



19 July 2010

KINGS FOREST CONCEPT PLAN

1.0 Introduction

On 12 May 2010, the Hon Tony Kelly MP, Minister for Planning wrote to the Chairman of the Planning Assessment Commission (PAC) requesting the PAC to advise on the reasonableness of the Department's recommendation on the proposed Kings Forest Concept Plan.

The Commission consisted of Ms Janet Thomson and Mr John Court (members of the PAC). Ms Thomson chaired the review.

The Concept Plan seeks approval for:

- Twenty three residential precincts with a mix of housing types including detached houses, terraces and attached dwellings on corner allotments, comprising 4,500 dwellings covering approximately 270 ha of net developable land;
- A mixed use Town Centre and Neighbourhood Centre to a maximum height of 2 stories with a combined area of 14.4ha;
- Community and education facilities including 2 public primary schools and a community facility over 14.5 ha of land;
- A business park covering 7 ha of land;
- A golf course covering 57 ha of land that also acts as an environmental buffer between the environmental protection areas and the residential development;
- Active and passive open space areas;
- Environmental protection areas covering 338.5 ha of land;
- Access network of roads, public transport routes and pedestrian/cycle paths;
- Landscape and vegetation management;
- Water management areas and lakes; and
- Utility services infrastructure.

2.0 Information provided to the Commission

The Commission was provided with the DG's Assessment Report, the Proponent's EA and Response to Submissions, the draft Development Code, Submissions from Government Agencies and the Ecology Report prepared for the State Significant Site Listing in 2006.

3.0 Meeting with the Department of Planning

On 25 May 2010, the Commission met with senior staff from Department of Planning (DOP) for a briefing and clarification of issues on the Department's report.

4.0 Site Inspection

A site inspection was carried out on 23 June 2010. Members of the Commission were shown over the site by Mr Van Rij from Leda Holdings and were accompanied by Paula Poon from the Secretariat and Stuart Withington from the Department of Planning.

5.0 Meeting with Tweed Shire Council

A meeting was held with Tweed Shire Council (TSC) representatives on 23 July 2010. Those in attendance were:

- John Court PAC
- Janet Thomson PAC
- Paula Poon PAC
- Stuart Withington DOP
- Vince Connell Tweed Council
- Patrick Knight Tweed Council
- David Oxenham Tweed Council
- Denise Galle Tweed Council
- Rowena Michel Tweed Council
- Danny Rose Tweed Council

A broad range of matters related to the Kings Forest development and the planning assessment process more generally were discussed at the meeting. The issues raised are noted following:

- Council's unease with the Part 3A process in terms of both outcomes and the extent of Council work needed to support the process. It was indicated that Council was approaching the Minister directly on these matters.
- Council's concern over departures in the development code from Council's DCP provision, in particular the shift to smaller lot subdivision and the lack of community consultation on this aspect.
- Council's concern over the proposed housing density.
- Council's prediction that the recent cap on S94 contributions would curtail its ability to provide and service adequate infrastructure for the development.
- Council's concerns about the adequacy of provision in the proposed development for affordable housing, employment opportunities and public transport.
- The capacity of Council's Kingscliff sewage treatment plant to receive the sewage effluent from the development.
- Proposed water cycle management in the Kings Forest development.
- Council information on water quality management in the Tweed river and its tributaries and estuaries and Cudgen Creek.
- Acid Sulphate Soil issues related to the site and urbanisation in the area.
- The status of Council's flood model.
- Council's experience with water sensitive urban design (WSUD) for water cycle management in regional urban areas.
- Council's views and experience on koala protection relative to management of traffic and companion animals (dogs).
- Buffer zones for agricultural activities.

6.0 Major Issues

As a result of the consideration of all the documents relating to the proposed approval, the site inspection and the meeting with the Council representatives, the PAC considers that the Concept Plan provides for a carefully considered development of the site and should receive approval.

PAC is aware that the level of design needed or appropriate at the Concept Plan stage of projects such as Kings Forest will usually be less than at the various later project stages. Agencies, council and the public, no doubt seeking greater certainty, have called in their submissions on Kings Forest for more information at the concept stage while the proponent, no doubt mindful of cost and the progressive dimension in precinct design, has not wished to advance design work beyond the level necessary for concept assessment.

