ENVIRONMENTAL ASSESSMENT

PROPOSED SUBDIVISION
LOT 2 DP 250984 GRANDFATHER'S GULLY ROAD
LILLI PILLI

PREPARED BY PLANNING INITIATIVES
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SECTION FIVE – APPENDICES

EXECUTIVE SUMMARY

It is proposed to undertake a 13 lot rural residential subdivision on Lot 2 DP 250984 Grandfather's Gully Road Lilli Pilli. The land has an area of approximately 10.2 hectares and is located approximately nine kilometres to the south east of the Batemans Bay town centre. The proposed subdivision pattern provides for allotment sizes from 5,000m² to 1.58 hectares and it is envisaged these would be lifestyle sites rather than be utilised for hobby farms.

The proposed subdivision is categorised as a state significant project under Schedule 2 of SEPP 2005. The Director- General of the Department of Planning issued Environmental Assessment Requirements for the proposal in September 2006. Amended Environmental Assessment Requirements were issued in October 2006.

Specialised studies have been undertaken to inform the subdivision design and address environmental issues:

- aboriginal archaeological assessment – NSW Archaeology Pty Limited (July 2005)
- bushfire assessment – Bushfire Protection Planning and Assessment Services (February 2006)
- supplementary bushfire assessment – Bushfire Protection Planning and Assessment Services (July 2007)
- flora and fauna assessment – PMA Consulting (August 2005)
- biodiversity assessment addendum – NGH Environmental (May 2007)
- surveying and site analysis – Conway Burrows & Hancock (February 2006)
- water cycle management – Storm Consulting (February 2006 and amended 2007).

The following table summarises the issues raised in the Director-General's Environmental Assessment Requirements and where they have been addressed in this document.

Key issue	**Requirement**	**Section(s)**	**Page**
Subdivision Layout	▪ General ▪ LEP 87 ▪ DCP 173 ▪ DCP 156 ▪ Interim Policy ▪ Location of building envelopes ▪ Effluent disposal areas	2.2; 2.10; 2.11 3.7 3.8 3.9 3.10 2.6 2.7	10,19,20 28 28 29 31 12 12
Amenity and Scale	▪ General ▪ Eurobodalla Settlement Strategy ▪ Coastal Design Guidelines ▪ SEPP 71 ▪ South Coast Regional Strategy ▪ Independent Review Panel Malua Bay and Rosedale	1.3;1.5; 2.1;2.4 3.6 3.1 3.3 3.5 Not relevant	3,3,10 27 23 25 27
Water Cycle Management	Address potential impacts of surface and groundwater	2.8; 2.11	14,20

On-site Sewerage Disposal	Provide detailed assessment of effluent disposal methods	2.7	12
Other Infrastructure	▪ Provide electricity ▪ Availability of telecommunications services	1.6; 2.5 1.6; 2.5	3,12 3,12
Flora/Fauna Native Vegetation	▪ Address threatened species impact ▪ Impacts of clearing	1.8; 2.9; 2.11 1.8; 2.9; 2.11	4,17,20 4,17,20
Bushfire	▪ APZ's ▪ Rural Fires Act	2.10 2.10	19 19
Traffic, Road Layouts & Access	Design in accordance with Council's standards	2.4	11
Aboriginal Heritage	Consider Aboriginal Cultural Heritage impacts	1.9	9
Contaminated Land	Assess land contamination issues	2.12	22
Noise	No adverse impacts from noise	2.13	22

It should be noted that the relevant studies and plans are referred to in the appropriate sections of the report that are shown above in the table.

SECTION ONE – SITE ANALYSIS

1.1 Studies

The following studies/analyses have been conducted:

- aboriginal archaeological assessment – NSW Archaeology Pty Limited (July 2005) (see appendix 5)
- bushfire assessment – Bushfire Protection Planning and Assessment Services (February 2006) (see appendix 7)
- supplementary bushfire assessment – Bushfire Protection Planning and Assessment Services (July 2007) (see appendix 7)
- flora and fauna assessment – PMA Consulting (August 2005) (see appendix 3)
- biodiversity assessment addendum – NGH Environmental (May 2007) (see appendix 4)
- surveying and site analysis – Conway Burrows & Hancock (February 2006) (see appendix 1)
- water cycle management – Storm Consulting (February 2006 and amended 2007) (see appendix 6).

The findings and recommendations of the above studies and field analysis work have influenced the design and management approaches formulated for the proposed rural residential subdivision of the land.

1.2 The site

Lot 2 DP 250984 Grandfather's Gully Road Lilli Pilli land has an area of approximately 10.2 hectares. The site contains access from Grandfather's Gully Road which runs adjacent to the western boundary. The north-eastern side boundary is in close proximity to the arterial road George Bass Drive (see Sheet 1 "Locality & Rural Zoning Plan" and Sheet 2 "Residential Zoning Plan" in appendix 1).

1.3 Site context

The site is located on the western perimeter of Lilli Pilli which is a suburb of the greater Batemans Bay urban area on the South Coast of New South Wales (NSW). Batemans Bay town centre is approximately nine kilometres north-west of the site. Circuit Beach is about 400 metres to the east of Lot 2. The Malua Bay neighbourhood shopping centre is 3.5 kilometres by road to the south. The Surf Beach neighbourhood shopping centre is about 1.6 kilometres to the north. The Eurobodalla Shire Council Surf Beach landfill, sewerage treatment works and proposed industrial/bulky goods retail area are to the west of the land (see Sheet 1 "Locality & Rural Zoning Plan" in appendix 1).

1.4 Current use of the land

A vacant dwelling (uninhabitable) is located on the higher part of the land. Most of the land is cleared and under-scrubbed with patches of remnant forest vegetation on the western portion (see Sheet 3 "Existing Site Plan", Sheet 4 "Existing Site Survey" and Sheet 8 "Site Analysis: Existing Trees" in appendix 1). An examination of "The Reader's Digest Guide to the Coast of New South Wales" published in 1986 (see appendix 9) shows the site to have been substantially cleared back then. Deer farming and grazing of other livestock has occurred in the past. Four dams have been constructed on the property the largest of these being adjacent to the western boundary.

1.5 Views to and from the site

Field analysis leads to the conclusion that the land is not visually dominant when viewed from important public places such as the coastline/beachfront of the Lilli Pilli location, especially Lilli Pilli and Circuit beaches. A combination of topography and existing vegetation hides the site from public places. The subject land is set back from the arterial road, George Bass Drive. George Bass Drive is to the north-east of Lot 2. There is a strip of Council owned land adjacent to George Bass Drive that is vegetated and screens the site. Clearing for power lines allows a glimpse of part of the land from George Bass Drive.

The western boundary of the land fronts Grandfather's Gully Road. Existing vegetation and topography substantially screens the site from that road. A ridgeline running basically north south traverses the site. This is not a prominent ridge in the locality and therefore has low visibility. Distant views of the ocean are available from the ridge. The more immediate coastal foreshore is not visible.

1.6 Services

The site is on the fringe of an existing urban area therefore electricity and telephone is available. Both Country Energy and Telstra have confirmed the availability in writing (see appendix 2).

Reticulated water and sewerage is nearby however as the land is zoned for rural residential purposes Eurobodalla Shire Council's policy is that the site would not be serviced for sewer and water. Rural residential development has to be self sufficient in terms of water supply and waste disposal.

1.7 Topography, soils and geology

The area is located on the eastern edge of the coastal hinterland and comprises moderate to steep gradient slopes that fall away from minor crests and ridgelines. The north-south oriented spur crest about 100 metres wide at its broadest point traverses the proposed area just to the east of the middle of the site sloping gently to the north from an elevation of 70mAHD before falling away sharply just short of the northern boundary.

Within the land the topography drops from the spur crest to the west and east at relatively steep gradients. A drainage line extends from the south-west corner of the property to the north-east joining an intermittent watercourse on the western side of Grandfather's Gully Road (see Sheet 7 "Site Analysis: Slope" in appendix 1). The land is underlain by the ancient Wagonga beds that are thought to be Ordovician in age. The beds consist of chert conglomerate, agglomerate, slate, sandstone and phylite. Soils are deep yellow podzolics with lithosols on broad crests. Shallow podzolics occur on steep slopes. Soil depth ranges from 50-100cm. Drainage depressions consist of yellow podzols and soloths with deeper soils greater than 150cm.

1.8 Flora and fauna

A flora and fauna assessment of the proposed subdivision was completed in August 2005 by PMA Consulting (see appendix 3). This study was updated in May 2007 by NGH Environmental (see appendix 4). The broad aims of the assessments were to identify the types and distributions of ecological communities present on the property and determine likely impacts of the proposed development on flora and fauna.

Species of conservation significance within the region were the focus of the assessments. Legislation and environmental planning instruments considered and adhered to in the undertaking of the assessment were:

- Section 5A of the Environmental Planning and Assessment Act (EPA Act)
- The Threatened Species Conservation Act
- The Environment Protection and Biodiversity Conservation Act
- Eurobodalla Shire Council's Policy for the Conservation of the Yellow-bellied Glider in the Broulee area.

A search of the Atlas of NSW Wildlife was undertaken for threatened plant and fauna species recorded within a ten kilometre radius of the subject land. PMA determined that the Chefs Cap Correa was the only threatened plant specie occurring within 10 kilometres of the site. NGH Environmental researched threatened flora recorded in Eurobodalla Local Government Area, extracted from the Wildlife Atlas database held by Parks and Wildlife Division, Department of Environment and Climate Change. NGH found that the database included a number of species known only from wetland habitats, from saltmarsh and from high elevations along the top of the coastal escarpments. When these species are excluded, five remain which might possibly occur on the site as they are known to occur in the Eurobodalla Shire. These are Correa baeuerlenii, Persicaria elatior, Haloragis exalata ssp exalata, Thesium australe and Galium australe

PMA determined that a number of threatened fauna species were recorded within the ten kilometre radius. These were the: Green and Golden Bell Frog; Barking Owl; Black-browed Albatross; Fleshy-footed Shearwater; Glossy-black Cockatoo; Hooded Plover; Little Shearwater; Little Tern; Masked Owl; Pied Oystercatcher; Powerful Owl; Providence Petrel; Regent Honeyeater; Sanderling; Sooty Owl; Sooty Oystercatcher; Southern Giant Petrel; Square-tailed Kite; Superb Parrot; Superb Fruit-Dove; Swift Parrot; Turquoise Parrot; Wandering Albatross; Brush-tailed Phascogale; Southern Brown Bandicoot; Squirrel Glider; Yellow-bellied Glider; Grey-headed Flying-fox; Eastern Bent-wing Bat; Eastern False Pipistrelle; Eastern Freetail-bat; Greater Broad-nosed Bat; and, Large-footed Myotis.

