 2006) is proposed to be 2.4 metres wide, which is generally consistent with the issued Master Plan. This is wider than that usually constructed by Council, whose policy is to construct shared pathways at 2.0 metres, and the proposed shared facilities to be constructed</p>

	within the Leo Drive Road reserve under Council's PAMP are likely to be that width.
3. Item 3 of the adopted Master Plan variation was the submission of a preliminary contamination report regarding the quarry.	This report has been prepared by Network Geotechnics Pty Ltd (Annexure 3 - May 2005). This report has found that the site – a former ridge gravel quarry, is suitable for residential development. It is proposed in this application to utilise that area for active recreation purposes as it adjoins an existing passive reserve area.
4. Removal of Weeds – Invasive plant species should be removed from the proposed open space and the buffer area to the protected land to the west of the site. A weed removal plan is to be submitted with the development application.	Conacher Travers Pty Ltd (Annexure 5 - May 2005) have prepared a Weed Management Plan documenting the location of disturbed areas and the exotic plants found there along with those in other vegetated lands including the forested areas of the site. This management plan provides a strategy for removal of weeds including techniques to be used in various locations.
<p>5. <i>Design of Parks</i></p> <p><i>A landscape plan is required to be provided for approval with the development application for the two parks.</i></p> <p><i>The small park provided at the second (northern) high point (off the elongation of Gemini Way) is to retain healthy existing trees to minimise the visual impact of the subdivision and is to be provided with child play equipment and seating.</i></p> <p><i>The southern open space area should be designed in connection with an upgrade of the existing portion of this park and should also provide for child play equipment and seating and should provide for a sealed path from the park to Gemini Way.</i></p> <p><i>The landscape plans are to identify the use of endemic species of vegetation, pathways, seating, lighting and types of child play equipment. The safety of the children using the parks is to be ensured by design features such as shade planting near the equipment, provision of seating for adult supervision and provision of barriers (fences/planting) preventing direct access to the adjoining roadway.</i></p>	<p>HLS Pty Ltd prepared a landscape concept plan for the southern park being the rehabilitated ridge gravel quarry adjacent to the existing Council reserve between Seaspray Street and Gemini Way (Annexure 4 - May 2005).</p> <p>This plan provides for playground equipment, seating, turfing, additional tree planting, lighting and pathways through the park integrating the subject land to the existing Council park and to the adjoining residential subdivision. Some embellishment of the existing park is proposed with extensions of the existing pathway and additional plantings adjoining the common boundaries of the residential lots in Seaspray Street & Gemini Way to define the area and make it a public space rather than an extension of private property.</p> <p>The adopted SEPP 71 Master Plan variation requires the provision of child play equipment and seating within the northern park area. That site has an area of 7445m² where it is proposed to retain all healthy trees while reducing bushfire risk to adjoining residential allotments in accordance with requirement 17 of the Master Plan. It is considered that the provision of child play equipment in that area is not appropriate as it will require the removal of trees which is not the intent of the retention of that area for visual amenity and maintenance of native vegetation within the subdivision.</p> <p>The provision of the southern park with play equipment with pathway linkages through the subdivision should be sufficient to cater for future residents when there is an array of recreational opportunities in the surrounding area.</p>
<p>6. Street Trees</p> <p><i>Details the proposed street tree planting is to be provided with the development application. The detail to be provided includes the species (to be endemic), planting size and appropriate bonding</i></p>	HLS Pty Ltd has prepared the street tree planting scheme for the subdivision, utilising plant species that are endemic to the area such as Red Bloodwood, Cheese Tree, Rough Barked Apple, Coastal Banksia and <i>Melaleuca linariifolia</i>

<p><i>for planting to occur after the final road seal and footpaths have been provided, together with details of a maintenance and replacement period for the establishment of the trees.</i></p>	<p>(Annexure 6 – November 2006).</p> <p>The anticipated planting size will be 45 litre specimens – they are super advanced, and will give immediate effect to the landscaping works proposed. Council's standard maintenance period is 6 months after the release of the final plan of survey for any stage, with the submission of a 5% maintenance bond to cover the replacement of any planting or other civil works if not maintained within that period by the developer.</p>
<p>7. Local Area Traffic Management <i>The following Local Area Traffic Management devices are to be provided for, with details provided for assessment with the Development Application:</i></p> <ul style="list-style-type: none"> • <i>Roundabouts are to be provided at the intersections of Leo Drive and Scorpio Way, Seaspray Street and Sea wind Parade and Gemini Way and Seawind Parade;</i> • <i>Traffic slowing devices are to be provided within the straight alignments of the extensions to Seaspray Street and Gemini Way; and</i> • <i>Roundabouts are to be provided at the intersections of the access road off Leo Drive and Leo Drive and the elongation of Gemini Way and the elongation of the access road off Leo Drive.</i> 	<p>Colston Budd Hunt & Kafes Pty Ltd undertook a traffic study of the locality and the impact that the subdivision would have on traffic movement within the neighbourhood (Annexure 8 – November 2006).</p> <p>This report has incorporated the recommendations of the previous Regional Traffic Committee and local area traffic management measures are to be constructed to improve and enhance traffic flow in the locality. These measures include the construction of roundabouts and speed humps.</p> <p>The traffic impacts likely as a result of the 168 lot subdivision are significantly reduced from the original 213 lot proposal, and the LATM measures provided are based on the amended 192 lot subdivision proposal. This current 168 lot proposal results in a reduction of 20 peak traffic generation movements (two way) than the scheme (192 lots) that required the recommended LATM measures.</p>
<p>8. Footpaths/Cycle Ways <i>Combined footpath/cycle ways are to be provided for:</i></p> <ul style="list-style-type: none"> • <i>the entire loop road (on the eastern side);</i> • <i>one side of the elongation of the access way off Leo Drive;</i> • <i>one side of the elongation of Gemini Way (north of its intersection with the elongation of the access way off Leo Drive); and</i> • <i>one side of the south/north road leading off the elongation of the access way off Leo Drive to the proposed extension of the public reserve.</i> <p><i>The paths should be of minimum 2.5m width and be a shared pedestrian/cycle path with appropriate sign posting in accordance with the requirements of AUSTRROADS Guide to Traffic Engineering Practice Part 14 – Bicycles. The paths should be designed to be accessible for both persons in wheel chairs and for vision impaired persons to the extent possible given the topography of the site. The design of the path, together with an access report should be provided for approval with the development application.</i></p>	<p>Rygate & West (Ulladulla) (Annexure 7 – December 2006) have prepared a pathway linkage concept plan generally complying with the Master Plan variations, which includes pedestrian pathway linkages between the expanded southern public reserve, along the extension of Gemini Way to the northern loop road. A pedestrian loop is also provided around the southern bushland reserve.</p> <p>Further a cycleway / pedestrian path is provided within the western road perimeter reserve, along the northern boundary to and through the public reserve north of Blake Place.</p> <p>The cycleway is proposed to be 2.4 metres wide which is compatible with Council's usual 2.0 metre construction width.</p>
<p>9. Sight Distances <i>A road safety statement is to be provided on the</i></p>	<p>This requirement of the Master Plan has not been complied with as it is not a requirement of the</p>

<p><i>junctions and house driveway locations on the curves of the loop road. The statement is to be provided with the development application and is to address a Safe Intersection Sight Distance for traffic travelling at 50km/h.</i></p>	<p>Director – General's Environmental Assessment Requirements. However, the Colston Budd Hunt & Kafes Pty Ltd traffic report (Annexure 8) states that Shoalhaven City Council "<i>has agreed that this could be addressed through detailed design and an appropriate condition of consent requiring the intersections and locations of driveways to comply with the relevant standards with respect to sight line requirements</i>" (see Attachment B of that Annexure).</p>
<p>10. Traffic Report <i>A detailed traffic report is to be submitted with any development application re-evaluating the anticipated traffic routes (after discussions with Council's traffic engineer) looking at the suitability of the design of the following intersections to cater for the additional traffic (having regard to level of service, safety of design and queuing lengths):</i></p> <ul style="list-style-type: none"> • Leo Drive/Matron Porter Drive • Matron Porter Drive/Princes Highway • Matron Porter Drive/Bannister Head Road • Bannister Head Road/Tallwood Avenue • Golf Avenue/ Princes Highway • Ilett Street/ Princes Highway <p><i>Any works required to make the intersections safe as a result of the increased traffic are to be funded by the applicant.</i></p>	<p>Colston Budd Hunt Kafes Pty Ltd prepared a traffic report for this subdivision proposal (Annexure 8 – November 2006) including recommendations which are in line with the Council's traffic engineer's requirements for the provision of certain local area traffic management measures in the vicinity of the site.</p>
<p>11. Accessibility Report <i>An Accessibility Plan is to be prepared by a suitably qualified access expert addressing the suitability of the design of the subdivision in relation to the requirements of the Building Code of Australia, AS1428 and the Disability Discrimination Act.</i></p> <p><i>The plan is to be provided for approval with the Development Application and is to include, but not be limited to, an assessment of the following:</i></p> <ul style="list-style-type: none"> • Paths of travel (ie paving material, gutter crossings, gradients and the like) • Levels of lighting along the pedestrian/cycleway and in the parks; and • Design and accessibility of the child play areas. 	<p>This report has not been prepared and submitted to the Department for assessment as it is not a matter raised in the Director – General's Environmental Assessment Requirements issued in October 2006 – see Annexure 2.</p>
<p>12. Design of Roads <i>Details of the design of roads, to be in accordance with Shoalhaven City Council's standards, are to be provided with the Development Application.</i></p> <p><i>Information to be provided is to include details of:</i></p> <ul style="list-style-type: none"> • Standard of construction; • Footpaths; • Gutter crossings; • Guttering; • Lighting; and signage. 	<p>Preliminary engineering plans are provided with this Major Project application, prepared by Rygate & West (Ulladulla) (Annexure 9 – December 2006) providing design detail on each road in the subdivision. These plans provide both cross sections and long sections of each individual road, detailing the extent of cut and fill required to construct each pavement.</p> <p>The standard of construction will be compliant with Council's DCP 100 with concrete footpaths to Council's standard width, no gutter crossings will be provided as layback kerb is proposed. Lighting will be designed in accordance with the</p>

	Australian Standards and road signage will be provided in accordance with Council's requirements at each intersection.
<p>13. Provision of Bus Stops</p> <p><i>The applicant is to provide bus stops (signage) along an approved bus route (looping through the site along the elongation of the access way off Leo Drive, along the loop road travelling northward and back to Leo Drive via the elongation of Gemini Way). The location of the bus stops is to be determined in consultation with the operators of Ulladulla Bus Lines Pty Ltd (or other service provided if appropriate). Bus stops are to be provided at the completion of the final stage of the subdivision, subject to confirmation of the provision of the bus service.</i></p>	A commitment has been made to provide bus stops within the subdivision along the proposed bus route where they are no more than a 500 metre walk from any dwelling within the subdivision. Signage will be provided to the requirements of the Ulladulla Bus Lines Pty Ltd along Gemini Way, the northern loop road and along the extension road off Leo Drive linking to the western perimeter road.
<p>14. Staging</p> <p><i>The development shall be carried out generally in accordance with the approved Staging Plan, which is to be amended to reflect the amended lot layout and is to be submitted for approval with the development application.</i></p> <p><i>The provision of infrastructure is to be carried out as follows:</i></p> <ul style="list-style-type: none"> <i>• Construction of southern park: At completion of Stage 3 and prior to release of Subdivision Certificate for that Stage;</i> <i>• Construction of northern park: At completion of Stage 5 and prior to release of Subdivision Certificate for that Stage;</i> <i>• Completion of Bio-Swale and associated landscaping/weed removal: Proportion adjacent to each stage at completion of that stage and prior to release of Subdivision Certificate for that Stage;</i> <i>• Construction of Pedestrian/cycle path to reserve: At completion of Stage 6 and prior to release of Subdivision Certificate for that Stage;</i> <i>• Construction of roundabouts/traffic calming devices and paths: At completion of Stage to contain the works and prior to release of Subdivision Certificate for that Stage;</i> <i>• Construction of roundabout to intersection of access way off Leo Drive and Leo Drive: At completion of Stage 1 and prior to release of Subdivision Certificate for that Stage;</i> <i>• Construction of roundabout to Leo Drive and Scorpio Way Gemini Way and Seawind Parade: At completion of Stage 2 and prior to release of Subdivision Certificate for that Stage; and</i> <i>• Construction of roundabout to Seaspray Street and Seawind Parade: At completion of Stage 10 and prior release of Subdivision Certificate for that Stage.</i> 	<p>A plan has been prepared by Rygate & West (Ulladulla) (Annexure 10 – October 2006) illustrating the proposed 7 construction stages of the residential subdivision development. These stages are generally in accordance with the Master Plan variations.</p> <p>Stages 1 – 3 inclusive connect into the existing road infrastructure and extend the existing sewage, water, telephone and electricity infrastructure into the subject land.</p> <p>Stage 1 will include the construction of a mountable roundabout at the existing Gemini Way and Seawinds Parade intersection and a mountable roundabout at the east - west access road for Leo Drive and the Gemini Way extensions.</p> <p>This stage also includes the underscrubbing the total site (excluding proposed reserves unless otherwise required by the Vegetation Management Plan) and the removal of required trees to create a woodland residue to be maintained as an Asset Protection Zone for lots in each stage and the adjoining existing residential development. Removal of all trees within the proposed road reserves will also be undertaken as part of Stage 1.</p> <p>Stage 2 will include the construction of the southern active recreation park in accordance with the landscaping concept plan. It will also include the payment to Council of the contribution for a roundabout at the corner of Bannister Head Road and Tallwood Avenue Mollymook of \$15,000.00 and the construction of the required Local Area Traffic Management (LATM) measures in Leo Drive in accordance with both the Council's and Consultant traffic engineer's recommendations. The active recreation park will be released as part of that stage and dedicated to Council in the subdivision plan. Half of the southern bushland reserve will be dedicated at that time also as the road along the eastern side will be constructed –</p>

