

as well as the likely future traffic flows for the next 10 year period.

The detailed results have been included in the findings contained in the traffic impact study prepared by Colston Budd Hunt and Kafes Pty Limited. However, in summary, the report concluded:

- Vehicular access to the proposed subdivision will be via Link Road and the existing residential subdivision to the north;
- The proposed access arrangements satisfy the intent of DCP 52 and are considered appropriate;
- Internal roads will be provided in accordance with the principles in Council's Subdivision Code and AMCORD;
- The proposed development would have a peak period traffic generation of some 175 vehicles per hour two-way during peak hours; and
- The road network will be able to cater for the approved Stage 1 development, the proposed development of Stages 2 and 3, future development on Stage 4, the closure of Dolphin Point Road and future growth on Princes Highway during holidays.

16.6 Urban Design, Visual Impact and Sustainability

The subdivision layout will have minimal adverse visual impact. This part of the site is well separated from the Princes Highway by the existing development on Stage 1 and the Barnunj State Recreation Area. The site is also separated from the existing residential development in Dolphin Point by the ecological significant areas on Stage 5 and the adjoining residential land to the east of the site. The visual impact will be further reduced by the subdivision layout respecting the existing constraints of the site in terms of bush fire. The subdivision pattern respects the topography of the land.

The subdivision layout has provided allotments that satisfy the definition of standard residential lots in the Shoalhaven Planning Policy No 1 Development Guidelines for Certain Residential 2(c) Zoned Land – Milton – Ulladulla. The development of stages 2 and 3 is for the subdivision of land only. However by providing appropriately shaped allotments, it ensures that the subdivision layout is sympathetic to the existing local character as well as the Coastal Design Guidelines for NSW. Future development of these allotments will maintain the coastal village character of the locality. Any future development would be required to comply with the Council's requirements in respect of built form and this would further ensure an acceptable outcome.

The layout of the subdivision has been developed in line with the principles of ecologically sustainable development as outlined in the NSW Coastal Policy 1997. The subdivision layout has retained and enhanced the areas of ecological significance in Stage 5 and the proposal will contribute positively to the biodiversity of the area. At the same time, the development will fulfil the demand for urban expansion in the Burrill Lake and Dolphin Point area. The size and shape of the allotments will ensure future development will adopt energy and water efficiency principles.

The subdivision layout selected reflects the natural constraints of the site as well as resulting in minimal environmental damage.

The development site is setback from the coastal foreshore as well as being visually separated. In our opinion the development has satisfied all of the requirements of SEPP 71. The subdivision and ultimately the future development on the newly created allotments will not impact on the coastal environment or detract from the scenic qualities of the coast. The subdivision layout provides for appropriate urban form and character.

The development concept has been prepared with the principles of crime prevention through environmental design in mind. The development will promote the personal safety of people by enabling them to be seen, to see and to interpret their surrounds through:

- The provision of adequate street lighting;
- Clear sightlines provided in the subdivision layout;
- The subdivision layout being designed to overlook the land in Stage 5; and
- Appropriate street planting.

In addition the development will promote the security of property by clearly defining ownership and legitimate use of private, public and community space.

The subdivision pattern is consistent with the desired future character of the area as well as being compatible with the other residential areas in the locality. In developing the subdivision layout an *integrated and holistic* approach was adopted to ensure the appropriate relationship with the adjoining sites.

An area of land to the north of the site has been identified as Stage 4. This area is to be separately considered and does not form part of the project/concept approval applications.

16.7 Impact on Infrastructure (Sewerage and Water)

All public utilities such as water, sewerage, electricity, telecommunications, street lighting and gas will be provided for. The provision of these public utilities will be undertaken in accordance with Shoalhaven Council's Engineering Design Specifications as well as those of Shoalhaven Water.

Annexure 9 contains a letter and plans from Rygate & West in respect to water and sewerage infrastructure. The water reticulation to stage 1 of the development was designed to cater for the future stages in regard to connection points into the existing trunk main system and upsizing of reticulation mains. This has ensured an adequate supply to the future stages within the development (refer to plans attached to the letter).

Stage 1 of the development involved the construction of a new sewer pumping station which was designed to service the future stages referred to in this assessment. The Ulladulla Waste Water Treatment Plant has recently been constructed and is now operational. This plant has also been designed to cater for increased capacity *including* this development.

Prior to any work occurring on the site, the appropriate erosion and sediment control measures would be required to be in place.

16.8 Bushfire

A detailed report has been prepared by BES Bushfire and Environmental Services in respect of the impact of bushfire on the site. This report has been submitted under separate cover. This report has addressed the requirements of *Planning for Bush Fire Protection 2001*, NSW Rural Fire Service. The report does not deal with the 2006 edition of the subject document, however it is noted that this later document imposes a lower level of constraint on development in terms of APZ requirements.

The bushfire assessment of the site highlighted several constraints that would affect the future development on Stages 2 and 3. These constraints have been incorporated into the subdivision layouts for Stages 2 and 3.

An asset protection zone of 30 metres has been incorporated along the western, southern and eastern boundaries adjacent to the adjoining vegetation. This consists of a 20 metre wide perimeter road around the outside of the subdivision and any future dwellings being setback 10 metres from the road frontage. The size and shape of the allotments are adequate to

accommodate the required front building line as well as providing an appropriate building envelope for the future dwelling.

The subdivision layout has also incorporated the asset protection zones required to the southeast and west of the dam.

Stage 2 and 3 will be accessed by 2 public roads with one road being a perimeter road passing through Stage 3 along the western boundary and the other internal road linking Stage 2 with Stage 3. The access provisions comply with the general specifications contained in section 4.3.4 of *Planning for Bush Fire Protection 2001* for access and the design criteria for public roads, fire trails and perimeter roads.

Additional features of the road system that are specific to the present development include;

- An absence of cul-de-sacs;
- Alternative access and egress roads; and
- Perimeter roads than link into the internal road network at frequent intervals.