PAC has therefore been conscious of the need to gauge whether the analysis work up to the concept plan stage has been adequate to determine the broad-scale impacts with sufficient assurance that more detailed design at the later approval stages will be able to cope with any issues then arising. The question PAC has generally addressed is: are the broad-scale conclusions sound and robust enough for the Concept Plan to be approved, while leaving various issues for more detailed resolution at the later approval stages?

PAC has reviewed the Department of Planning's assessment of the environmental aspects of the Concept Plan as contained in the Director General's Environmental Assessment Report (20 May 2010) and is generally satisfied that the assessment, conclusion and recommendations are reasonable.

However, there are certain issues, which should be addressed in the approval to ensure that the future planning and development of the site meets the planning objectives spelt out in the Concept Plan. While supporting the Department's recommendations, PAC is recommending that some aspects of the proposals and conditions be further explored with a view to strengthening requirements both at the Concept Plan stage and in applications for the future stages of the development. These are detailed below:

6.1 The Development Code

The Development Code to control the future development of the site has been prepared outside the Concept Plan process as it was not part of the EAR for the site. Subsequent to the exhibition of the EAR the code was prepared in consultation with the Council and was publically exhibited. Although Council is now generally satisfied with the process which has taken place there are no provisions to ensure such a process is followed in the future should further planning take place on the site. There are no provisions in the proposed approval to legitimatise this process or to provide for amendments and changes to the code if the need should arise. As a result it is considered that the conditions of the Concept Plan approval should set out the process for the preparation and approval of the development code and any amendments to it.

6.2 Densities and Yields

The PAC agrees that there is little detail in the concept plan in relation to the densities and yields to be achieved on the site. It is considered important that such a large development should provide a range of housing types to satisfy changes in demand for housing as the population ages, changes and grows in the area. Council had requested that a master plan be prepared for the site to provide a strategic planning framework for future precinct development in consultation with the Council. It is understood that the applicant indicated that they would consider a Statement of Commitment to cover this matter but it appears that this has not eventuated. The PAC considers that a strategic plan for the site which identifies locations for higher density development and sets out housing targets for each precinct should be prepared to provide a strategic framework for the detailed precinct planning which is to follow. The proponent's claim that a "salt and pepper approach" to precinct planning will be followed is too open ended in terms of providing for the location of, and amount of higher density development.

6.3 Provisions for Affordable Housing

Both Council and the Department of Housing have expressed concern about the lack of attention to the provision of affordable housing in the Concept Plan. The DOH notes that recent studies have shown that there is a need for more affordable housing both for rental and purchase in Tweed. According to a Bankwest Key Worker Affordability Report of May 2008, nurses, teachers, police officers, fire fighters and ambulance officers could not afford to purchase housing in Tweed. As a result the PAC considers that the proponent should look in more detail at this issue. The strategic plan in relation to densities and yields will go some

way to address the issue of dwelling size and location. However, it is felt that a more detailed strategy needs to be developed to address the issue of housing affordability.

6.4 Water Issues and Acid Sulphate Soils

Water issues are critically important in assessment of the proposed Kings Forest development. The proposed development site lies in the Cudgen Creek catchment, substantially on land that is low-lying coastal plain. About a quarter of the site is permanent wetland, which will be largely conserved.

PAC is generally satisfied that the DG's Assessment Report for the Concept Plan has addressed the water-related issues and formulated appropriate discrete conditions of approval to address their ongoing management. However, there is a risk that during implementation the interaction between several water related issues may not be adequately addressed unless careful attention is given to successful integration of the measures proposed. PAC is therefore recommending consideration of some strengthening or amplification of several conditions.

The land has been formed by estuary processes common to the region over a long period. The land has been subsequently modified by agricultural and silvicultural activities. The water table has been affected and drainage and flooding characteristics have been modified. Potential and actual acid sulphate soils (ASS) are present on the site and there have been changes to the nutrient content of soils.

