AWTM Pty Ltd ATF Witherby Family Trust ABN 50 285 185 541
E: melbourne@wakefieldplanning.com.au
W: www.wakefieldplanning.com.au

Planning Proposal

Proposed Highway Service Centre
556 Pacific Highway Kempsey

Client: Centrestone Developments

PO Box 5450
MORDIALLOC VIC 3195
P 03 9588 1998 F 03 9588 0038
E melbourne@wakefieldplanning.com.au
W wakefieldplanning.com.au

Revision A - 5 December 2011

Table of Contents

Planning proposal – South Kempsey Highway Service Centre

1.1 Introduction

This planning proposal explains the intended effect of a proposed local environmental plan that would amend the principle plan applying to the Shire and sets out the justification for making the plan. The proposed local environment plan would rezone 556 Pacific Highway at South Kempsey to permit a Highway Service Centre.

The land is currently zoned 1(d) Rural Investigation D under Kempsey Local Environmental Plan 1987, as amended. This zone prohibits (amongst other uses) service stations, tourist facilities, commercial premises, recreation facilities and refreshment rooms. All of these elements are a potential part of a Highway Service Centre. Accordingly, it is proposed that Highway Service Centre (as defined in the standard dictionary) become a permissible use on the land under Schedule 2 to Clause 35 of Kempsey LEP 1987. By adding this use to Schedule 2, additional development is restricted solely to the intended purpose of a Highway Service Centre, as well as other uses ordinarily permissible within the zone.

The proposal is in accordance with the relevant Section 117 Direction which identifies Highway Service Centre(s) in Association with the South Kempsey Interchange, part of the Kempsey Bypass, which is currently under construction.

The centre would predominantly serve north-bound traffic, including traffic exiting the bypass to access Kempsey.

The Highway Service Centre would likely contain the following components:

- Service station - 12 bowsers - 24 cars
- Three food outlets
- Informal recreation area
- Information facility
- Truck Stop
    - Six bowsers - 12 trucks
    - Parking for 25 B Doubles
    - Incidental accommodation
    - Food services

Details would be developed at development application stage. An indicative concept layout is provided at Appendix 6.

The proposed rezoning would cover the allotment which is shown on the attached survey plan (Appendix 7). The holding is owned by Centrestone Pty Ltd, who intend to develop the land.

1.2 Part 1 - Statement of Objectives and Intended Outcomes

The objectives and intended outcomes of the plan are to permit the development of a Highway Service Centre on the western side of the South Kempsey Interchange.

1.3 Part 2 - Explanation of Provisions

The provisions of the Plan involve amendment of Kempsey Local Environmental Plan 1987 by

a) insertion of the following item at Schedule 2 to Clause 35:

"Land within Zone No 1(d), being 556 Pacific Highway, Kempsey – Highway Service Centre".

b) Insertion of the following item, in alphabetical order, in Clause 5:

*"**Highway Service Centre** means a building or place used as a facility to provide refreshments and vehicle services to highway users, and which may include any one or more of the following:*

(a) restaurants or take away food and drink premises,

(b) service stations and facilities for emergency vehicle towing and repairs,

(c) parking for vehicles,

(d) rest areas and public amenities."

No zoning map would be required.

1.4 Part 3 - Justification

1.4.1 Section A - Need for the planning proposal

1. Is the planning proposal a result of any strategic study or report?

The adopted Mid North Coast Regional Strategy addresses highway service centres. In particular, it acknowledges the need for well-located highway service centres with limited defined uses (p26). On Page 27, it identifies that Highway service centres may be located beside the Pacific Highway at the southern Kempsey interchange, in addition to a range of other locations along the highway.

Further strategic guidance on highway service centres is provided by way of the relevant Section 117 direction. Direction 5.4 refers to commercial and retail development along the Pacific Highway, North Coast. It confirms that Highway service centres may be permitted at localities listed in Table 1 to the Direction. The location is listed include the South Kempsey Interchange. A key element is the ability to safely and efficiently integrate the centre into the Interchange to the satisfaction of the (Transport) Roads and Traffic Authority. Preliminary consultations have been held with the NSW RTA and the proposal has been developed in accordance with their initial advice, which was to the effect that a single entry/exit should be used onto the Kempsey Link Road. Further consultations are being held, and additional advice will be forwarded once available.

2. Is the planning proposal the best means of achieving objectives or intended outcomes, or is there a better way?

It is practice to require highway service centres to progress by way of a planning proposal, so as to ensure the orderly and appropriate distribution of these centres along highways, and to avoid unnecessary proliferation of these centres. Accordingly, this is the only method by which the proposal could be progressed.

3. Is there a net community benefit?

Highway service centres provide a community benefit to the travelling public. In particular, they assist drivers with the management of fatigue and provide needed services for travellers. This includes both car and truck travellers. It is submitted that the proposed highway service centre would provide a net community benefit to travellers in the mid-North Coast region through providing a convenient fuel, food and rest opportunity close to a significant town. Further, the centre would assist to attract tourists and visitors to Kempsey who might otherwise utilise the new bypass. This would assist to ensure that potential detrimental effects of the bypass on Kempsey are reduced.

The site offers an excellent opportunity for an information facility. This could include a privately run information facility or, potentially, relocation of the Kempsey Tourist Information Centre. Operating 24 hours, the highway service centre would provide enhanced security for such a facility.

Environmental externalities associated with the proposal relate to impacts on vegetation, and also potential impacts on water quality. An ecological assessment of the site has been undertaken and is appended at Appendix 4. In addition, an engineering review of potential servicing strategies has also been conducted and is appended to this report at Appendix 3. An archaeological review has been conducted (Appendix 5) which did not identify any obstacles to development, noting that we are still awaiting the final confirmation letter from the LALC. Bushfire and traffic reports have also been prepared and are appended (Appendix 2 and Appendix 1 respectively).

As is outlined in the reports, minimal externalities are seen from the proposal, apart from a modest increase in traffic utilising the interchange which should be comfortably accommodated within the existing road network capacity. Accordingly, a formal cost benefit study was considered unnecessary.

1.4.2 Section B - Relationship to strategic planning framework

4. Is the planning proposal consistent with the objectives and actions contained within the applicable regional sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

The proposal is fully consistent with the Mid-North Coast regional strategy.

5. Is the planning proposal consistent with the local Council's Community Strategic Plan or other local strategic plan?

The proposal has been reviewed against the Local Community Plan 2010 for Kempsey Township. The plan identifies Kempsey as being located on a key transport link between Brisbane and Sydney. The approaches to South Kempsey were considered a negative aspect of the town. Other negative aspects included a lack of promotion of Kempsey. Initiatives sought included, relevantly, “investigation of

the provision of a transport hub for trucks as part of the service centre linked with the bypass" (p15). This item has been identified as a high priority in the Plan (p 28).

The proposal is consistent with the Local Community Plan in that it would facilitate a truckstop in association with the proposed highway service centre. The proposal would need to present well, as part of the Gateway to South Kempsey however this would be able to be addressed through appropriate architectural design and landscaping. The provision of an information facility would assist in the promotion of Kempsey, particularly for people who might otherwise bypass the town.

6. Is the planning proposal consistent with applicable state environmental planning policies?

Consideration was given to applicable state environmental planning policies. The following policies are considered relevant.

SEPP (Infrastructure) 2007

Subdivision 2 of Division 17 addresses development in or adjacent to road corridors and road reservations. Clause 99 permits highway service centres in road corridors however in this particular case the service centre is proposed on private land. The land does, however, have frontage to a classified road (existing Pacific Highway). Clause 101 contains objectives to ensure the effective and ongoing operation of a classified road and to minimise the impact of traffic noise and vehicle emissions on adjacent development.

A range of matters are required to be considered by a consent authority. These are outlined below, with comments.

(a) where practicable, vehicular access to the land is provided by a road other than the classified road, and

(b) the safety, efficiency and ongoing operation of the classified road will not be adversely affected by the development as a result of:

(i) the design of the vehicular access to the land, or

(ii) the emission of smoke or dust from the development, or

(iii) the nature, volume or frequency of vehicles using the classified road to gain access to the land, and

(c) the development is of a type that is not sensitive to traffic noise or vehicle emissions, or is appropriately located and designed, or includes measures, to ameliorate potential traffic noise or vehicle emissions within the site of the development arising from the adjacent classified road.

The nature of the development is such that direct vehicular access to the land from the existing Pacific Highway (soon to become the South Kempsey Link Road) is appropriate. Initial consultations with the NSW RTA have indicated that such access should be consolidated as a single access point centrally along the frontage. This has been included within the concept plan. A preliminary traffic study is also appended (Appendix 1).

Detailed design with a development application would ensure that turning movements are handled appropriately, and that the anticipated volumes of vehicles can be safely catered for in the interchange design although anticipated volumes would be unlikely to require design modifications.

The proposal would not be sensitive to either traffic noise or vehicle emissions and is appropriately located for its function.

The proposal was also assessed against Clause 104, traffic generating development. Although this would require review at the design stage, it is anticipated that referral under this provision would be required.

SEPP Rural Lands (2008)

The SEPP establishes rural planning principles. These are called up under Section 117 of the Act with respect to the planning proposal. The principles, with comment, are outlined below:

7 Rural Planning Principles

The Rural Planning Principles are as follows:

(a) the promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas,

(b) recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State,

(c) recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development,

(d) in planning for rural lands, to balance the social, economic and environmental interests of the community,

(e) the identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land,

(f) the provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities,

(g) the consideration of impacts on services and infrastructure and appropriate location when providing for rural housing,

(h) ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General.

The proposal would have little impact on agriculture, occupying a very small portion of land within the regional context. The zoning of the land, although in a rural zone, foreshadows investigation for non-rural uses. The proposal is consistent with the applicable regional strategy of the Department of Planning.

SEPP 44 – Koala Habitat Protection

An ecological report has been carried out on the land (Appendix 4) which has identified that the land contains some koala feed tree species. The report was carried out by Lewis Ecological Surveys and is appended to this proposal. As outlined in the report, any reduction in koala tree feed species would need to occur within the framework of the Comprehensive Koala Plan of Management for the Eastern Portion of Kempsey Shire. The concept design has been informed by this report. Subject to support through the Gateway process, final design processes for the site would proceed following a stage two additional ecological review.

SEPP 55 - Remediation of land.

A preliminary review under SEPP 55 would be undertaken at development application stage. The zoning of the land is not proposed to change, and the proposed uses are not sensitive uses.

Other potential SEPPS

The site is not within the Coastal Zone, and Council has advised that it does not trigger the referral requirements under SEPP 62, Sustainable Aquaculture, being well-removed from priority oyster aquaculture areas.

7. Is the planning proposal consistent with applicable Ministerial Directions (Section 117 directions)?

1. Employment and Resources

1.1 Business and Industrial Zones

No business or industrial zones are proposed or affected. Overall the proposal is considered of minor significance with respect to existing business or industrial lands within Kempsey. Any inconsistency with the Direction is therefore justified.

1.2 Rural Zones

The proposal would not rezone land from a rural zone to a residential, business, industrial, village or tourist zone. It would not increase the permissible density of land within a rural zone. The use proposed would be of a commercial nature however the use of rural land for a highway service centre is supported by the Mid-North Coast Regional Strategy and the Section 117 Directions. Any inconsistency with this specific direction is therefore justified.