These features will increase bushfire protection for the proposed development in Stages 2 and 3, increase the level of firefighter safety and at the same time allow rapid access to critical locations within the development area, such as the bushland interface and hydrants. In addition the construction of the roads will also comply with the appropriate standards specified in the above document.

In terms of water supply, reticulated mains will be available throughout the development. Hydrants will be installed in accordance with Section 6.4 of *Planning for Bush Fire Protection 2001*.

The design of the subdivision layout has ensured that there will be no areas of hazard remaining on the site that would require future management in terms of bushfire. A perimeter road is located within the buffer zones from the adjoining bush land. This road as well as the front setback of the dwelling houses will ensure an adequate asset protection zone without the need for ongoing maintenance.

16.9 Drainage, Hydrological Regime and Flooding

A detailed water management strategy report has been prepared and submitted under separate cover by Paterson Britton & Partners Pty Limited. This report addresses the drainage issues in accordance with Shoalhaven Planning Policy

No 1 Development Guidelines – For Certain Residential 2(c) Zoned Land (Milton-Ulladulla).

16.9.1 Flooding

In terms of flooding, the site is relatively steep in nature and the nearest waterbody is Burrill Lake, approximately 1km to the north. It is anticipated that there will be no regional flooding effects, and hence local rainfall events will govern flood levels across the site. Analysis of the existing creeklines on the site has been conducted and the findings are included in the water management strategy report. This report has concluded that all of the proposed lots in stages 2 and 3 would be flood free during the 20 and 100 year ARI storm events.

16.9.2 Hydrological Regime as a Result of the Development

The post development conditions have been detailed in the water management strategy report. The minor flows from both overland flowpaths on the site up to the 5 year ARI flow are intended to be piped whilst constructed overland flow paths would be provided to convey major flows up to the peak 100 year ARI flow. This is in accordance with the Council's requirements.

The site also contains two creeks. These creeks will be maintained as part of the subdivision layout including a 20 metre wide corridor from the top of the creek banks to be provided as a riparian corridor. No construction works will occur within the existing creeklines with the exception of a culvert at the upstream boundary of the site where creek 1 passes under the proposed boundary road. This culvert would have capacity to convey the 100year ARI event as required by Council.

The majority of the proposed development would be flood free during the 100 year ARI event. During the 100 year ARI event it is expected that creek 2 would spill onto the adjacent boundary road. The water management strategy report has concluded that the runoff would pond to a maximum depth of approximately 250mm during the 100 year ARI event. The hazard (depth x velocity) is satisfactory for safe access and there are alternative routes for egress. This minor inundation would not affect the egress of occupants of nearby lots and the potential risk to residents would not be significant.

16.10 Impacts on Water Quality and Sedimentation Control

16.10.1 Water Quality and Sediment Control Measures

The stormwater management strategy to be implemented on the site will incorporate best practice water sensitive urban design measures. The water quality aspect of this strategy will include;

- Rainwater tanks;
- Gross pollutant traps; and
- Water quality control pond.

These measures are described in detail in the water management strategy report. This report also details modelling to enable accurate reporting of the performance of the proposed water management strategy for the site. The modelling demonstrates that the water quality targets for the site will be met through the implementation of the proposed water treatment strategy. Furthermore, it is expected that pollutant export from the site would be significantly reduced when compared to the sites existing rate of pollutant export. This will therefore lead to a long term improvement in receiving water quality. During site construction, erosion and sediment controls would generally be constructed and maintained in accordance with the Department of Housing document *Managing Urban Stormwater – Soils and Construction* March 2004.

An erosion and sediment control plan has been provided in figures 6 and 7 in the water management strategy report referred to above. This plan has the objective of minimising sediment movement off site and therefore minimising contamination of adjacent areas during the construction works. The proposed erosion and sediment control measures would include:

- Sediment retention ponds;
- Stabilised site access;
- Diversion drains;
- Sediment fences;
- Stockpile protection;
- Maintenance of sediment and erosion control measures.

Full details in respect of these measures have been provided in the Patterson Britton & Partners report.

To ensure the effectiveness of the sediment and erosion control devices, the following maintenance activities will be undertaken:

Sediment and erosion control devices would be regularly maintained and accumulated sediment removed before 50% of the capacity is used. Accumulated sediment would be re-used or disposed of in an acceptable manner off-site.

Sediment fences would be checked regularly for rips, excessive build up of sediment behind the fence, and breaches by construction activities. Damage to the fences would be repaired immediately on detection.

Surface water flows would be diverted around the designated site access to prevent sediment trapped within the access being re-suspended and transported offsite. Sediment that bypasses the stabilised site access, and is deposited on the nearby public streets would be cleaned up promptly by means other than washing into the drainage system.

Sediment and erosion control devices would be maintained until the disturbed areas have been adequately reinstated or new vegetation is sufficiently established.

16.10.2 Impacts on Surface and Ground Water

The introduction of the water quality treatments measures will improve the surface runoff water quality from the site. This will lead to the long term improvement in receiving water quality.

There will be no significant impact on ground water quality. The surface runoff that infiltrates to become groundwater would be of similar or better quality then compared to existing conditions.

16.10.3 Statement of Joint Intent Established by the Healthy Rivers Commission

The Draft Southern River Catchment Action Plan has developed the following water targets:

- *Improving Water Quality – By 2016 water quality of all water bodies is maintained or progressively improved from 2005 benchmarks;*

- *Water Conservation and Efficiency – Reduce residential potable water consumption from 2001/02 benchmark by 2016.*

The proposed water quality treatment measures are expected to improve the long term water quality of the receiving waters. This will ensure the first target is met.

The proposed development would include a minimum rainwater storage tank of 4000 litres per lot. Harvested rainwater would be utilised for toilet flushing, clothes washing and garden watering. It is expected that inclusion of rainwater tanks in conjunction with water saving appliances would reduce the potable water demand of this development by approximately 40%. This would ensure consistency with the second target.