	<p>the other half of the reserve will not be dedicated until Stage 7 when the road works are complete.</p> <p>Stage 3 is located north of Stages 1 & 2 and includes the extension of Gemini Way and part construction of the loop road to facilitate access to lots 301 – 309 inclusive.</p> <p>Stage 4 requires the construction of a sewer pumping station at the northern end of the site to cater for stage 4 lots and subsequent stages. Stage 4 will also include the construction of the pathways/cycleway link through the northern reserve to Leo Drive near Macleay Street and the construction of the bio retention swales along the northern section of the perimeter road. The eastern half of the native bushland reserve will be dedicated in this stage as the road on the eastern perimeter will be constructed, the western half of the reserve will be dedicated in Stage 6 upon completion of the road works to the west.</p> <p>Stage 5 incorporates the bio retention swales and extensions of the pathway/cycleway on the perimeter road.</p> <p>Stage 6 proposes construction of road and service infrastructure to lots on either side of the western arm of the northern loop road, between Stage 4 and 5. The remaining half of the northern public reserve will be dedicated in this stage.</p> <p>Stage 7 includes the remainder of the perimeter road, bio retention swales and pathway/cycleway link and the connection to Seaspray Street to the south. The remaining half of the southern bushland public reserve will be dedicated in this stage.</p>
<p>15. Dedication of Environmental Protection Land <i>The development consent for the subdivision of the site is not to be released until the land zoned Environmental Protection 7(a) and 7(d2) to the west and north/west of the site in the same ownership has been dedicated to Shoalhaven Council.</i></p> <p><i>The land to the west and north of the proposed loop road is to be dedicated to Council, for the purpose of drainage reserve and environmental protection, at the completion of Stage 10 and prior to the sale of any lots within that Stage.</i></p>	<p>This land has been dedicated as a result of the registration of Deposited Plans 1087105 and 1087106. The land is now in Council's ownership and is public reserve – categorised as community land – natural area, being (or proposed to be) managed in accordance Council's Generic Community Land Plan of Management – Natural Areas – 2001.</p> <p>The bio retention swale and remaining land within the site to the west of the perimeter road extension of Seaspray Street will be dedicated to Council as road reserve in the final stage of the subdivision. They will not be dedicated as drainage reserve or environmental protection.</p>
<p>16. Stormwater Maintenance and Monitoring <i>An Operation and Maintenance Manual to be prepared for the stormwater system and a copy provided to Council prior to the commencement of works on Stage 1. The maintenance requirements of the manual are to be carried out by the developer for a period of 2 years after the sale of the last property</i></p>	<p>J Wyndham Prince Pty prepared the Stormwater Management Strategy for this subdivision proposal (Annexure 11 – November 2006) and two concepts were provided for the eastern and western catchments of the site.</p> <p>The measures proposed including "Enviropods" and a bio retention swale, will require on going</p>

<p><i>within each relevant Stage or until a minimum of 80% of the dwellings within that stage are complete, whichever occurs first.</i></p> <p><i>A water quality monitoring program is to be prepared and submitted for approval prior to the commencement of works on Stage 1. The monitoring program is to be carried out by the developer for the length of the project and until at least 80% of dwellings are completed on all Stages.</i></p>	<p>management for the life of the development. In that regard an Operations & Maintenance Manual was prepared for the facilities by Bio Engineered Solutions (Annexure 12 – November 2006) detailing maintenance measures to be pursued.</p> <p>Further, a Water Quality Monitoring Strategy has been devised by Australian Wetlands (Annexure 13 – April 2005) to monitor the quality of run off leaving the site and entering the adjoining public reserve for the period of construction of the subdivision and until the majority of dwellings are constructed.</p>
<p>17. Maintenance of Native Vegetation on site</p> <p><i>In order to better facilitate the satisfaction of objectives 2(1)(e) and 2(1)(g) of State Environmental Planning Policy No. 71 – Coastal Protection relating to visual amenity and the protection and preservation of native coastal vegetation, a minimum of 13% of the total site area will be required for the retention native and other vegetation. The master plan will be reduced from 193 to 163 residential lots. The following lots must remain as vegetation without residential use:</i></p> <p><i>- Lots 213-223 inclusive, Lot 312, Lot 422, Lots 522-526 inclusive, Lots 627- 628 inclusive, and Lots 701-710 inclusive.</i></p> <p><i>The retention of vegetation must also satisfactorily consider fire hazard management practices on the site including the provision of Asset Protection Zones in accordance with fire safety best practice including Planning for Bushfire Protection 2006. In this regard a vegetation management plan is required for the areas of retained vegetation. These areas must demonstrate on going maintenance and improvement of these areas.</i></p> <p><i>The retention of vegetation must also satisfactorily consider fire hazard management practices on the site including the provision of Asset Protection Zones in accordance with fire safety best practice including Planning for Bushfire Protection 2001.</i></p>	<p>Two areas of additional public reserve are provided within the site, one bound by a loop road in the southern section of the site on the ridgeline, and the other bound by road and proposed private property at the northern end of the site along the ridgeline. These areas are required to be maintained in as natural a state as possible, providing for asset protection where required.</p> <p>Planscapes has prepared a Vegetation Management Plan (Annexure 15 – March 2007) indicating the management of these areas. Fuel management is recommended for the northern public reserve however, it is anticipated that the land will not be mapped as bushfire prone by the completion of Stage 6 so that dwellings can be constructed on the lots adjacent to that reserve.</p> <p>In that regard, Council will be reviewing their Bushfire Prone Land mapping in 2007 and a request will be made of Council to consider mapping the subject land as Category 2 vegetation if the subdivision is approved, as the site will (excluding the reserve areas) be managed in a woodland state as part of Stage 1 works. Further, the northern public reserve will be in excess of 100 metres from the public reserve to the west with discontinuous canopy between, reducing the likelihood of bushfire impacting that reserve and threatening the adjoining lots.</p> <p>Bushfire protection measures for other allotments within the site, particularly those adjacent to the western public reserves has been addressed by Conacher Travers Pty Ltd in their Bushfire Protection Assessment, prepared in accordance with the Director – General's Environmental Assessment Requirements (Annexure 14 – March 2007).</p>

7.2 Design and Visual Impacts

2.1 *Demonstrate suitability of the proposal with the surrounding area in relation to potential character, bulk, scale and visual amenity of development resulting from the subdivision having regard to the Coastal Design Guidelines of NSW (2003) and Shoalhaven Subdivision DCP.*

Ulladulla is identified in the Coastal Design Guidelines for NSW as a Coastal Town and the key issues for a coastal town are addressed as follows with particular comment on this proposal:

Coastal Design Guidelines - Key Issue	Comments on this Proposal
<i>Degradation of the economic viability of the town centre by new commercial and retail uses, development located remote from the town or its commercial centre.</i>	There is no intention to include in this proposal a shopping centre that is likely to degrade the viability of the existing neighbourhood centre in Narrawallee (approximately 1km south) or that of the main CBD area of Ulladulla (approximately 4km south). This proposal is not that remote from those existing facilities to require inclusion of a general store or larger shopping centre.
<i>Impact on the environment and reduction of the existing town's character and viability, caused by new settlements and major commercial, retail and tourist developments.</i>	<p>This proposal provides an extension of an existing settlement, not the creation of a new or separate settlement per se. It has been demonstrated that there will be minimal adverse environmental impact as a result of the construction of subdivision and future dwelling houses, no loss of biodiversity or threatened species or endangered ecological communities or adverse impacts upon water quality.</p> <p>This proposal is not likely to erode the character of the locality or the Milton – Ulladulla urban areas as a whole; the development is similar in nature to the existing adjoining and adjacent subdivision in the Narrawallee area which is relatively recent (1980s – 1990s), and there are no distinctive architectural characteristics such as heritage buildings defining the style of dwellings (as is evidenced in Milton township). Dwellings in the immediate locality are therefore predominantly detached dwellings of new construction on recently cleared lots rather than renovation or reconstruction of older housing stock / lots through progressive urban renewal. There is one medium density development currently under construction in the locality on Leo Drive north of the Gemini Way (Nos 63-77 Leo Drive), which appears to be the only development of that type in the area.</p> <p>It is anticipated that future dwelling construction within the subdivision is likely to reflect the current modern dwelling form, with a high reliance on face brickwork with tile or metal roofing similar to the surrounding dwellings. The streetscape in the locality is characterised by a mix of single storey and two storey dwellings, generally setback 7.5 metres from the street boundary of the allotments, complying with minimum side boundary setbacks in accordance with Council's current policy.</p> <p>Several of the existing dwellings in Leo Drive and surrounding higher streets have views to the coast, which may be the case for some lots on the eastern side of the ridgeline within the subject land, where those on the western side of the ridgeline may have rural views to Pointer Mountain and beyond to the Little Forest Plateau and Pigeon House further</p>

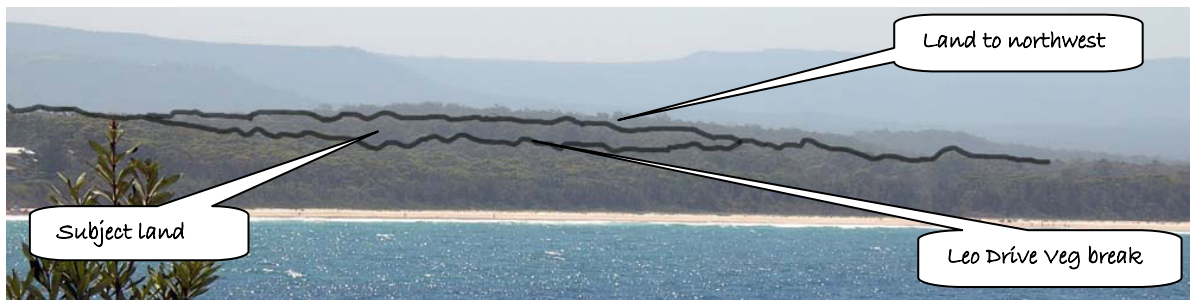
	to the west. That is relatively unique in the Narrawallee area as most dwellings are located on the eastern side of the ridgeline. However, as there is intervening vegetation between the subject land and most publicly accessible locations, the dwellings are not likely to be seen from the beach, inlet, Bannisters Point or Milton - see following long sections.
<i>Ribbon development reducing the natural and rural lands that separate settlements because of the location of new release areas.</i>	The subject land is not located on a through road that connects settlements to each other, therefore there is no likelihood of ribbon development occurring. The site is surrounded by forested lands that are retained in public ownership for public use.
<i>Degradation of water quality in waterways and coastal lakes</i>	Water sensitive urban design measures are proposed to ensure minimal adverse water quality impacts on Narrawallee Inlet, where a commitment has been made to monitor water quality for the construction period of the subdivision.
<i>Protection of heritage values</i>	There are no identified items of European cultural heritage on site, and thorough study has been undertaken to assess the level of significance of known Aboriginal sites within the land. In conjunction with the Ulladulla Local Aboriginal Land Council, it has been determined that the sites, scatters and artefacts found on site are of low cultural significance, and the Department of Environment and Conservation has therefore issued a consent to destroy those sites for works associated with this subdivision.
<i>Placing buildings and infrastructure in areas subject to natural hazards.</i>	<p>This site is likely to be subject to one main natural hazard - it has been mapped by Council as bushfire prone land. This subdivision has been assessed in accordance with the provisions of the current best practise guidelines in this regard, being Planning for Bushfire Protection, 2006. The severity of the likely impacts of a bushfire emergency can be mitigated in this development through the provision of a perimeter road and asset protection zones between the public reserve bushland and the future dwelling houses. Further, several future dwelling houses will be constructed in accordance with the Level 2 provisions in AS3959-1999 – Construction of Buildings in Bushfire Prone Areas, particularly those on the urban / bushland interface on the western side of the development which are provided with a 36 metre asset protection zone.</p> <p>Bushfire protection measures proposed include the reduction of vegetation density in Stage 1 of the development to reduce the hazard and therefore the threat and risk associated with bushfire for existing adjoining residents surrounding the subject land.</p> <p>The subdivision will be provided with a reticulated water supply and suitably located hydrants in accordance with the Australian Standards and Shoalhaven Water's advice.</p>
<i>Strip developments along roads and highways</i>	As previously indicated, the subject land is not located on a through road network where there is likely to be any ribbon or strip development connecting settlement areas.