NGH Environmental added the following species to that list: Australasian Bittern; Australasian Painted Snipe; Black Bittern; Black-faced Monarch; Black-tailed Godwit; Bush-stone Curlew; Brown Treecreeper; Diamond Firetail; Eastern Ground Parrot; Freckled Duck; Gang Gang Cockatoo; Great Knot; Hooded Robin; Lesser Sand Plover; Olive Whistler; Orange-bellied Parrot; Osprey; Pink Robin; Rufous Fantail; Satin Flycatcher; Striated Field Wren; White-bellied Sea Eagle; Eastern Pygmy-possum; Golden-tipped Bat; Koala; Long-nosed Potoroo; Southern Brown Bandicoot; Spotted-tail Quoll; White-footed Dunnart; Giant Burrowing Frog; and, Stuttering Frog.

An eight point test in accordance with Section 5A of the EPA Act was undertaken by PMA because the assessment was completed in August 2005. The results from the test indicated that the proposed subdivision would not have a significant effect on threatened species, populations or communities or their habitats.

NGH Environmental completed a seven point test and reached the following conclusion.

"This assessment has described the biodiversity values of the site and recommended measures to reduce the level of impact of the proposed activity on these values. The subject site harbours a number of important habitat components and adds to the known biodiversity values of the Grandfathers Gully area as a movement corridor. This report has identified that the subject site may provide suitable habitat for a number of threatened species that occur, or are likely to occur. The subject site consists predominately of cleared land which has been used for deer farming, however, the vegetation within the riparian gullies, the north-east corner and the Glossy Black Cockatoo feed trees are likely provide potentially important habitat areas for the biodiversity of the locality.

The assessment of significance (TSC Act and EPBC Act) has determined that the proposed activity is unlikely to have a significant impact on threatened species in concurrence with the recommendations outlined in this report."

Flora

The following is an exerpt from the NGH report.

"3.2.1 Vegetation communities

Much of the site has been cleared with sparse to medium-dense retained mature canopy and understorey trees, and some patches of retained forest around the edges of the property and in a drainage line on the western side of the central ridge. The site is on Ordovician metasediments and the retained vegetation on the subject site is typical of this part of the south coast on clay soils, being species derived from Coastal Lowlands Cycad Dry Shrub Forest (Forest Ecosystem 9 in Thomas *et al* 2000) on the ridge and upper slopes, tending towards Northern Foothills Moist Shrub Forest (Forest Ecosystem 21) in the gullies and lower parts of the site, such as the south-west

corner. In both these communities the dominant tree is spotted gum (*Corymbia maculata*) with blackbutt (*Eucalyptus pilularis*), white stringybark (*E. globoidea*) and grey ironbark (*E. fibrosa*). Small trees consist largely of black sheoak (*Allocasuarina littoralis*) and wattles, *Acacia mabellae, A. longifolia, A. mearnsii* and *A. implexa*.

The understorey is drier in the Cycad Dry Shrub Forest and includes burrawang (*Macrozamia communis*) and shrubs including *Acacia stricta, Acacia terminalis, Hibbertia aspera, Daviesia ulicifolia, Leucopogon lanceolatus* and *Bursaria spinosa*. Shrubs are sparse and young (due to repeated slashing) in the cleared areas, to dense in some of the retained forest patches. The groundcover varies from dense tall grasses (mostly native species) in the cleared areas, to quite sparse under trees. In the moister forest type, which occurs on the lower slopes in a few spots around the site edges and in the gully there are tall shrubs including *Acacia longissima, Acacia paradoxa, Acacia longifolia, Leptospermum polygalifolium* and *Ozothamnus diosmifolius*, and a groundcover dominated by grasses *Microlaena stipoides, Entolasia marginata* and graminoids *Lepidosperma urophorum* and *Lomandra* spp.

Most of the site was inspected except for the stands of very dense forest, which will be retained, and it is considered unlikely that any significant species were overlooked, although some species such as spring and summer flowering orchids would not have been detected because of the timing of the survey in autumn.

3.2.2 Disturbance

The site has been partially cleared and operated as a deer farm for a period, but has not been "pasture improved", so that the majority of the species present are native, with the exception of a few small patches where kikuyu or couch grass dominate near the existing house, and an extensive infestation of whisky grass (**Andropogon virginicus*), which was probably established by slashing of the site. The house garden was not surveyed and probably contains more exotic species, some of which, such as the English ivy (**Hedera helix*) recorded by a previous survey, may be environmental weeds. A few Australian native plants which are not naturally occurring in Eurobodalla Local Government Area have been planted below the house, such as willow hakea (*Hakea salicifolia*) and a grevillea species.

Apart from the weedy grasses mentioned there are few exotic plant species present. The only recorded weed listed as noxious in Eurobodalla Local Government Area is a single plant of Pampas grass (**Cortaderia selloana*), a garden escape which is located on the east-facing slope above a small dam. It should be removed and the seed heads bagged for safe disposal.

3.2.3 Vegetation Communities and species of regional conservation significance

No plant species which are listed as threatened under the *Threatened Species Conservation Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999* were found on the site, nor would any be expected from the type of habitat available. No plant communities listed as Endangered Ecological Communities occur on the site.

The only threatened plant species which has been recorded within a 10km radius of the site is the shrub *Correa baeuerlenii* and it does not appear to be present, although some of the denser areas of vegetation were not able to be searched thoroughly. This species is very rare in Eurobodalla Local Government Area and the probability that it is present is very low.

Two species which may be of local conservation significance were seen. *Daviesia ulicifolia* ssp *stenophylla* is uncommon on the South Coast, but has been formally recorded from the Mogo area

(Harden, 2002) and is not uncommon between Moruya and Batemans Bay (J. Miles, pers. obs.). Only a few small plants were recorded around the upper edges of the gully on the western slope. *Acacia paradoxa*, a prickly shrub which is widely distributed and not uncommon in NSW and Victoria, but on the NSW south coast appears to be restricted to the Batemans Bay area, where it occurs fairly commonly in moist forest. It is common around the edges of the site, and in some of the patches of retained forest.

The two vegetation types on the site are widespread on the South Coast between about Termeil and Bega and are adequately reserved in National Parks."

Fauna

The NGH report states the following:

"4.2.1 Habitat Types

The site provides a number of fauna habitat resources. Two general fauna habitat types were identified at the site. These are detailed below:

Cleared land with scattered trees – This habitat type dominates the subject site. The cleared land is a result of past land use, including deer farming, where much of the original vegetation has been cleared. Despite this heavy disturbance, the cleared land provides an additional component of habitat that compliments some species, predominately generalists or species considered 'open space' dwellers such as Australian Magpies and Eastern Grey Kangaroos. One of the scattered trees, provides a medium sized hollow suitable for hollow dependant fauna such as birds or microbats. Considering its isolation from other vegetation, this hollow is not considered potential habitat for Squirrel or Yellow-bellied glider, nor would its opening (~10cm) be suitable for threatened owls. Further, no 'white wash' or surface scratches were evident.

This habitat type was also devoid of shrubby vegetation that would provide any potential habitat for bandicoots. Although a small area of dense bracken in the south-eastern corner is extremely marginal habitat, its isolation and extent ensures that the only species likely to utilise the habitat resource are small birds such as scrub-wrens and fairy wrens which were present. The scattered trees across the subject site consisted of spotted gum, which are known to provide an important food resource for Swift Parrots when they migrate through the region during the winter months. Whilst this tree species is common across the Eurobodalla Shire and greater south coast region, any loss of this tree species contributes to the loss of this important habitat resource. Two small dams were located within the cleared area. The southern dam provided habitat to a number of frog species.

Vegetated areas and riparian gullies – Although much of the original vegetation has been cleared, the remaining areas of vegetation provide potential habitat for a variety of species including threatened fauna. Much of the riparian gullies were dominated by *Allocausarina littoralis*, which is the known feeding tree for Glossy Black Cockatoo. Many of the trees were showing excellent seeding, however, there was no evidence of feeding signs present. Although this habitat provides a feeding resource for this species, there were no signs of it being exploited at this time. A lineal strip of these feed tree species were also found on the western boundary.

Two additional hollow bearing trees were located within the riparian area. Despite no sap trees or feeding trees being identified across the site, these hollow bearing trees and associated vegetation have the potential to provide habitat for threatened fauna such as Squirrel Glider and Yellow bellied Glider. The vegetation within the riparian gullies provided a habitat corridor from the hollow

bearing trees within the subject site to the wider locality which is well vegetated. However, none of these threatened arboreal mammals were recorded suggesting that if the subject site is utilised by these species, that it is only part of a wider foraging regime or as a potential movement corridor between other areas of native vegetation in the wider locality. Additionally, these areas of habitat offers valuable food resources for threatened gliders in the form of flowering eucalypt species, in particular, spotted gum.

Fallen timber and leaf litter is considered relatively common throughout this habitat type. These resources are considered important habitat components for a variety of fauna including reptiles (Sass 2003), amphibians (Wassens et al. 2004) and small to medium sized mammals (Mac Nally et al. 2001).

Two dams were located in succession along this gully. Both dams provided continuous fringe vegetation which suggests that they may support numerous frog species. However, the presence of the Plague Minnow (*Gambusia holbrooki*) in at least one of these dams is likely to have impacted on the quality of this habitat for frogs. This fish species is known to eat frog spawn and tadpoles (Morgan & Buttemer 1996). Plague Minnow are also listed as a Key Threatening Process under Schedule 3 of the *Threatened Species Conservation Act 1995* (DEC 2006) and are considered to be one cause for decline of frog species, in particular the threatened Green and Golden Bell Frog at some locations throughout its range (Daly & Senior 2003). Despite the presence of black she-oak and a number of Acacia species within the riparian areas, the absence of conical shaped diggings suggests that this habitat does not provide the thick under storey preferred by bandicoot or potoroo species.

4.2.2 Survey results

The fauna survey of the subject site revealed 38 species. This consisted of 26 bird species, five species of frog, five species of mammal and one species of reptile and fish respectively. Due to the relatively limited fauna survey and the cryptic nature of many species this is unlikely to be a complete list of the species which could be expected to occur across the subject site. An assessment of the importance of the subject site for fauna therefore needs to rely heavily on the presence of habitat attributes and fauna records from the NSW Atlas of Wildlife database (TSC Act) and other relevant sources such as the Environmental Reporting Tool (EPBC Act) and other biodiversity reports in the locality.

When considering the location of the subject site in a landscape context, it becomes evident that the Lilli Pilli area is likely to provide regional connectivity between the coast and mountains in a coastal plain that is fragmented by development and subsequent habitat modification. The importance of habitat corridors to maintain biodiversity values is generally well documented across the scientific literature, and is an important component of maintaining genetic exchange to prevent local extinctions. In a local context, the significance of such fauna movement corridors is highlighted across a number of reports eg, Gellie 2001 & Gaia Research 2001. More specifically, Andrews (2006) in a report to Eurobodalla Shire Council recognises the potential of the Grandfathers Gully area as an important fauna corridor for regional biodiversity. However, with the past clearing and land use practices of the vast majority of the subject site, only the riparian gullies and the vegetation flanking the northern and western boundaries are likely to contribute to faunal movement.