Water issues addressed in various project reports and the Department's assessment include:

- Flooding
- Lake formation
- Stormwater
- Groundwater
- Acid Sulphate Soils (ASS)

Development activities which modify landforms are important for management of flooding, drainage and ASS formation. The level of groundwater, which can be changed by development activities, is important in the formation of ASS and releases of acids and other pollutants to surface waters. When water levels fall pyritic materials in soils can be exposed to oxygen and form acidic material; when water levels subsequently rise as a result of heavy rainfall or inundation, acid and undesirable metal salts can be released to surface waters with serious environmental effects. Groundwater levels are also relevant to the design of drainage and stormwater treatment systems for control of flow and transport of pollutants. Groundwater quality can be influenced by water cycle management and can in turn influence surface water quality. The interconnected nature of these processes will require very careful and integrated management of the all aspects of the water cycle on the site.

6.4.1 Flooding

TSC's flooding model has been applied to the Tweed coastal-creek catchments and all agencies now accept that regional flooding will not be a problem in Kings Forest, even allowing for the anticipated sea-level rise due to global warming. PAC was advised by TSC that its flooding model was calibrated on a flood event in recent history. The performance of the model will need to be progressively tuned to the results of future flooding events and the consequences of any re-tuning related to flooding implications for the stages of Kings Forest remaining to be developed.

The flood modelling undertaken to this stage for the project has been generally conceptual. Land-forming has not been defined to the extent that specific modelling outputs have been possible. The Department, the Office of Water and TSC have expressed a preference for a definition of land form for the final development to have been completed at the Concept Plan

stage to allow more meaningful flood modelling. However, the Department has accepted that this can be addressed in assessing the future stage applications. PAC considers that the proponent should provide a tentative land form for the whole Kings Forest area with the application for the first stage. While details of the land form of subsequent stages may change as urbanisation proceeds, a total landform approximation is needed early for a better assessment of flooding impacts and problems.

6.4.2 Stormwater

Urbanisation generates pollutants which impact surface and groundwaters. Pollutants of interest in the Kings Forest development are organic matter expressed as BOD, suspended solids, the nutrients nitrogen and phosphorus, acidity and soluble salts of metals. The pollutants in stormwater and groundwater will flow into the Cudgen Creek catchment.

Surface water runoff from the Kings Forest urbanisation will carry suspended solids and the nutrients nitrogen and phosphorus in both soluble and solid form. These will discharge to Cudgen Creek by the proposed surface drainage systems. Water quality in the reaches of Cudgen Creek which will receive runoff from Kings Forest complied with water quality objectives for four years of monitoring from 1999 to 2003 with the exception of some exceedances for dissolved oxygen and nitrogen¹. To maintain this generally satisfactory water quality it will be necessary to achieve a high level of pollutant removal by treatment in the drainage systems. Water Sensitive Urban Design (WSUD) is proposed to be used throughout to control pollutant export in stormwater.

While WSUD techniques can be effective in reducing nutrient runoff from urban areas, PAC understands that TSC has no quantitative experience of performance in terms of efficiency of removal of pollutants in the flood-plain type settlements with relatively high water tables common in the Tweed/Gold Coast region. A monitoring program to assess this for the first stage of development should be required so that the long term impacts of stormwater pollution on the water quality of Cudgen Creek can be assessed and protected as the urbanisation proceeds to later stages. PAC is aware that claims for the pollution mitigation effects of WSUD devices commonly tend to be overstated. The design of such devices will need to be carefully considered from a hydraulic and flooding perspective at the approval of the development stages given the relatively high water tables and the risk of potential ASS exposure if the water tables are lowered. PAC is satisfied that this can be achieved at the approval of the development stages

Another aspect of the effectiveness of WSUD devices is the need for long-term ongoing operation and maintenance. Interception basins need to be regularly cleaned and vegetative growth in nutrient removal devices needs to be harvested for pollutant removal effectiveness to be maintained and for the risk of localised flooding to be avoided. While this operating and maintenance responsibility may fall to the developer in early years, it will fairly soon revert to local government. TSC signalled to PAC its discontent with the cap on levies and S94 contributions recently announced by the State Government. This could have a direct effect on the continued effective management of stormwater devices. A special levy for management of such infrastructure may be warranted for Kings Forest.

6.4.3 Water Quality

The other water pollution that accompanies urbanisation is sewage. Pollutants in sewage from the Kings Forest development will be collected into the Kingscliff Waste Water Treatment Plant (WWTP), owned and operated by Tweed Shire Council (TSC). The plant has adequate capacity to treat the effluent from the King Forest development and provision for expansion to 50,000 equivalent person capacity has been incorporated into the design. Residual pollution after treatment will be discharged into the lower Tweed River estuary.