The policy describes six key desired future characteristics for coastal towns, where new urban development is accommodated within the town boundaries and it

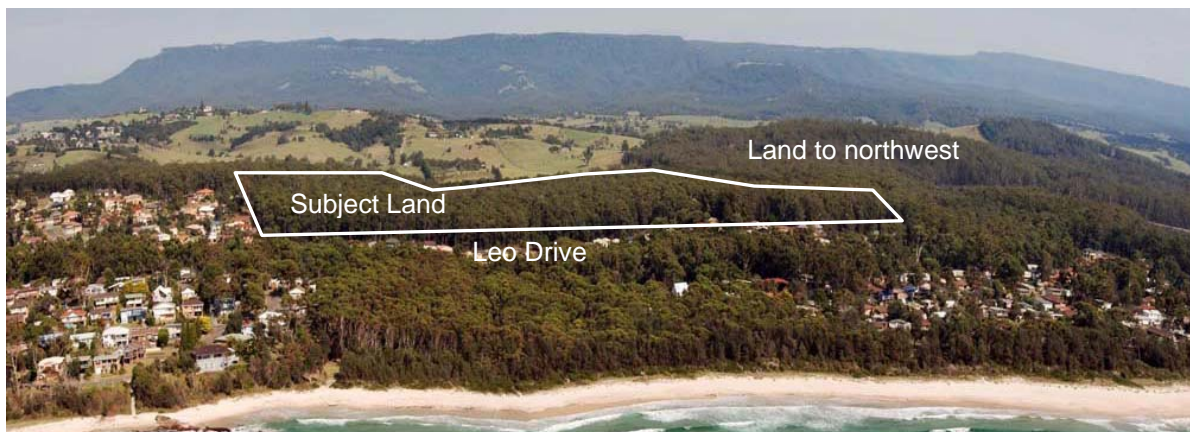
does not result in ribbon development. This site has currently forms the north western boundary of Narrawallee on the urban / bushland fringe, outside environmentally sensitive lands impacted by acid sulfate soils, wetlands and associated flooding and those lands containing an endangered ecological community - the definite boundaries of which have been mapped in detail.

This subdivision proposal conforms to the desired characteristics for a coastal town; its relationship to the environment is sound and not adverse, significant areas of vegetation have been retained for public use through the dedication of 63 hectares along with an additional 2.2 hectares within the subject land. These areas of native coastal vegetation are able to be maintained largely intact with minimal incursion for the provision and maintenance of bushfire mitigation measures.

Views to the coast are not adversely affected by this subdivision proposal, there are limited public locales where the coast can be readily viewed within Narrawallee and this site is on the north western perimeter of the urban area. Views from the coast similarly are largely not impacted as the future dwellings will be screened by existing coastal vegetation between the site and the foreshore. There is only one public locality where the site is visible (other than the immediately adjacent streets) and that is the Jones Beach car park at Bannister Point, where the top of the existing trees can be seen, as evidenced in the photographs below.



View from Jones Beach Carpark with tree line breaks as illustrated below



Aerial panorama taken from 300 feet looking towards the site - February 2007



Looking south over Narrawallee @ 300ft, subject land to right – February 2007

The scale of this subdivision development is commensurate with the surrounding subdivision pattern, the allotments proposed are in the main 30 – 50 % larger than existing properties, providing the proposed allotments with an opportunity for scattered tree retention outside of the likely building footprints. Council's Subdivision Code permits residential allotments with full street frontage to have a minimum area of 500m², where the smallest lot in this proposal is 605m².

Street patterns proposed are not dissimilar to the existing lineal and curved pattern of the Narrawallee locality, though this subdivision does not propose any cul – de – sacs. Pathways for both pedestrians and cyclists are provided linking existing subdivisions with the public reserves in the locality, providing improved access to the Inlet. The western perimeter road provides a definite boundary to the public reserve lands west of the site, delineating private urban and public open spaces.

Future buildings are likely to be similar and complimentary to those existing in the locality being single detached dwelling houses on an allotment, of single or two storey construction, with potentially reduced street building line setbacks to those existing dwellings in Gemini Way and Seaspray Street. There is no site or sites identified within the development for the purpose of medium density housing, which is otherwise required by Council's Shoalhaven Planning Policy No 1, therefore the "character" of the area as low density residential can be assured.

There are five main broad design principles for coastal settlements, being:

- Defining the footprint and boundary of settlement;
- Connecting open spaces;
- Protecting the natural edges;
- Reinforcing the street pattern, and
- Appropriate buildings in a coastal context.

The above principles are supported by objectives, each of which has a separate aim. In regard to the subject project, the first principle of defining the footprint and boundary of settlement has been determined by Council. Council has effectively expanded the boundary of the urban area by consciously rezoning the subject land for urban development purposes. This subdivision does not compromise the objectives of this design principle under the Coastal Design Guidelines.

Similarly in expanding the boundary of the urban settlement, Council has rezoned extensive areas of land for environmental protection purposes in an effort to

connect large tracts of remnant coastal forest to limit the potential adverse impacts of development on biodiversity and water quality, protecting Narrawallee Inlet from potential degradation. This vegetation retention / open space linkage also physically separates viable agricultural lands from potential conflict with urban settlement, which could otherwise reduce agricultural viability. The coastal forest also protects the natural edge of the coastline from development and the impacts of that development by ensuring that no development occurs adjacent to the SEPP 14 wetlands or the Narrawallee Inlet foreshore.

Design Principle 4 is the reinforcement of the street pattern, and the main road providing access to the settlement of Narrawallee is Matron Porter Drive, with the parallel Leo Drive providing access to the western portion of the urban area. The hierarchy of these roads is not compromised by the development and the resultant traffic generated from the proposed residential streets is within the environmental capacity of the existing road network.

The street pattern of the locality is reinforced through extending Gemini Way and Seaspray Street into the development, and linking Leo Drive to those roads by the prolongation of the existing access provided in the previous subdivision. The perimeter road defines the edge between the subdivision and the adjacent public reserve providing access for fire fighting and forming part of the asset protection area for the dwellings on the eastern side of that road.

The final principle relates to appropriate buildings for a coastal context. This subdivision provides single dwelling allotments which are likely to result in a mix of single storey and two storey dwelling houses similar to those existing in the neighbourhood. No site is designated for medium density development reducing the likelihood of that housing form being constructed within the subdivision.

The proposal's compliance with the Shoalhaven City Council Development Control Plan No. 100 – Subdivision Code has been extensively discussed in Section 5.17 of this Environmental Assessment. The proposal complies with the minimum lot size acceptable solutions and all roads are proposed to be constructed beyond the minimum acceptable solutions standards complying with each Residential Element of the DCP. The proposal is compatible with the surrounding landuse and subdivision pattern and is not likely to cause any irrevocable environmental harm.

2.2 Address the cumulative visual impact of the project from public areas including streets.

The impact of this subdivision will mainly be observed by immediately adjacent residents and by through traffic from Leo Drive due to the site's long boundary with allotments fronting that road. The most notable impact of the proposal being the loss of trees as a result of vegetation thinning and underscrubbing during the first stage. To Leo Drive however, approximately half of the subdivision will be evident, up to the ridgeline, the houses along the extension of Gemini Way being the most prominent, likely to be similar to the existing dwellings on Leo Drive. Dwellings beyond into the subdivision may be visible due to the slope of the land – the building line on those lots adjacent to Leo Drive (7.5m from the street frontage) are 4 – 10 metres lower than the proposed allotments opposite – Lots 101 – 115 / 116 – 128.

Gemini Way will extend into the subject land providing long vistas to the north and north east, with views to the west generally screened by the proposed public reserves. The extension of Seaspray Street will open up some vistas to the west, though mainly of the public reserve area as that road curves down and to the north east.



Subject Land in this vicinity



Off Leo Drive



End of Gemini Way into the site



End of Seaspray Street



Leo Drive South



Leo Drive north



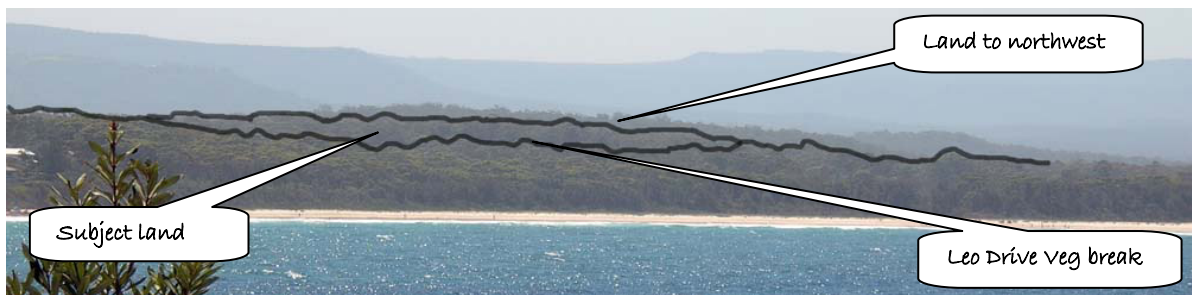
Leo Drive to south



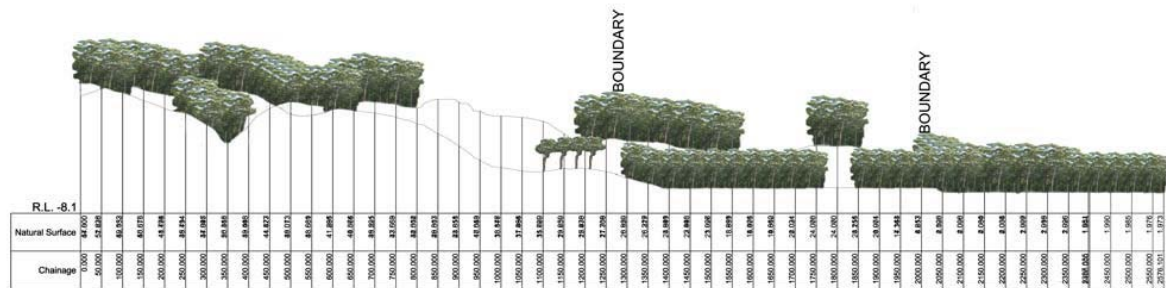
Narrawallee Inlet looking south

There are few streets in the locality where the future residential dwellings will be seen – Leo Drive, Gemini Way, Seaspray Street and Blake Place, though there are other publicly accessible spaces where parts of the subdivision may potentially be visible. These include the Jones Beach carpark at Bannister Point, from the Milton Pool, from a lay-by on the Princes Highway south of Milton and Narrawallee Headland (from the rock platform).

These view lines are provided on the following plan, as sections 3 – 10 where long sections along these view lines at both exaggerated and natural scale are provided to demonstrate the visibility of the subdivision. Long sections 1 and 2 are generally parallel to Narrawallee Beach through the site and to the east of the subject land, so that the view from Jones Beach car park can be illustrated (as seen below).

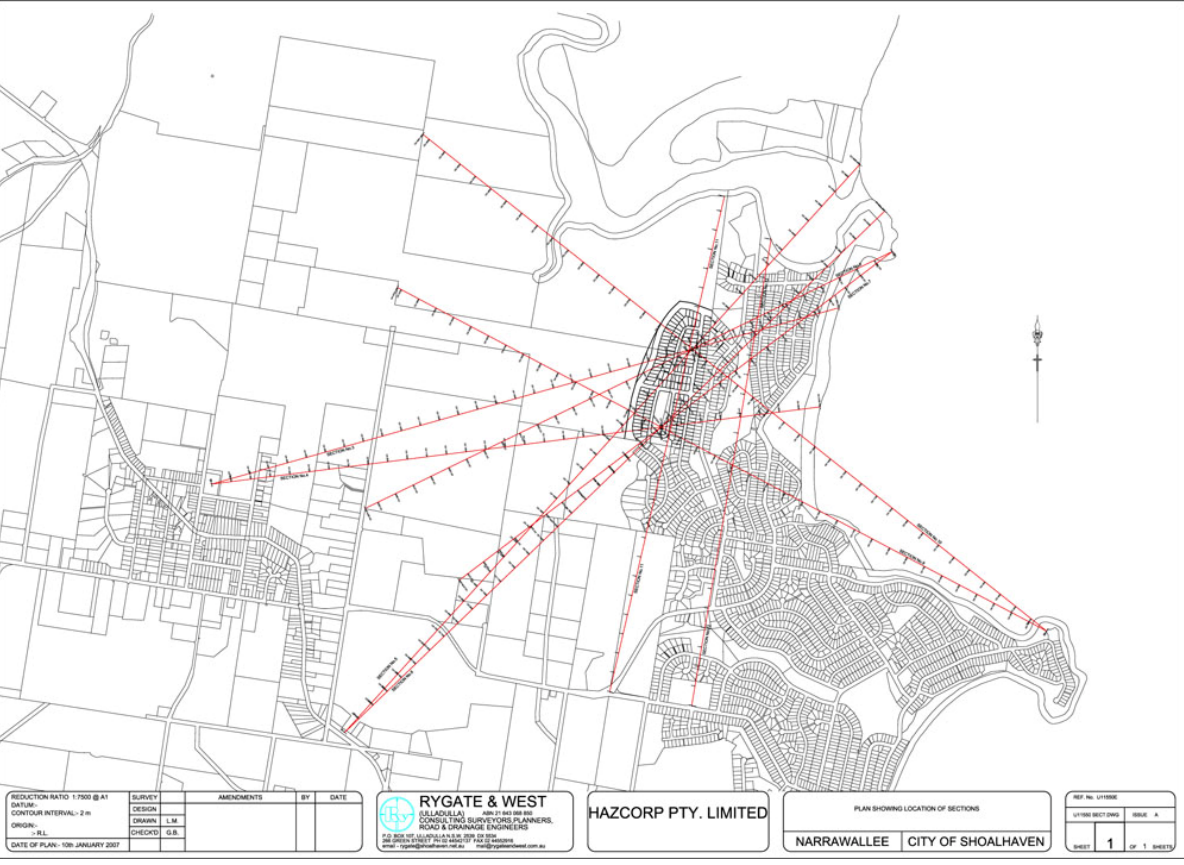


View from Jones Beach Carpark with tree line breaks as illustrated in the photo on page 89



Exaggerated scale long sections 1 & 2 (merged) from Matron Porter Drive in the south to Narrawallee Inlet, through the site and parallel to the site between Leo Drive & Matron Porter Drive (see Long Section plan Annexure 22)

The gaps in the tree line as illustrated above within the site are not likely to be so prominent as there is vegetation to the west that is likely to be visible above the ridgeline.