The fauna survey revealed one species that is considered locally significant due to its rare occurrence. The Greater Glider is more often regarded as a mountain species, with only a few records existing on the coastal plains on the south coast of NSW (DEC 2006a). Recently, **ngh** environmental has recorded this species at nearby Surf Beach (Sass & Miles 2007) and Broulee

(Sass & Marshall 2007). However, this species is not listed under the TSC Act 1995 or the EPBC Act 1999.

The subject site supports a moderate avian diversity with almost 30 species recorded. Species ranged from small tree canopy insectivores (whistlers, treecreepers), nest predators (currawongs and butcherbirds), parrots (Rainbow Lorikeets and Australian King Parrots) and ground dwelling species such as thornbills, scrub wrens and fairy wrens. Such a diversity of birds suggests that the subject site could be considered of moderate quality and provides a diverse range of resources for avifauna.

The mammal diversity of the subject site was also considered moderate. As previously discussed, the presence of the Greater Glider on the coastal floodplain is considered locally significant. Regular sightings of Swamp Wallabies and Red-necked Wallabies confirm that the site is regularly utilised by these species. A large group (at least 6 individuals) of Sugar Gliders was observed within the vegetation on the northern boundary.

Amphibian habitat within the subject site is in moderate condition, with four small dams revealing five species. However, species abundance across the subject site was marginally poor, with only a few individuals of all species heard calling. It could be suggested that the subject site supports only minimal frog populations as a result of the presence of the introduced fish *Gambusia holbrooki.* These were observed within at least one dam. The presence of this fish has been recognised as a potential threat to amphibian populations and is listed as a *Key Threatening Process* under schedule 3 of the *Threatened Species Conservation Act 1995.*

Reptile searches revealed the presence of just one species. However, the timing of the survey (Autumn) is likely to be the limiting factor in this result. Surveys for reptiles across the coastal plain in spring or summer are likely to reveal at least 10 common species (Sass, pers.obs). Although some areas supported habitat resources suited to reptile fauna, the past clearing of vegetation and previous grazing intensity (Sass 2003) and natural distribution patterns (Sass 2006) of reptile communities is likely to impact on the reptile diversity of the subject site.

1.9 Aboriginal cultural heritage

NSW Archaeology undertook an assessment of the site in July 2005 (see appendix 5). The fieldwork undertaken encompassed the entire proposal area and therefore was comprehensive. The land was determined to be generally disturbed as a result of prior land clearing, logging, slashing, grading, construction of a house, pool, shed and associated structures and the creation of sealed and unsealed vehicle tracks. The assessment concluded that the land was of low archaeological sensitivity in accordance with the predictive model of site location that was relevant and taking into account the prior levels of disturbance and the results of the survey.

The proposed development activity would have very low potential to cause impacts to any Aboriginal archaeological sites of high significance. Overall it was concluded that there were no archaeological constraints for the proposal and no Aboriginal objects had been recorded on the land.

The Mogo Local Aboriginal Land Council has advised by letter that there were no Aboriginal cultural relics sited on the land (see appendix 5).

SECTION TWO – THE PROPOSED SUBDIVISION

2.1 Desired future locality character

Lifestyle living is the anticipated market that would be targeted. It is not perceived that purchasers would want to establish hobby farms rather the land offers the prospect of living on larger lots in close proximity to beaches and existing urban development.

Existing tree cover would remain outside of the inner asset protection zones and at least partly within the outer protection zones. Trees within the inner asset protection zones would be retained where they do not provide a continuous canopy leading to each dwelling. Existing vegetation will be supplemented with additional landscaping and by allowing some existing cleared areas to naturally regenerate with bushland (see Sheet 8 "Existing Trees", Sheet 10 "Vegetation Clearing, Sheet 11 "Retained Vegetation" and the "Landscape Plan" in appendix 1).

Building design should be sympathetic to the immediate environment and acknowledge the coastal proximity. In this regard it is not proposed to incorporate special design guidelines into Section 88B instruments or adopt a specific development control plan for the site. Council would assess applications and consider factors such as:

- Building design elements such as colour and materials being sympathetic to the natural landscape features and remnant native vegetation.
- Roof design pitch and form being in proportion with the overall dwelling and associated outbuildings design.
- Verandahs and decks either enclosed or unenclosed being integrated with the main building architecture especially in terms of roof pitch, style and use of materials.
- Outbuildings such as garages and sheds should be compatible with the main dwelling in terms of roof form, materials and colours and should not dominate the landscape.

Eurobodalla's adopted height restrictions will limit building heights to a maximum of two storeys. Building envelopes have been located to ensure compliance with bushfire hazard minimisation requirements and allow significant retention of existing vegetation.

2.2 The subdivision layout design response to the natural features of the site

It is proposed to create a 13 lot rural residential subdivision. Lot sizes range from 5,000m² to 1.58 hectares (see Sheets 5 & 6 "Lot Layout – Proposed Torrens Title Subdivision" in appendix 1). The proposed subdivision pattern endeavours to be a sympathetic response to:

- the topography of the land
- environmental considerations
- the desire to provide a range of rural residential lot sizes
- a desire to integrate with the existing urban development to the east and south-east and rural residential development to the west and south.

The majority of dwelling locations are on the western side of the ridge that dissects the land north to south and so will not be visible from the coastline (approximately 400m to the east and the major arterial road, George Bass Drive). Existing vegetation would screen the majority of dwellings from Grandfather's Gully Road. Three dwellings are located along the already cleared north-south ridgeline. This ridgeline is not a dominant feature of the landscape in the locality.

There is sufficient land to the east of the dwelling sites and existing scattered trees to soften the visual impacts of these dwellings. The existing dwelling on the site occupies one of these locations.

There is a strip of land owned by Council located between the subject and George Bass Drive. That land is currently vegetated and therefore screens the site due to the angle of vision from George Bass Drive. The site is not visible from the beaches to the east due to existing topography and vegetation. The proposed dwelling sites have been located so as not to interfere with drainage lines.

2.4 Amenity and scale

Typical residential subdivision is located to the east of the site (see Sheet 1 "Locality and Rural Zoning" and Sheet 2 "Residential Zoning" in appendix 1). Rural residential development is located to the west and south of the land (see Sheet 1 "Locality and Rural Zoning" in appendix 1). Also to the west is a new industrial/bulky goods retail zoned area that will commence to be developed in the near future. The existing Surf Beach landfill is also located to the west of the site but is not visible from the land. The proposed development forms a transition between the existing urban area to the east and the larger rural residential lots to the south and south-west.

Some of the larger rural residential lots to the south may be further subdivided in the future if constraints do not form an obstacle to development. The scale of the proposed subdivision is similar to that of rural residential development to the north adjoining the Surf Beach urban area.

The location of the proposed subdivision and its proposed scale leads to the conclusion that it would meet the aims of, and responsibly address the matters for consideration included in, State Environmental Planning Policy 71 (SEPP 71) as specified in clauses 2 and 8. The proposal would not detrimentally affect coastal processes or affect public access to coastal foreshores.

Proposed land clearing is minimised and a significant amount of existing vegetation would be retained. Some of the existing cleared area would be set aside to allow vegetation to regenerate. Visual amenity of the locality would be retained. There does not appear to be any unacceptable impacts on endangered flora and fauna or aboriginal archaeological heritage. Self sufficiency in terms of water supply and on-site waste disposal is achievable due to the lot sizes proposed. The aims of the NSW Coastal Policy can also be met.

2.4 Access

Access to the proposed subdivision would be via the existing Grandfather's Gully Road. A private right of access road would link to Grandfather's Gully Road servicing the proposed subdivision. Nine of the proposed lots would gain access from the private road that has been designed in accordance with Council's adopted standards. Four lots would gain direct access from Grandfather's Gully Road (see Sheets 5 & 6 "Lot Layout – Proposed Torrens Title Subdivision" and "Line of Sight Plans" in appendix 1).

Adoption of this approach ensures the access road width can be minimised to reduce impacts associated with vegetation clearing. Ongoing maintenance of the private access road would be the responsibility of the residents rather than Eurobodalla Shire Council. Conway, Burrows and Hancock Surveyors have provided "line of sight" diagrams to demonstrate that the access road intersection works and is therefore acceptable in terms of safety (see appendix 1).

2.5 Infrastructure provision

Infrastructure provision proposed for the development would include:

- on-site water supply
- on-site wastewater management
- electricity
- telecommunications.

The site is immediately adjacent to the Lilli Pilli urban area and therefore it would theoretically be possible to utilise reticulated systems for water and wastewater. It is not proposed to do that as Eurobodalla Shire Council prefers that rural residential development not be connected to reticulated systems.

Storm Consulting recommend a tank size of approximately 40-50kL for each lot however, this depends on water usage of owners and roof sizes. Separate fire storage of 10kL is required which can be included in main storage, or contained in separate tanks (see appendix 6).

Waste contractors have indicated that general waste collection could be provided to the subdivision even though the proposed internal access on the site is to be by way of a right of access private road. Both Telstra and Country Energy have confirmed that the site can be serviced for phone/ communications and electricity (see appendix 2).

2.6 Building envelopes and built form controls

Building envelopes are nominated for each block to ensure compliance with bushfire guidelines and Council's Development Control Plan No 173. The envelopes are all located on slopes of less than 25% (see Sheet 7 "Site Analysis: Slope" in appendix 1).

2.7 On-site Sewerage Disposal

The site has been examined by Storm Consulting and it is recommended that each lot have an on-site system being either a Biolytix or AWTS for wastewater treatment (see appendix 6). The water from either treatment system would be fed into a suitably sized subsurface irrigation or ETA/ETS trench system allowing water to be infiltrated into the ground, absorbed by vegetation and evaporated from the soil. Each lot has been designated for a recommended on-site system by Storm Consulting.

In accordance with Council guidelines, effluent production estimates have been based on a 5 bedroom house per lot with a maximum of 7 persons using 115 L/d/p. This is based on a household with on-site roof water supply with standard water reduction fixtures (AS1547:2000). It is possible that usage estimates will be lower due to reuse (i.e. irrigation, toilet flushing) and high level water conservation fixtures such as 6/3 toilets and front load washing machines.

The selection of treatment systems, method of disposal and siting of disposal areas recommended by Storm Consulting were based on Council's On-site Sewage Management Code of Practice, AS1547:2000 and the "Environment and Health Protection Guidelines for on-site sewage management for single households". The recommended treatment system for each lot is as follows:

Lot 1 ETA/ETS. The recommended 40m buffer to drainage lines covers much of the proposed lot. This buffer distance is a recommendation only. An ETA/ETS system of the size recommended in the Storm Consulting Report is appropriate. Although this will encroach into the buffer area, this is only slight and the slope drainage path is greater than 40m.

Lot 2 Sub-surface irrigation.

Lot 3 Sub-surface irrigation.

Lot 4 ETA/ETS. The recommended 40m buffer to drainage lines and farm dams covers much of the proposed lot. An ETA/ETS disposal system is proposed on the lower slopes below the dam wall. The slope drainage path is approximately 40m.

Lot 5 Sub-surface irrigation or ETA/ETS.

Lot 6 Sub-surface irrigation.