¹ Australian Wetlands 2005 *Tweed Coast Estuaries Management Plan 2004 2008: Cudgen, Cudgera and Moobal Creeks. Prepared for Tweed Shire Council* p 121-133.

The water quality objectives in the lower Tweed estuary were not met for dissolved oxygen, suspended solids and the nutrients nitrogen and phosphorus on a substantial number of sampling occasions in the years from 2001 to 2008². The main contributors to these exceedences are agricultural practices and upstream treated sewage effluent discharges and a range of actions are being implemented in the catchment to address these problems.

While the Kingscliff WWTP is capable of nitrogen and phosphorus nutrient removal to good - practice levels, it will nevertheless add to the loads of these pollutants in this already stressed reach of the Tweed River. This discharge of pollutant load will increase with the urbanisation of Kings Forest and it may be necessary in due course to reduce the level of pollutants in the effluent by applying advanced nutrient removal techniques. Such advanced treatment methods have been demonstrated to be successful elsewhere in Australia and PAC is satisfied they could be introduced at the Kingscliff wwtp if warranted in the future.

Monitoring and ongoing assessment of the impact of this treated sewage effluent on the Tweed River will be needed in the future to ascertain whether more advanced treatment for nutrient removal will be needed at Kingscliff as the Kings Forest urban area grows. Some mechanism to address this need and assign responsibilities for its implementation should be included in the Concept Plan approval. The DECCW, TSC and relevant catchment managers would appear to be appropriate participants in this appraisal.

PAC notes the concern of the Office of Water and TSC that comprehensive monitoring of groundwater be undertaken well in advance (12 months) of the development applications for the various stages of the project. A timeline should be incorporated into the condition of consent to ensure this occurs.

6.4.4 General Water Conclusions

PAC notes and shares the concern of the Department and the Office of Water that an integrated approach to water and groundwater management be followed in the subsequent development stages. This applies to flows, groundwater levels, quality of ground and surface waters and ASS management. An overall water management plan should be submitted with the next major application which integrates the separate water, stormwater, groundwater and ASS plans proposed in the Concept Plan.

6.5 Koala Protection

PAC has carefully reviewed the material associated with the Kings Forest proposal on koala management. The challenge of a new substantial urban area coexisting with koalas in immediately adjacent bushland is substantial.

State policy and public interest, especially as expressed through public submissions on the project, are strongly supportive of preserving the existing koala population in this area and enhancing the prospects of it flourishing in the future. Koalas were once abundant in NSW, but are now classed as a vulnerable species in the State with residual populations mainly along the coast and especially the far north coast. There is a State Environment Planning Policy for *Koala Habitat Protection* (SEPP 44), requiring the preservation of habitat and the development of koala management plans. There is also a *Recovery Plan for the Koala* (2008) developed by DECC.

Several aspects of the project are favourable to adequate koala protection being realised in the Kings Forest area:

² Tweed Shire Council (TSC) 2009 *State of the Environment Report 2008/2009* (Tweed Shire Council) P 92.

- Additional lands will be added to the existing naturally vegetated land reserves in an Environment Protection Zone (EPZ) mostly along the eastern side of the development and abutting the existing Cudgen Nature Reserve. This EPZ will incorporate the great majority of land on the site mapped as Core Koala Habitat; some small isolated areas of Core Koala Habitat in the western area of the site to be urbanised will be exchanged for a larger area adjacent to and consolidating the EPZ, which should be generally positive for koala management.
- The developer will provide resources for koala management which would not otherwise be available. In future years when the developer has departed, the Kings Forest community can, with appropriate education, be expected to be 'koala sensitive' and supportive of measures to preserve and nurture the adjacent koala community. Other examples of this type of community sensitivity have emerged in new housing areas developed with koala protection in view (eg Koala Beach).
- A Koala Plan of Management (KPoM) has been developed and proposed in general accordance with SEPP 44. The plan will be periodically updated and implemented as monitoring, experience and research accumulate.