1.3 Mining, Petroleum Production and Extractive Industries

No existing mines, petroleum production operations or extractive industries are affected by the planning proposal.

1.4 Oyster Aquaculture

Priority Oyster Aquaculture Areas within the McLeay River were reviewed.

Although on-site waste disposal is proposed, no adverse impacts would occur on any Priority Oyster Agriculture Area as water quality from the site would be maintained at an appropriate quality. A preliminary servicing report has been prepared (attached), which addresses water quality management for the site. Council has advised that there would not be a referral trigger under SEPP 62.

1.5 Rural Lands

The proposal is consistent with this Direction as the proposal is consistent with the relevant regional strategy.

2. Environment and Heritage

2.1 Environment Protection Zones

No environmental protection zones or land identified for environmental protection in a LEP are affected.

2.2 Coastal Protection

The land is not within the Coastal Zone.

2.3 Heritage Conservation

Heritage conservation matters are addressed in the principal LEP applying to the land. In this respect, no change to heritage conservation provisions are proposed. An archaeological review of the land has been conducted (Appendix 5) which indicates that the land is not sensitive with respect to likely Aboriginal objects and development can proceed. The site has not been identified as being of heritage significance to Aboriginal culture and people.

2.4 Recreation Vehicle Areas

Not applicable

3. Housing, Infrastructure and Urban Development

3.1 Residential Zones

Not applicable

3.2 Caravan Parks and Manufactured Home Estates

Not applicable

3.3 Home Occupations

The draft Plan is consistent with this direction as it would not change the relevant provisions in the principal plan.

3.4 Integrating Land Use and Transport

The development is adjacent to a main transport route and would facilitate the efficient movement of freight. It is therefore considered consistent with this direction.

3.5 Development near Licensed Aerodromes

The land is not within the vicinity of a licensed aerodrome. The draft plan is therefore considered consistent with this Direction.

4. Hazard and Risk

4.1 Acid Sulphate Soils

A review of the mapping of Kempsey DCP 30 shows the land is not affected by Acid Sulphate Soils.

4.2 Mine Subsidence and Unstable Land

Not applicable.

4.3 Flood Prone Land

The land is not within a flood planning area identified within Kempsey. The preliminary engineering appraisal conducted for the land (Appendix 3) identifies the 1% AEP event. The concept design for the proposal takes this event and an appropriate freeboard into consideration. Detailed site planning following a positive Gateway determination would ensure that the 1% AEP event was satisfactorily managed on the site. This approach would ensure consistency with the Floodplain Development Manual 2005.

4.4 Planning for Bushfire Protection

The land is partially affected by bushfire prone land as shown on the relevant map. The Direction requires consultation with the Commissioner of the NSW Rural Fire Service following receipt of the Gateway determination.

This planning proposal has had regard to Planning for Bushfire Protection 2006, as outlined in the attached Preliminary Bushfire Review (Appendix 2). A perimeter road outside the site traverses the western edge of the site. Internal site design provides for appropriate asset protection zones noting the type of development proposed and the relevant bushfire risk.

Water supply for firefighting purposes would be provided as set out in the servicing report.

Preliminary consultation has been undertaken with the NSW Rural Fire Service who have advised of matters to be addressed in the preliminary bushfires study. These are outlined in the preliminary study.

5. Regional Planning

5.1 Implementation of Regional Strategies

The proposal is consistent with the Mid-North Coast Regional Strategy and accordingly is consistent with this Direction.

5.2 Sydney Drinking Water Catchments

Not applicable.

5.3 Farmland of State and Regional Significance on the NSW Far North Coast

Not applicable.

5.4 Commercial and Retail Development along the Pacific Highway, North Coast

The proposal is consistent with this Direction, as it provides for a highway service centre in a location identified in the Direction. Preliminary consultations have been held with the NSW RTA regarding the proposal and appropriate access. The RTA have indicated that a single access point to the Kempsey Link Road should be developed for the proposal. This is provided for in the concept plan.

5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)

Not applicable.

5.6 Sydney to Canberra Corridor (Revoked 10 July 2008. See amended Direction 5.1)

Not applicable.

5.7 Central Coast (Revoked 10 July 2008. See amended Direction 5.1)

Not applicable.

5.8 Second Sydney Airport: Badgerys Creek

Not applicable.

6. Local Plan Making

6.1 Approval and Referral Requirements

The Plan is consistent with recent state policy regarding concurrence, consultation or referral. No additional concurrence, consultation or referral is proposed. No additional development has been identified as designated development.

The draft plan is therefore considered consistent with this Direction.

6.2 Reserving Land for Public Purposes

Not applicable.

6.3 Site Specific Provisions

Consideration was given to proceeding by way of an alternative zone. This would, however, unduly and unnecessarily open up the range of uses that could occur on the land. The area has been identified as suitable for a highway service centre in the Section 117 Directions and the relevant Regional Strategy. The planning proposal, by making highway service centre a permissible use on the land without changing the zone is consistent with these policy directions.

Should a future strategic review of the area between the South Kempsey Interchange and South Kempsey reveal a need for alternative zonings to be considered, the site specific provisions would continue to apply,

No additional development standards or requirements in addition to those already contained in the principal environmental planning instrument would be applied. The proposal is therefore considered to be consistent with the Direction.

1.4.3 Section C - Environmental, social and economic impact

8. Is there any likelihood the critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

The land has been developed for agricultural/rural residential purposes. There is some remnant native vegetation, together with an ephemeral watercourse and farm dam. Accordingly, a preliminary ecological assessment has been undertaken (Appendix 4). This recommends as follows:

1. The concept design is developed taking into account the ecological constraints associated with the north western part of the site; these constraints being delineated by Map Units 1a, 1b and 2. The concept design should take into account a buffer or protective zone from the base of the tree (normally referred to as the drip zone). In this case 6-10 m would be adequate;

2. The proponent advise as to what option or pathway the proposal would like to proceed with (Option A or B in Section 4.3);

3. Stage II ecological assessment be prepared once the concept design has been prepared;

4. The proponent give due consideration to the need for mitigation measures that would accompany the stage II ecological assessment report including:

a. Fauna exclusion fencing (floppy top design) along the sites western boundary to reduce the interface between a facility of this nature (i.e. dogs, vehicles) which

possesses secondary impacts to Koala. This fencing would need to be offset from the boundary to minimise impacts on Glossy Black Cockatoo (2-5 m from the western boundary would suffice);

b. The reclaiming/dewatering of the dam should be done so under the guidance of an ecologist familiar with this process;

c. An ecologist supervises the removal of habitat tree (T55) along the site's eastern boundary if it cannot be retained and any other habitat tree (T013, T048, T049). In this event, habitat compensation in the form of nest boxes to offset the loss of tree hollows may be a cost effective action.

It is noted that the site contains a very small area of koala habitat, in the far north-west of the site. This area would not be affected by the proposal. Some trees would, however, potentially be removed from the scattered open forest area 1(b) noting that in this case compensatory measures would be required. Such measures would be incorporated within the north/northwest/west part of the site which is not proposed for development. Protection of this area of the site would also ensure that there was no impact on the potential area of Swamp Sclerophyll Forest (noting this is already in a highly degraded state but would be enhanced as part of overall landscaping/revegetation proposals for this portion of the site).

9. Are there any other likely environmental effects as a result of the planning proposal and how they proposed to be managed?

Water quality is a potential issue associated with the site. This includes potential contamination of runoff from car parking and driveway areas from motor vehicles, together with the need to dispose of sewerage and wastewater effluent. This would be either on-site, via extension of existing services or through a temporary arrangement pending planned service extension.

Although the site is currently remote from reticulated services it is understood that these may be potentially available in the future, to service the proposed industrial area on the eastern side of the highway. Alternatively, they could be extended from existing services to the north.

A concept servicing strategy and drainage strategy has been prepared, which is appended to this application (Appendix 3). This demonstrates that the site can be serviced in terms of both water supply and wastewater. The concept servicing strategy also addressed drainage impacts, which would be required to be addressed under either servicing scenario.

At development application stage, a full servicing strategy would be developed to respond to the final design of the site and services availability at the time.

10. How has the planning proposal adequately addressed any social and economic effects?

The development would have no impact on Aboriginal or European heritage areas. The development would produce a net social benefit associated with broadening the range of services available to travellers including the provision of additional services and facilities which would increase the daily "spend" of the visitors. Provision of an information facility would assist to draw people to Kempsey, thereby supporting the tourist industry. The proposal is considered to have positive social and economic impacts.

1.4.4 Section D - State and Commonwealth interests

11. Is there adequate public infrastructure for the planning proposal?

The proposal may not be connected to existing urban services. Accordingly, depending upon the final servicing strategy the development may need to be self-sufficient with respect to water supply, and also wastewater disposal. The concept servicing strategy (Appendix 3) provided with this proposal addresses options as to how this could be undertaken.

Road infrastructure to serve the proposal is good. Access would be obtained from the present Pacific Highway, which would constitute the South Kempsey exit from the proposed bypass. Appropriate traffic management measures would be put in place to address turning movements, access and road safety.

Advice has been sought from Transport for NSW (RTA) which has been included in this proposal. Additional referral to the RTA would occur as part of the preparation of a development application. This would ensure that road infrastructure would meet the needs of the development.

12. What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

Although no gateway determination has yet been made, preliminary consultation has occurred with the following state authorities:

- Transport for NSW (RTA). Two consultation rounds were held. The first established the overall approach to access for the site, and the second refines this. In addition, consultation was undertaken with the construction consortium for the South Kempsey bypass. This confirmed roadworks plans for the South Kempsey Link Road.
- Rural Fire Service. Consultation was undertaken with the Grafton Regional Office of the RFS. Discussions were then held with the RFS at Ulmarra, and their input informed the draft bushfire review.
- Office of Water. Preliminary consultation was undertaken with respect to the ephemeral stream through the property. In this regard, the Stage One Ecological Report was forwarded to them for their consideration. They have indicated that they do not have concerns regarding the proposal at this stage.

Although a small area of Endangered Ecological Community may exist on the land, the area is of minor significance, and would not be affected as a consequence of the proposal. Accordingly, no referral to the Commonwealth Department of Heritage would be required.

1.5 Part 4 - Community Consultation

No specific community consultation was undertaken as part of preparation of the planning proposal. It is, however, recommended that community consultation of adjoining landholders be undertaken for 28 days as part of exhibition of the proposal, in addition to notification of the proposal through a newspaper circulating at least weekly in the locality.

Feedback from the community consultation process during exhibition would be incorporated within the Planning Proposal following exhibition.

APPENDIX 1

Preliminary Traffic Study

AWTM Pty Ltd ATF Witherby Family Trust ABN 50 285 185 541
E: melbourne@wakefieldplanning.com.au
W: www.wakefieldplanning.com.au

Preliminary Traffic Report

556 Pacific Highway Kempsey

Proposed Highway Service Centre

Client: Centrestone Developments

PO Box 5450
MORDIALLOC VIC 3195
P 03 9588 1998 F 03 9588 0038
E melbourne@wakefieldplanning.com.au
W wakefieldplanning.com.au

Revision A - 5 December 2011

Table of Contents

1 Introduction

A highway service centre is at 556 Pacific Highway, Kempsey NSW. The Highway Service Centre would likely contain the following components:

- Service station - 12 bowsers - 24 cars
- Three food outlets
- Informal recreation area
- Information facility
- Truck Stop
    - Six bowsers - 12 trucks
    - Parking for 30 semi-trailers; 30% B Doubles
    - Incidental accommodation
    - Food services

Details would be developed at development application stage. An indicative concept layout is provided at Figure 1.