Lot 7 Sub-surface irrigation. A small dam is located on Lot 7, a 40m recommended buffer has been shown around thus dam, however, due to the size of the dam and the small size of the property it is debatable whether it would be considered a farm dam, as defined in the Silver Book. Subsurface irrigation is recommended in the north eastern corner of the property to avoid draining to the existing dam.

Lot 8 Sub-surface irrigation or ETA/ETS.

Lot 9 Sub-surface irrigation.

Lot 10 Sub-surface irrigation.

Lot 11 Sub-surface irrigation.

Lot 12 Sub-surface irrigation. This lot is relatively steep (>20%). The proposed location for subsurface irrigation is steep. Significant terracing will be necessary to establish even dispersal of treated effluent.

Lot 13 Sub-surface irrigation Major run-on potential. Ensure that diversion/cut off drains are constructed up gradient of on-site system.

Eurobodalla Shire Council engaged a consultant Emmett O'Loughlin to prepare soil "wetness" maps for the Eurobodalla region as a tool to determine the appropriate use of *septic absorption trenches* as a method for disposal of wastewater on proposed development sites. The main concern is that soils that become saturated under natural conditions are not appropriate for absorption trenches as the primary treated effluent cannot escape into the soil profile and instead, will rise to the surface which may lead to potential contamination of receiving waters.

Constraints mapping for the area demonstrates that the effluent disposal area from Lot 4 is located within the 1 in 5 year wetness zone. This should not be an issue as Council's soil wetness constraint mapping was undertaken with septic absorption trenches in mind. Generally, septic absorption trench disposal systems pose a higher risk to health and the environment than secondary treatment systems. Septic tanks do not remove nutrients and the water can be highly infectious, therefore must be disposed of below the surface. Additionally, absorption trenches rely

primarily on the permeability of a soil and the long term ability of the soil to accept and therefore treat the effluent through the soil profile, not on evapo-transpiration.

The recommended system for Lot 4 is an AWTS providing secondary level treatment and surface, or sub-surface irrigation, so that the effect of evapo-transpiration is maximised. The system has been sized such that effluent is retained to the disposal area in an average climate year. Therefore the 1 in 5 year wetness constraint is not a restriction on this lot.

Maintenance will depend on the treatment system selected. The home owner will need to nominate a supplier, with whom a maintenance contract will need to be entered into. In addition the treatment and disposal systems will be registered with Council on their on-site wastewater database and will undergo regular Council inspections to ensure systems are being operated correctly.

2.8 Water quality and use

In respect of water supply it is recommended that a tank size of approximately 40-50Kls be provided for each lot. Separate storage for fire fighting purposes of 10Kls is required which can be included in the main storage tank or contained in separate tanks.

Water Cycle Management for the proposed development has been addressed by Storm Consulting (see appendix6). Four broad areas have been examined:

- Address potential impacts on the water quality of surface and groundwater (during construction and occupation of the site);
- Demonstrate effective riparian zone and buffering to protect the habitat values of the drainage lines and the associated vegetation;
- Address the requirements of the *NSW Floodplain Management Manual* for the site; and
- Recommend a storm water plan for the subdivision layout.

Water Quality of Surface and Groundwater

Storm water runoff and on-site wastewater disposal present the biggest risk to the protection of surface water and ground water quality. Wastewater disposal has been addressed above. The management of storm water during construction and occupation is discussed below.

Storm water – Construction

An approved erosion and sediment control plan is to be provided prior to construction. This plan will be developed in accordance with "Managing Urban Storm water – Soils and Construction" (the Blue Book). Measures will include sediment fencing around construction works, diversion structures, stockpiling, re-vegetation and retention of as much existing vegetation and top soil as possible (see appendix 9).

Storm water – Occupation

Storm water management during occupation of the site focuses on erosion prevention, treatment of runoff and dispersion of overland flow to natural drainage lines. The two important sources of storm water runoff are from the lots and the private access road.

Lot Runoff
Lot areas are a minimum of 5000m2. This provides sufficient area to manage stormwater impacts from the lot. Roof runoff from lots will be directed to rainwater tanks as no potable water will be supplied to the site. Runoff from impervious surfaces should be directed in a dispersed manner to vegetated areas on each site.

Access Road Runoff
The proposed private access road to service the subdivision is relatively steep (up to 20% slope). Therefore applying a standard kerb and gutter would quickly direct runoff to the bottom of the hill, preventing the more dispersed movement of runoff that would otherwise naturally occur. To mimic natural runoff behaviour as much as possible and treat road runoff the following storm water management is proposed:

- the road will be crowned which will encourage runoff across rather than along the road surface;
- rock-lined channel will be constructed on both sides of the road to intercept and convey this runoff;
- these channels will "turn out" regularly into small planted rock pool structures before allowing runoff to disperse as overland flow;
- the rock-lined channels and rock pools will allow for the settling of course sediment and dispersion of flows. The channels will also prevent erosion of soils adjacent to the road.

Storm water - Modelling

The Model for Urban Storm water Improvement Conceptualisation (MUSIC) has been used to demonstrate the impact of the development in relation to storm water quality and quantity. This involves a comparison between the existing conditions and the proposed conditions on the site.

Existing Conditions
The site was recently used as a deer farm. As such, the majority of the site was cleared as grazing land for the deer. A homestead, associated farm buildings such as sheds and an access road, part paved and part unsealed exist on the site. The access road is relatively steep, and likely to be eroding during periods of rainfall, contributing to sediment runoff from the site.

Proposed Conditions
The site is to be split into 13 rural residential blocks. It is assumed that each block will contain a roof area of approximately 200m2 along with a driveway an associated paved areas. The existing access road will be decommissioned and replaced with a new, paved road. This road will have storm water treatment as described above. Individual lots will have rainwater tanks, and runoff from paved areas should be diverted over pervious areas to provide a buffer treatment before reaching receiving waters.

Water Quality Modelling Results
Water quality modeling was undertaken as a representation of the existing conditions and proposed conditions, with the suggested storm water management measures. The event mean concentrations (EMCs) for suspended solids and nutrients assumed for the unsealed access road were at the upper limit, at 800mg/L for suspended solids and 1.5 mg/L for and phosphorous 5 mg/L for nitrogen. The EMCs used for the sealed road in both the pre and post development situation were 270, 0.5 and 2.2 mg/L for suspended solids, phosphorous and nitrogen respectively. This contributed to this significant improvement found in the proposed condition as shown in the table below.

Annual Load	Existing conditions	Proposed conditions
Suspended solids load (kg/y)	779	426
Phosphorous load (kg/y)	1.7	1.19
Nitrogen load (kg/y)	13.3	13

By removing the existing unsealed road and replacing with a sealed road with associated treatment systems, the use of rainwater tanks on house lots, and the diversion of impervious areas to pervious areas, pollutant loads are reduced to less than their current levels.

Stormwater Quantity Modelling Results
The site is split into two catchments. The eastern corner drains down to George Bass Drive, to a watercourse that drains to Circuit Beach. The remainder of the site drains to Grandfathers Gully Creek, which passes under George Bass Drive, before discharging to the sea.

The eastern corner draining to Circuit Beach is 2.62 ha. The impervious % of this catchment will increase from approximately 1.3% (340m2) to 3.9% (1040m2) impervious, a threefold increase, however this is still a very small proportion of the total catchment draining to Circuit Beach of 21 ha and unlikely to have any significant impact on peak flows.

The portion of the site draining to the Grandfathers Gully Creek is approximately 7.6 ha. The impervious proportion of this sub catchment is proposed to increase from 0.086 ha to 0.454 ha. The site is at the lower end of the Grandfathers Gully Creek catchment (104 ha), this, combined with the slight increase in impervious area produces a negligible impact on the total flows in the Grandfathers Gully Creek. The site in question will drain to the outlet, prior to the peak flow making its way down the creek, and as such have no real impact on flows in Grandfathers Gully Creek. A simple hydrologic model was prepared using the software XP Rafts to confirm this. Peak flows at the outlet of Grandathers Gully actually decrease slightly as demonstrated in the table below.

	100 year ARI Peak flow at end of Grandfathers Gully Creek	5 year ARI Peak flow at end of Grandfathers Gully Creek
Existing Situation	42.959	11.056
Proposed Situation	42.886	11.052

Effective Riparian Zone and Buffering

The Director General's Environmental Assessment Requirements recommends that a riparian buffer zone be established at least 20 metres on either side of the drainage line that runs north-west in the south-western corner of the site. It is further recommended that riparian management should be undertaken in accordance with the riparian management objectives outlined in Landcom's *Soils and Construction, Managing Urban Stormwater 4th Edition (2004)* otherwise known as the Blue Book. The drainage line has a relatively small catchment of approximately seven hectares.

In view of the relatively small catchment area, the absence of endangered vegetation and the fact that it is an intermittent drainage line it is difficult to comprehend that a 20 metre buffer zone either side is justified in this instance. However the design of the subdivision ensures that buildings and disposal areas are not located within the buffer zone other than in the instance of proposed Lot 4. Parts of outer asset protection zones would be located within the buffer area in the case of lots 4 and 6 (see Sheet 11 "Plan Showing Retained Vegetation and Revegetated Areas" and Sheet 12 "Site Constraints").

The peak runoff for the 1 in 1 year event is only 400 L/s. From the dam upstream, no stormwater management, wastewater management or built forms are proposed within 20m of the creek centre line. The building envelope for Lot 4 is located within 20m of the edge of the dam, as is the effluent disposal area for Lot 4. However, there are significant areas on the opposite side of the dam as well as upstream, to offset this encroachment and maintain the habitat and water quality objectives for the drainage line.

Floodplain Management

The 100yr ARI peak flow in the unnamed creek is 1.31m3/s based on the following input information:

Catchment Area = 6.87 Ha
Tc = 0.76 x 0.0687 0.38 = 0.33 h
I100 = 172 mm/h
Runoff Coefficient = 0.4
Q100 = CIA = 0.278 x 0.4 x 172 x 0.0687 = 1.31 m3/s

The building envelope on Lot 4 is the closest to the unnamed creek. The reduced level of the building envelope for Lot 4 is approximately 24m AHD. The dam spillway is approximately RL 22.5 and dam wall approximately RL 23.2. Spillway dimensions are 1.4m base with 1V:4.5H side slopes and 0.7m deep. Assuming a conservative grade of 2% and conservative Manning's roughness value of 0.8 for the spillway, the 100 year flow through the spillway based on Manning's equation is 0.48m deep, so the 1% AEP flood level is approximately RL 23. The spillway has a capacity of approximately 3m3/s (based on the conservative assumptions above) before the dam wall is overtopped.

Based on these calculations the ground level of RL 24m at the building envelope for Lot 4 provides 1m of freeboard above the 1% AEP flood level of 23m in the unnamed creek in the vicinity of the dam. The recommended minimum finished floor level for Lot 4 is 24m AHD to ensure that the building is well beyond flood levels in the unnamed drainage line.