But some of the real problems associated with urbanisation and koalas existing in relatively close proximity are apparent in the Kings Forest project. Loss of habitat exerts the greatest pressure on koala survival; SEPP 44 and koala habitat re-planting proposed in this project address this pressure. But several other important factors associated with anthropogenic influence could contribute to koala decline in this case:

6.5.1 Road Kill

Road kill has been shown to be a major contributor to decline in koala population. Speed and traffic volumes are related to the extent of koala deaths. The main feeder road for the Kings Forest Township, initially a two-lane thoroughfare, will be expanded to four-lanes as the township develops. The feeder road transects the proposed main north-south koala linkage or connectivity passage on the eastern side of the estate. The speed limit for this road is to be 60 kph and 50kph for other roads in the estate. The volume of traffic on the feeder road when the estate is fully developed is estimated to be between 22,000 and 25,000 vehicles per day. Based on carrying capacity there are estimated to be about 15 koalas resident in the Kings Forest EPZ. If road kill was at the rate of only one animal per quarter, several years would see this population effectively decimated, given the slow rate of koala reproduction. The KPoM proposes to address this problem by a combination of traffic calming, lighting and fencing.

PAC is uneasy about the risk of koala road kill and considers the response from the proponent should be strengthened. As a minimum a faunal overpass and koala-proof fencing along the verges of the feeder road, designed to funnel koala movements across the overpass rather than across the carriageway, should be a requirement³. An overpass is preferred to an underpass, not only because of likely koala preference for such, but also because of the relatively high water table in the area, especially during wet-weather periods.

6.5.2 Dogs

Dog attack is another major cause of koala mortality. Domestic as well as wild dogs cause koala deaths. The KPoM specifies that only dog breeds which typically attain about 7 kg grown weight should be allowed in the estate or strict handling conditions, including restraining/chaining or keeping them indoors between 6pm and 6am, when movements of

³ Department of Environment and Climate Change (DECC) 2008 *Recovery Plan for the Koala (Phascolartcos cinereus)* (DECC, Sydney) p 33.

koalas on the ground normally occur, should be applied. Additionally, dog-proof fences are proposed to restrict dog access to the EPZ, golf course and other koala-sensitive areas.

Tweed Shire Council, the body which would be responsible for regulation of such companion animals, has pointed out the difficulty of effective enforcement of a size provision for dogs and also noted the possibility that small dogs can inflict non-fatal but infection-prone wounds on koalas. But the complete exclusion of domestic dogs seems unrealistic for an Australian urban setting of open character and it is understood the developer has opposed such a restriction. It is noted that domestic cat keeping will not be permitted in King Forest (for ecological reasons other than koala protection). This will in itself be a significant restriction on normal companion animal practice in Australia. On balance PAC considers that a size restriction or nocturnal restraint on dogs kept in the Kings Forest area could be a useful mechanism for limiting the risk to koalas from dog attack, if there is strict adherence.

6.5.3 Connectivity

Connectivity is an important issues for koala populations given the need for fairly large areas of suitable habitat for grazing and the need to maintain breeding patterns. As the KPoM notes (*Preferred Project Report, Appendix L p.22*), the Kings Forest area unfortunately represents a koala habitat “cul-de-sac”. With barriers comprised of agricultural land, roadways and waterways to the east, north and west, the only real connectivity for the Kings Forest koalas with other koala populations in the Tweed area is to the south. In an attempt to improve connectivity the project proposes general permeability of the urbanised estate to koala movement by the use of dog-proof but koala-permeable fencing and other measures and the establishment of two specific east-west linkages.

Given that these proposed linkages provide no connection with any koala habitat on the western side of the development at this time and that such a measure would significantly expose koalas to traffic, dogs and other urban hazards within the urbanised area, PAC seriously doubts whether the uncertain benefit of such an exposure is worth the risk. The greatest countervailing risk in constraining koala movement on the estate or elsewhere is in the event of a bushfire or other such major risk, when koalas could be trapped and burned/injured if fences and restraints prevented them from escaping to safe shelter. PAC recommends that the benefits of a more effective and complete separation of koalas and the urbanised areas of the development be re-examined, taking account of the net risk entailed in rendering the urban areas of the development koala-permeable for an uncertain or seemingly slight benefit.