2 Background

The NSW RTA has identified the Kempsey bypass as a key project in the upgrading of the Pacific Highway. The bypass is currently under construction. As part of that project the South Kempsey interchange is being developed. A site in the vicinity of the interchange has been identified through the Mid-North Coast Regional Strategy and through the Minister for Planning's Section 17 Directions. The site at 556 Pacific Highway, Kempsey, is consistent with those strategic locations.

A planning proposal is being prepared for the highway service centre. As part of preparation of that proposal, consultations have been held with the NSW RTA regarding traffic access to the development. Kempsey Shire Council has also raised issues relating to the management of articulated vehicles, in particular B doubles, and possible impacts on the town.

The overall plan for the southern portion of the bypass, including the link road to South Kempsey, is as shown on Figure 2.

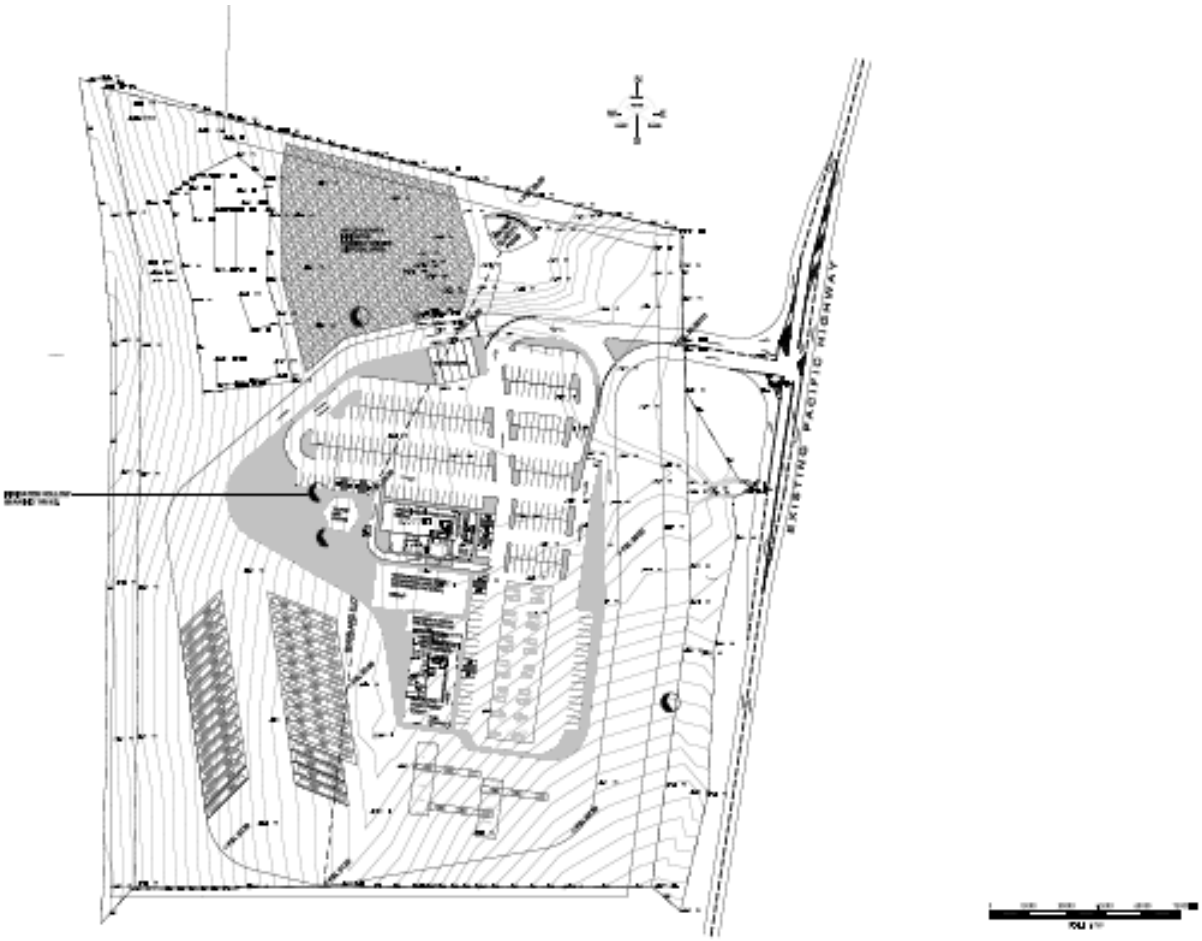


Figure 1 - Conceptual layout

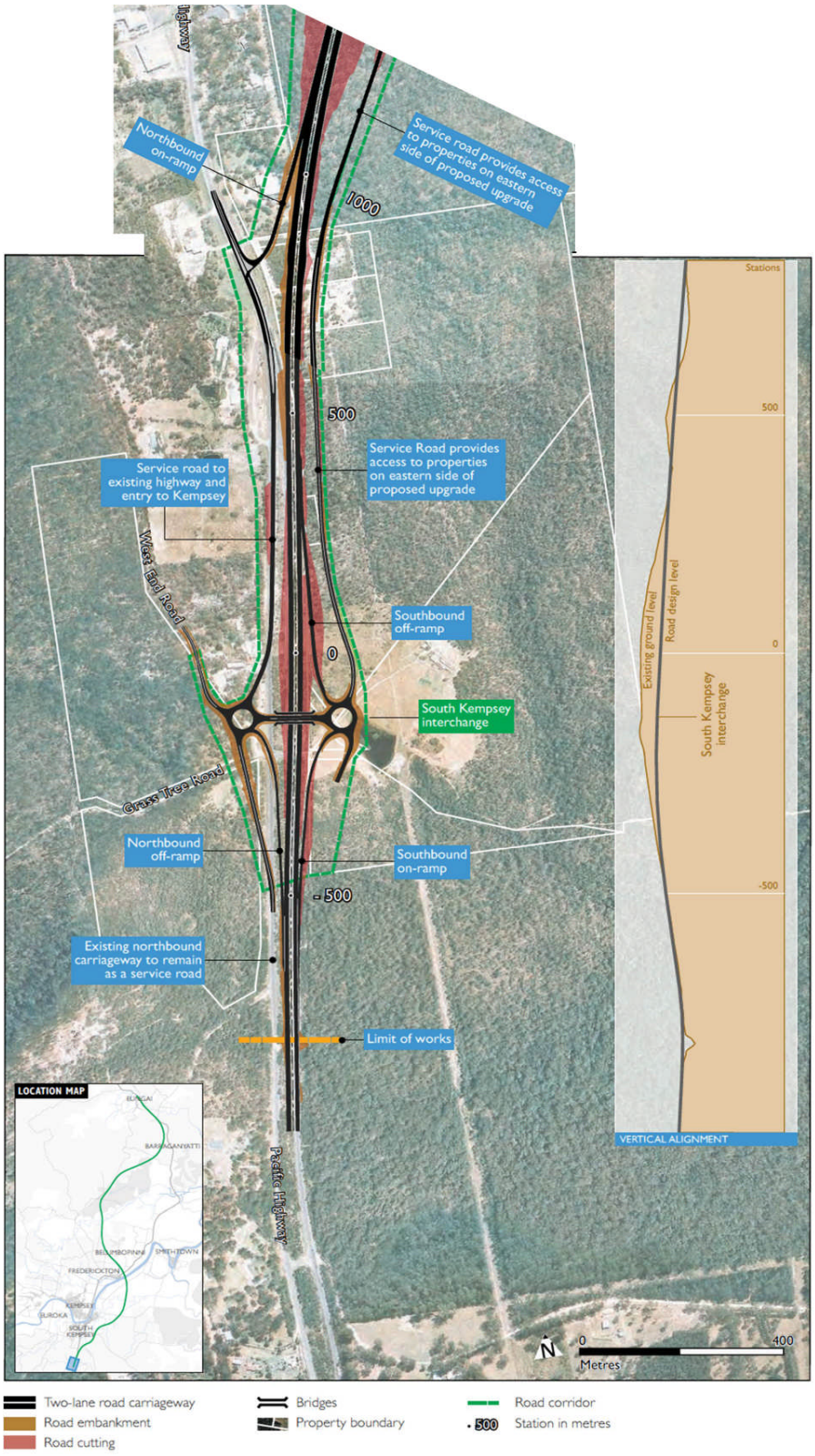


Figure 2 - Kempsey Bypass-Southern Section

3 Site Access

The interchange plus the northbound on-ramp together provide full accessibility to the proposed facility without vehicles (particularly heavy vehicles) needing to traverse Kempsey township. Vehicles travelling to the north would exit the upgraded highway at the south Kempsey interchange, and then proceed northwards along the Kempsey Link Road to access the site. They would then continue their northward journey by exiting the site by way of a left-hand turn, and then utilising the northbound on-ramp to regain access to the Kempsey bypass. Vehicles could, if they chose, also continue northwards to Kempsey township. Vehicles travelling to the south would exit the bypass at the south Kempsey interchange, and then proceed along the Kempsey Link Road to the facility. Exiting the facility, they would make a right-hand turn onto the Link Road before rejoining the Pacific Highway at the south Kempsey interchange.

Access from the Kempsey Link Road (the western carriageway of the current Pacific Highway) would occur at a single point, as recommended by the NSW RTA, and would incorporate slip lanes and protected turn movements. This access would be similar to that shown in the conceptual layout (subject to detailed engineering design).

Depending upon construction times, temporary arrangements would need to be made with respect to access to the existing highway. However it is anticipated that given the construction timeframes associated with the development, it would be opening coincident with or after the construction of the southern portion of the bypass.

4 Site layout

The site layout concept plan is shown at Figure 1. This would be further refined and developed at Development Application stage. It is provided to demonstrate the feasibility of developing the site for the purpose proposed. Accordingly, the number of spaces allocated to different parking uses should be considered preliminary.

A key principle with the site layout would be the general separation of the truckstop component from the car visitor component. The truckstop component would be developed on the western side of the site, with the car visitor component towards the east. A shared facility building group would be constructed between the two main car park areas. This would incorporate food facilities, a small area of convenience retail, and a dining room with showers and facilities including overnight accommodation for heavy vehicle drivers.

Provision of a circumference road would define the overall site. This would operate in a clockwise direction, and would permit heavy vehicles, including B doubles, to fuel before or after parking. Heavy and light vehicles would generally be separated except for the entry/exit to the Kempsey Link Road.

The concept site layout provides for parking for approximately 30 heavy vehicles, of which one third are shown as B doubles. Approximately 230 spaces are shown for light vehicles, of which 5% are for car/trailer/caravan combinations. This ratio would be adjusted at DA stage and would likely include additional parking for car/trailer/caravan combinations. Parking would be in accordance with Australian Standard 2890 part one and two. Parking for people with disabilities would also be provided according to the Australian Standard.

5 Traffic Generation

It is anticipated that the development would predominantly serve north-bound traffic. More detailed studies would be undertaken as part of any development application, however it is anticipated that the "split" between north-bound and south-bound traffic would be that some 70% of custom would be from north-bound vehicles, with some 30% of custom from south-bound vehicles[1].