Storm Water Plan

The storm water management concept for this property focuses on the private access road, highlighting the basic configuration of the rock-lined channels and how they aim to disperse water rather than channel flows off site (see the Storm Water Concept Plan prepared by Storm Consulting in appendix 6).

2.9 Conservation of animals and plants and their habitats

Conservation of plants and animals and habitats is not a significant issue on this site because:

- The land does not in itself act as a corridor and the development of the property is not expected to isolate any fragments of vegetation.
- Whilst the relatively small amount of existing open eucalyptus forest community along the Grandfathers Gully Road frontage and pockets of open woodland regrowth on site may provide suitable foraging habitat for some threatened species the land provides limited roosting or breeding habitat.
- Threatened communities or critical habitat are non-existent on the site.

- The small area of vegetation community on the site is reasonably common throughout the region.
- Past clearing has significantly degraded the ecological integrity of the land
- Diversity of plant species is fairly low.
- The land has been assessed as containing no potential or core Koala habitat.

The following recommendations have been made by NGH Environmental (see appendix 4):

"1. An erosion and sediment control plan is implemented to prevent erosion and subsequent siltation of the riparian gullies and small dams.

2. Feeding trees for Glossy Black Cockatoos have been identified within the riparian gullies, along the western boundary and as scattered trees across the subject site (see Figure 7). Although no direct evidence of feeding this season was observed, these trees are in excellent condition with abundant seed cones and provide an important resource for this species. The proponent should maintain all trees of this species within these areas. Where this is not possible, such as where fencelines for numerous lots run through this habitat, compensatory plantings of Black She-oak (*Allocasuarina littoralis*), should be undertaken at the ratio of 6 trees planted to each one removed.

3. Three hollow-bearing habitat trees were identified within the subject site (see Figure 7). These trees provide important habitat for hollow-dependant fauna and should be retained.

4. Any native vegetation that is to be removed as a result of this proposed activity should be utilised as potential habitat for a variety of fauna and left in-situ throughout the subject site *wherever possible* without creating a fire hazard. Coarse and fine woody debris provide essential habitat for a wide variety of native animals and are important to the functioning of many ecosystems. Alternatively, this resource could be used within the locality in habitat restoration projects if any existed. It is recommended that the local catchment management authority or landcare groups should be contacted to ascertain the need for this resource. However, it is acknowledged that some vegetation may need to be mulched. If this is to occur, then mulch should be utilised within the study area or the locality wherever possible.

5. Removal of any trees should only occur between February to July to avoid the breeding season of bats, birds or arboreal fauna. A suitably qualified person (ecologist/zoologist) should be on hand at the time of tree removal to check for the presence of fauna and ensure that any fauna found is properly relocated to nearby habitat.

6. Although few weed species were observed, a high infestation of whisky grass was prevalent at the site. This species is easily spread by 'slashing' across the subject site. One noxious weed, Pampas grass was observed, and should be managed according to regulation. The clearing of vegetation has the potential to create more habitat for weed species. The proponent should ensure that all weed species are managed to disrupt potential spread across the site and beyond."

Dwelling envelopes have been sited away from existing drainage lines. Clearing for asset protection zones (APZ) would occur adjacent to some of the drainage lines. This does not mean that vegetation cannot be kept within APZs. Within the Outer Protection Area any trees and shrubs should be maintained in such a manner that the vegetation is not continuous. The presence of a few shrubs or trees in the Inner Protection Area is acceptable provided that they:

- do not touch or overhang the building;
- are well spread out and do not form a continuous canopy;

- are not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
- are located far enough away from the house so that they will not ignite the house by direct flame contact or radiant heat emission.

2.10 Bushfire

Bushfire Protection Planning and Assessment Services completed an assessment of the proposed subdivision development in February 2006 using the 2001 Guidelines. An updated assessment has been undertaken in July 2007 in order to examine changes brought about by the 2006 Guidelines (see appendix 7).

The initial assessment determined that primary bushfire vegetation within and adjoining the study area had been assessed as Group 1 Forest. Taking into account the amount of bushfire vegetation likely to remain within the study area in the foreseeable future the proposed development site could be subject to significant bushfire attack primarily from the north-east to west and to a lesser extent from neighbouring forest/remnant vegetation to the south and east.

It is also hypothesised that taking into account the level of residential development occurring on the South Coast and the respective zoning of the surrounding land to the west and south-west it is reasonable to assume that forested private land may be further fragmented or reduced of available bushfire vegetation/fuel within the foreseeable future.

The majority of other vegetation communities within the study area are grassland that have been cleared and actively managed by grazing/slashing. The majority of the subject land is free and clear of Group 1 Forest with some areas previously cleared for grazing purposes having minor regrowth.

Taking into account the extent of regrowth/severely disturbed remnant areas within the subject site they are considered equivalent to Group 3 Vegetation as per the Planning for Bushfire Prevention Guidelines. In respect of asset protection zones the proposed development site's location, layout, lot size and proximity to adjacent bushfire vegetation can facilitate adequate asset protection zones.

The point is made that some asset protection zones extend over slope exceeding 18° however these areas are already cleared and regularly slashed. In view of the fact that this has happened for some time the ongoing maintenance of the APZ areas over the 18° slope should not have a significant impact upon soil stability.

The original bushfire assessment made recommendations in respect of asset protection zones, water, access and construction standards. Generally it is concluded that if the recommendations are followed the consent authority can determine that the proposed development complies with the Planning for Bushfire Protection Guidelines as required under Section 100B of the Rural Fires Act.

The supplementary assessment takes into account the 2006 Guidelines. It in part states:

"The following supplementary information outlines revised APZ / Setback distances required for statutory compliance for the proposed rural subdivision development of Lot 214 DP1059058 Grandfathers Gully Rd, Lilli Pilli.

Methodology for this revised site assessment for bushfire attack and recommended mitigation measures are based on NSW Planning for Bushfire Protection (PBP) 2006 (Appendices 2 & 3). Minimum required asset protection zones are derived from distances outlined by PBP 2006 for a residential / rural residential development within an FDI 100* Fire Area (PBP Appendices 2 – A2.4 & A2.7). The Eurobodalla LGA is designated as potentially having an Fire Danger Index of 100 as a 1:50 year event (PBP Appendices 2 – Table A2.3).

Vegetation extent and slope analysis is as previously described by our original assessment of the subject development dated 22nd February 2006 (herewith, 'previous report '). In comparison to previous PBP 2001 guidelines, it should be noted that revised estimated PBP 2006 APZ / setback distances are generally on average 10-15m less in area/distance than previously described by our previous report. Where the APZ difference between PBP 2006 & 2001 has not changed (i.e. 20m setback from forest vegetation upslope), it should still be noted that the IPA extent is now halved to 10m – the permissible balance of the original APZ extent now being OPA (10m).

Considering the respective differences between the prescribed minimum APZ / setback areas, we would roughly estimate that the PBP 2006 APZ / setback distances would be on average 30-40% less in area than shown / recommended in our previous report.

In this respect, it is reasonable to suggest that PBP 2006 acceptable solutions for APZ compliance are easily facilitated, including that;
• the APZ is provided in accordance with the relevant tables / figures [within PBP 2006], &
• the APZ is wholly [contained] within the boundaries of the development site.

Furthermore, PBP 2006 performance criteria for APZ compliance could also easily and reasonably be facilitated, i.e. 'radiant heat levels at any point on a proposed building will not exceed 29 kW/m2 '.

With respect the future development of proposed Lots 4, 5 & 6, map 5b denotes the approximate APZ area (PBP 2006 Min. Spec.) and its extent in relation to an identified riparian area (40m wide, 20m either side of the gully line) affecting the subject development area. Considering the indicative / approximate building sitings denoted by this advice and by our previous report, it is reasonable to suggest that the future proposed building sitings and associated minimum APZ area can be located within the subject allotments without significantly affecting the adjoining riparian area. Where the minimum specified APZ area is shown to affect the denoted riparian area (i.e. proposed allotment 4), it is reasonable to suggest a site specific assessment of this allotment and future proposed building siting would demonstrate an acceptable building design and siting location mitigating any requirements to reduce or remove native vegetation (from within the riparian buffer area) for PBP compliance.

Furthermore, when considering the overall and completed development of the subject property, it would also be reasonable to suggest that the extent of persisting bushfire vegetation to the E-NE of proposed allotments 4-6 (i.e. over proposed allotments 3, 12 & 13) would only be equivalent to remnant bushfire vegetation. In this respect, the associated PBP 2006 APZ / Setback distances may only be 10-15m for compliance (either for PBP 2006 acceptable solutions or performance criteria)."

2.11 Native Vegetation

Land clearing to be undertaken by the developer would only be for the purpose of creating access. That basically involves clearing at the western end of the private road reserve. The total amount

of clearing of existing open native forest dominated by Spotted Gum, Blackbutt and Broad-leaved and a small amount of regrowth vegetation totals 1,050 square metres (see Sheet 10 "Plan Showing Vegetation Clearing" in appendix 1).

Clearing by future owners for APZs and buildings is estimated to be 2.07 hectares (see Sheet 10 "Plan Showing Vegetation Clearing" in appendix 1). To offset this clearing the residue of the site will be kept free of further vegetation loss and thus be allowed to regenerate naturally. Each land title would have 88B restrictions that prevent clearing outside of the building envelope and APZ areas. Specific mature trees to be retained within APZs could also be included in the 88B instrument.

A broad landscape concept plan has been prepared for the site that incorporates the following principles:

- Use of native endemic species only for any plantings along the private access road and within areas to be set aside for regeneration.
- Create new habitat opportunities.
- Maintain biodiversity.
- Increase opportunities for wildlife movement.
- Enhance visual quality.
- Retain a semi-rural character.
- Reduce erosion potential.

Regeneration is expected to predominantly occur naturally but additional plantings would be undertaken by the developer to assist the process. Native species have been recommended for riparian areas, infill and new regeneration locations on site. Three existing mature trees will be removed as a result of the construction of the private access road but new tree planting will occur along its entire length (see the Landscape Plan prepared by Dual Design in appendix 1).

The approach to management of native vegetation on the site is designed to maintain environmental outcomes and in particular improve vegetation values.

Consultation has occurred with the Southern Rivers Catchment Management Authority (see appendix 8). It has stated:

"The enclosed Property Vegetation Plan (PVP) has been prepared to assess clearing of native vegetation using PVP Developer. This PVP is being provided to assist in assessment under Part 3A of the Environmental Planning and Assessment Act 1979. Under the Native Vegetation Act 2003 (the Act) environmental offsets are required to balance out the impact of clearing native vegetation. The total area of clearing assessed for the development is 0.36 Hectares with an offsets area of 3.23 Hectares. This area of clearing with the offsets areas that have been proposed has met the improve or maintain test of the Act.

There are a number of Routine Agricultural Management Activities (RAMAs) available to landowners for which clearing is exempt under the NV Act including the construction of tracks up to 6 metres in width on properties over 10 Hectares. Therefore the area of clearing for the road was assessed as a 14 metre wide strip as this is in addition to the 6 metre width permitted. The revegetation and rehabilitation areas that are proposed for the development adequately balance the clearing. Clearing is permitted under the Act of the minimum amount of native vegetation needed to comply with a current Development Consent for the construction of a single dwelling.