7.0 Conclusion

It is concluded that there should be additional conditions placed on the Concept Plan approval in relation to the following matters:

- Process for the preparation of the development code for the site;
- Preparation of a master development plan for the site;
- Preparation of a plan/programme to address the provision of affordable housing on the site.
- Provisions in relation to water quality and monitoring of water quality
- Additional conditions in relation to flooding
- Additional conditions in relation to koala management

8.0 Recommendations

The PAC recommends that prior to the approval of the Concept Plan the DOP be requested to draft additional conditions to be placed on the approval as follows:

1. There should be a condition applied to the Concept Plan approval, which requires for the preparation, adoption and amendment of the development code for the site.

2. A condition should be attached to the Concept Plan approval which provides that, prior to the approval of any applications for the further stages of the development on the site, a plan is to be prepared and discussed with Tweed Shire Council and agreed to by the DOP which should include: Details of the mix of densities in each precinct;
 - Adoption of the neighbourhood planning principles in the Far North Coast regional Strategy;
 - Objectives for the location of housing of various densities;
 - Proposed number and size of dwellings in each stage and precinct;
 - Provision of sites for seniors housing and support facilities;
 - The implementation of the levels of accommodation provided for in the Concept Plan approval; and
 - Identify areas for higher density development.

3. A further condition should be attached to the Concept Plan approval to provide that prior to the approval of any applications for further stages of the development a plan and programme for the provision of affordable housing on the site is to be prepared in consultation with Tweed Council and agreed to by the DOP. It is suggested that consultation take place with the Department of Housing Centre for Affordable Housing in the preparation of this plan/programme. The plan is to look at the following:
 - the likely future demographics of the population of the area by household type, income, employment and tenure;
 - the need for affordable housing both for rental and purchase in the area;
 - a plan showing the possible location of affordable housing on the Kings Forest site in the various precincts; and
 - a programme for the provision of such housing including consideration of the need for a VPA and the selection of a community housing provider.

4. A time line should be incorporated into the requirement in condition C22 for groundwater monitoring 12 months in advance of any consent.

5. A condition should be included in the consent to the Concept Plan requiring monitoring of pollution reduction (WSUD) devices for surface water drainage to determine pollutant removal efficiencies and assess the need for further treatment of drainage to preserve the water quality in Cudgen Creek.

6. Consideration should be given to recommending an allowance for TSC to raise a special levy to manage the WSUD devices installed in the Kings Forest infrastructure.

7. Conditions should be attached to in relation to flooding requiring:
 - Any TSC flood model re-calibration, based on any future flooding experience and monitoring, to be applied to flood modelling for future stages of approvals
 - A preliminary developed landform to be provided for the complete Kings Forest development with any application for the first stage of the development to allow comprehensive flood modelling to be carried out, but not in such a way as to preclude necessary modifications to land forms in subsequent stages of development.

8. An overall water management plan, integrating any discrete water, stormwater, groundwater and ASS management plans, should be submitted with the applications for each stage of the development.

9. The conditions for the Koala Plan of Management (C2) should be supplemented by:

- a. Requiring that a faunal overpass suitable for koala passage with koala-proof fencing on the carriageway verges, designed to funnel koalas across the overpass rather than the carriageway, be provided where the Kings Forest feeder road crosses the main north-south linkage for koala movement.
- b. Requiring that a provision be inserted into any approvals, consents or covenants governing dog management in the Kings Forest area indicating that if future monitoring of the koala population shows that the continued presence of dogs on the estate is unsustainable for maintenance of the koala population, then a total restriction on the keeping of dogs on the estate will be applied from that time.

PAC also recommends that DOP:

1. Incorporate a mechanism into the Concept Plan consent to alert DECCW, TSC and any relevant catchment management bodies of the need to periodically review the impact of treated sewage effluent from the Kingscliff WWTP on the water quality of the Tweed River and the need for further nutrient removal at the WWTP as the urbanisation of Kings Forest proceeds over the life of its growth.
2. Explore with DECCW, TSC, appropriate experts and the proponent the possible benefit of dispensing with the east-west connectivity proposals for the area and eliminating koala permeability in the urban areas of the estate, thereby more effectively separating the koala population from potentially damaging anthropogenic activities.



Janet Thomson
Member



John Court
Member