This would be in conformity with observed patterns of driver behaviour that they are reluctant to "backtrack" to any degree. An additional source of custom would be the journey to work for people travelling to Kempsey from the sub-region further south.

Existing and projected volumes for the Pacific Highway in the vicinity of Kempsey are detailed in Chapter 14, Traffic, Transportation and Access of the Kempsey Bypass Environmental Assessment, sections of which are abstracted below:

Heavy vehicles

The Pacific Highway at Kempsey has relatively high numbers of heavy vehicles, with heavy vehicles outside of the town centre around 21–24% of the average weekday daily traffic. During the night-time period, heavy vehicles comprise approximately 50–60% of all traffic outside of the town centre.

Through-traffic distribution

Traffic on the Pacific Highway at Kempsey is a mixture of through and local traffic. Origin-destination (OD) surveys (conducted by PB in 2004) were used to quantify through-traffic versus local traffic patterns. The results of the OD surveys demonstrated that for the 12-hour period from 7am to 7pm, about 20.5% of the total two-way volumes on the Pacific Highway at South Kempsey was through traffic travelling regionally. Similarly, for the 12-hour period, the percentage of through-traffic was balanced in both the northbound and southbound directions, at about 20%. Heavy vehicles were slightly less likely to be through-traffic than light vehicles, at about 17%. Furthermore, the directional flow was unbalanced for heavy vehicles, with 22% of heavy vehicles making throughtrips northbound, but only 13% southbound. It is possible that collection of data over a full week may have demonstrated a better directional balance for heavy vehicles. For the morning peak hour, from 8am to 9am, the two-way through-traffic was approximately 20% of the morning peak hour traffic on the Pacific Highway. This demonstrates that the majority of traffic within the town centre is local traffic.

Stopping traffic

The estimated through-traffic would include a small proportion of stopping traffic, that is, long distance trips where the end destination is not in Kempsey, but the driver stopped at Kempsey for refreshment. For the 12-hour period assessed, the proportion of stopping traffic as a percentage of the total traffic observed was 20.4% (two-way traffic). This 12-hour proportion of stopping traffic can be reasonably assumed to represent the entire 24-hour period.

---

[1] *Note: It is understood that there is a similar proposal on the eastern side of the highway, in which case nearly all custom would be north-bound traffic except for some evening commuter traffic.*

The table below, drawn from that report, shows predicted volumes for 2011 and 2031 including for South Kempsey:

Table 14-3 **Future Pacific Highway two-way peak hour and AADT traffic volumes**

	2011			2031		
	1-hour morning peak	100th highest hourly volume	AADT	1-hour morning peak	100th highest hourly volume	AADT
South Kempsey	730	938	9,445	1,166	1,513	15,239
North of Frederickton	754	1,005	10,117	1,927	2,557	25,753
Eungai Rail	260	348	3,503	537	711	7,156

Source: NSW Roads and Traffic Authority (2006b)

With respect to the proposal, it would be expected that a proportion of stopping traffic would be attracted by the proposal, although it is unlikely that this would exceed the current proportion of stopping traffic. The provision of overnight accommodation may attract some additional stops, noting that the main trend in heavy vehicle traffic appears to be northbound.

It would also be expected that the facility would meet some demand during the morning regional commuter peak. This would predominantly be expected to be for fuel stops but may include meals.

Overall it is anticipated that nearly all traffic attracted to the development would constitute existing traffic on the Pacific Highway.

If, say, 75% of the stopping traffic in the a.m. peak were attracted to the facility, it would be expected that approximately 110 trips would be generated in the one hour morning peak, based on current traffic volumes. In terms of the 100th highest hourly volume, the comparable figure would be 140 trips. By the 2031 design horizon, it might be anticipated that the morning one hour peak would attract somewhere in the order of 175 trips while the 100th highest hourly volume would attract 227 trips.

Consideration was also given to the *RTA Guide to Traffic Generating Developments*. Note that conventionally these facilities generally look to an evening peak. In the current circumstances and with commuter as well as tourist traffic we are anticipating different peaks for the different uses and users. Car-based users we expect would be a lunch time peak in terms of food, with an afternoon/early evening peak in terms of fuel stops, with truck based users generating early morning and evening peaks. We expect a lower morning peak from car users associated with the journey to work. The following rates were potentially identified as being of assistance in understanding the possible traffic impacts of the proposal:

Use	Rate	Comment	Anticipated Peak	Trips AM Peak hr	Trips Midday Peak hr	Trips PM Peak hr
Motel	Three per unit; 0.4 peak hour	Potentially 25 units would be provided.	Evening	6	3	10
Service station/ convenience store	Evening peak hour vehicle trips equals 0.04 A(S) + 0.3 A (F)	Area of site = 4,000 m²; Convenience store = 200 m².	Morning/ Evening (based on commuter peak use)	200	160	220
Drive-in takeaway food Outlet	Evening peak hour 140 vehicles per hour	Median of KFC and McDonald's	Midday (based on anecdotal evidence from other facilities)	70	140	70
Restaurant	evening peak hour 5 per 100 m²	Size approximately 400 m²	Evening	5	15	20
Truckstop	No NSW data available	ITE Landuse Manual 6.55 trips/acre – Size approx. 3 acres.	Evening	20	0	20
TOTALS				301	318	340

In practice, it would be expected that some conjunctive use would occur, in particular between the accommodation unit and the truckstop/restaurant and also between the service station/convenience store and takeaway food outlet. Some additional trips may be generated by a tourist information centre, however no specific data were available. Again, the majority of these trips would be anticipated to be in conjunction with visits for other purposes.

These peaks would tend to separate light vehicle trips and heavy vehicle trips as the main demand for heavy vehicle trips would be in the evening/night/early morning with departures prior to the normal a.m. peak.

Although not modeled at this stage, preliminary figures suggest that overall peaks would be comfortably within the capacity of the proposed interchange.

6 Conclusion

The main impact of the proposed facility on the South Kempsey Interchange would be to capture a proportion of the through traffic trips currently stopping in Kempsey; predominantly south to north travel. In particular, heavy vehicle traffic would be encouraged to stop by the truck stop facility. Unless having a specific destination in the town, these heavy vehicles would likely re-join the bypass without entering the town.

Light vehicle traffic would include both an element of morning commuter traffic (which would already be utilizing the interchange/South Kempsey Link Road) and light vehicles stopping for fuel, food and information with a likely lunch time peak. This would include a proportion of vehicles currently stopping in the town, although others may be attracted to stop at the facility.

Overall trip generation rates, while requiring further development as the proposal is refined, suggest that the traffic demands of the facility would be within the capacity of the South Kempsey Interchange.

APPENDIX 2

Preliminary Bushfire Study

AWTM Pty Ltd ATF Witherby Family Trust (ABN 50 285 185 541) T/A Wakefield Planning
E: melbourne@wakefieldplanning.com.au
W: www.wakefieldplanning.com.au

Preliminary Bushfire Assessment

556 Pacific Highway Kempsey

Proposed Highway Service Centre

Client: Centrestone Developments

PO Box 5450
MORDIALLOC VIC 3195
P 03 9588 1998 F 03 9588 0038
E melbourne@wakefieldplanning.com.au
W wakefieldplanning.com.au

Specialist Town Planners

Document Control Details

	Details	Date
Document Author(s)	Angus Witherby	24 September 2011
Internal Quality Review	Ricardo Hernandez	
Document Revision	Rev D	7 October 2011
Project Reference	6282	
Client Reference	556 Pacific Highway, Kempsey	
Document Status	For Submission	

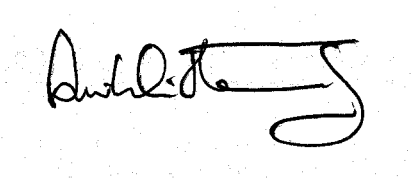
Disclaimer

This report has been prepared to inform the Client about particular matters. Use of material herein for any other purpose is at the end-user's own risk. The information contained in this report is to the best of Wakefield Planning's knowledge true and correct. Every effort has been made to ensure its accuracy; however, to the extent permitted at law, Wakefield Planning does not accept responsibility for any loss, injury or damage arising from the use of such information.

Principal Author Certification

I certify that I have prepared the contents of this Report and to the best of my knowledge:

- The information contained in this Report is neither false nor misleading; and
- It contains all relevant available information that is current at the time of release.



Angus Witherby

BA – Geography & Economics, Grad. Dip. Urb. & Reg. Planning, FPIA, CPP

Table of Contents

List of Figures

1 Introduction

This preliminary bushfire assessment report has been prepared by Angus Witherby[1] of Wakefield Planning to accompany a Planning Proposal for a highway service centre at 556 Pacific Highway, Kempsey NSW. The Highway Service Centre would likely contain the following components:

- Service station - 12 bowsers - 24 cars
- Three food outlets
- Informal recreation area
- Information facility
- Truck Stop
    - Six bowsers - 12 trucks
    - Parking for 25 B Doubles
    - Incidental accommodation
    - Food services

Details would be developed at development application stage. An indicative concept layout is provided at Figure 4.

2 Overall Approach

Following initial discussions with the Rural Fire Service, an approach has been developed to the bushfire study which addresses the following elements:

1. Separation distances from the development footprint and structures within the footprint to the identified bushfire hazards surrounding the site.
2. Design and site layout with respect to the bushfire hazards identified including vehicle access and parking provisions.
3. Construction methods including the provisions of AS 3959.
4. Water supply provisions for protection of the property and structures from bushfire.
5. Evacuation procedures.
6. Use of the site for bushfire staging post and/or informal gathering point for local residences fleeing bushfires in the locality.
7. Use of the site as an initial gathering point for highway traffic prevented from travelling on the highway due to road closures caused by bush fire events along the highway route.

The RFS has indicated that points 6 & 7 should only be addressed from a service provision perspective as the RFS through the local emergency management committee would have formal sites identified to address the evacuation and/or storage of persons displaced by bushfire activity. However as developments of this nature can offer initial services in the preparation and management of human elements associated with bushfire threats, this aspect should be addressed.

[1] Angus Witherby taught planning for bushfire protection to planners as part of the Federal Emergency Management Australia risk management programs. He also made submissions on behalf of the Planning Institute of Australia to both the Victorian Royal Commission and the recent Federal Senate Enquiry.

This report also addresses the general requirements of Appendix 4 to PBP, Section A4.1, The specific requirements of Section A4.2 would be addressed in an upgraded report to accompany a Development Application.

3 Context

The land is adjacent to state forest and private lands, and is subject to bushfire mapping. The subject land and its context are shown on Figure 1, below.