It is proposed that clearing for the construction of a dwelling and the associated asset protection zone is undertaken by individual landholders. In this case it is permitted clearing and therefore has not been assessed. Should this clearing be required prior to subdivision or sale of the land parcels then the clearing would require assessment. The revegetation and regeneration areas set aside on the property for offsetting the road construction is not sufficient to provide an offset for any further clearing."

2.12 Contaminated land

The site is not included on Council's contaminated lands register (see appendix 2). Traditionally it has been cleared for small scale (hobby farm) grazing. It's most recent grazing use was deer farming. Contamination would not appear to be an issue.

2.13 Noise

Noise should not be an issue. Construction for the subdivision involves creation of the private access road and associated drainage and landscaping. Construction works would be subject to normal working hours that are usually conditioned in a consent. Traffic noise generated by the proposal would be typical for rural residential/residential areas. Grandfathers Gully Road is sealed as is the arterial road George Bass Drive. The proposed building envelopes are well set back from George Bass Drive.

Topography and distance from the Surf Beach tip/sewerage treatment works and the adjoining proposed light industrial/bulky goods retail area would mean that noise from these undertakings should not have an adverse impact on the proposed rural residential subdivision. There are existing residential and rural residential areas located closer to these facilities than the proposed subdivision.

2.14 Conclusion – Justification for the project

The land is adjacent to the Lilli Pilli urban area and is at the northern end of a large tract of land zoned for rural residential purposes. The Surf Beach waste disposal site, sewerage treatment works and proposed Eurobodalla Shire Council light industrial/bulky goods retailing area are to the west of the site.

Although substantially cleared the site is not visually prominent from the arterial road, George Bass Drive, to the east or the public foreshore areas including Circuit and Lilli Pilli Beaches to the east. Due to its close proximity to the urban areas and associated facilities such as neighbourhood shopping centres and public foreshore areas and beaches (approximately 400m to the east) the proposed lot sizes are at the lower end of scale for rural residential development in the Eurobodalla Shire Council area. It is important to responsibly maximise yields from the existing rural residential locations in order to minimise future pressure for additional rural residential zoned areas.

This approach facilitates the highest achievable sustainable development density taking into account physical constraints. The propose subdivision pattern provides for allotment sizes from 5,000m² to 1.58 hectares and it is envisaged these would be lifestyle sites rather than be utilised for hobby farms.

SECTION THREE – RELEVANT PLANS AND POLICIES

3.1 Coastal Design Guidelines

Lilli Pilli is an established suburb of the greater Batemans Bay area. Application of the guidelines requires categorisation of the settlement. Batemans Bay is defined as a coastal town under the guidelines. Council defines Lilli Pilli as a village suburb having a natural atmosphere (ie a visual prominence of vegetation) of Batemans Bay. In the end the categorisation would make little difference to the design principles applied to the proposed subdivision. The proposed subdivision being in a rural residential zone adjoins the suburb of Lilli Pilli and is a lifestyle large lot development serviced internally by a private road. Some general design principles contained in the coastal design guidelines have been considered and applied. Much of the material in this section is taken directly from the Guidelines document.

Relationship to the environment

- The relationship between the village and the coast reinforces:
  - the way in which the settlement sits within the landscape
  - the visual and environmental dominance of the landscape and surrounding ecological systems
  - the ecological corridors that surround the settlement.
- Separation between settlements is maintained by excluding urban development from surrounding rural and natural lands.
- Clear boundaries around the settlement are established.
- New buildings and other urban development are located within the boundaries of the village.
- Land with high ecological, agricultural and visual integrity surrounding the village is protected.
- Aboriginal and European places and relics are protected.
- Total water cycle management and water sensitive urban design initiatives are implemented.
- The settlement's micro-climatic conditions are improved through landscaping and mature trees.
- Development is set well back from areas affected by coastal processes, flooding, erosion and sea level rise.
- Waste and water services match seasonal tourism influxes.
- Invasive plant species are removed from ecological areas.
- Bush fire protection and vegetation clearance are balanced to maintain ecological integrity and visual quality.

Visual sensitivity

- Visual character is critical in coastal villages. New development responds sensitively in form and character to the village and to the existing proportions and materials of existing buildings.

Buildings

Development is predominantly low scale.

Height

Heights of up to two storeys are generally appropriate.

Accepting that the land is zoned for rural residential purposes there would obviously be some modification of the environment. The relationship with the environment and the visual impact on the existing Lilli Pilli area would be acceptable because:

- existing vegetation will be kept where possible.
- Significant parts of the site previously cleared will be allowed to regenerate.
- The majority of proposed dwelling sites are located to the west of the ridgeline on the land and therefore would not be visible from the public areas on the coast, George Bass Drive or the existing Lilli Pilli urban area.
- Three dwelling sites are proposed to be located along the ridgeline running north south along the land (one would replace an existing dwelling located on the ridgeline). The ridgeline is not visually prominent and therefore the new buildings would not be obtrusive in the landscape.
- A physical and visual separation from the Lilli Pilli urban area is achieved.
- Water sensitive urban design approaches are proposed.

3.1.3 Design Principles for Reinforcing the Street Pattern

Reinforcement of the street pattern can be achieved by:

- building on the original and established street and block patterns in terms of the pattern of circulation, access to lots and uses.
- Ensuring the settlement is easily navigable and logical in terms of access and location of uses.
- Recognising or designing streets in response to the topography and other natural features by ensuring a predominance of streets that relate to the original landform.
- Protecting streets that provide access and views to the coast, foreshores and headlands, other significant natural features and places of public importance.
- Allowing for changes on private land whilst valuing the qualities of individual streets including:
  - their order within the hierarchy
  - access and street address
  - carriageway, footpath and reserve alignments, building setbacks
  - street trees which will offer filtered views of the coast
  - vistas and view corridors.
- Minimising road crossings over waterways and water bodies.
- Encouraging grass swales and pervious surfaces to increase stormwater infiltration.

The street hierarchy can be strengthened by:

- protecting the rural and natural character of the main access roads by restricting development fronting onto them.
- Developing public edge roads around the settlement to provide separation between urban areas and sensitive ecologies and open-space areas. This provides asset protection zones for bushfire management and access to open spaces, foreshores and headlands.
- Limiting fast moving through traffic in residential streets.
- Reinforcing streets with appropriate street vegetation planting.

Design principles relating to streets would be consistent with those relevant ones included in the document because:

- the private road access links to the existing Grandfathers Gully Road.

- Clearing is minimised by adopting the approach of proposing a private internal access road.
- Landscaping is proposed along the private access road.
- Crossing of drainage lines are minimised.
- The proposed private access road follows the existing access track on the site as much as possible.

3.2 New South Wales Coastal Policy 1997

The coastal policy's principle vision is to achieve ecological sustainability of the New South Wales coast. Nine goals give expression to this vision that represents a commitment to:

- "protecting rehabilitating and improving the natural environment of the coastal zone
- recognising and accommodating the natural processes of the coastal zone
- protecting and enhancing the aesthetic qualities of the coastal zone
- protecting and conserving the cultural heritage of the coastal zone
- providing for ecologically sustainable development and use of resources
- providing for ecologically sustainable human settlement in the coastal zone
- providing for appropriate public access and use
- providing information to enable effective management of the coastal zone
- providing for integrated planning and management of the coastal zone."

The proposal does not appear to conflict with the goals of the Coastal Policy.

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

The eastern boundary of the subject land is about 400 metres to the west of the coastline so not all of the aims of SEPP 71 apply. Those that are relevant are:

"(a) to protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast, and
(d) to protect and preserve Aboriginal cultural heritage, and Aboriginal places, values, customs, beliefs and traditional knowledge, and
(e) to ensure that the visual amenity of the coast is protected, and
(g) to protect and preserve native coastal vegetation, and
(j) to manage the coastal zone in accordance with the principles of ecologically sustainable development (within the meaning of section 6(2) of the Protection of the Environment Administration Act 1991), and
(k) to ensure that the type, bulk, scale and size of development is appropriate for the location and protects and improves the natural scenic quality of the surrounding area, and
(l) to encourage a strategic approach to coastal management."

Analysis of the proposal in previous parts of the Environmental Assessment suggest that the proposed subdivision is in accordance with the relevant objectives of SEPP 71.

The subject land is located within the coastal zone and therefore SEPP 71 applies. Clause 8 of SEPP 71 requires a number of matters to be considered by the consent authority when determining an application to carry out development. Those matters for consideration are as follows:

"(a) the aims of this Policy set out in clause 2,

(b) existing public access to and along the coastal foreshore for pedestrians or persons with a disability should be retained and, where possible, public access to and along the coastal foreshore for pedestrians or persons with a disability should be improved,
(c) opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability,
(d) the suitability of development given its type, location and design and its relationship with the surrounding area,
(e) any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore,
(f) the scenic qualities of the New South Wales coast, and means to protect and improve these qualities,
(g) measures to conserve animals (within the meaning of the Threatened Species Conservation Act 1995) and plants (within the meaning of that Act), and their habitats,
(h) measures to conserve fish (within the meaning of Part 7A of the Fisheries Management Act 1994) and marine vegetation (within the meaning of that Part), and their habitats
(i) existing wildlife corridors and the impact of development on these corridors,
(j) the likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards,
(k) measures to reduce the potential for conflict between land-based and water-based coastal activities,
(l) measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals,
(m) likely impacts of development on the water quality of coastal waterbodies,
(n) the conservation and preservation of items of heritage, archaeological or historic significance,
(o) only in cases in which a council prepares a draft local environmental plan that applies to land to which this Policy applies, the means to encourage compact towns and cities,
(p) only in cases in which a development application in relation to proposed development is determined:
    (i) the cumulative impacts of the proposed development on the environment, and
    (ii) measures to ensure that water and energy usage by the proposed development is efficient."

The location of the proposed subdivision and its proposed scale leads to the conclusion that it would meet the aims of, and responsibly address the matters for consideration included in, SEPP 71 as specified in clauses 2 and 8. The proposal would not detrimentally affect coastal processes or restrict public access to coastal foreshores. Proposed land clearing is minimised and a significant proportion of existing vegetation would be retained. Visual amenity of the locality would be retained. There does not appear to be any unacceptable impacts on endangered flora and fauna or aboriginal archaeological heritage. Self sufficiency in terms of water supply and on-site waste disposal is achievable due to the lot sizes proposed.

3.4 State Environmental Planning Policy (Major Projects) 2005 (SEPP 2005)

The proposed subdivision is categorised as a state significant project under Schedule 2 of SEPP 2005.

3.5 South Coast Regional Strategy

A number of actions are included in the Regional Strategy. The Strategy is about the "big picture" and is most applicable to the development of future planning strategic approaches adopted by councils. It is therefore not all that relevant to small developments such as the one proposed. It does contain a number of actions that indirectly may apply.