16.10.4 Protection of the River Flow Objectives and Water Quality Objectives

The Department of Environment and Conservation's River Flow and Water Quality objectives aim to achieve long term goals for NSW surface waters including;

- *Water quality management to assess water quality in terms of whether the water is suitable for a range of environmental values (including human uses); and*
- *Surface water flow management to identify the key elements of the flow regime that protect river health and water quality for ecosystems and human uses.*

The proposed development is expected to improve the quality of surface runoff when compared to existing conditions. This will contribute to the long term improvement of receiving water quality. These improvements in water quality will improve the environmental values of Burrill Lake.

The use of detention storage has been integrated into the proposed development to allow the post development runoff regime to mimic the pre development runoff regime. For this reason it is expected that there would be no significant impact on the quality of flow from this catchment and existing flow regimes will be maintained.

16.10.5 Impact on Burrill Lake

The proposed development will utilise water sensitive urban design techniques to reduce runoff water quality

to levels below that of the existing condition. Therefore, it is expected that the development would have significant beneficial accumulative impact on Burrill Lake.

The proposed construction phase water management measures as identified in this assessment will minimise the risk of pollution of Burrill Lake.

16.11 Impacts on Waterways and Estuary Management

The Patterson Britton & Partners report has demonstrated consistency with the objectives of the *Rivers and Foreshores Improvement Act 1948*, NSW State Rivers and Estuaries Policy, NSW Estuary Management Policy and the Burrill Lake Estuary and Catchment Management Plan. These aspects are discussed briefly below:

16.11.1 Rivers and Foreshores Improvement Act, 1948

Creeks 1 and 2 are proposed to be retained as part of the proposed development. The development has proposed a 20 metre corridor from the top of the creeks and this will be provided as a riparian corridor. The only construction works within the creeklines is the construction of a culvert crossing of creek 1. Environmental buffers are to be provided to the proposed water quality control ponds and the existing downstream wetland.

The riparian vegetation associated with both creeks has already been extensively disturbed by past and ongoing agricultural practices. Although the proposal will involve additional and permanent modifications to the riparian corridors, it will also include measures to retain and improve the remaining riparian vegetation. The bulk of the existing riparian vegetation associated with the creek in the west is to be retained and managed in accordance with an approved vegetation management plan to improve its condition. Riparian vegetation will be re-established on either side of this creek wherever possible to maximise the width of the riparian corridor. The creek to the east will be provided with an extensive area of riparian and floodplain vegetation along its northern banks that will also be managed in accordance with a vegetation management plan.

The development will meet the requirements of the *Rivers and Foreshore Improvement Act*.

16.11.2 NSW State Rivers and Estuaries Policy

The aims of the NSW State Rivers and Estuaries Policy is to halt declining water quality, damage to the river banks and channels, loss of riparian vegetation and loss of biodiversity.

The runoff water quality management measures are expected to improve surface runoff quality when compared to existing conditions. The improvement in runoff quality would contribute to the improvement of the downstream environment including the wetland.

The peak flows from the site will be maintained at or below existing rates. This will ensure there are no adverse impacts on creek bank erosion.

Creeks 1 and 2 will be retained and embellished with native riparian species. This, in addition to the water quality control ponds will promote aquatic habitat and lead to improved biodiversity in the area.

As demonstrated, the proposed development will meet the requirements of the NSW State Rivers and Estuaries Policy.

16.11.3 NSW Estuary Management Policy

By introducing best practice construction phase erosion and sedimentation controls as well as appropriate stormwater controls, the development will not have any significant adverse impacts on the Burrill Lake estuary.

The proposed development will meet the requirements of the NSW Estuary Management Policy.

16.11.4 Burrill Lake Estuary and Catchment Management Plan

The Burrill Lake Estuary and Catchment Management Plan addresses water quality, erosion and sedimentation as well as water flows. The development has proposed the best practice measures. This will ensure that the development will be consistent with the objectives of the Burrill Lake Estuary and Catchment Management Plan.

16.12 Impacts on Threatened Species and Corridors

A detailed flora and fauna assessment has been completed by Bushfire and Environmental Services Pty Limited and submitted under separate cover. This report has assessed the potential

impacts of the development on flora and fauna, including threatened and migratory species, endangered populations and threatened communities.

The NSW *Threatened Species Conservation Act 1995* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* provide for the listing of threatened flora and fauna species, endangered populations and threatened ecological communities. The databases of these Acts were searched for records of threatened flora, threatened fauna and migratory species within an area of 10km x 10km centred on the site. In addition it was also necessary to review the Final Determinations of the NSW Scientific Committee and NSW Fisheries Scientific Committee in respect of the endangered populations and threatened ecological communities likely to be encountered in the locality.

Although no threatened flora species were recorded on the site, the proposal may result in indirect impacts on a known population of Leafless Tongue Orchid in the adjoining conservation reserve. These indirect impacts would result from unauthorised access into the reserve by vehicles. The proposal will however provide appropriate vehicle-proof fencing of the western and southern boundaries of Stages 2 and 3 to control vehicle access. In addition the design has incorporated a perimeter road to avoid building blocks adjoining the State Conservation Area, thereby reducing the potential for incursions by neighbours into this vegetation.

The only threatened fauna species identified on the site and within the 10km x 10km area centred on the site was the Glossy Black-cockatoo. The Glossy Black-cockatoo uses the Black She-oak trees as a source of food. The site contains very limited Black She-oak with a few trees occurring adjacent to the eastern boundary of the site. There are no breeding resources for the species on the site as there are only two trees with hollows and these hollows are not large enough for this species. Extensive areas of Black She-oak occur on the adjoining lands with large numbers of known feed trees recorded in these areas. The loss of two known feed trees would be highly unlikely to have any quantifiable impacts on the local population of the species in the context of its home range, mobility, and the available foraging resources within Meroo National Park and Barnunj State Conservation Area.

Two of the vegetation communities within the site being Paperbark Shrubland and Bangalay Swamp Forest have been identified as having floristic and structural affinities with a endangered ecological community Swamp sclerophyll forest. This community occurs within the drainage lines in the east and

west and on the floodplain in the north-east, comprising 1.62 hectares of the Swamp sclerophyll forest on the site.