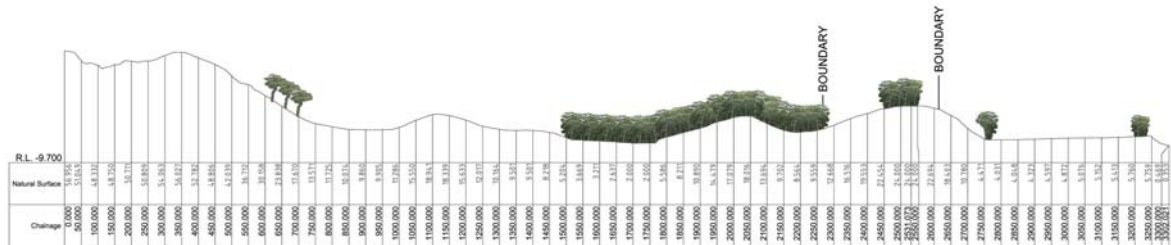


The above plan has been overlaid onto an aerial photograph of the locality to determine the extent of vegetation along each long section provided (see **Annexure 22** for original plan) to ascertain the degree of screening of the development from prominent public locales.

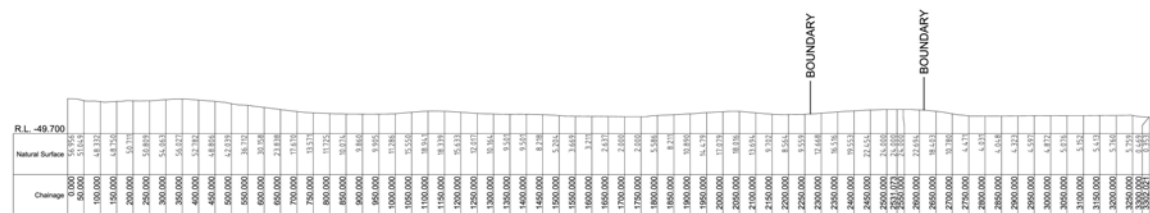


• Airmaps Australia 2004 - orthorectified aerial photograph

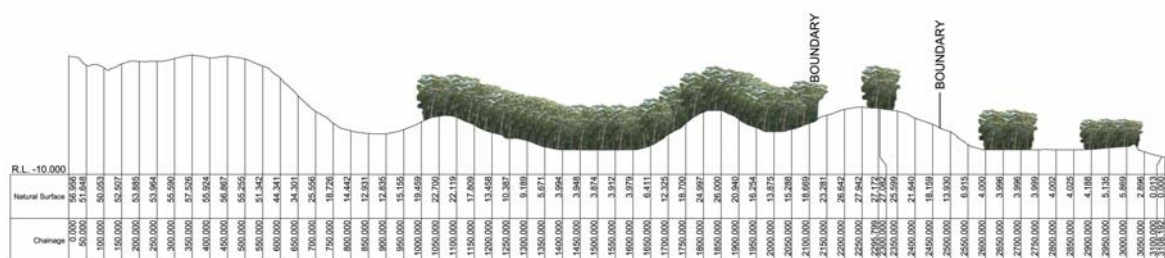
The following long sections illustrate the impacts from public vantage points (other than the adjoining streets), where the site may currently be visible. These long sections are produced to an exaggerated vertical scale (H1000:V5000) so that the site is readily identifiable, as the distance that these long sections cover is in the vicinity of three kilometres. The vegetation illustrated here is also to scale, being an average of 25 metres in height, with the vegetation mapped from the above aerial photograph taken June 2004. Natural scale is provided (without vegetation) to show the H5000:V5000 comparison.



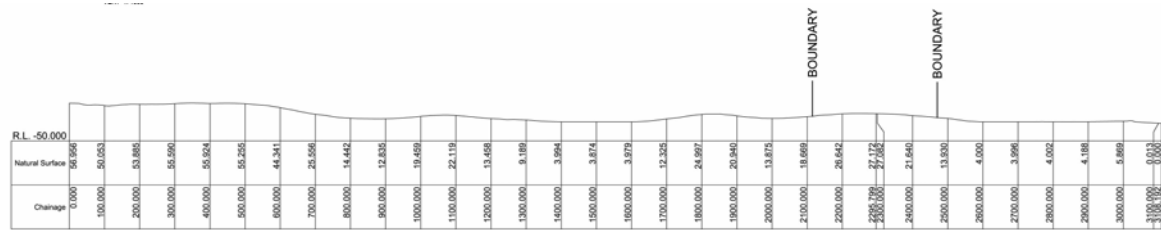
Section 3 - From Milton Pool to Northern Park - existing vegetated areas (§ proposed reserve within site) from aerial



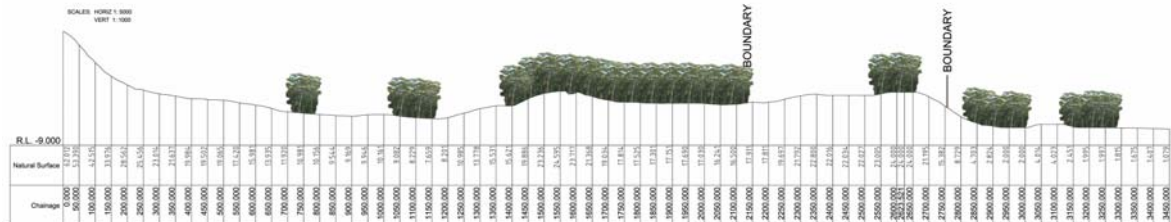
Section 3 - From Milton Pool to Northern Park - @ natural scale



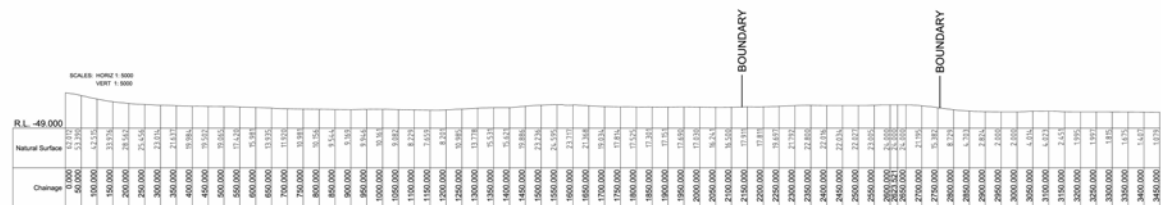
Section 4 - From Milton Pool to Southern Park - existing vegetated areas (§ proposed reserve within site) from aerial



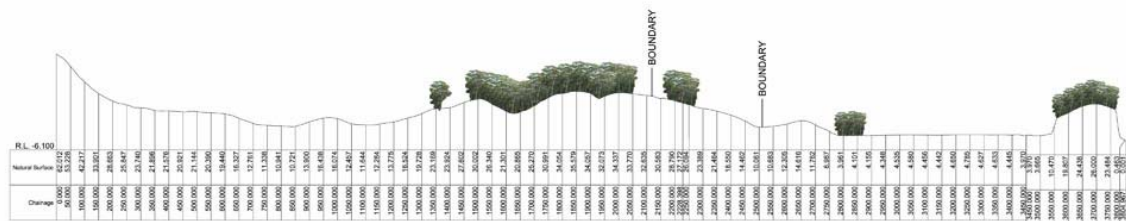
Section 4 - From Milton Pool to Southern Park @ natural scale



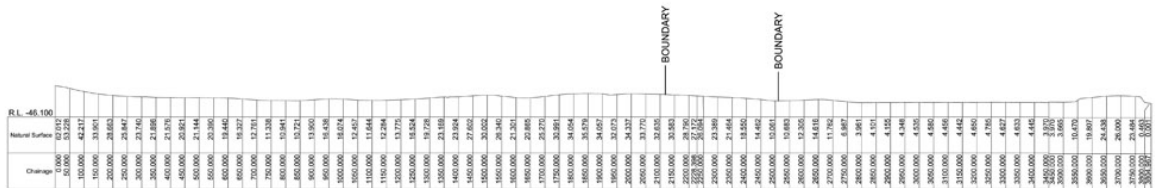
Section 5 - From Princes Highway Milton to Northern Park



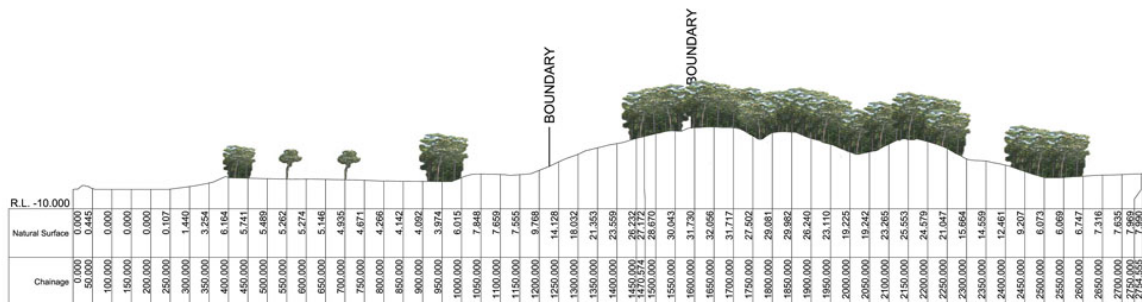
Section 5 - From Princes Highway Milton to Northern Park @ natural scale



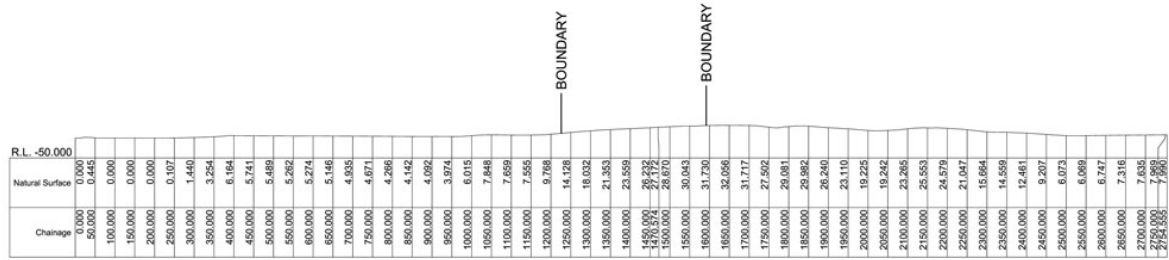
Section 6 - From Princes Highway Milton to Southern Park - existing vegetated areas (& proposed reserve within site) from aerial



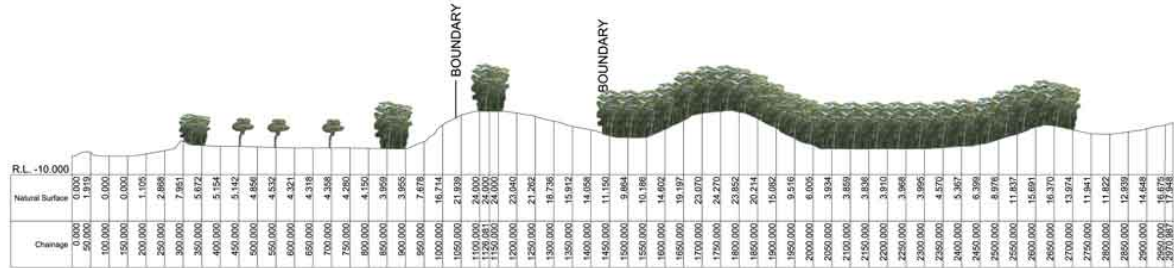
Section 6 - From Princes Highway Milton to Southern Park @ natural scale