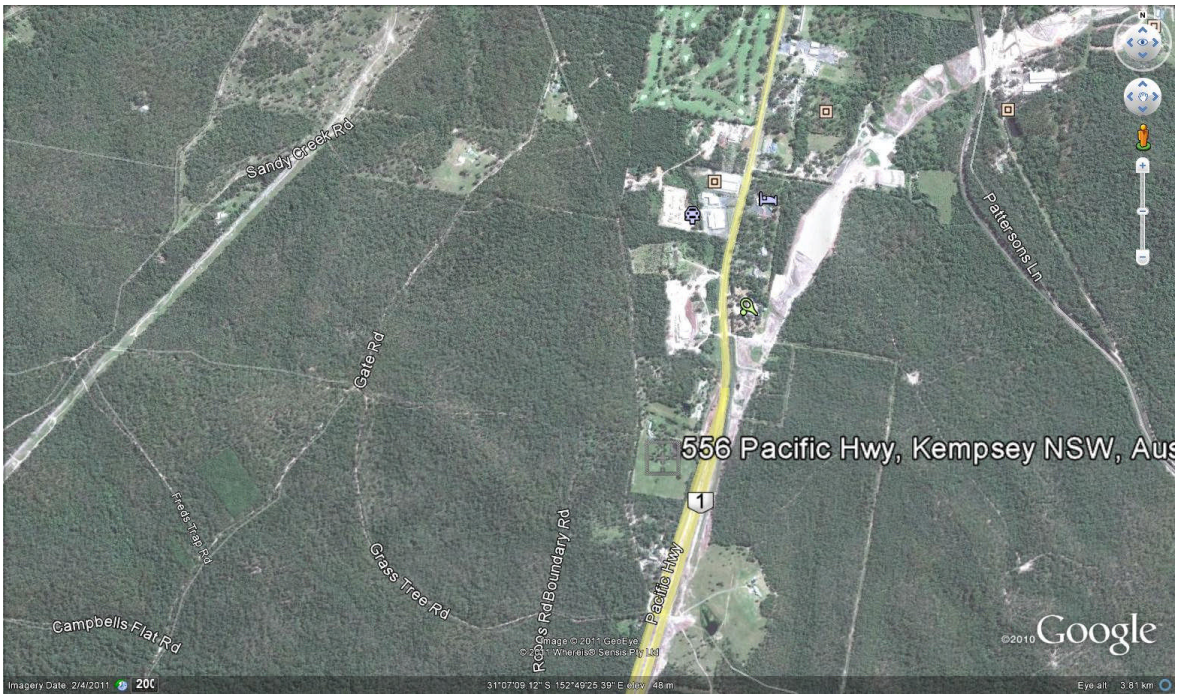


Figure 1 - Land in Context

As can be seen from the above figure, the land is at the southern edge of scattered urban fringe development south of Kempsey. It is generally surrounded by forest, although considerable separation occurs to forest lands in the east, as a result of the presence of the Pacific Highway and the construction of the Kempsey bypass. The land has an unformed road along its western boundary.

Figure 2, over, shows the bushfire mapping for the site. A substantial portion of the land is not affected, however there are areas of bushfire prone buffer to the west and north of the site. An area of bushfire prone land is identified along the western boundary, adjoining West End Road.

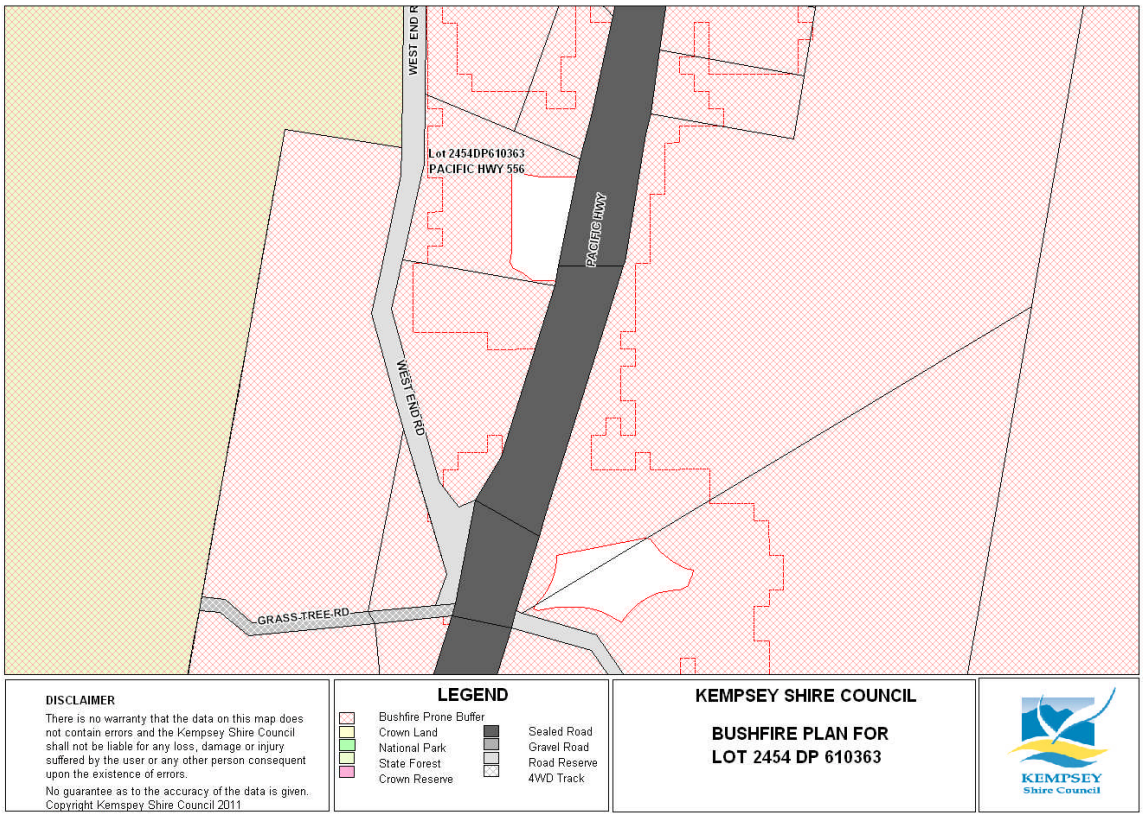


Figure 2 - Bushfire Mapping

To the north, on private land, there is a section of cleared land associated with a power easement, while to the south, also on private land, land is under forest. This is shown in more detail on Figure 3, below, which also shows the contours affecting the site and surrounding lands The site also has moderate grades, sloping towards the ephemeral watercourse running through the land, and, overall, northwards as shown on the contour map below. The steepest parts of the site slope upwards to the major fire sources, which the flatter portion of the site, in the north, is the only portion that is upslope of a bushfire risk area.

Note: contours have been derived from the 1:25,000 series mapping and are therefore at 10 m intervals.

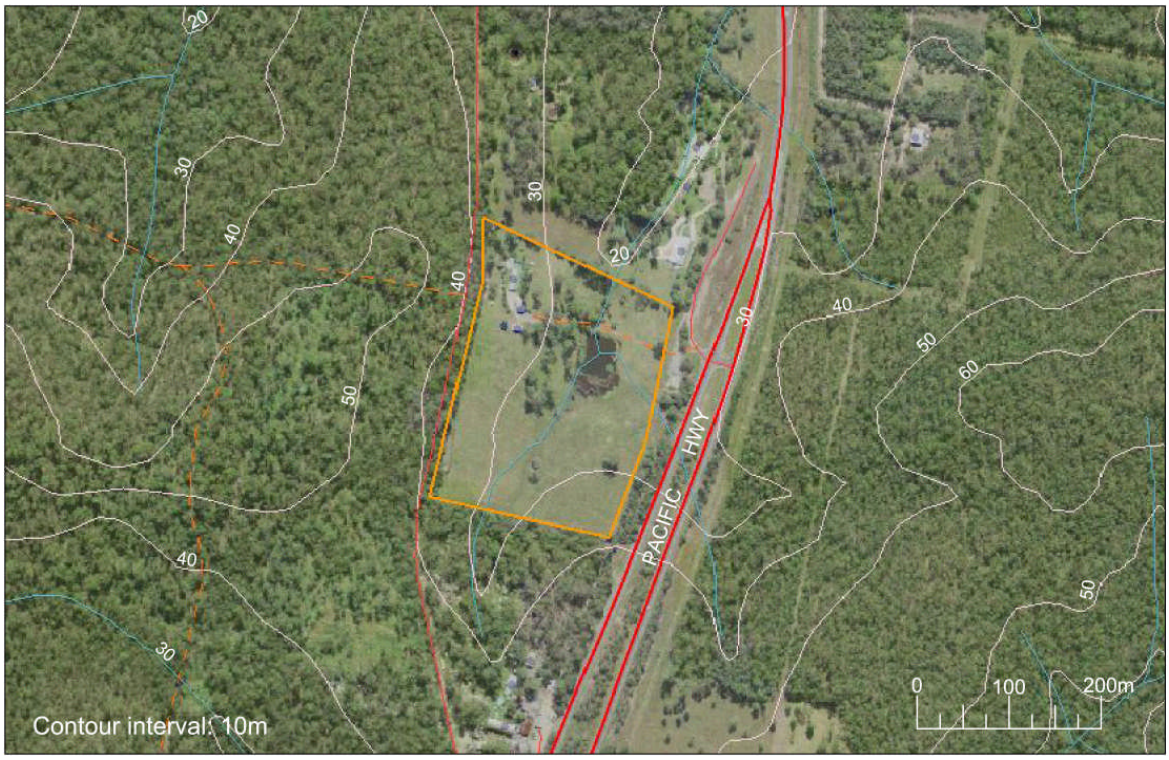


Figure 3 - Closer view of the land

Development of the land is subject to detailed design development through the development application process. A concept design has, however, been developed to confirm the overall suitability of the land for the development, and to allow testing against various elements including threatened and endangered species, archaeology, basic site layout principles, servicing and bushfire. Accordingly the layout (and this report) should not be regarded as definitive, but have been prepared as part of zoning level feasibility. Formal referral of any development application would also occur to the Rural Fire Service, with detailed design development accommodating feedback from the RFS during the rezoning phase.

Figure 4, below, outlines the concept plan for the site. The principle adopted has been to locate the most sensitive use – accommodation – fairly central to the site, so as to provide good separation from the potential fire vectors. In addition, the principle of perimeter roads has been utilised to define an inner protection zone, which is largely carpark and managed vegetation (landscaping). The nature of the development ensures that the asset protection zones are fully managed. Environmental impact of the development has been reviewed, and the initial environmental assessment has indicated that the development can proceed, including the necessary APZ areas.