All of the Swamp sclerophyll forest on the site has been disturbed by past and ongoing agricultural activities, with the disturbed Paperbark Shrubland and Bangalay Swamp Forest showing evidence of weed invasion, grazing, clearing for vehicles tracks, clearing for fencing and excavation for dams and the regrowth Paperbark Shrubland showing evidence of slashing resulting in Swamp Paperbark individuals with heights less than 1 metre.

The proposal will result in the removal of approximately half of the Swamp Sclerophyll forest. The remaining Swamp sclerophyll forest will be retained and managed for conservation purposes via an approved vegetation management plan.

The development has incorporated the provision of water sensitive urban design principles as well as appropriate management practices including the provision of a vegetation management plan and fencing to ensure any direct or indirect impacts on the Swamp sclerophyll forest are mitigated. In addition the development will also introduce offset measures by the provision of a significant area within stage 5 being retained for Swamp sclerophyll forest.

The conclusions of the flora and fauna assessment include:

- The proposal includes actions to avoid, mitigate and offset impacts on Swamp sclerophyll forest that will maintain or improve the biodiversity values of this endangered ecological community.
- The proposal is unlikely to reduce the long-term viability of a local population of the Leafless Tongue-orchid, Glossy black-cockatoo or Swamp sclerophyll forest. The hydrologic and vegetation management practices to be implemented for the proposal along with the design of roads will provide appropriate long term protection for the Swamp sclerophyll forest.
- The proposal is unlikely to accelerate the extinction of the Leafless Tongue-orchid, Glossy Black-cockatoo or Swamp sclerophyll forest. No populations of the Leafless Tongue-orchid or breeding habitat for the Glossy Black-cockatoo were recorded on the site. The extent of foraging resources for the Glossy Black-cockatoo to be affected by the proposal is very small relative to the home range of this highly mobile fauna species and the presence of extensive foraging resources in adjoining conservation reserves.
- The proposal will not affect critical habitat.

- The site does not contain any potential or core Koala habitat pursuant to State Environmental Planning Policy No 44 – Koala Habitat Protection.
- Following consideration of the administrative guidelines for determining significance under the *Commonwealth Environment Protection and Biodiversity Conservation Act*, 1999, the proposal is unlikely to have a significant impact on matters of National Environmental Significance.

16.13 Contaminated Land and Acid Sulphate Soils

16.13.1 Land Contamination

A detailed land contamination report has been completed by Network Geotechnics Pty Limited for Stages 2 and 3 of the development. A copy of this document has been provided under separate cover.

Historical information of the site and surrounding areas indicated that the site was densely vegetated with trees prior to clearing which occurred sometime between 1959 and 1967. Occasional crop cultivation may have occurred on this otherwise the site was used for other agricultural activities.

Laboratory testing of the soil samples taken from the site covered heavy metals and OC/OP pesticides. The analysis indicated all sample levels below laboratory detection limits or health based investigation levels.

Based on the assessed previous site use and the field and laboratory testing, the site is considered unlikely to contain contamination which would limit its suitability for residential development.

16.13.2 Acid Sulphate Soils

Acid sulphate soil tests were conducted by Network Geotechnics Pty Limited as detailed in preliminary contamination assessment report. The report has concluded all samples tested, except alluvial soils located within the low lying area adjacent to the wetland, were found not to be potential or actual acid sulphate soils. The soils tested adjacent to the low lying area adjacent to the wetland were assessed to be potential acid sulphate soil. An acid sulphate management plan would need to be developed and implemented if any excavation below about RL 3.5m was to occur. These will not affect Stages 2 and 3.

16.14 Aboriginal Cultural Heritage Values

As part of the Environmental Assessment, an independent archaeology report must be included. This has been completed by South East Archaeology Pty Limited and submitted under separate cover. This report has satisfied the requirements set out in the Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation.

16.15 Subdivision Layout and Pattern

The subdivision layout for Stages 2 and 3 has taken into account the environmental constraints such as bushfire and hydrology as well as opportunities. The gentle sloping nature of the site and its orientation is ideal for the future residential development of the area and ensures that the subdivision layout will enable the application of energy conservation principles at a future date. As the site has previously been cleared the development results in minimal disturbances to vegetation and habitats.

All of the allotment areas and dimensions are appropriate for the future siting and construction of a dwelling and ancillary outbuildings, the provision of private outdoor space and vehicle parking. The gentle slope of the site ensures earthworks and retaining wall associated with dwelling construction will be minimised.

The subdivision layout is consistent with the residential character of the locality and will contribute to an attractive streetscape and landscape.

The passive open space proposed in Stage 5 will contribute to an attractive urban environment adding to the amenity of the subdivision layouts proposed for Stages 2 and 3. The dam and wetland in this area will be the focal points for the open space.

The subdivision layouts have respected the requirements of the various planning instruments that affect the site.

17.0 CONSULTATION PROCESS

As part of the Environmental Assessment Requirements, consultation was required with a variety of parties. A copy of the preliminary assessment and a request for any issues/comments was forwarded to the following parties on 9 March 2006:

- NSW Department of Planning – South Coast Regional Office;
- NSW Department of Natural Resources;

- NSW Roads and Traffic Authority;
- NSW Rural Fire Service;
- NSW Department of Environment and Conservation;
- Country Energy;
- Shoalhaven City Council; and
- Shoalhaven Water.

The preliminary assessment and request for any issues/comments was forwarded to the Southern Rivers Catchment Management Authority on 11 July 2006.

During this consultation period a response was received from the NSW Department of Natural Resources and the NSW Rural Fire Services. On the 21 April 2006, the Department of Planning forwarded the agency responses to the preliminary environmental assessment. The response from the NSW Department of Natural Resources and the NSW Rural Fire Service to the former Turnbull Group Pty Limited was identical to the response sent to the Department of Planning.

The following table illustrates the issues raised by the various parties during the consultation and how the matters have been addressed.