Relevant environmental actions taken directly from the Strategy document are as follows:

> "Councils are to work with the Southern Rivers Catchment Management Authority to ensure that the aims and objectives of catchment action plans are considered in the future management and planning of local council areas."

In respect of rural lands the relevant statements are as follows:

> "Existing rural residential zones have the capacity to meet the demands for rural lifestyle housing within the Region."
>
> "The scale of the development within and adjacent to existing villages and rural towns will support the role of the town in serving surrounding communities and preserve its character, scale, cultural heritage and social values."
>
> "Councils will be encouraged to reduce the demand on town water supplies through water conservation, including replacing the use of potable water with harvested stormwater and/or highly treated wastewater for non-potable uses."

Cultural heritage actions are also specified:

> "Councils are to ensure that Aboriginal cultural and community values are considered in the future planning and management of the local government area."

The proposed lifestyle rural residential subdivision appears to be consistent with the South Coast Regional Strategy mainly because it is located within an existing rural residential zone.

3.6 Eurobodalla Settlement Strategy

The Strategy was adopted by Council in December 2006 and has recently been endorsed by the Department of Planning. The following are excerpts from the Strategy in respect of rural residential subdivision:

"Action SP26: prohibit development on land assessed to be subject to absolute constraints and apply minimum lot sizes to land zoned rural residential and assessed to be of low, medium or high suitability for development as shown in the table below. The minimum lot size for any given subdivision proposal is to be determined on merit depending upon the extent of environmental constraints and any parcel may need to contain a range of lot sizes when subdivided where constraints vary across the land.

Suitability for development	Lot sizes
Low	5 hectares to 10 hectares
Medium	2 hectares to 5 hectares
High	1 hectares to 2 hectares

Action SP27: land zoned rural residential that adjoins an existing urban zone may be subdivided to a minimum lot size of 5,000 square metres subject to certain criteria. Elsewhere, minimum lot sizes are to be determined according to the suitability of the land for development (as per SP26), except where the majority of subdivided lots in the immediate vicinity are less, the land is of high suitability for development and the scenic qualities and rural character of the area will not be adversely affected. Insert this as policy in a revised development control plan for rural residential subdivision and apply a rural transition zone to land suitable for subdivision to a minimum of 5,000 square metres."

It has been clarified with Council Planning staff that the minimum lot size of 5,000 m2 applies to the subject land due to its proximity to the Lilli Pilli urban area (see appendix 2). Identified constraints on the land have been addressed in Section 3.10 of this assessment.

3.7 Eurobodalla Rural Local Environmental Plan 1987 (LEP 87)

The subject land is zoned 1(c)(Rural Small Holdings Zone) under LEP 87. The objectives of the zone are as follows:

"(a) to provide opportunities for small scale agricultural activity;
(b) to provide residential opportunities while retaining the scenic quality and overall character of the land and the environmental quality of any adjoining waterways, wetlands, rainforest or other environmentally sensitive areas;
(c) to ensure that environmental impacts of development and the impact of development on land or activity in surrounding zones are fully considered in advance of any significant development;
(d) to ensure that development is compatible in scale and density with the level of essential public services and facilities to be provided;
(e) to permit a variety of uses where these are compatible with small scale rural activity or require a location outside urban areas or villages; and
(f) to permit the provision, expansion or maintenance of utility services within this zone."

The proposed development is permitted with consent under LEP 87.

3.8 Development Control Plan 173 (DCP 173)

DCP 173 became effective from 11 October 1989. The DCP aims to:

"(a) Identify environmental factors relevant to Rural Small Holdings development including:

i) provision of public utilities;
ii) land capability as determined by landform, vegetation, climatic and soil factors;
iii) scenic value to residents and visitors in Eurobodalla Shire;
iv) the proximity of State Forests;
v) hazard factors, including bushfire hazard and flooding.

(b) Establish development standards relating to subdivision, the erection of buildings and provision of services.

(c) Emphasise controls already established concerned with land clearing and conservation of Aboriginal artefacts."

With respect to subdivision design the DCP acknowledges that rural land can have scenic value both to residents and visitors. Subdivision design should therefore aim to:

- maximise retention of native vegetation
- minimise the potential for erosion, sedimentation and contamination of watercourses
- avoid intrusion of development on visually significant ridges, hill slopes and drainage lines (in respect of this point the constraints map within the DCP does not designate any of the site as containing visually significant ridges or hill slopes)
- ensure that the siting of dwellings would not be obtrusive as viewed from major public vantage points and overlook or intrude into the view of other existing or proposed dwellings.

The DCP sets the minimum lot sizes as being two hectares. A subsequent Council policy reduces the minimum lot size on this site to 5,000m². Proposed lot sizes range from 5000 m² to 1.58 hectares. The DCP also requires that development envelopes also be identified and has general statements in respect of the siting of dwellings and their appearance. The height of buildings is generally restricted to two storeys.

Bushfire hazard has been addressed in accordance wth the NSW Government "Planning for Bushfire Protection" guide. Visually, the proposed subdivision and subsequent dwelling construction should be unobtrusive due to location, topography and existing vegetation. Three of the proposed thirteen dwelling envelopes are located on a ridgeline. It is not a visually significant ridge. The land does not adjoin State Forest. The proposed development will be self sufficient in terms of water and on-site sewerage provision.

3.9 Development Control Plan 156 (DCP 156)

DCP 156 took effect from December 1987. It has therefore been overtaken to a large extent by subsequent new legislation and Council policy. It is still an adopted document applicable to rural residential development especially where there is not an adopted specific DCP for the area. In the case of the subject land DCP 173 applies specifically to the subject land. The minimum lot size provisions of DCP 156 have been replaced in the instance of the subject land by Council's Interim Policy for Rural Residential Lot Sizes (see section 3.9 below).

Development envelopes not less than 600 square metres in area are to be designated on the plan. The envelopes are shown on the plan. Proposed development on slopes between 15% and 25% need a geotechnical report. Approximately nine of the proposed building envelopes would therefore require a geotechnical report to accompany a development /construction certificate application (DA/CC) when lodged with Council. As land generally in Eurobodalla has historically not been prone to slippage Council has traditionally required the geotechnical reports at DA/CC stage and conditioned subdivision applications accordingly.

The DCP also states that generally no development or land clearing should apply to land having slopes exceeding 25%. This provision was around well before the Bushfire requirements of the

State Government were introduced. Basically the Bushfire Guidelines allow clearing for asset protection zones on slopes up to 32%. This would be the case in some locations in the subject proposal although much of the land is already cleared.

The aims and objectives of DCP 156 are the most relevant part of the DCP applicable to the proposal. They are taken directly from the DCP as follows:

(a) highlight the need for full and proper consideration of environmental constraints and servicing requirements in the preparation of any application to Council for development consent and the requirement for the preparation and submission of an Environmental Review with such application;

(b) set heads of consideration for design which must be addressed in any subdivision application and/or Environmental Review;

(c) establish principles to be applied which will determine the density achievable in any area zoned 1(c);

(d) identify development constraints applying to the land and locate development areas taking into account such constraints;

(e) provide protection for environmentally sensitive areas such as wetlands, rainforest, closed canopy forest and other significant areas of native vegetation, steep land, water courses, drainage lines, areas prone to flooding or erosion and aboriginal archaeological relics;

(f) encourage retention of trees generally and preserve prominent ridgelines and other scenic areas in their natural state to protect the visual amenity;

(g) promote re-planting, with indigenous species, on currently cleared ridges and other scenically significant areas;

(h) determine access and service requirements, and

(i) further the aims and objectives of the Rural LEP.

Constraints identified as main ones need to be accounted for in design that should aim to:

(a) maximise retention of native vegetation;

(b) minimise potential for erosion, sedimentation and contamination of water courses;

(c) avoid intrusion of development on visually significant ridges, hill slopes, drainage lines and other environmentally sensitive areas;

(d) provide opportunity for the location of dwelling houses in sympathy with the capability of the land;

(e) provide a mix of lot sizes;

(f) provide safe, practical and environmentally compatible vehicular access; and

(g) ensure compatibility with existing and future surrounding development.

Discussion included in Sections 1, 2 & 3 of this assessment demonstrate that the proposed subdivision appears to be consistent with the aims and objectives of DCP 156.

3.10 Eurobodalla Shire Council Interim Policy for Minimum Rural Residential Lot Sizes

The policy sets a minimum lot size of 5,000m² for land zoned 1(c) where it adjoins existing urban or urban expansion land and certain criteria can be satisfied. The policy is as follows:

"A minimum lot size of 5,000 square metres be permitted on land zoned 1(c) (Rural Small Holdings Zone) subject to the Eurobodalla Rural Local Environmental Plan 1987 where:

a. The land adjoins and is adjacent to an urban area that is zoned residential or urban expansion,
b. The land is not environmentally constrained and is assessed to be suitable for residential development using the Strategic Environmental Assessment technique as applied to Council's Geographic Information System. A flora and fauna assessment is required to be submitted with the development application,
c. The development will not impact adversely on fauna habitat corridors and may enhance or restore habitat corridors through revegetation with endemic plant species,
d. Small lot rural subdivision is assessed to be the best long term use of the land given the proximity of the land to urban services, including commercial and community facilities.
e. The objects of the Environmental, Planning and Assessment Act, specifically supporting the orderly and economic use of land, are satisfied,
f. Small lot rural subdivision will result in enhanced fire protection measures and improvements to the bushfire hazard that affects adjoining urban land,
g. An on-site effluent disposal system can be accommodated having regard to soil type, the slope of the land and an adequate designated effluent disposal envelope with provision for the re-use of treated effluent for garden watering and approved internal uses such as toilet flushing. Where Council's sewerage infrastructure is of adequate capacity and environmental constraints are such that on-site disposal is not possible nor appropriate, a low pressure sewerage system (LPSS) may be installed,
h. The development applies best practice water management principles as adopted in the Integrated Water Cycle Management Strategy, meaning that each lot must be able to be sustainably self-reliant in terms of water supply and effluent disposal,
i. The development will not lead to the clearing of ridgelines or other areas of scenic importance for any reason, including for bushfire protection,
j. The capacity of the local and arterial road network is able to accommodate additional traffic loads,
k. Access to properties can be provided in a manner that ensures safe ingress/egress from the site having regard to motorist sight lines and grades,
l. Stormwater drainage is managed to prevent excessive flows to and from the road network, and
m. Relevant objectives of the 1(c) (Rural Small Holdings Zone) are satisfied."

The proposed subdivision generally complies with the Interim Policy. There could be small variations applied to the Council nominated constraints in its Strategic Environmental Assessment tool. For example there may be some vegetation removal within APZs on land exceeding 25% slope. Discussions held between Council staff and the landowner in March 2006 suggested that there would be give and take in respect of the Council's Strategic Assessment constraints.

Survey data undertaken on behalf of the proponents was acknowledged as being more accurate than Council's.