Section 7 - From Narrawallee Head (rock platform) to Southern Park - existing vegetated areas (& proposed reserve within site) from aerial



Section 7 - From Narrawallee Head (rock platform) to Southern Park - @ natural scale



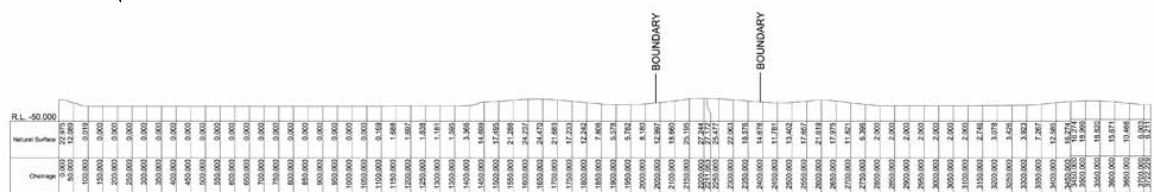
Section 8 - From Narrawallee Head (rock platform) to Southern Park - existing vegetated areas (& proposed reserve within site) from aerial



Section 8 - From Narrawallee Head (rock platform) to Southern Park @ natural scale



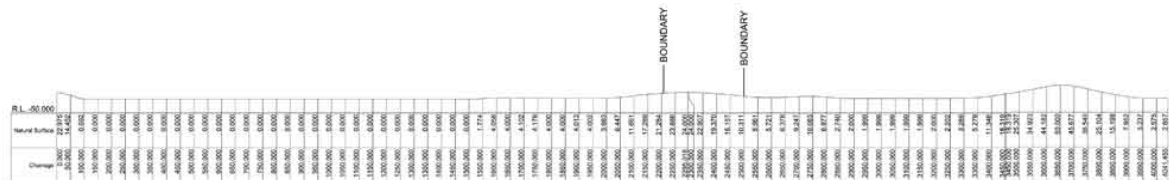
Section 9: From Bannister Point (Jones Beach) to southern public reserve - existing vegetated areas (& proposed reserve within site) from aerial



Section 9 - From Bannisters Point (Jones Beach carpark) to southern Park @ natural scale



Section 10: From Bannisters Point (Jones Beach carpark) to Northern public reserve - existing vegetated areas (& proposed reserve within site) from aerial



Section 10: From Bannisters Point (Jones Beach carpark) to northern public reserve @ natural scale

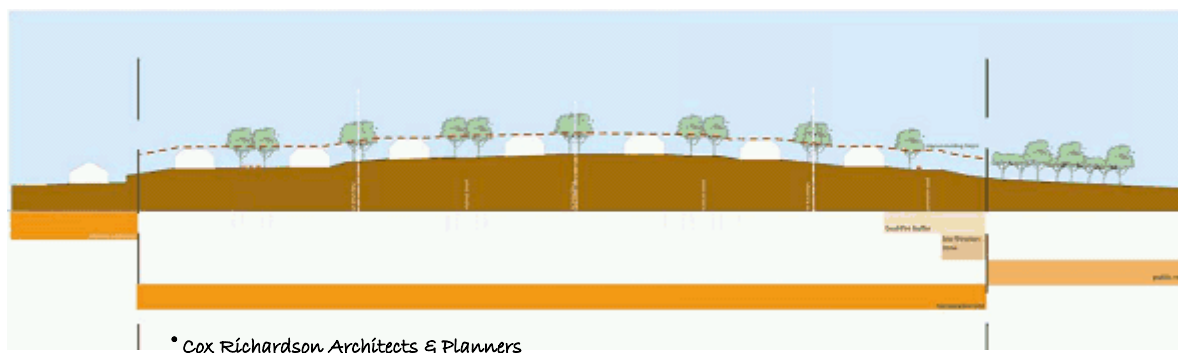
As it can be seen from these long sections, much of the site is screened by existing vegetation between the site and other development, the future dwelling houses are not likely to be significantly visible from distant public locations (excluding Leo Drive and the immediately adjoining streets), though gaps in the ridge line vegetation may be noted.

2.3 Identify the extent of potential development footprints, building envelopes and built form controls and any significant trees to be removed.

The proposed allotment sizes are commensurate with the existing character of the immediate locality – those existing properties were subdivided from the mid 1980's and range in size from 650m² to 1685m², where the majority of the existing allotments have full street frontage, though there are several battle axe allotments, particularly off Blake Place.

Building envelopes are not proposed for this subdivision as Council's current building guidelines which control floor space ratio, height and setback requirements are considered to be sufficient to result in a future residential living environment that is compatible with the existing neighbourhood.

It is anticipated that the proposed residential allotments will be used for detached dwellings; there are no medium density allotments proposed or nominated in this subdivision despite the provisions of Shoalhaven Planning Policy No. 1. Medium density development is not considered to be appropriate for the subject land given its constraints and the previous considerations of the Department of Planning who also feel that it is not an appropriate use for the land.



* Cox Richardson Architects & Planners

Council has consistently applied an 8.5m height limit to dwelling houses under its Policy to Control Building Height and Amenity in Residential Areas and therefore providing building height restrictions or building envelopes on each allotment proposed in this subdivision is not necessary.

Similarly, Council's standard street alignment building line is 6.0 metres for allotments with an area in excess off 600m² in Greenfield subdivisions such as this (Council's Building Line Setback Policy for Residential Development adopted in

2003) The side boundary setback for single storey buildings is 900mm, and 1500mm for two storey dwelling houses, as provided in Council's Building Code.

There are few public localities beyond the immediate vicinity of the site where it may be possible to view the subject land including Bannister's Head and areas of Milton. The development will be visible from Leo Drive, particularly that part of the subject land on the eastern side of the ridgeline due to the removal of trees adjacent to the existing allotments with frontage to Leo Drive.

A large number of trees will ultimately be removed from the site through dwelling house construction; however, the subdivision works per se only propose removal of trees which are within proposed road reserves, and to reduce the density of vegetation for bushfire asset protection purposes.

7.3 Access to Public Open Space and adjoining residential areas

3.1 Ensure existing and future opportunities for public access to and along open space areas and adjoining residential areas.

Public access is provided through the development to existing and proposed public reserves, facilitating access for both existing and future residents to public lands including Narrawallee Inlet and Narrawallee Beach. Pedestrian pathways and a cycle way are proposed through the development, with an open space network provided for both passive and active recreation within the land. Rygate & West (Ulladulla) have designed a path way and cycle way network that will be constructed as part of this development and will be compatible with the Council's proposed Pedestrian Access and Mobility Plan (PAMP) for the locality.

3.2 Establish appropriate mechanisms to ensure access is properly managed.

The pedestrian pathways and the proposed cycleway are located within the road reserves and those road reserves will be in the public domain upon registration of plans for each stage. The future maintenance of the pathway and cycleway network will ultimately be the responsibility of the Council and these will be incorporated into the PAMP maintenance program.

7.4 Remediation

4.1 A preliminary contamination assessment is to be prepared by a suitably qualified person having regard to the quarry use. If research into the previous indicates the likelihood of onsite contamination, a remediation report is to be prepared indicating the method of remediation proposed.

Network Geotechnics Pty Ltd (**Annexure 3 – May 2005**) carried out a preliminary contamination assessment over the area of the disused ridge gravel quarry – it has been determined that this quarry was unlikely to have been used for silica mining, and that the land is suitable for residential purposes without any requirement for remediation. There was no evidence of building rubble or other contaminants on site.

The report concludes that the subject land is “*considered suitable for residential purposes with respect to contamination issues*” and continues with the following:

“Whilst there has been localised gravel extraction (for local road construction) on the ridge crest in the southern portion of Lot 4, no evidence of associated contamination or other previous landuse has been discovered that would preclude development of the site of residential use. Furthermore, there appears to be no pressing reason to undertake a more detailed contamination investigation of the site prior to subdivision construction.”

4.2 *Any required remediation should be completed and certified by a suitably qualified person prior to the commencement of any development consent for any subdivision works within the site.*

As indicated above the preliminary assessment has not revealed that the site is contaminated by any past landuse, however, it is proposed to rehabilitate the quarry area and adapt it for use as a public reserve as it is adjacent to an existing public reserve. A concept plan has been provided with this application illustrating the layout and facilities to be provided within that reserve as indicated below.

7.5 Design of Parks

5.1 *A landscape plan is required to be proved for approval for the areas the subject of the park lands.*

HLS Pty Ltd (**Annexure 4 – May 2005**) has prepared the landscaping plan for the rehabilitation of the disused quarry area for its use as a public reserve. It is intended that this area will have a pathway network linking to the adjoining public reserve and adjacent residential streets. Further, it is proposed that swings and other play equipment, seating, turfing and lighting will be provided, existing vegetation retained where appropriate with other complimentary landscaping works will be undertaken to augment and enhance the area.

5.2 Invasive plant species must be removed from the open space and buffer areas. A weed removal plan is to be submitted verifying this action.

Conacher Travers Pty Ltd (**Annexure 5 – May 2005**) have prepared a Weed Management Plan for the subject land, particularly for the disturbed areas of the site that are to be retained as public reserve along the ridgeline and to assist in the protection of the nearby endangered ecological community. The report identifies three main areas for weed control; these are within the endangered ecological community owned by Council adjoining the subject land (the public reserve), the buffer area between the EEC and the site (the area of the proposed bio-retention swales along the western perimeter) and within the remainder of the proposed residential subdivision where weed infestation has occurred (see Figure 1 of Annexure 5).

Strategies for weed removal are different within the subject land than those for outside the subject land in the Council owned public reserves, with low impact, bush regeneration techniques for Areas 1 and 2 (EEC & buffer zone) and high impact activities such as slashing and spot spraying within the proposed subdivision to remove weeds and other exotic species including Bitou Bush. However, the proponent is not endeavouring to undertake work within the public reserve as that

land is now under the care, control and management of Council where there is a generic Management Plan applicable.

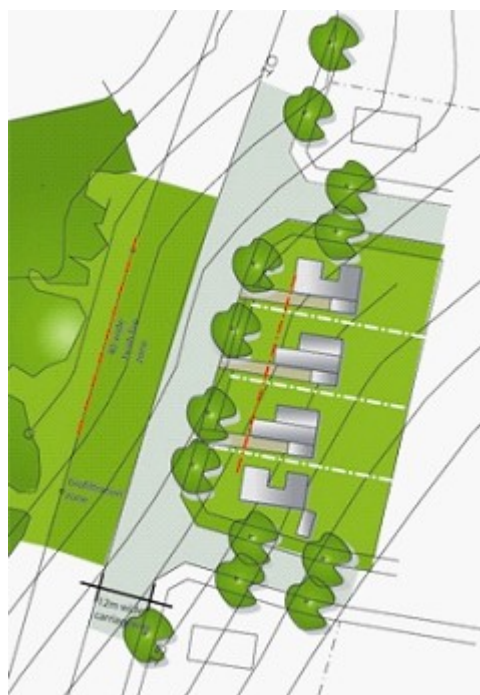
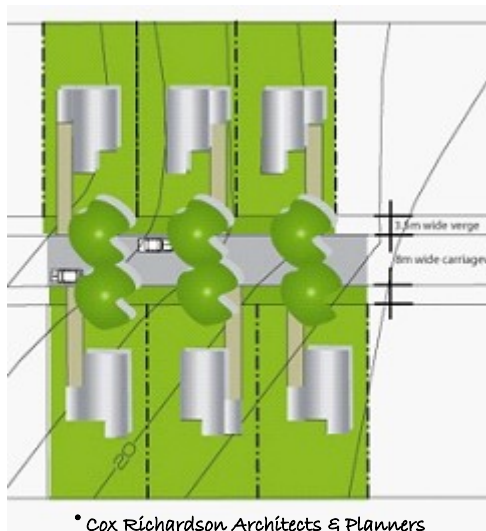
The Weed Management Plan recommends that a fence be erected along the inner boundary of the buffer area to prevent weed incursion into the EEC in the future, however, there is no proposal to fence this boundary of the site. The proposed stormwater drainage system utilises "Enviropod" inserts for drainage pits within the road reserve, these have the ability to filter water borne sediments and vegetative matter down to 200µm in size, which should be more than sufficient to reduce the likelihood of weed penetration into the EEC.

The main likely source of contamination would be from pedestrian activity or dumping, and fencing is not likely to have any impact upon point source incursion, as evidenced by the existing weed infestation within the subject land. Pedestrian access to the public reserve will be limited to one point with the provision of a bridge over the bio retention swale, and dumping is likely to be a low recurrence activity as no property has a common boundary with the reserve due to the location and width of the perimeter road and bio retention swales.

7.6 Street Trees

6.1 Details of the proposed street tree planting are to be provided. The detail to be provided includes the species (to be endemic), planting size and appropriate bonding for planting to occur after the final road seal and footpaths have been provided.