PARTY	ISSUES RAISED	RESPONSE
NSW Dept of Planning – South Coast Regional Office	Key issues include traffic, urban design, bushfire and drainage.	Detailed reports have been submitted in respect of traffic, bushfire and drainage. The urban design in respect of the visual impact as well as subdivision layout for stages 2 and 3 has been considered in the environmental assessment. An urban design review has been undertaken for stage 5 to identify the areas of environmental constraints and define potential development parcels.
NSW Dept of Natural Resources	Demonstrate how the development will meet the requirements of the Rivers and Foreshores Improvement Act, NSW State Rivers and Estuaries Policy, NSW Estuary Management Policy as well as addressing acid sulphate soils on the site.	A detailed report has been provided under separate cover from Patterson Britton and Partners. This report demonstrates that there will be no degradation of water quality in the locality due to the implementation of appropriate water quality treatment measures. The report also addresses the various acts and policies quoted by the NSW Department of Natural Resources. An acid sulphate soil survey has been completed by Network Geotechnics.

Southern Rivers Catchment Management Authority	The Department of Planning did not forward the issues raised by the Southern Rivers Catchment Management Authority and no response was made to our request for any issues.	No action required.
NSW Roads and Traffic Authority	A traffic impact study is required to be prepared in accordance with Table 2.1 of the RTA Guide to Traffic Generating Developments. Intersection modelling which considers the AM and PM peak volumes and holiday peak volumes as well as 10 year projected volumes. Details of suitable treatments to ameliorate any traffic impact to be provided.	This has been completed by Colston Budd Hunt and Kafes Pty Limited and satisfies the requirements of Table 2.1 of the RTA Guide to Traffic Generating Developments.
NSW Rural Fire Service	<p>Letter dated 12/12/05 and 17/3/06. Key issues & assessment requirements include:</p> <ul style="list-style-type: none"> ▪ Controlling the type of developments permissible in bushfire prone areas; ▪ Minimising the impact of radiant heat and direct flames by providing asset protection zones. ▪ Reducing the heat output of a fire close to a development through control of fuel levels. ▪ Adequate egress/access. ▪ Provision of future water supplies for bushfire suppression operations. ▪ Construction methods of future development. ▪ Future management of areas of hazard remaining within the development. ▪ Revegetation to limit the spread and occurrence of fire. 	A detailed report has been completed by BES Bushfire + Environmental Services. This report has addressed the asset protection zones and setbacks from the bushfire hazard, egress/access, service supply to the site as well as appropriate building construction standards. This assessment has been completed in accordance with the appropriate state-wide guidelines.

	<ul style="list-style-type: none"> Plan of management to include fuel management within the development & maintenance of asset protection zones 	
NSW Dept of Environment & Conservation	<p>The following environmental issues were required to be addressed:</p> <ul style="list-style-type: none"> Water quality; Contaminated land; Noise; Threatened species; Aboriginal cultural heritage Impacts on the adjoining DEC managed land. <p>The Environmental Assessment should demonstrate how the development ensures an integrated and holistic approach to environmental management, threatened species conservation and the preservation of Aboriginal cultural heritage.</p>	<p>Appropriate reports have been prepared that address water quality, contaminated land, threatened species and Aboriginal cultural heritage.</p> <p>The subdivision layout will cause minimal impact on the adjoining DEC managed land.</p> <p>Noise from surrounding developments is unlikely to impact on the future subdivision. In addition the subdivision itself will not result in excessive noise that would adversely impact on the surrounding developments.</p>
Shoalhaven City Council	<p>Shoalhaven City Council by letter have requested consideration be given to the following:</p> <ul style="list-style-type: none"> Relevant planning instruments; Provision of community facilities such as sporting fields; Studies including traffic, flora and fauna, stormwater/hydraulics, bushfire, archaeology and site contamination to be undertaken; Consideration of acid sulphate soils; Details of pollution controls; Safer by design principles; Integrating the subdivision with the adjoining site; Demonstrated 	<p>A meeting was held with Shoalhaven Council on 8 May 2006. At this meeting Council advised that they did not wish the land in Stage 5 dedicated to Council due to on ongoing maintenance costs. This position has now been reviewed by Council.</p> <p>As part of the environmental assessment detailed reports have been submitted to address traffic, flora and fauna, pollution control, stormwater/hydraulics, bushfire, archaeology and contamination.</p> <p>The environmental assessment has addressed other issues such as the relevant planning instruments, integration with the adjoining sites, safer by design and the issue of the open space land.</p>

	useability of open space; ■ Impact on Burrill Lake; and ■ Vegetation of natural drainage lines.	
Shoalhaven Water	The provision of water supply and sewer is to integrate with Council's Development Servicing Plan for Water Supply Services and Sewerage Services.	This will occur and detail has been included in the statement of commitments.

Consultation also occurred with the Local Aboriginal Land Council and the local community. This is discussed below:

17.1 Aboriginal Consultation

The site is within the boundaries of the Ulladulla Local Aboriginal Land Council (LALC).

Extensive consultation has occurred between the proponents and the consulting archaeologists engaged by the proponents (Navin Officer Heritage Consultants and South East Archaeology) throughout the course of 2003, 2004 and 2005. Details of the consultation undertaken with the LALC has been detailed in the report prepared by South East Archaeology Pty Limited entitled 'Sub-surface Archaeological investigation of Stages 2-4 of "The Dairy", a Proposed Residential Development at Dolphin Point, near Burrill Lake, on the South Coast of New South Wales. Volume A: text.'

As part of the consultation process, the following was undertaken:

- A preliminary inspection of Stages 2 to 4 by South East Archaeology and the LALC was undertaken on 14 October 2003. Further detailed survey of the study area occurred on 5 and 6 February 2004 between the above parties.
- Due to the constraints posed by limited conditions of surface visibility and in order to adequately address management of the identified and potential heritage resources, it was agreed by South East Archaeology and LALC that a program of sub-surface testing should be conducted within Stages 2 to 4. A research design and survey report was prepared by South east Archaeology and provided to the Ulladulla LALC for comment. Further consultation occurred between South East Archaeology and the Executive of the LALC to discuss the

proposed work. A Section 87 application was provided to the LALC for comment in February 2004. Correspondence from LALC supporting the findings and recommendations of the survey report and endorsing the proposed program of testing was forwarded to South East Archaeology.