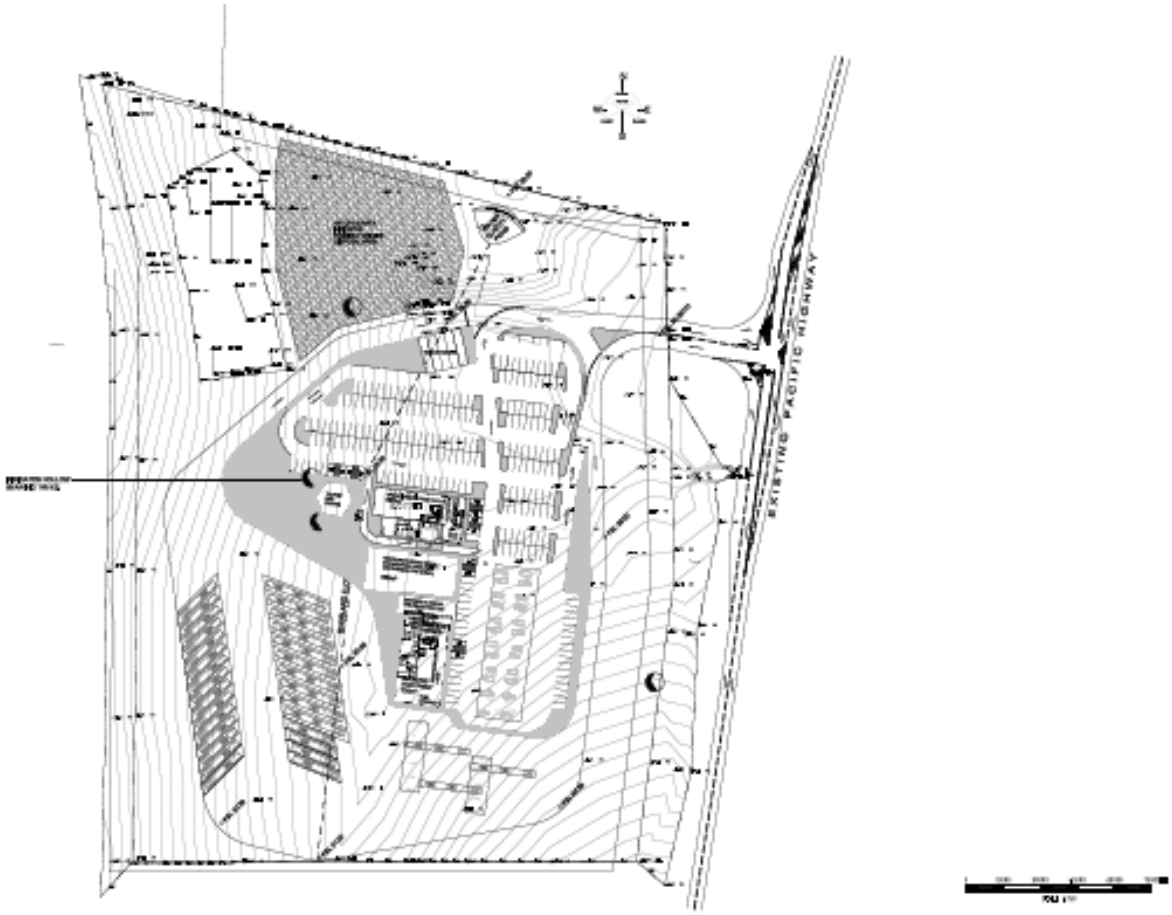


Figure 4 - Concept Site Layout

4 BCA Classifications

Under the BCA (and following PBP categories) the following building classifications apply:

- Class 1-4 – Truck stop accommodation
- Class 5-8 – Truck stop, Service Station, Food outlets, Information Centre.

Conservatively, therefore, BAL and APZs should be calculated for the more sensitive use, being truck stop accommodation. Although not a motel, not being for the general public, this can still be considered a "special fire protection purpose" under PBP.

Consideration therefore needs to be given to the accommodation, in particular the implications under the BCA and AS 3959, but also to the other commercial purposes to ensure that they meet the requirements of Section 1.1 of Planning for Bushfire Protection. In this regard the following aims and objectives are relevant:

5 Aim and Objectives of PBP

All development on Bush Fire Prone Land must satisfy the aim and objectives of PBP. The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including firefighters) and to minimise impacts on property from the threat of bush fire, while having due regard to development potential, onsite amenity and protection of the environment. More specifically, the objectives are to:

(i) afford occupants of any building adequate protection from exposure to a bush fire;

(ii) provide for a defendable space to be located around buildings;

(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;

(iv) ensure that safe operational access and egress for emergency service personnel and residents is available;

(v) provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ); and

(vi) *ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bush fire fighting).*

6 Procedure for assessing setbacks

Setback requirements are assessed under the procedure outlined in Appendix A2.3.

6.1 Classification of Vegetation

An assessment of the vegetation both on and off the site has been undertaken in accordance with Planning for Bushfire Protection. In this case vegetation has been assessed within 140m of the development envelope. In addition, the 140m radius from the proposed buildings has also been given consideration. This assessment identifies that within and adjacent to the site, the following vegetation categories apply (after Keith, (2004)):

- Wet sclerophyll forest (shrubby sub-formation) – Largely lands adjoining to the west and east of the Kempsey bypass – Mapped as “F”
- Areas of partial managed vegetation and remnant forest – Mapped as “FR”
- Grassy woodlands remnant – areas of the site with scattered trees – Mapped as “R”
- Grasslands – cleared areas of the site; some road corridor land to the east – Mapped as “G”
- Managed Gardens – Mapped as “M”
- Cleared for the Bypass – Mapped as “C”.

The predominant vegetation formation is Wet sclerophyll forest (shrubby sub-formation).

Figure 5, below, shows mapping of these vegetation units in the context of the site boundaries and slopes and key radii from the development sites and the building cluster.

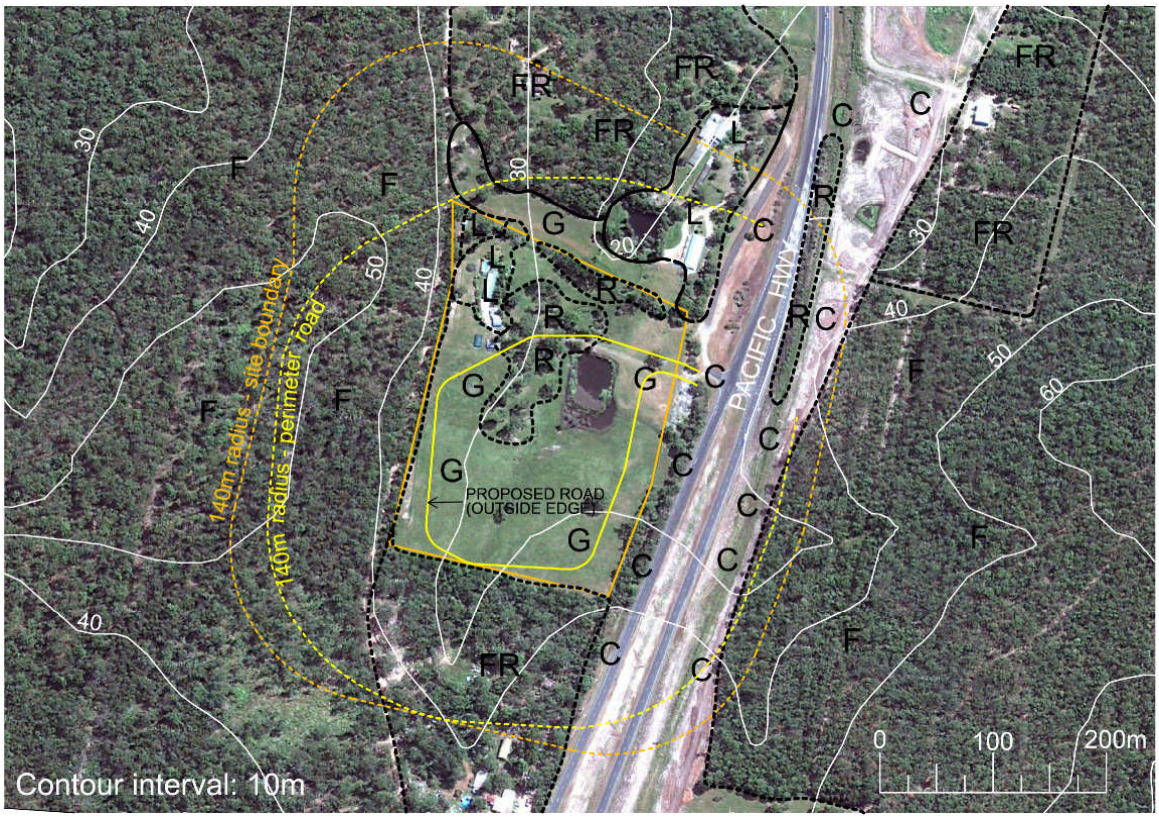


Figure 5 - Vegetation Class Mapping

It should be noted that as part of the Kempsey bypass construction some landscaping would be provided within the road corridor. Nevertheless, this corridor would provide a reduced vegetation buffer extending some 140 m east of the site boundary.

Lands to the south and north are in private ownership and have been partially cleared although some closed canopy forest remnants remain. From a bushfire perspective, these areas would still be treated as tall open forest. To the north, there is a managed grassland area in the adjoining property approximately 50 m wide which contributes to the effective width of an outer protection zone.

Some areas of managed gardens occur, which include remnant vegetation. From a bushfire perspective these would pose a similar risk to grassy woodlands, although as these areas are managed they would also potentially form part of an outer protection zone.

The main risk vector would be from the north-west. Grades within the vicinity of the site are upslope on this vector.

6.2 Slope Assessment

Slope assessment has been undertaken for the four key vectors within and outside the site.

6.2.1 Slopes within the site

A survey of the site has been carried out by a qualified land surveyor. That survey is appended at Appendix A.

To the west, slopes range between 1:10 and 1:8; i.e. between 6 and 7 degrees. These slopes are upslopes to the vegetation outside the site, and are treated the same as 0 degree slope. Slopes to the south are of a similar order, though slightly less in gradient, and again are upslope to the vegetation outside the site. Accordingly these slopes also can be considered as 0 degree slopes. Slopes to the east of the site again slope upwards, and can be considered as 0 degree slopes.

The only slopes downwards to vegetation are to the north, consisting of slopes of approximately 1:40, or 1.5%. These slopes can be considered as slopes of less than 5 degrees.

Within the site, are areas of scattered remnant tree cover, which would constitute woodlands. The existing dwelling is upslope to the west of this area, and the areas proposed for development are generally cross-slope or on similar grades across the ephemeral watercourse.

6.2.2 Slopes outside the site

Consideration was also given to slopes outside the site, as it is the slope of the vegetation itself that is more significant, than the slope between development and the classified vegetation. Figure 5, above, shows the contour map for the land, including the area within 140m of the development site. These contours show that the slopes outside the site are relatively constant when compared to slopes within the site. As for slopes within the site, the majority of sites are upslope. The key vector with downslope is, as expected, to the north, although slopes continue to be less than 5 degrees down the ephemeral watercourse.

6.3 Commercial Development – BCA Classes 5-8

These classifications have no specific requirements under PBP other than meeting the general approach set out in Section 1.1. Accordingly the focus of the review is on the overnight accommodation, as the most sensitive use. The same BCA outcomes under AS 3959-2009 are therefore adopted for the overall development.

6.4 Accommodation – BCA Classes 1-4

The area proposed for buildings is assessed as requiring the appropriate level of protection of a Class 3 building. This ensures that adequate protection is available to address RFS comments regarding the potential services and meeting point role that the facility may provide in the event of a bushfire in the locality. As outlined in Section 2.1 of PBP, a fire safety authority would be required at DA stage, as the accommodation constitutes a special fire protection purpose development. In noting this, it should be pointed out, however, that the users of such a facility would generally not constitute the most vulnerable groups: eg seniors, children and persons with disabilities, as the accommodation is proposed for truck driver accommodation rather than the general public. This mainly influences the potential evacuation requirements of the site.

7 Planning controls for SFPP

Special Fire Protection Purposes development has specific planning controls as outlined in Section 4.2. Special Fire Protection Purpose (SFPP). The accommodation component triggers SFPP requirements, and accordingly the development is required to obtain a BFSA

from the RFS under section 100B of the RF Act at DA stage. The development would also be integrated developments under section 91 of the EP&A Act.