HLS Pty Ltd (**Annexure 6 – November 2006**) has prepared a street tree planting plan, which will be phased to co-ordinate with the construction staging, with the planting to be undertaken at the completion of each. The species chosen are indigenous to the locality and are not likely to have any adverse impacts on the biodiversity of the neighbouring public reserves. The specimen planting size while not stipulated on the plan is to be 45 litres (super advanced) which will give some immediate effect to the landscaping.



6.2 Details of a maintenance and replacement period for the establishment of the trees are required.

Street trees are often damaged during the construction of dwelling houses therefore, Shoalhaven City Council requires a maintenance period of 6 months from completion of construction (to be paid upon Subdivision Certificate release of each stage) where a maintenance bond is to be paid to Council at a rate of 5% of the cost of the construction works for that stage. In order to seek refund of the paid bond, all construction and landscaping works are to be maintained to an acceptable standard. Council then takes over the maintenance of the public road upon refund of that bond.

7.7 Footpaths/cycleways

7.1 Combined footpath/cycle ways are to be provided for the entire loop road (on the eastern side), one side of the elongation of the access way off Leo Drive, one side of the elongation of Gemini Way (north of its intersection with the elongation of the access way off Leo Drive), and one side of the south/north road leading off the elongation of the access way off Leo Drive to the proposed extension of the public reserve.

Rygate & West (Ulladulla) (**Annexure 7 – December 2006**) have prepared a pedestrian path and cycle way plan which provides access along the western road reserve extension of Seaspray Street to the northern boundary, with construction of the path through the public reserve south of Macleay Street cul-de-sac. Further, the pedestrian pathway will continue south from that point to Gemini Way, linking to the public reserve at the southern boundary of the land. A pedestrian path will also be provided around the southern ridge public reserve. The pathway / cycleway will be constructed in accordance with this plan.

This shared cycle path is proposed to be 2.4 metres in width – double the width of a pedestrian footpath. Council's Subdivision Code – DCP 100 does not contain a minimum width for a shared pathway, however their Pedestrian Access & Mobility Plan indicates the location of Council's desired shared pathways that are proposed to be constructed in Leo Drive in the vicinity of the subject land. Discussions with Council's Infrastructure Planning Manager indicate that Council's policy is to construct these shared paths at a maximum width of 2 metres.

7.8 Traffic, Parking and Access

8.1 Provide a Traffic Impact Study in accordance with the RTA *Guide to Traffic Generating Developments*.

Colston Budd Hunt & Kafes Pty Ltd (**Annexure 8 – November 2006**) has prepared a traffic study for the proposal in accordance with the provisions of the RTA Guide to Traffic Generating Development. This report also takes into consideration the provisions of Council's Subdivision Code – DCP 100 (note that their report contains a typographical error which states DCP 70) and Shoalhaven Planning Policy No 1. It has been determined that the proposed subdivision is within the environmental capacity of the road network in the Narrawallee / Mollymook area.

The proposal is a traffic generating development in accordance with the provisions of State Environmental Planning Policy No. 11 as it proposes a residential subdivision of more than 50 allotments as identified in Schedule 2.

8.2 Identify the need (if any) to upgrade roads/junctions and improvement works to address any traffic inefficiency and safety impacts associated with the development where relevant. This should include identification of pedestrian movements and appropriate treatments.

The provision of local area traffic management measures had been determined in conjunction with Shoalhaven City Council, and the measures proposed include two speed reduction devices on Leo Drive between Sagittarius Way and Aries Place, these works are to be undertaken in Stage 2 of the subdivision.

Further roundabouts will be constructed in Stage 1 at the intersection of Gemini Way and Seawinds Parade and the elongation of Gemini Way and Leo Drive extension into the site.

8.3 Provision must be made for bus access through the site, including the provision of suitably located bus stops. These bus stops must be provided at the final stage of the subdivision.

Bus access through the site is provided through the proposed construction of a 12 metre pavement on the perimeter road and to Leo Drive. Bus stops will be provided so that no dwelling house within the subdivision is more than 500 metres distant. The pavement widths are provided on Rygate & West (Ulladulla) engineering concept plans – **Annexure 9 - December 2006**.

8.4 Adequate road safety measures are required for the proposal. This may involve reports demonstrating compliance with sight distance requirements for all intersections.

Colston Budd Hunt & Kafes Pty Ltd have prepared a traffic report for the proposed subdivision (**Annexure 8**) which addresses the relevant measures to be undertaken to reduce potential conflict between pedestrians and vehicular traffic. This includes the provision of roundabouts to be constructed in the first stage of the development in the immediate vicinity of the site, and LATM measures in Stage 2. These measures have been derived in conjunction with Shoalhaven City Council – see Attachment B of Annexure 8 for further detail.

8.5 Local Area Traffic Management devices are required for relevant adjoining road intersections. Traffic calming devices are to be provided within the straight alignments of the extensions to Seaspray Street, Gemini Way, and Seawind Parade.

The traffic report proposed a number of mitigating measures to reduce conflict between traffic and other road users, such as a roundabout at the intersection of Gemini Way and Seawinds Parade, two speed humps on Leo Drive between Sagittarius Way and Aries Place, a roundabout within the subdivision at the intersection of Leo Drive and the extension of Gemini Way. The roundabouts are to be constructed in Stage 1 and the LATM measures in Stage 2.

There is also provision for a contribution towards the provision of a roundabout at the intersection of Bannister Head Road and Tallwood Avenue to the amount of \$15,000 to be paid to Shoalhaven City Council at Stage 2 of the subdivision.

7.9 Staging and Infrastructure Provision

9.1 Consideration should be made for appropriate staging of the subdivision with the associated provision of infrastructure.

Rygate & West (Ulladulla) has prepared a plan indicating the staging of construction works and release of allotments for the subdivision proposal (**Annexure 10 – October 2006**). This plan illustrates the intention to construct the development in 7 stages with the provision of associated infrastructure as required for each stage. The extension of Gemini Way into the site is the first stage, and the extension of Seaspray Street is the last stage. It is anticipated that this will be carried out over a period of 7 – 10 years depending on market influences, with the release of between 17 and 32 lots per stage.

Stage 1 will include the construction of a mountable roundabout at the existing Gemini Way and Seawinds Parade intersection and a mountable roundabout at the east - west access road for Leo Drive and the Gemini Way extensions. The Gemini Way extension into Stage 1 will be of the same width as the existing Gemini Way road reserve, that is 16 metres wide and north of the new east – west extension off Leo Drive, the road reserve will be 20 metres wide.

This stage also includes the underscrubbing the total site (excluding proposed reserves unless otherwise required by the Vegetation Management Plan) and the removal of required trees to create a woodland residue to be maintained as an Asset Protection Zone for lots in each stage and the adjoining existing residential development (woodland residue being managed so that it is consistent with the outer protection area requirements of PBP). Removal of all trees within the proposed road reserves will also be undertaken as part of Stage 1. All vegetation will be mulched and retained on site to provide a seed bank for revegetation of disturbed areas and for landscaping purposes as the subdivision progresses.

Stage 2 will include the construction of the southern active recreation park in accordance with the landscaping concept plan. It will also include the payment to Council of the contribution for a roundabout at the corner of Bannister Head Road and Tallwood Avenue Mollymook of \$15,000.00 and the construction of the required Local Area Traffic Management (LATM) measures in Leo Drive in accordance with both the Council's and Consultant traffic engineer's recommendations. The park will be released as part of that stage and dedicated to Council in the subdivision plan.

Stage 3 is located north of Stages 1 & 2 and includes the extension of Gemini Way and part construction of the loop road to facilitate access to lots 301 – 309 inclusive.

Stage 4 requires the construction of a sewer pumping station at the northern end of the site to cater for stage 4 lots and subsequent stages. Stage 4 will also include the construction of the pathways/cycleway link through the northern reserve to Leo

Drive near Macleay Street and the construction of the bio retention swales along the northern section of the perimeter road.

Stage 5 incorporates the bio retention swales and extensions of the pathway/cycleway on the perimeter road.

Stage 6 proposes construction of road and service infrastructure to lots on either side of the western arm of the northern loop road, between Stage 4 and 5.

Stage 7 includes the remainder of the perimeter road, bio retention swales and pathway/cycleway link and the connection to Seaspray Street to the south.

It is intended to release the public reserves in four stages, with the active southern reserve and half of the southern bushland reserve released in Stage 2, the release of half the northern bushland reserve in each of stages 4 and 6, with the release of the remainder of the southern bushland reserve in Stage 7. This staging of the public reserves enables the fencing of the construction stages in such a way as to prohibit unauthorised access therefore protecting public safety. Road frontage will be available to each part of the reserve that is to be released and the reserves will be available for use by the public without hindering construction works.

9.2 Infrastructure provision required includes the construction of parks and open space, completion of a bio-swale, weed removal, construction of a pedestrian/cycle path to the reserve, roundabouts, and traffic calming devices.

Infrastructure provision for this development includes the provision of reticulated water and sewage services to each allotment, and electricity and telephone services, along with the construction of an active recreation park, bio retention swales and other integrated stormwater drainage devices. Preliminary plans have been prepared for road and pathway construction, where bus stops are to be provided on the main traffic route through the subdivision. A weed management plan has been prepared to address the removal of exotic species within the site to improve the environment and roundabouts and traffic calming devices will be provided in accordance with the submitted traffic report.

7.10 Stormwater Maintenance and Monitoring Plan

10.1 Prepare a stormwater plan for the subdivision layout based upon best practice Water Sensitive Urban Design Principles. An operation and maintenance manual must accompany this and a copy provided to Council prior to the commencement of works on Stage 1.

J Wyndham Prince Pty Ltd has prepared a Stormwater Management Strategy (**Annexure 11 - Nov 2006**) for the subdivision proposing different implementation strategies for the eastern and western catchments due to differing environmental constraints. This includes a bio-retention swale adjacent to the western boundary of the land to enhance the protection of the endangered ecological community.

The eastern subcatchment will discharge into existing Council infrastructure with "Enviropods" (or equivalent) being used to reduce pollution by trapping litter, oils and other materials prior to discharge into the stormwater system.

Bioengineered Solutions has prepared an Operation & Maintenance Manual for the EnviroPods, Basins and Bio Retention Swales (**Annexure 12 - Nov 2006**). This manual has been prepared for the on going maintenance and management of the various water quality devices, including management under the ownership of Shoalhaven City Council. The purpose of the manual is to ensure the various components of the system function appropriately so that there are no adverse impacts on the surrounding natural or built environment.

10.2 The maintenance requirements of the manual are to be carried out by the developer generally consistent with the approved master plan.

The maintenance regime proposed requires on going management by the developer for a period of approximately 10 years during the construction of the subdivision, where system maintenance of the entire system would be the responsibility of Council 6 months after the release of the final stage of the subdivision. This enables the establishment of the system and allows plantings to be replaced when necessary particularly in the early stages during any drought periods. Council would be provided with a copy of the maintenance manual for their records and future use as part of the construction certificate application process.

More rigorous monitoring of the functionality of the system is required during subdivision construction works due to major soil disturbance caused by tree removal or road construction, as it is possible that sediment build up and plant damage could occur. On going maintenance during dwelling construction with the added constraint on land owners for site specific sediment and erosion control measures will assist in the proper functioning of the system. Longer term maintenance by Council may require the washing of the trench gravel or replacement if necessary.

10.3 A water quality monitoring program is required and submitted for approval prior to the commencement of works on Stage 1. The monitoring program is to be carried out by the developer for the duration of the project generally consistent with the approved master plan.

Australian Wetlands Pty Ltd (**Annexure 13 - April 2005**) has provided a Water Quality Management Strategy for the proposal. This water quality monitoring program is to commence prior to stage 1 of the subdivision and is to continue on a monthly basis "until at least 80% of the dwellings are complete on all stages".

7.11 Maintenance of Native Vegetation on site

11.1 The application must demonstrate the retention of native and other vegetation which is generally consistent with the approved master plan.

The adopted Master Plan variations required 13% of the site to be retained as native vegetation which resulted in the loss of 29 residential allotments, reducing the lot yield from 192 to 163 allotments despite 63 hectares of native forest being dedicated by the proponent as a consequence of the rezoning. This subdivision proposal is generally consistent with the adopted Master Plan. While the application now proposes 168 allotments where 5 lots have been gained through

the reduction in lot width from 20 metres to 18 metres, the proposed native vegetation retention areas have not been reduced in area.

However, "other vegetation" on site is currently limited to exotic weed species which will be removed as part of the Weed Management of the site. As evidenced in the flora and fauna assessment report prepared by Conacher Travers Pty Ltd (**Annexure 18**) the vast majority of vegetation currently found on site is endemic to the locality - 144 different plant species were found, where 125 species were "native plants" and 19 species were exotic being mainly grasses and invasive weeds.

Two native vegetation areas are proposed to be retained along the ridgeline where these will be dedicated to Council as public reserves in four stages to ensure public safety during completion of construction works.