- Following the approval of the Section 87 Permit, test excavations were undertaken from 19 July to 27 August 2004. This work was completed with the assistance of the Ulladulla LALC.
- The draft archaeological report completed by South East Archaeology was forwarded to the Ulladulla LALC for their review and comments. These comments have been incorporated into the final document.

The above process indicates extensive consultation with the Ulladulla LALC.

17.2 Public Consultation

The Dolphin Point Development is contained within the Shoalhaven City Council limits. It is encouraged under Shoalhaven Council's Community Consultation Strategy that the Community will be consulted prior to any approval being granted to a development. With this in mind and with reference to the Shoalhaven City Council's Community Consultation Policy it is intended that the proponent will consult widely with the community.

Community consultation is defined by The International Association of Public Participation as:

"An interactive process which, through the encouraged involvement of stakeholders, permits and promotes the exchange of ideas and information and the identification of relevant issues and options, with the objective of enhancing the decision-making process."

In order to achieve the required community consultation with the Dolphin Point community and the wider Shoalhaven community the proponent has already implemented the following process.

- Letterboxing of the Dolphin Point community to inform them of the project applications.
- The holding of a preliminary public meeting earlier this year.

- Provisions of a handout at the meeting. The handout provided a contact number for the proponent and an email address as well as a reduced set of plans.
- Contact was made with the Dolphin Point Residents Action Group with an offer to attend and provide information to the local community at their next meeting.
- A public notice was inserted in the local press with contact information and the date of the meeting referred to above.

Throughout this process it is intended that the proponent maintain close contact with Council in order to gain any feedback that they may receive.

18.0 STATEMENT OF COMMITMENTS FOR ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES FOR THE DEVELOPMENT

The following statement of commitments in managing the project and minimising its impacts on the environment will be implemented as part of the proposal:

Roadways

1. The engineering design of all roads will be in accordance with Shoalhaven Council's *Engineering and Design Specification*, Chapter D2 and in accordance with the Australian Model Code for Residential Development (AMCORD) Guidelines. An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with these documents. All roads will be completed prior to the release of the linen plan.
2. The width of the collector road identified through Stages 2 and 3 will be designed for a minimum pavement width of 9 metres to accommodate future public transport routes.
3. The local street network for Stages 2 and 3 will cater for the provision of public utility networks including water, sewerage, electricity, telecommunications, street lighting and gas. The provision of utility services will be in accordance with Shoalhaven Council's *Engineering and Design Specification*, Chapters D10 and D11. An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with this document. All public utility networks will be completed prior to the release of the linen plan.
4. The street component consisting of carriageway widths, verge widths, kerb type, longitudinal gradients and pavement treatments

for each local and collector street will be in accordance with Tables 1 and 3 of Shoalhaven Council's Development control Plan No 100. The only variation to this will be in respect of the perimeter road. The width of this road will be 20 metres in order to achieve the appropriate width for the asset protection zone.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with this document. All roads will be completed prior to the release of the linen plan.

5. A landscape plan will be submitted to Shoalhaven Council for Stages 2 and 3 showing: The street reserve and indicative location of the carriageway; location, species and general character of tree planting and hard and soft landscape treatment. All landscaping work will be completed in accordance with Council's requirements. The landscaping works will be completed prior to the release of a linen plan.
6. A footpath including wheelchair/pram ramps at the intersections and crossing points will be constructed on all roads. The footpath will be completed in accordance with Shoalhaven Council's Engineering and Design Specification Chapter 2. This work will be completed prior to the release of a linen plan for the subdivision.
7. Speed control devices will be placed on longer perimeter roads as required.

Bushfire

8. A section 88B instrument will be prepared by the proponent requiring the residential front yards of those allotments that form part of the asset protection zone to maintain the front yard to asset protection zone standards. This will include:
 - Any landscaping or plantings are to be local endemic mesic species or other low flammability species. Any plantings are to be well spread out and are not to form a contiguous pathway to the dwellings.
 - Any structures (eg fences, garden sheds, decks, pergolas, carports etc) within the asset protection zone are to be non-combustible as defined by Australian Standard 1530.1 and not deemed combustible pursuant to Clause C1.12 of Volume 1 of the Building Code of Australia.
 - Any structures storing combustible materials such as firewood must be sealed to prevent entry of during debris.
 - Gutters, roofs and roof gullies are to be kept free of leaves and other debris.
 - A minimum ground fuel is to be maintained to include either mown grass, paving, concrete, bare ground or less than 3 tonnes per hectare of fire fuel (ie material of <6mm in diameter).

A copy of the Section 88B Instrument will be provided to Shoalhaven Council prior to the release of a linen plan for the subdivision.

9. The perimeter road for stages 2 and 3 will comply with the road construction standards for public roads as identified in the document entitled Planning for Bushfire Protection Guidelines (NSW Rural Fire Services) 2001.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with this document prior to the release of the linen plan.

10. Fire hydrants are to be installed in Stages 2 and 3 in accordance with Australian Standard AS2419.1-1994 and Section 6.4 of the document entitled Planning for Bushfire Protection Guidelines (NSW Rural Fire Services) 2001.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with this document prior to the release of the linen plan.

11. The Section 88B Instrument will also require that development on the perimeter lots to the north-west within Stage 2 will require a Level 1 construction standard under AS3959. Dwellings on the southern, eastern and western perimeters will require a Level 2 construction standard under AS3959.

A copy of the Section 88B Instrument will be provided to Shoalhaven Council prior to the release of a linen plan for the subdivision.

Water Quality Control Measures

12. Two water quality control ponds will be provided on the site in accordance with Figure 3 in the report prepared by Patterson Britton and Partners. The primary function of these water quality control ponds is to act as a stormwater quality treatment measure.

The proponent will complete this work prior to the release of the linen plan.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with the report provided by Patterson Britton and Partners prior to the release of the linen plan.