Occupants of the development would be persons at increased risk through the following:

- They may be less educated in relation to bush fire impacts and accordingly they may have reduced capacity to evaluate risk and to respond adequately to the bush fire threat;
- As travellers and commercial drivers they may present organisational difficulties for evacuation and or management;
- They may be more vulnerable through stress and anxiety arising from bush fire threat and smoke;

Although not a motel, it is proposed that the truck accommodation be considered in the same fashion as a Motel. Given the issues raised with respect to tourists, consideration has been given to the use of resilient buildings, and also the ability to control the site with respect to an evacuation, should that prove desirable or necessary.

As outlined by the RFS, the buildings may at times provide an informal assembly area, which has been taken into consideration in this assessment.

7.1 Separation Distances - Minimum APZ Specifications

These were developed from Table A2.6. Based on slope and vegetation type, the minimum APZ requirements are outlined below; together with the actual radius from buildings to the nearest classified vegetation:

Vector	**Vegetation type**	**Slope**	**Minimum APZ m**	**Available APZ m (within site)**
North	Forest	<5 degrees	70	120
East	Short heath (landscaping)	Upslope	35	130
South	Forest	Upslope	60	60
West	Forest	Upslope	60	70

The most sensitive use, accommodation, would be a minimum of 80m from any property boundary. All buildings would meet the minimum requirements, although canopies over the truck stop component would be within these distances. In particular, the southern-most canopy of the truck stop would be within 15m of the southern boundary of the site. This may place it at potential risk of direct flame attack noting it has good separation from other structures and buildings.

7.2 Design and layout, including vehicle access and parking

The development provides a peripheral circulation road, with parking generally inside this road, with the exception of some of the truck parking. This parking would, however, be at least 15 m from the property boundary. Buildings have been grouped towards the centre of the site, and are surrounded by hardstanding and managed lawn. At the request of the NSW RTA, access to the Pacific Highway (proposed Kempsey Link Road) has been

provided by a single access point. This is, however, located to the east of the site, and would traverse cleared areas associated with the bypass construction. North and south access is easily available from this point, with access to the north being some 2.3 km to South Kempsey.

Generally the layout places the most "at risk" element in the centre of the site.

7.3 Construction methods – AS 3959

Construction of structures within APZ setbacks would need to be specifically addressed at DA stage. It is noted all buildings would achieve required setbacks. However it is recommended that at minimum all buildings achieve construction levels equivalent to BAL 12.5, so as to ensure that good protection is available to defend against ember attack.

7.4 Bushfire staging post/gathering point

An emergency management plan would need to be developed for the site at DA stage, to identify both appropriate evacuation triggers and techniques and also to address ongoing site management including maintenance of APZ areas and worker induction. This is particularly the case as the site may function as an informal gathering point for local residents and/or bushfire response teams as well as travellers whose travel was interrupted by fire event.

Construction to BAL 12.5 would permit buildings to be used as a refuge in the event of a fire event however there is potential complexity associated with the possible use of the site as a bushfire staging facility as well as a resident informal meeting point and traveller facility. These issues would need to be addressed as part of an emergency management plan. In particular, the emergency management plan would need to address evacuation triggers for bushfire fighters, members of the public and site workers. These triggers may be substantially different, with the potential for the site to be closed to the general public (subject to appropriate safe egress) while remaining in a support function role for bushfire fighters.

If the site were to operate as a refuge, consideration would need to be given in the emergency management plan to traffic management within the site. This would be essential to ensure that the peripheral road network remains open and available to firefighters and that vehicles were parked in locations that reduced potential fire risk to those vehicles. This may involve the provision of informal parking areas for heavy vehicles, in particular, potentially on grassed areas in the eastern portion of the site. Parking for light vehicles, as provided, generally provides good separation from potential fire vectors.

Evacuation paths are available both to the north and south via the proposed South Kempsey Link Road and Pacific Highway. An alternative evacuation path is also available via the interchange to the Kempsey bypass. It is anticipated that if these major links were threatened, appropriate emergency management response would occur in terms of ensuring that traffic was appropriately directed and/or halted in an appropriate place of refuge. In this regard, the emergency management plan needs to interface with existing plans for the region.

8 Conclusions

A full bushfire assessment would be required at development application stage once site layout details are known. During design development consideration should be given to

enhancing the level of separation between non-building structures (e.g. canopies) and classified vegetation.

On the basis of this initial review, however, it is considered that the development would be able to achieve sufficient levels of bushfire protection to proceed.

An essential element would be the development of an appropriate emergency management plan which would need to address the ongoing maintenance of the property, and also its potential use as an informal refuge/firefighter base.

APPENDIX 3

Preliminary Servicing Strategy

Cardno
Shaping the Future

South Kempsey Service Centre Rezoning Application

Water Supply, Sewerage and Stormwater Planning Report

Job Number 89022890

Prepared for Axis Project Management Pty Ltd

0610/2011

Cardno (NSW/ACT) Pty Ltd
ABN 95 001 145 035
Level 3, Suite 34
207 Albany Street North
Gosford NSW 2250
Telephone: 02 4323 2558
Facsimile: 02 4324 3251
International: +61 2 4323 2558
gosford@cardno.com.au
www.cardno.com.au

Document Control

Version	Date	Author		Reviewer	
3	7 Oct 2011	Paul Jones	PJ	Vince Cubis	VC

Executive Summary

Cardno have been commissioned by Axis Project Management Pty Ltd to report on water and sewer options and stormwater drainage for rezoning for a proposed service centre to be developed on Lot 2454 DP 610363 Pacific Highway, South Kempsey.

There is currently no sewer infrastructure available in the area; Kempsey Shire Council has concept plans for infrastructure extension for South Kempsey. The timing of the construction is unknown at this time. The alternate options for servicing the site are onsite treatment, package pump station with sewer rising main or an interim offsite trucking disposal until such time as the planned sewer extensions are available.

There is currently minor water infrastructure available in the area; Kempsey Shire Council has concept plans for water infrastructure extension for South Kempsey. The timing of the construction is unknown at this time. A trickle feed to onsite storage tanks from the existing 32 PE pipe is the most feasible option to supply potable water to the site until such time as the planned watermain extension are available.

Further negotiations with Kempsey Shire Council as to the feasibility and requirements of these options is required and it is understood Council is receptive to interim solutions until infrastructure for water and sewer becomes available and encourages development in the area.

There are many feasible options for water supply and sewer disposal available for the site and should not prevent the rezoning proposal.

Stormwater drainage design with suitable water quality detailing should also pose no reason to restrict rezoning of the site.

Table of Contents

Annexes

1 Water Supply

The water reticulation system in the South Kempsey area is administered by Macleay Water which is division of Kempsey Shire Council.

1.1 Existing Infrastructure

There is an existing water infrastructure in the South Kempsey area consists of a 32 PE pipe which is located eastern side of the Pacific Highway and serves the current residents and businesses. The 32 PE pipe stops approximately one hundred metres north of the development. There is a smaller main which supplies potable water to the two residences immediately north of the development.

We understand that Kempsey Shire Council is currently conducting pressure tests on the 32 PE pipe to assess its ability to serve the proposed developments in South Kempsey.

1.2 Planned Infrastructure

Concept plans for the South Kempsey area have been developed by Macleay Water and indicate the site is to be serviced by a DN300 gravity water main from the north along the Pacific Highway beyond the proposed site. The timing of the watermain extension is unknown at this time and would depend on demand requirements for the area, and available Council capital works funds.

1.3 Interim Water Service

The proposed site could use a trickle feed to onsite storage tanks from the existing 32 PE pipe combined with rainwater harvesting from the proposed buildings. Further negotiations with Kempsey Shire Council would be required to determine final details of this option.

1.4 Fire Fighting

The proposed development could be served by hydrant coverage by the installation of water storage tanks to adequately supply the site. Typically a tank of 250 cubic metres would be required for a development of this size subject to final compartmentation and area of the buildings.

2 Sewerage

The sewage system in the South Kempsey area is administered by Macleay Water which is division of Kempsey Shire Council.

2.1 Existing Infrastructure

There is currently no existing sewage infrastructure in the South Kempsey area with the closest gravity sewer connection point being approximately 2.75 kilometres north of the site at the corner of the Pacific Highway and South Street.

2.2 Planned Infrastructure

Concept plans for the South Kempsey area have been developed by Macleay Water and indicate the site is to be serviced by a DN250 gravity sewer from the north along the existing watercourse line to the proposed site. The site was to be included in stage 2 of the concept plans with a planned connection date of the first half of 2013 which was based on the federal funding being potentially available. The Council did not receive funding in the 2011 grants so the stage 2 completion date at this time is unknown.

2.3 Sewage Site Options

There are alternative options to serve the proposed site each with specific advantages and disadvantages:

2.3.1 On-site Wastewater Blackwater - Recycling System

These systems use a combination of processes including membrane, bio reactors, UV and chloride dosing to produce recycled water suitable for reuse for various purposes depending upon the level of treatment. At lower levels of treatment, water would be suitable for underground dispersal, at middle levels of treatment, use on landscaping, toilets etc and at higher levels of treatment would be able to be used for other purposes.

Details would be developed at DA stage, noting:

- Provision of adequate sub-surface irrigation which, based on preliminary calculations, may be in the order of 1 ha, depending upon the level of re-use achieved, and geotechnical assessment of soils.
- The proposed food outlets would require grease traps with an appropriate pump-out arrangement to avoid impact on the performance of an on-site treatment plant.
- Approval by both Kempsey Shire Council and IPART under the relevant legislation would be required.

2.3.1 Connection to Existing Sewage System

The site can be connected the existing gravity sewer system by the provision of a packaged sewage pump station and sewer rising main along the Pacific Highway to South Street gravity sewer. This would mean the installation of approximately 2.75

kilometres of sewer rising main. The rising main would be expected to be smaller than 100 mm in diameter.

2.3.2 Interim Sewage System

It is understood Kempsey Shire Council may be receptive to the possibility of an interim sewage system until the availability of the proposed gravity sewer system is available. This option could involve the partial construction of the Sewage Pump Station by the construction of the wet well with the provision of pump out facilities for the offsite disposal of sewage by pump truck until such time as the availability of the council gravity sewage system. Further negotiations with Kempsey Shire Council would be required for agreement with this option.

3 Stormwater

3.1 Existing Drainage Depression and Dam

We have shown the filling in of the existing drainage depression and dam, with the installation of a new stormwater drainage pipe. An overland flow path through the site would be provided for all storm events.

3.2 Water Quality

Water quality ponds can be installed downstream of the drainage infrastructure to remove nutrients from the stormwater.

Bunded areas in fuelling areas would be installed to prevent contaminant run-off from entering the stormwater network.

NOTE:

THIS PLAN IS FOR REZONING PURPOSES ONLY AND IS INDICATIVE ONLY. IT IS NOT SUITABLE FOR DESIGN, CONSTRUCTION OR DEVELOPMENT APPLICATION PROCESSES.