7.12 Bushfire

12.1 Address the requirements of Planning for Bush Fire Protection 2001. In particular the provision of adequate access for fighting bushfire, adequate APZs outside the property boundaries and water supply for bushfire suppression operations.

Conacher Travers Pty Ltd have prepared a bushfire protection assessment in accordance with the recently made provisions of Planning for Bushfire Protection, 2006 which takes into considerations the deemed to satisfy provisions of the BCA – in this regard AS3959-1999 – Construction of Buildings in Bushfire Prone Areas (**Annexure 14 – March 2007**).

This assessment makes provision for asset protection zones for dwellings at the urban – bushland interface, with provision for a 36 metre asset protection zone. The recommended construction level for interface dwellings based on a high level of bushfire attack for this APZ is Level 2 under AS3959.

Further, the report outlines that the minimum asset protection zone for Level 3 construction is 25 metres. However, the western road reserve is 30 metres wide and with a minimum 6 metre building line the 36m APZ is achieved and dwellings can then be constructed to Level 2 standards rather than Level 3.

Eight metre wide roads are proposed within the development which is satisfactory to permit fire appliance access through the subdivision, where the perimeter road provides a suitable position from which to fight a fire.

12.2 Prepare a Plan of Management for fuel management including the provision and maintenance of APZs and any areas of hazard and buffer zones.

The abovementioned Bushfire Protection Assessment details the maintenance of both the Inner and Outer Protection Areas (including the buffer) for the provision of on going protection of the subdivision. Fuel loads are to be reduced within Inner Protection Areas for dwelling protection and these areas will be generally maintained by residents within their own properties, further, the road reserve, including the pavement, of the western perimeter road forms an integral part of the Inner Protection Area. The Outer Protection Area adjacent to the western

boundary where fuel management will be the responsibility of Council as that area is within the road reserve.

The vegetation density (particularly understorey and excluding the bushland reserve areas) will be reduced during stage one of the subdivision to maintain the area in a fuel reduced state during the construction stages to reduce bushfire hazard, risk and threat.

7.13 Management of Asset Protection Zones and Vegetation

13.1 Demonstrate through a Vegetation Management Plan how the APZs and the bushland area on open space areas are to be effectively managed and maintained without eroding their integrity.

Planscapes (**Annexure 15 - March 2007**) has prepared a Vegetation Management Plan addressing the management of the two bushland public reserves and the required asset protection zones for dwellings in the vicinity of the of those reserves. In this regard the draft VMP was provided to Shoalhaven City Council for comment prior to the finalisation of the report, Council's response is included in the VMP as an Annexure and the VMP has been amended accordingly.

Shoalhaven City Council has indicated that there are to be no asset protection zones contained within the bushland reserve areas. Council would prefer that the lots on either side be managed as inner protection areas in the interim and have a restriction as to user placed on their title requiring that no dwelling house be built upon the land until such time as the proposed public reserve land is no longer mapped as bushfire prone.

It is understood that Council will be reviewing the Bushfire Prone Land mapping during 2007, and a submission has been made to Council to consider re-categorising the vegetation classification of the subject land during that mapping process (copy included in the VMP Annexure 15). The land is currently mapped as Category 1 vegetation though as a future remnant pocket it can be considered as Category 3, where minimum a 10 metre asset protection zone would be required for those lots with a common boundary with the northern bushland reserve. If Council favourably reconsiders the mapping in light of the subdivision layout, then it is likely that the northern reserve may not be mapped as bushfire prone land at all, a that reserve is to be more than 100 metres from the contiguous vegetation to the north and west. Council's response on that matter has not yet been received.

7.14 Infrastructure and Utilities

14.1 Address existing capacity and requirements of the proposal for effluent disposal, water supply, electricity, and telecommunications services in consultation with relevant agencies and identify staging, if any, of infrastructure works.

Shoalhaven Water has previously given detailed assessment to the Master Plan proposal regarding the provision of water and sewage services to this subdivision proposal. A Development Advice notice was issued for each stage of the subdivision (July 2005) after the commissioning of the new West Ulladulla Sewage Treatment Plant. These advice notices detail the specific works or analysis required for the provision of infrastructure and services, including the payment of

contributions (pursuant to under Section 306 of the Water Management Act) for sewer and water headworks. Rygate & West (Ulladulla) have prepared reticulation plans for both sewer and water infrastructure – see **Annexure 16** for detail.

At the time of the issue of the Development Advice notices, the new STP had not been commissioned and a sewerage strategy was required for approval by Shoalhaven Water; however that is no longer necessary as the STP is now operational.

Annexure 17 contains the seven stage requirements of the issue of a Compliance Certificate under Section 307 of the Water Management Act for the provision of water and sewer to the subject land. Requirements include the undertaking of a hydraulic analysis to determine the sizing of the water mains for the whole subdivision at Stage 1 and providing a sewage pumping station and rising main to facilitate the transport of wastewater for stages 4 – 7.

Electricity and telecommunications services will be provided at the full cost of the proponent to the requirements of the relevant service providers. Electricity reticulation design details will be submitted to Integral Energy for approval, including lighting details, prior to commencement of construction.

14.2 Prepare a feasibility study for reclaimed water use in consultation with Shoalwater.

It is not proposed to include any reclaimed water for use in this subdivision given its distance from the West Ulladulla Sewage Treatment Plan and the small scale of the development.

7.15 Flora and Fauna

15.1 Outline measures to conserve flora and fauna and their habitats within the meaning of the Threatened Species Conservation Act 1995, having regard to the Draft Guidelines for Threatened Species Assessment (DEC & DPI July 2005). In particular, address potential impacts of the development on any Endangered Ecological Communities.

Conacher Travers has completed detailed targeted surveys for threatened flora and fauna species and endangered ecological communities (EEC) throughout the subject site and adjoining public reserve lands over the last 5 years. These surveys have identified a number of threatened species occurring within the subject site and its surrounds. A detailed assessment of the proposed developments impacts on these threatened species and ecological communities and/or their habitats determined that the proposal will not result in a significant impact as defined within the Threatened Species Conservation Act 1995 (**Conacher Travers Annexure 18 – December 2006**). The completed survey and assessment involved an extensive consultation process with government consent authorities including, Department of Environment & Conservation (DEC) and two separate independent ecological consultants.

In regards to the potential impacts of the proposal on the EEC - Swamp sclerophyll forest on Coastal Floodplains (SSFCE) located along the western boundary of the subject site, the proposed subdivision will not result in the direct loss of any of this EEC.

Furthermore, the development has addressed the potential for impacts on the EEC by:

- Defining by survey the boundary of the EEC and incorporating an adequate buffer;
- provision of ecological sensitive stormwater and water quality control devices and;
- dedication of a 63 ha conservation reserve that includes all of the EEC.

The proposed development layout has been significantly adjusted to provide a naturally vegetated buffer from the EEC. Detailed land survey of the EEC boundary has identified the nearest point of this community to the subject site as approximately 30m, while the distance between the EEC and the current proposed development is approximately 60 metres where the proposed perimeter road contained within the subject site has a road reserve width of 30 metres

In addition, the sites stormwater design, quality control mechanisms detailed in the J Wyndham Prince Pty Ltd report (**Annexure 11**) include drainage contours and sediment control structures within the road reserve to provide additional mitigating measures from any adverse affects on the EEC. The proponent will regularly monitor water quality for approximately 7 – 10 years filtering through the bio retention swale system to ensure that there is not an increase in nutrient load into the EEC, with on going management and monitoring of the system to continue under the control of Council. The on going maintenance and water quality monitoring program are detailed in the reports by Bio Engineering Solutions (**Annexure 12**) and Australian Wetlands (**Annexure 13**) respectively.

To ensure the preservation of the EEC the dedication of 63 hectares of coastal forest adjacent to the site extending to Narrawallee Inlet has been undertaken in accordance with Clause 38A and Schedule 8 – Fair Trading Option pursuant the provisions of the Shoalhaven Local Environmental Plan, 1985.

7.16 Cultural Heritage

16.1 Address the draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, July 2005) if required.

The Archaeological survey work for Aboriginal sites was undertaken by Navin Officer Heritage Consultants Pty Ltd initially during 2002, with additional subsurface testing work in 2004. At that time, the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation were not applicable as they were not adopted until July 2005.

In regard to the issued Director – General's Environmental Assessment Requirements, the initial survey work and subsequent subsurface testing were all undertaken in accordance with the accepted methodology at the time, and compliance with those Draft Guidelines is not considered to be necessary, particularly as the Department of Environment and Conservation has since issued a Section 90 Consent to Destroy under the National Parks & Wildlife Act.

7.17 Soils and Contamination

- 17.1 *Identify the presence and extent of acid sulfate soils on the site and recommend appropriate mitigation measures. The level of assessment shall be consistent with the Acid Sulphate Soil Manual by ASSMAC.*

A review of the Department of Lands Acid Sulfate Risk Maps (1998) at the office of Shoalhaven City Council reveals that the site does not contain any land which has the potential for acid sulfate soils. The boundary of the residential 2(c) zone would have been determined by Council on the basis that the land was not likely to be affected by such soils. Lands to the north, west and east are impacted, particularly where the land is low lying, associated with the SEPP 14 wetlands or other wetlands in the vicinity (e.g. Garrads Lagoon) and flood prone land adjacent to Narrawallee Inlet.

8.0 CONSULTATION

During the SEPP 71 Master Plan project process, a number of statutory bodies were consulted about their likely requirements for the project, both by the Department of Planning Assessment Officers and the proponents. This includes consultation with the Department of Environment and Conservation in regard to Aboriginal Archaeology including seeking consent to destroy Aboriginal sites.

The Roads & Traffic Authority and Shoalhaven City Council were consulted in regard to traffic generation and mitigation measures such as Local Area Traffic Management options.

Infrastructure providers including Telstra, Integral Energy and Shoalhaven Water were consulted and strategies developed where necessary for the implementation and provision of infrastructure.

Shoalhaven City Council has not acknowledged a Principal Consultative Body for Narrawallee; therefore there has been no specific community consultation during the preparation of this Environmental Assessment. There was extensive and rigorous community consultation by the Department of Planning as part of the SEPP 71 Master Plan project process and as a consequence of that consultation the adopted Master Plan resulted in the a reduction of the development lot yield and an increase the provision of open space within the development.

There were 215 submissions made to the Department during the 213 allotment Master Plan assessment. The previous concerns of the community related to:

- Urban expansion of the locality and lot yield;
- Flora and fauna concerns;
- Visual amenity;
- Potential extension of Blake Place;
- Traffic issues;
- Provision of infrastructure and impact on services in the locality;
- Impact on Aboriginal Archaeology;
- Stormwater management; and
- Staging of works.

It is considered that many of these issues have been resolved through variations to the adopted Master Plan and through the reduction in lot yield to provide additional open space within the development. Further additional professional expert advice has been sought to achieve a high level of scientific certainty that there is not going to be any adverse or cumulative impacts upon the natural environment of the locality as a result of this development.

It is also noted that there were two petitions presented to the NSW Legislative Assembly by the Member for South Coast on behalf of members of the local community, on the 31st March 2004 and 5th May 2004, where each petition recognised that "*any form of access or egress from the subdivision adjoining Blake Place*" was opposed.

The Department of Planning consulted with the NSW Rural Fire Service during the Master Plan process and it was subsequently determined that it was not necessary

to provide a vehicular link from the subdivision through Blake Place to provide emergency vehicle entry / egress. The vacant allotment at the end of Blake Place is not part of this development proposal as it is an existing allotment zoned for residential purposes.

There was also consultation including a site meeting, with the Department of Environment and Conservation with regard to the determination of the boundary of the endangered ecological community and discussions regarding general flora and fauna matters. Further recent survey work has also been undertaken by Conacher Travers Pty Ltd to ensure that the proposal is not likely to have an adverse impact upon any threatened species, population or endangered ecological community.

Shoalhaven City Council was consulted in regard to the provision of additional open space within the development and it's on going management particularly in regard to fuel reduction for asset protection purposes for likely future adjacent dwelling houses. Council has indicated a desire for the imposition of restrictions as to user on the title of lots with a common boundary with the northern public reserve that they not be built upon until the land is no longer mapped as bushfire prone land.

Further, Council's Infrastructure Planning Manager was consulted in regard to the potential construction of shared cycle paths by Council in the vicinity of the subject land under the Pedestrian Access & Mobility Plan.

9.0 DRAFT OF STATEMENT OF COMMITMENTS

In accordance with the Director General's requirements for the preparation of this Environmental Assessment, this section provides a draft Statement of Commitments which details the measures proposed by Hazcorp Pty Ltd ('the Proponent') for environmental mitigation, and management of the proposed project. The Director-General specified the requirement for a draft Statement of Commitments in the Environmental Assessment Requirements for the project in accordance with section 75F(6) of the Environmental Planning and Assessment Act 1979.

The draft Statement of Commitments identifies those matters which will be dealt with in the next stage of the proposed project in order to minimise impacts on the environment. Those matters arise from the detailed analysis of the project proposals which has been carried out and documented in this report and the accompanying expert reports.