Subsequent advice to the DoP from Council was that the minimum lot size of 5,000 square metres permitted under the Interim Policy for Minimum Lot Sizes for Rural Residential Land did not apply to the subject land at Grandfather's Gully. This approach contradicted previous advice given to both Messrs Brewer and May that the policy did apply to Mr Brewer's land at both Grandfather's Gully and Lilli Pilli. Council planning staff had previously indicated that both sites were considered to be adjacent to existing urban areas and so the Interim Policy applied. In fact the sites were specifically examined as part of the process of developing the Interim Policy.

At the meeting of 14 June the consensus was reached that the Interim Policy should be applied to the subject land at Grandfather's Gully (see appendix 2).

A number of points need to be discussed in respect of Council identified constraints:

- Due to the previous use of a deer farm a significant amount of the site has been cleared and even though much of the cleared land has slopes exceeding 25% there have been no stability problems.

- Development sites are located on land having slopes not exceeding 25%.

- Asset protection zones (APZs) occur on slopes exceeding 25% in the case of proposed lots 1, 5, 6, 7 and 10-13. In many instances the land is already cleared.

- A detailed bushfire assessment has been undertaken that concludes that subject to 11 recommendations the proposal complies with the Planning for Bushfire Guidelines (both 2001 and 2006).

- Council's constraint map indicated soil wetness areas on the site. The most northern soil wetness area is the least important and is not viewed as a significant constraint. This is especially so as the on-site wastewater systems recommended by Storm Consulting are either Biolytix or AWTS with either sub-surface irrigation or ETA/ETS trench systems. These systems are suitable for the site's soil conditions. The system on proposed lot 1 slightly encroaches into the normally recommended 40 metre buffer to drainage lines but the slope drainage path exceeds 40 metres.

- The second more significant soil wetness area follows a drainage line running from the southern boundary heading north-west to the western boundary. This drainage line has been mapped as Category 2 by the then Department of Natural Resources (DNR) thus generally requiring a 20 metre riparian setback from each side of the drainage line. A concern here was the need to encroach into the prescribed 20 metre setback to clear for APZs. In this regard advice has been received from DNR as follows:

  "It is to be noted that the drainage line within Lot 2 DP 250984 has been mapped as Category 2, management/maintenance of terrestrial and aquatic habitat. It is therefore recommended that the development of this land should aim to meet the objectives of maintaining channel stability, protecting water quality and providing sustainable habitat.

  In achieving these objectives at this particular site it was agreed that there is potential flexibility in the prescribed 20 metre riparian setback from each side of the drainage line, provided the objectives of maintaining/enhancing water quality, stability and habitat are

still achieved. To this end, a 10 metre encroachment of the outer APZ into one side of the riparian area could be offset with habitat enhancements on the other side of the creek. Establishment of the outer APZ could be achieved with minimal environmental impacts by selective removal of vegetation and replacement with a more suitable vegetative cover (preferably natives) meeting bushfire protection requirements and if possible supporting habitat values of the site. Any loss in habitat should be compensated with additional plantings on the other side of the drainage line. It should be noted that; the central 10 metres of the drainage line should not be cleared at all and the overall width of the habitat zone should be no less than 50 metres.

In assessing the suitability of any compromise of the standard drainage line setbacks the proposed compensatory measures should demonstrate an overall enhancement in achieving the objectives of providing water quality protection, channel stability and sustainable terrestrial and aquatic habitat at the site."

In any event APZ sizes have been reduced under the 2006 Guidelines so that encroachment into the riparian buffer is relatively minor and only occurs on part of proposed Lots 4 and 6. It appears that the encroachment would be part of the outer protection zone and this can easily be compensated for on the opposite side of the drainage line (see Sheet 12 "Site Constraints" in appendix 1).

The constraints have been addressed.

SECTION FOUR – CONSULTATION AND KEY ISSUES

4.1 Consultation

Prior to undertaking the Preliminary Assessment the landowner had met with staff from Eurobodalla Shire Council on numerous occasions. The dates where discussions have been held were 5 April; 7, 8, 9 & 30 July and 11 November 2004. In 2005 discussions with staff were held on 8 April, 1 June, 16 August and 6 December. In 2006 meetings occurred on 11 January, 2 & 13 March. Much of the discussion revolved around Council's policies for rural residential development and the servicing of the site. A meeting was also held with the Rural Fire Service at Homebush on 19 December 2005. An on-site meeting was held with the Local Catchment Management Authority on 6 February 2006.

There is no local community group therefore no community consultation has been undertaken. It is assumed that the proposal will be exhibited for public comment by the Department as part of the assessment process. Submissions from the public would then be assessed.

A draft copy of the Environmental Assessment was discussed with the Department of Planning on 28 March 2007. As a result of this further consultation occurred with Eurobodalla Shire Council and the Southern Rivers Catchment Management Authority on 14 June 2007. The Catchment Management Authority was consulted to establish that it was satisfied that the measures to improve and maintain native vegetation on the site was acceptable. The reply received from that body confirmed this on the basis that the developer was only clearing for road construction (see appendix 8).

Eurobodalla Shire Council was consulted to clarify that its interim policy on lot sizes allowing 5000 m2 lots in rural residential zones adjacent to urban areas applies to the subject land. Council staff confirmed at that meeting that the interim policy applied to the subject land (see appendix 2).

4.2 Key issues table

Key Issue	Requirement	Proposed Solution
Subdivision Layout	▪ LEP 87 ▪ DCP 173 ▪ DCP 156 ▪ Interim Policy ▪ Location of building envelopes ▪ Effluent disposal areas	▪ Compliance ▪ General compliance ▪ General compliance ▪ General compliance ▪ Designed and located to take into account constraints. ▪ Appropriate systems and locations have been nominated for each lot to comply with Council's Code of Practice and "silver book".
Amenity and Scale	▪ Coastal Design Guidelines ▪ Coastal Policy ▪ SEPP 71 ▪ South Coast Regional Strategy ▪ Independent Review Panel Malua Bay and Rosedale	▪ Implement relevant principles ▪ Comply with goals ▪ Compliance with relevant clauses (esp. 2 & 8) ▪ Compliance ▪ Not really relevant but substantial revegetation proposed.
Water Cycle Management	Address potential impacts of surface and groundwater	▪ Manage stormwater during construction/occupation ▪ prepare erosion and sediment control plan in accordance with "blue book" ▪ direct water to tanks and vegetated cover ▪ utilise buffers adjacent to drainage line but APZs located within 20m of creek line. DNR classification of drainage line is questioned but there is an acceptance of some flexibility in any event.
On-site Sewerage Disposal	Provide detailed assessment of effluent disposal methods	▪ Detailed assessment of site conditions ▪ Appropriate systems and locations have been recommended for each lot to comply with Council's Code of Practice and "silver book" and take into account potential flooding.
Other Infrastructure	▪ Provide electricity ▪ Availability of telecommunications services	▪ Confirmed supply available by letter from local provider ▪ Telstra has stated in writing the availability of telecommunication services.

Flora/Fauna Native Vegetation	▪ Address threatened species impact	▪ Study found limited number of threatened species known to access with 10kms of the site were likely to utilise it. ▪ lack of suitable roosting and breeding habitat on-site ▪ no koala habitat on-site ▪ no threatened vegetation communities or critical vegetation habitat on-site ▪ site substantially cleared.
	▪ Impacts of clearing	▪ Estimated that developer will clear approx 1050m² for access construction ▪ vegetated areas to be cleared for APZ's by future owners approx 2ha but some mature trees could be retained ▪ residue of site allowed to regenerate naturally with some new planting ▪ landscape concept plan prepared for the site.
Bushfire	▪ APZ's	▪ Subdivision design facilitates APZ's in accordance with Guidelines
	▪ Rural Fires Act	▪ Compliance with Guidelines as required by Rural Fires Act
Traffic, road layouts and access	Design in accordance with Council's standards	▪ Junction of private access road and existing Grandfather's Gully Road designed in accordance with Council requirements ▪ private access road designed in accordance with Council standards ▪ Construction Management Plan prepared.
Aboriginal Heritage	Consider Aboriginal Cultural Heritage impacts	Study concludes no archaeological constraints and no objects have been recorded on the land.
Contaminated Land	Assess land contamination issues	Council has advised in writing that there is no record of contamination.
Noise	No adverse impacts from noise	Noise is not considered an issue due to scale and location of the proposed subdivision.

4.3 Statement of commitments

Refer to table on page 37.

4.4 Statement of certification

The information contained in this report is not knowingly false or misleading.

Paul May
Partner
Planning Initiatives

4.3 Statement of commitments table (page 37)

Project Component	Environmental Outcome	Commitment	Purpose of commitment	Timing
Development Consent	▪ Vegetation retention and rehabilitation ▪ Mitigate bushfire hazard ▪ Siting of building envelopes ▪ Water cycle management ▪ Access locations	▪ Determination resulting in approved plans and reasonable agreed conditions of consent	▪ Clear understanding of approved development and conditions	4 months
Pre-construction	▪ Vegetation retention and rehabilitation	▪ Designate clearing restrictions and tree retention through creation of relevant 88B instruments over individual titles.	▪ Comply with development consent ▪ Ensure future owners are aware of obligation in respect of vegetation retention.	6 months
		▪ Clarify landscaping requirements of developer in accordance with landscape concept.	▪ Comply with development consent ▪ Ensure developer committed to landscaping work.	6 months
	▪ Acceptable water quality	▪ Preparation and approval by Council of Erosion and Sediment Control Plan.	▪ Ensure appropriate measures are adopted and developer is aware of obligations.	6 months
	▪ Bushfire hazard mitigation	▪ Designate APZs, clearing methods and easements for APZs on individual titles through use of 88B instruments.	▪ Ensure owners are clear on development consent requirements in respect of bushfire hazard mitigation.	8 months
	▪ Siting of building envelopes on locations where slope is acceptable	▪ Designate approved building envelopes on individual titles through use of 88B instruments.	▪ Ensure future owners are clear on development consent requirements.	8 months

	▪ Acceptable wastewater treatment and quality	▪ Designate type and location of on-site wastewater treatment on individual titles through use of 88B instruments.	▪ Ensure future owners are clear on development consent requirements.	8 months
	▪ Ensure appropriate water supply for domestic and fire fighting use	▪ Designate storage requirements for on-site water supply on individual titles through use of 88B instruments.	▪ Ensure future owners are clear on development consent requirements.	8 months
Construction	▪ Appropriate erosion, sediment control and water quality	▪ Undertake private access road and associated stormwater measures in accordance with approved engineering plans, approved stormwater concept plan and approved erosion and sediment control plan.	▪ Ensure road construction access is in accordance with approved plans and conditions of development consent.	12 months
	▪ Appropriate erosion, sediment control, water quality, noise control, traffic management, dust control and waste management during construction.	▪ Comply with the approved construction management plan.	▪ Ensure environmental and social impacts are minimised during construction.	12 months
	▪ Vegetation retention and rehabilitation.	▪ Comply with approved landscape plan and development consent conditions and undertake tree and shrub planting.	▪ Achieve the following: - create habitat for fauna - maintain/improve biodiversity - provide opportunities for wildlife movement - retain semi-rural character - enhance visual quality - reduce erosion potential.	12 months