13. The existing dam will be one of the water quality control ponds. Remediation work to the dam will include:

- Planting suitable vegetation, including macrophytes;
- Providing edge treatment to minimise mosquito habitat; and
- Construction of a suitable outlet/spillway.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with the Patterson Britton and Partners report prior to the release of the linen plan.

14. The second water quality control pond will be constructed downstream of the existing dam. This will have a surface area of approximately 5000m² and include the following;

- Extensive planting including macrophytes;
- Suitable edge treatment to minimise mosquito habitat;
- Constructed outlet; and
- An average minimum depth of 1 metre.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with the Patterson Britton and Partners report prior to the release of the linen plan.

15. Gross pollutant traps will be installed in accordance with Figure 3 in the Patterson Britton & Partners report.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with the Patterson Britton and Partners report prior to the release of the linen plan.

16. An assessment of the existing dam and the second water quality control pond will be carried out during subdivision earthworks. The assessment will include water and sediment quality prior to off site discharge of retained water and/or removal of onsite use of sediments from the dams.

An appropriately qualified person prior to the subdivision earthworks being completed will complete this assessment. Details of the findings will be submitted to Shoalhaven Council within 72 hours of the assessment being undertaken. Details of any required remediation measures will also be submitted to the Council and this work will be completed immediately.

17. A Section 88B instrument will be prepared requiring each dwelling to provide a 4000L rainwater tank that will capture the stormwater collected from the roof of future dwellings. The rainwater tank design will be as follows:

- A minimum 4m³ volume rainwater tank designed to collect the majority of roof runoff and store it for irrigation, clothes washing

and toilet flushing purposes would be installed for each of the dwellings on the site;

- The tanks are to incorporate a first flush device, inspection/cleanout hatch and cleanout valve;
- The tanks are to incorporate an outlet tap for connection to an irrigation system driven by the tank head (if possible);
- All tank overflow should be directed to the formal piped stormwater drainage system to prevent nuisance flooding;
- All rainwater tanks should be installed and maintained so as to prevent cross connection with the portable water supply;
- A topping up device (from the potable water supply) shall be provided to supplement roof runoff during periods of little rainfall or high water use;
- A backflow prevention device shall be installed;
- All rainwater services shall be clearly labelled “non portable water” with appropriate hazard identification;
- Pipe work used for rainwater services shall be coloured purple in accordance with AS1345. All valves and apertures shall be clearly and permanently labelled with safety signs to comply with AS1319.

A copy of the Section 88B Instrument will be provided to Shoalhaven Council prior to the release of a linen plan for the subdivision.

18. Maintenance of the gross pollutant traps will be undertaken by the landowner of the Stage 5 land.

19. The following maintenance program for the site's water quality control measures will consist of the following:

- Periodic (6 month) inspection and removal of any gross pollutants and coarse sediment that is deposited in the water quality control pond and replacement of vegetation as necessary;
- Periodic (3 month) and episodic (post storm greater than 1 year ARI) inspection and removal of trapped pollutants from all GPT's; and

An appropriately qualified person verifying that this maintenance program has occurred will provide certification to Shoalhaven Council on an ongoing basis.

Sediment Control

20. Prior to any works commencing on the site the proponent will implement the erosion and sediment controls as identified in Figures 6 and 7 of the report by Patterson Britton and Partners. The erosion and sediment control measures will be constructed in

accordance with the recommendations in Sections 4.7 and 4.8 of the above report.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with the Patterson Britton and Partners report prior to any further works occurring on the site.

21. The sediment and erosion control devices will be maintained in the following manner;

- Sediment and erosion control devices would be regularly maintained and accumulated sediment removed before 50% of the capacity is used. Accumulated sediment would be re-used or disposed of in an acceptable manner off-site.
- Sediment fences would be checked regularly for rips, excessive build up of sediment behind the fence, and breaches by construction activities. Damage to the fences would be repaired immediately on detection.
- Surface water flows would be diverted around the designated site access to prevent sediment trapped within the access being re-suspended and transported offsite. Sediment that bypasses the stabilised site access, and is deposited on the nearby public streets would be cleaned up promptly by means other than washing into the drainage system.
- Sediment and erosion control devices would be maintained until the disturbed areas have been adequately reinstated or new vegetation is sufficiently established.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with the maintenance of the sediment control measures prior to the release of the linen plan.

Drainage Management

22. The stormwater drainage concept plan for the site will be in accordance with Figure 3 and the details provided in the water management strategy report prepared by Patterson Britton and Partners Pty Limited.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with the Patterson Britton and Partners report prior to the release of the linen plan.

23. The design and construction of the major and minor storm drainage systems will be in accordance with Shoalhaven Council's *Engineering and Design Specification*, Chapter D5. This work will be completed in accordance with the report prepared by Patterson Britton and Partners.

An appropriately qualified person will provide certification to Shoalhaven Council to demonstrate compliance with the Patterson Britton and Partners report prior to the release of the linen plan.

Services

24. Underground electricity supply and telephone service will be provided to Stages 2 and 3. The provision of these services will be in accordance with the requirements of the relevant authorities.

Certification will be provided by an appropriately qualified person demonstrating compliance with the relevant authorities requirements to Shoalhaven Council prior to the release of the linen plan.

Aboriginal Sites or Objects

25. If any previously unrecorded Aboriginal sites or objects are detected during the course of the development which are not covered by the existing Section 90 Consent, work will cease immediately and findings will be reported to the Department of Environment Conservation and Climate Change (NSW) and advice sought as to the appropriate course of action.
26. An Aboriginal Heritage Management Plan will be prepared, submitted to DoP for endorsement and implemented by the proponent.

General

27. A subdivision certificate will be prepared and submitted to Shoalhaven Council in respect of the proposed development. As part of the subdivision certificate, a linen plan will be prepared as well as any Section 88B Instruments.
28. Any future development of stage 5 will be contained within the areas identified as development parcels in the Urban Design Review prepared by Urbis JHD. Approval to these projects in no way endorses the findings of Urbis as regards future development parcels.

Vegetation and Habitat Management

29. The extent of Swamp sclerophyll forest and Coastal saltmarsh to be retained and offset will be marked in the field by an appropriately qualified person and the vegetation boundaries surveyed by a registered surveyor.