If approval is granted under Part 3A of the Environmental Planning and Assessment Act 1979 the Proponent will commit to the following controls for the construction and operation of the proposed project.

DRAFT STATEMENT OF COMMITMENTS		
Item	Commitment	Timing
General	The developer will carry out the development in accordance with this Environmental Assessment Report (EAR), prepared by Planscapes Town Planning Consultancy dated March 2007, plans prepared by Rygate & West (Ulladulla) and supporting reports.	For the duration of the subdivision.
Legislative Controls/Requirements	<p>The developer will obtain and maintain the following licences, permits and approvals for the residential subdivision:</p> <p>Shoalhaven City Council - Construction Certificates for engineering works for each stage of the subdivision. The applications for Construction Certificates will comprise Engineering Design plans submitted containing, where relevant, detailed designs relating to earthworks, drainage, soil erosion and sediment control and site rehabilitation, tree clearing and site stability, roadworks, footpaths/cycleways, water supply and sewage works, and landscaping.</p> <ul style="list-style-type: none"> • Shoalhaven City Council - Section 138 Consent for roadworks (Roads Act 1993); • Integral Energy - Design Certification; • Integral Energy - Notification of Arrangement; • Telstra - Compliance Certificate; • Shoalhaven Water - Compliance Certificate; • Shoalhaven City Council – Subdivision Certificates for each stage; • Department of Land and Property Information - registration of the subdivision. 	For the duration of the subdivision.

Item	Commitment	Timing
Final Plan of Subdivision	The developer will prepare a final plan of subdivision and Section 88B instrument for each stage of the development in accordance with the recommendations of this Environmental Assessment and requirements of Shoalhaven City Council.	Prior to the release of Subdivision Certificates.
Ecological	Retention of habitat trees within proposed public reserves as recommended in the Conacher Travers Flora and Fauna Report. 63 hectares of land containing an endangered ecological community has previously been dedicated to Council for conservation purposes.	Prior to release of each part of the public reserve lots in Stages 2, 4, 6 & 7
	Compliance with the recommendations of the Planscapes Vegetation Management Plan with regard to revegetation of disturbed areas and protection of the proposed public reserves.	On going through to final release of public reserves in stages 2, 4, 6 & 7
	Compliance with the recommendations of the Conacher Travers Weed Management Plan with regard to weed removal and management within the subject land only, not within any public land adjacent to the site (excluding boundary fencing).	On going through to final release of Stage 7
Public Open Space	The developer will embellish all public reserves in accordance with the Vegetation Management Plan (for the two bushland reserves) and detailed landscape design plans (for the active public reserve) to be approved by Shoalhaven Council as part of the Construction Certificate.	Prior to release of certificate for subdivision for each stage containing public reserve.
	The developer will dedicate all public reserves to Shoalhaven City Council.	Prior to release of Subdivision Certificate and dedicated upon registration.
Waste Minimisation and Management	The developer will prepare a Waste Minimisation and Management Plan for subdivision construction works in accordance with Development Control Plan No. 93 for approval by Shoalhaven City Council for implementation.	Prior to the release of the Construction Certificate for each stage.

Item	Commitment	Timing
Construction	The developer will prepare a Construction Management Plan for approval by Shoalhaven Council including education of workers in the approvals and conditions requiring compliance (including soil erosion and sediment controls, flora and fauna and aboriginal archaeological issues), details of the environmental management procedures during the development and measures relating to waste minimisation and management.	Prior to the commencement of construction and for the duration of the development.
Bushfire <i>Asset Protection</i>	The developer will establish and maintain Asset Protection Zones (APZs) in accordance with the Bushfire Protection Assessment, prepared by Conacher Travers Pty Ltd - March 2007.	Prior to the release of the Subdivision Certificate for each stage.
	Underscrubbing and vegetation thinning of the site (excluding bushland public reserves unless specified in the Vegetation Management Plan) to reduce fuel loads	Prior to the release of Stage 1 of the subdivision with on going maintenance through out the development stages
	The developer will install relevant infrastructure as required, including in line hydrants.	Prior to the release of the Subdivision Certificate for each stage.
<i>Restrictions as to User</i>	The developer will impose a Section 88B Restriction as to User on the title of relevant allotments specifying Level 2 standard of construction in accordance with Bushfire Protection Assessment prepared Conacher Travers Pty Ltd.	Prior to the release of the Subdivision Certificate for each stage.
	Imposition of 6 metre building line for all allotments fronting the western perimeter road to provide asset protection zones for future dwellings	Prior the release of each relevant stage.
Water Quality Management and Soil Control	The developer will design, install and maintain water quality control measures in accordance with the Construction Certificate Plans approved by Shoalhaven City Council in accordance with reports prepared by J Wyndham Prince, Bio Engineered Solutions, Australian Wetlands	Prior to the release of the Subdivision Certificate for each stage.

Item	Commitment	Timing
	The developer will install street and inter-allotment drainage in accordance with plans approved by Shoalhaven City Council and DCP 100.	Prior to the release of the Subdivision Certificate for each stage.
	The developer will prepare a soil and water management plan to control run off during construction in accordance with the principles of the Landcom publication Managing Urban Stormwater (MUS): Soils and Construction Volume 1, 4 th Edition and Construction Certificate Plans approved by Shoalhaven City Council and DCP 100.	Prior to release of the Construction Certificate for each stage.
Infrastructure <i>Roads</i>	The developer will construct all roads and intersections with Leo Drive, Gemini Way and Seaspray Street into the subdivision in accordance with DCP 100, SPP1 and approved Construction Certificates.	Prior to the release of the Subdivision Certificate for each relevant stage.
	The developer will construct a roundabout at the intersection of the extension of Leo Drive and the extension of Gemini Way, at Gemini Way and Seawinds Parade and LATM measures in Sagittarius Way and Aries Place in accordance with the Traffic Report by Colston Budd Hunt & Kafes Pty Ltd and the requirements of Shoalhaven City Council	Prior to the release of stage 1 and stage 2 as required
	The developer will provide a minor street drainage system to accommodate the 5 year A.R.I. storm event in accordance with plans approved by Shoalhaven City Council with the Construction Certificate.	Prior to the release of the Subdivision Certificate for each relevant stage.
	The developer will construct footpaths and cycleways as shown on the plans prepared by Rygate & West (Ulladulla) and approved Construction Certificates.	Prior to the release of the Subdivision Certificate for each relevant stage.
	The developer will provide street signs in accordance with the requirements of Shoalhaven City Council.	Prior to the release of the Subdivision Certificate for each stage.

Item	Commitment	Timing
<i>Electricity & Telecommunications</i>	The developer will provide underground power to each residential lot in the subdivision accordance with the requirements of Integral Energy	Prior to the release of the Subdivision Certificate for each stage.
	The developer will provide underground telecommunications infrastructure to each lot in the subdivision in accordance with requirements of Telstra.	Prior to the release of the Subdivision Certificate for each stage.
<i>Water & Sewer</i>	The developer will provide reticulated water and sewage services to each lot in the subdivision in accordance with the requirements of Shoalhaven Water	Prior to the release of the Subdivision Certificate for each stage.
	The developer will provide access to the potable water supply for the active public reserve	Prior to the release of the Subdivision Certificate for each stage/s containing public reserve
Landscaping Plans	The developer will use native species, indigenous to the locality and undertake street tree planting with minimum 45 litres super advanced specimens and undertaken landscaping embellishment within the active public reserve accordance with the plans prepared by HLS Pty Ltd	Prior to the release of each stage of the subdivision
Staging	The developer will construct the subdivision in accordance with the Proposed Staging Plan prepared by Rygate & West Ulladulla or as otherwise approved in Construction Certificate plans approved by Shoalhaven City Council.	For the duration of the subdivision.
Developer Contributions	The developer will pay Section 94 developer contributions in accordance with Shoalhaven City Council's Section 94 Contributions Plan on a "per ET" basis for each stage of the residential subdivision.	Prior to the release of the Subdivision Certificate for each stage.
	The developer will pay Section 64 water and sewer developer contributions in accordance with the development servicing plan applicable at the time of payment.	Prior to the release of the Subdivision Certificate for each stage.

10. CONCLUSION

This Environmental Assessment has been prepared to accompany a Major Project Application under Part 3A of the Environmental Planning & Assessment Act, in order to address the Director – General's Environmental Assessment Requirements for a 168 allotment residential subdivision.

Shoalhaven City Council rezoned the subject land for residential development in 2003 expanding the Narrawallee urban area to provide for continued growth in the region. This proposal is a continuance of a State Environmental Planning Policy No 71 Master Plan proposal, where a Master Plan was adopted for 163 residential allotments after lengthy negotiation and amendment.

The proposal provides for the logical expansion and servicing of the land with areas of vegetation to be retained to enhance the development and provide for passive recreation for all residents within the locality.

This Environmental Assessment has addressed in detail both the statutory and non statutory provisions that apply to a development of this nature, particularly the Shoalhaven Local Environmental Plan, 1985, Rural Fires Act, Shoalhaven Development Control Plan 100 – Subdivision Code, Coastal Design Guidelines for NSW and Shoalhaven Planning Policy No 1.

The land adjoins a public reserve area which was provided by the proponent through the rezoning process, and that land is known to contain an endangered ecological community, ensuring preservation of biodiversity.

It has been demonstrated through specifically addressing each of the Director – General's requirements that the proposal does not adversely impact upon the surrounding environment. This has been supported by rigorous and diligent investigations by a number of suitably qualified practitioners with expertise in a range of fields to ensure that there is no irrevocable damage to any significant environmental attributes.

It is considered that this proposal is the best economic use for the land while maintaining a low density residential character compatible with the surrounding neighbourhood environment.

11. REFERENCES (OTHER THAN APPENDED CONSULTANT REPORTS)

Coastal Council NSW / Urban Design Advisory Service, 2003: Coastal Design Guidelines for New South Wales

CSIRO Marine Research, 2005: Information Sheet – The Facts – Global Sea – Level Rise. <http://www.marine.csiro.au/LeafletsFolder/45sealevel/45.html>

Department of Energy, Utilities and Sustainability (NSW) 2004: Solar Access for Lots - Guidelines for Residential Subdivision in NSW. Sustainable Energy Development Authority NSW.

Department of Heritage & Environment (Aus), 1990: NSW Coastline Management Manual Appendix C9 – The Hazards of Climate Change. <http://www.deh.gov.au/coasts/publications/nswmanual/appendixc9.html>

Department of Planning: Illawarra Regional Landscape and Environmental Study 1981

Department of Urban Affairs & Planning, Environment Protection Authority 1998: Managing Land Contamination – Planning Guidelines SEPP 55 – Remediation of Land

International Panel on Climate Change

NSW Government, 1997: NSW Coastal Policy – A Sustainable Future for the New South Wales Coast

Shoalhaven City Council, 1996: Milton – Ulladulla Structure Plan Volume 1 – Strategy & Volume 2 – Background Study

Shoalhaven City Council, 2002: Narrawallee Inlet Natural Resources Management Strategy

Shoalhaven City Council, 2004: Shoalhaven Planning Policy No. 1 – Development Guidelines for Certain Residential 2(c) zoned land – Milton – Ulladulla

Shoalhaven City Council 2007: Shoalhaven Local Environmental Plan, 1985 as Amended (with amendments as at 1 January 2007)

Snowy Mountains Engineering Corporation, 2004: Shoalhaven City Council – Coastline Risk Management Report

Walsh, K J E; Betts, H; Church, J; Pittock, A B; McInnes, K L; Jackett, D R & McDougall, T J, 2004: Using Sea Level Rise Projections for Urban Planning in Australia. Journal of Coastal Research Vol 20, Issue 2, pp 586-598, Florida USA

Walsh, K; McInnes, K & Abbs, D, 2002: Seal Level Rise Projections and Planning in Australia. Coast to Coast 2002 (Australia's National Coastal Conference) Tweed Heads November 2002

12. COMPLIANCE WITH Shoalhaven City Council – DCP 100 – Subdivision Code																		
Performance Criteria	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18
RE1 Site Analysis	S	S																
RE2 Neighbourhood Design	S	S	S	S	S	S	S	N/A	S	S	N/A	S	S	S	S			
RE3 Major Networks	S	S	S	S	S	S	S	S	S									
RE4 Local Networks	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
RE5 Ped & Cyclist Facilities	S	S	S	S	S	S	S	S	S	S	S							
RE6 Public Transport	S	S	S	S	S	S	S	S	S									
RE7 Public Open Space	S	S	S															
RE8 Street Design	S	S	S	S	S	S	S	S	S	S	S	S	S					
RE9 Street Construction	S	S	S	S														
RE10 Utility Services	S	S	S	S	S	S												
RE11 Stormwater Drainage	S	S	S	S	S	S	S	S	S	S	S	S	S	S				
RE12 Stormwater Quality Mgt	S	S	S	S	S													
RE13 Streetscape	S	S																
RE14 Allotment Layout	S	S	S	S	S	S	S											
RE15 Bushfire Mitigation	S	S	S	S														
RE16 Geotechnical	S	S																
RE17 Subdivision of Buildings	N/A	N/A																