Certification will be provided to Shoalhaven Council by an appropriately qualified person demonstrating that this has occurred prior to the release of a linen plan.

30. The management of retained and offset Swamp sclerophyll forest and Coastal saltmarsh will be secured via positive covenants placed on the titles of the affected land requiring implementation of the approved vegetation management plan by the affected landowners.

Details of the positive covenants will be included in the linen plan.

31. An appropriate perimeter fence will be constructed around areas of retained and offset Swamp sclerophyll forest. The perimeter fencing will be constructed in consultation with an appropriately qualified flora expert and will be established prior to any earthworks occurring within stages 2, 3 and 5.
32. Riparian vegetation will be re-established on either side of the creek in the west (southern part of Stage 3) wherever possible, to maximise the width of the riparian corridor.
33. A vegetation management plan will be prepared by a suitably qualified person for the retained and offset Swamp sclerophyll forest and Coastal saltmarsh and for re-established riparian vegetation. The vegetation management plan will address a number of matters including, but not limited to, protection and maintenance of the Swamp sclerophyll forest and Coastal saltmarsh, weed control, vegetation enhancement, control of access, monitoring and fire management.

The vegetation management plan will be submitted to Shoalhaven Council prior to any works occurring on the site.

34. The water cycle management and water quality treatment systems for the proposal will be designed such that they maintain the existing hydrologic regime in the areas of the Swamp sclerophyll forest and Coastal saltmarsh and protect these communities from adverse water quality impacts.
35. A vehicle proof fence designed and constructed in consultation with the Department of Environment and Conservation (DEC) will be constructed along the western and southern boundaries of stages 2 and 3 where they adjoin lands managed by the DEC. This fencing will be established prior to the release of the linen plan.
36. Trees will be retained within the proposal wherever possible.
37. All trees and vegetation to be retained will be appropriately protected from compaction of root systems, damage to trunks, and

the build-up of soil around tree bases, by appropriate work practices during the construction phase of the proposal. The appropriate protection measures are to be in accordance with the recommendations of an appropriately qualified arborist or similar. These protection measures are to be implemented prior to earthworks occurring on the site.

38. All vegetation to be retained will be protected from unauthorised access during the construction phase of the proposal. An induction program for workers will be developed and implemented to inform them of the limitations of the construction site. Temporary fencing will be installed along the edges of vegetation to be retained and workers will be instructed to avoid encroaching into such vegetation.

39. Trees with hollows to be felled during the construction phase, will be felled in accordance with the following procedures:

- A fauna specialist appropriately licensed under the NSW *National Parks and Wildlife Act, 1974*, for the purpose of rescuing displaced animals, will supervise felling.
- The fauna specialist will be suitably attired with protective clothing and have suitable equipment to undertake the work.
- An appropriately skilled local wildlife carer must be notified at least 24 hours prior to the tree felling, that animals may be captured and that these animals may need care.
- Any non-hollow-bearing trees around those with tree hollows to be felled will be removed first. At least one day will be left between clearing of the non-hollow-bearing trees and the hollow-bearing trees to allow fauna time to vacate the trees.
- Prior to the felling of the identified and marked hollow-bearing trees, the trees will be shaken or nudged by tree-felling equipment to encourage any fauna to vacate the trees.
- If no animal emerges from the hollows after shaking or nudging, then the tree will be felled and lowered to the ground if possible.
- If an animal emerges from a hollow following shaking or nudging of the tree, then at least 30 minutes will be allowed for the animal to leave the tree. If the animal comes to the ground, or when it is on the lower trunk, attempts will be made to capture the animal using a net. Captured animals will be immediately transferred to a suitably sized cotton bag and checked for obvious injury during the transfer process.
- Captured animals will be placed in individual bags unless they are a family group to which separation would risk the survival of the young.
- Once the tree has been felled, a search will be made of the branches around the tree for any fleeing fauna and hollows should be inspected with a torch for the presence of any animals. Attempts will be made to capture any fleeing fauna with a net, and animals inside hollows should be extracted by hand. Captured animals will be immediately transferred to a suitably

sized cotton bag and checked for obvious injury during the transfer process.

- Injured, shocked or immature captured animals will be placed in a cotton bag secured at the top. Bags will be wrapped in appropriate insulating material such as blankets and placed in a quiet, warm and preferably dark place until the wildlife carer can collect them. Details on the location of the capture and proposed release areas will be provided to the wildlife carer.
- Uninjured animals will be released in appropriate habitat as soon as practicable (at night for nocturnal species).

Landscaping

40. Exotic perennial grasses will not be sown in any areas that abut native vegetation to be retained or re-established within the proposal or native vegetation on adjoining lands. If grasses are to be used in these areas, for landscaping or soil stabilisation purposes, then indigenous native species or non-invasive exotic species will be used.
41. Native plants as detailed in the flora and fauna assessment completed by Bushfire and Environmental Services will be included in any landscaping for the proposal.
42. Black She-oak *Allocasuarina littoralis* sourced from local nurseries will be preferentially used in landscaping for the proposal.
43. No known environmental weeds, noxious weeds or known invasive plants species will be planted with the site in association with the proposal.

19.0 STATEMENT OF VALIDITY OF THE ENVIRONMENTAL ASSESSMENT

The information contained in this environmental assessment is stated as being neither false nor misleading.

The qualifications of the persons that have prepared the environmental assessment are as detailed below:

Peter A Le Bas

- Bachelor of Arts (Geography) University of New England 1978
- Bachelor of Laws (First Class Honours), University of Technology Sydney 2002
- Master of Town and Country Planning, University of Sydney 1985
- Graduate Certificate in Legal Practice, University of Technology Sydney 2002
- Certified Practising Planner, Planning Institute of Australia 2006
- Legal Practitioners Practising Certificate No 28661

Sandra Bailey

- Bachelor of Science (Honours), University of New South Wales

Gary Peacock

- Bachelor of Town Planning University of New South Wales 1980

END OF DOCUMENT