Annexure A

Indicative Site Layout

APPENDIX 4

Preliminary Ecological Review

ECOLOGICAL CONSTRAINTS:

556 PACIFIC HIGHWAY, KEMPSEY

AUGUST 2011

PREPARED FOR WAKEFIELD PLANNING BY:

LEWIS ECOLOGICAL SURVEYS

Commercial In Confidence

Disclaimer

The client (Wakefield Planning) may only use this document for the purposes for which it was commissioned. This report relies upon data, surveys, measurements and results based on a short-term objective study in response to a brief provided and largely defined by the client (Wakefield Planning and their representative: Angus Witherby). Although conclusions have been based on the available data at the time, some professional judgement has been applied in reaching these conclusions due to the temporal limitations arising from the dynamic nature of available information, legislation, schedules, individual species and associated habitats. Every attempt has been made to ensure the accuracy and objectivity of the report's findings, conclusions and recommendations. Lewis Ecological Surveys does not accept responsibility for its use beyond the scope of works.

.....
Author
Ben Lewis
(B. App Sc – Hons)

…18th August 2011……
Date

LEWIS ECOLOGICAL SURVEYS
mobile – 0413019279
email – lewisecological@optusnet.com.au

ACKNOWLEDGEMENTS

Ben Lewis (Lewis Ecological Surveys) – Field Surveys, Report Author.

Photography - Lewis Ecological Surveys © else stated

Top – Northern Grey Ironbark (Ref Tree T001)
Bottom Left – View from the existing egress looking south west across the subject site
Middle – Looking toward the north western treed precinct from the eastern boundary
Bottom Right – Existing egress looking east from the dwelling.

Report to be cited as: Lewis, B.D (2011). Ecological Constraints: 556 Pacific Highway, Kempsey. Report prepared for Wakefield Planning Pty Ltd by Lewis Ecological Surveys. ©

Document Control:

Date	Status	No. Copies	Format	Dispatched	Client	Client Contact
18.8.2011	Version I	1	PDF	Email	Wakefield Planning	Angus Witherby

TABLE OF CONTENTS

1.0 INTRODUCTION

A Highway Service Centre has been proposed at 556 Pacific Highway Kempsey (Lot 2454, DP 610363, hereafter the site), an area of land measuring ~6.22 ha and bordering the southern interchange of the Kempsey Bypass Project. The Service Centre would provide for a truck stop together with fuelling area and parking for some 25 articulated vehicles, 2-3 food outlet pads, an information facility and rest areas for travellers. In addition, a fuel facility for up to 24 cars at one time would be provided, together with the required parking for the overall facility. At this stage it is proposed to retain the rural residential dwelling on the land, which would be subdivided as a separate allotment.

Lewis Ecological Surveys (LES) has been contracted by Wakefield Planning to investigate the ecological constraints associated with the site with reference to the *Environmental Planning and Assessment* Act (1979), NSW *Threatened Species Conservation* Act (1995), *Environmental Protection and Biodiversity Conservation* Act (1999) and relevant local environment plans including the Comprehensive Koala Plan of Management for Eastern Portion of Kempsey Shire LGA (CKPoM 2011). This report represents Stage I in providing an ecological overview of the site so to allow a concept design to be developed for the planning proposal.

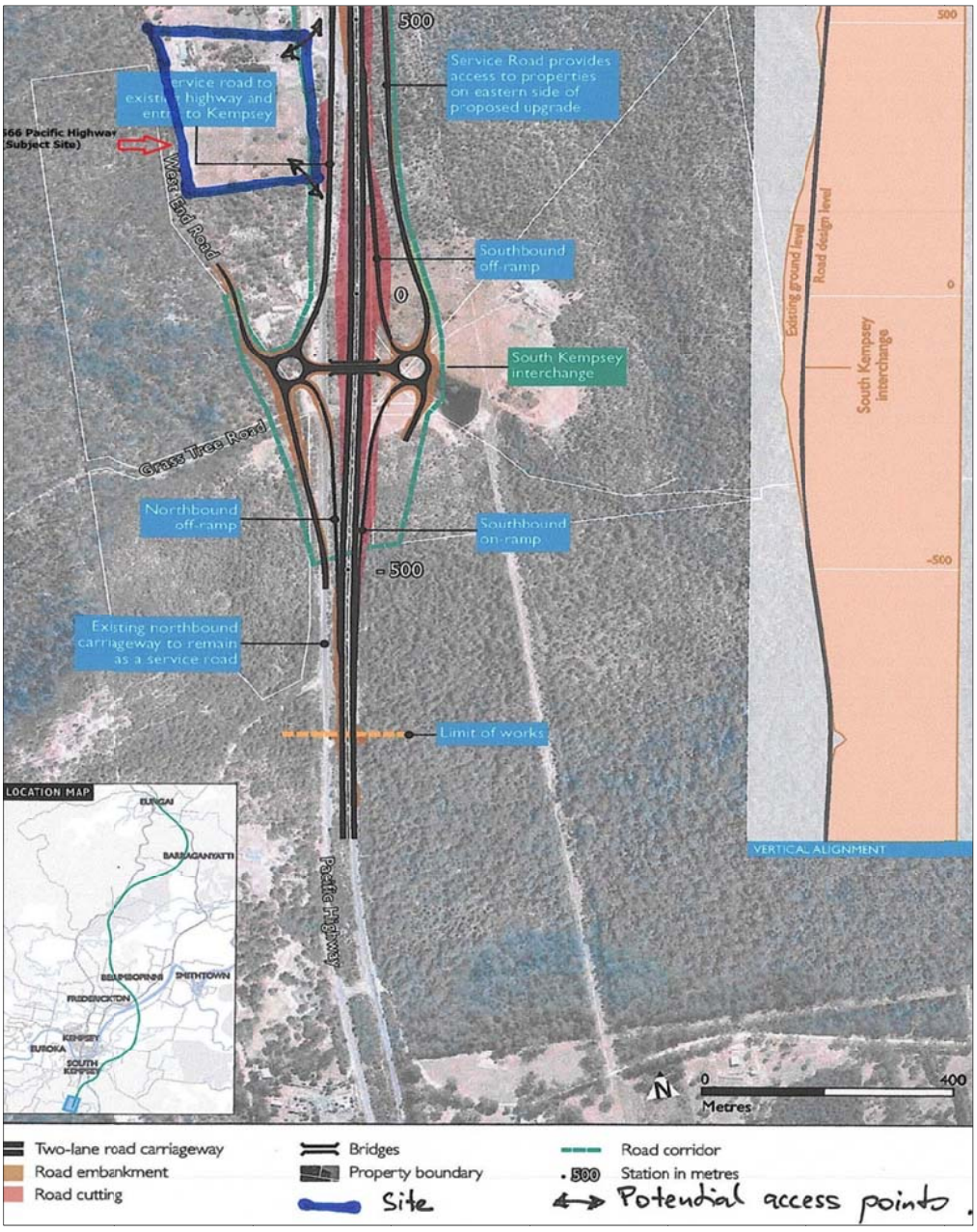


Figure 1-1. Location of study site in relation to the southern interchange of the Kempsey Bypass Project.

2.0 SURVEY METHODS

Both desktop and field surveys were undertaken for Stage I surveys.

2.1 Desktop Survey

The following information sources were reviewed:

- Department of Environment Climate Change and Water (DECCW) Threatened Species Database Search: 10 km radius;
- An *Environmental Protection and Biodiversity Conservation* Act (1999) Protected Matters Search for any occurrence of threatened flora, fauna and/or ecological communities/populations within a 10 km radius of the subject site;
- Environmental Assessment (RTA 2007) and the Supplementary Assessment Report (Parsons Brinckerhoff 2007);
- Kempsey to Eungai: Compensatory Habitat Package (Lewis and James 2010);
- Comprehensive Koala Plan of Management for Eastern Portion of Kempsey Shire LGA (CKPoM 2011);
- Local Environment Study for Lots 100 and 104 in DP 776239 Pacific Highway, South Kempsey (GeoLink 2011); and
- Kendall and Kendall Ecological Services Pty Ltd (2003). Flora and Fauna Assessment Draft Local Environmental Study "South Kempsey" Kempsey. Prepared for GHD Appendix C In Rezoning Justification Report GHD.

2.2 Field Surveys

Field surveys were undertaken on the 4th, 10th and 11th of August 2011 (Table 2-1). A follow up survey was undertaken on the 16-18th August to reconfirm the extent of vegetation being removed to accommodate the southern interchange for the Kempsey Bypass.

Table 2-1. Survey time period.

Date	Time on Site
4th August 2011	0730-0930
10th August 2011	0830-1030 and 1845-1930
11th August 2011	1100-1200
16th August 2011	1100-1230
18th August 2011	0930

2.2.1 Flora Survey

A random meander survey was undertaken on the 4th and 10th August 2011. During this time, targeted searches were conducted for threatened plant species potentially occurring on the subject site, a complete inventory was compiled and the vegetation communities were classified based on their structural and floristic characteristics. The condition rating of the vegetation was based on that used in the Biometric (Gibbons *et al.* 2005) or BioBanking methodology and comprises two classes of good to moderate or low. Vegetation assigned as having a low condition met the following criteria:

- Native overstorey percent foliage cover <25% of the lower value of the overstorey percent foliage cover benchmark for that vegetation type, and
- <50% of groundcover vegetation is indigenous species, or
- >90% of groundcover vegetation is cleared.

If these criteria were not met then the vegetation was not considered to be in low condition and must be assigned as having a moderate to good condition.

2.2.2 Fauna Survey

Fauna desktop surveys were synonymous with the approach used for flora. In addition to this, fauna habitats were stratified following an assessment of floristic composition, structure, topography, hydrological features, soil characteristics and disturbance history. Specific data were collected on the distribution of tree hollow resources, foraging resources, hydrological features, disturbance and other habitat attributes

generally associated with threatened species. During the tree hollow traverse the following information was collected for each tree/stag: species, height, dbh (diameter at breast height), hollow types (small-large/trunk or limb) and species suitability.

A general fauna features traverse (~4 hrs) was conducted throughout the subject site and peripheral habitats. The objective of this method was to identify additional threatened species and their habitats. During the traverse specific attention was given to searching for raptor nests, feeding signs of Yellow-bellied Glider (*Petaurus australis*), latrine sites for Spotted-tailed Quoll (*Dasyurus maculatus*), Koala (*Phascolarctos cinereus*) scats beneath preferred and secondary feed trees, breeding sites for Green-thighed Frog (*Litoria brevipalmata*) and nest/roost sites for threatened raptors and bats.

3.0 RESULTS

3.1 Plant Species

Sixty-eight (68) species of plant were recorded on the subject site with 19 (28%) considered weeds including two *Noxious* plants pursuant to the *Noxious Weeds* Act (1993). No threatened plant species were detected during the survey.

3.2 Vegetation Communities

Five vegetation units were identified on the site including:

- Map Unit 1 – Pink Bloodwood/Tallowwood/Ironbark Open Forest;
- Map Unit 2 – Swamp Sclerophyll Forest (an EEC);
- Map Unit 3 - Aquatic habitats (farm dams);
- Map Unit 4 – Horticultural/Gardens (surrounding the dwelling); and
- Map Unit 5 – Cleared land with occasional scattered trees (Figure 3-1).

Map Unit 2 is a degraded form of Swamp Sclerophyll Forest which is currently listed as an Endangered Ecological Community pursuant to the *TSC* Act (1995). This community would be assigned as having a 'low' condition given the following:

- Native overstorey percentage foliage cover <25% of the lower value of the overstorey percentage foliage;
- Cover benchmark for that vegetation type;
- <50% of groundcover vegetation is indigenous species, or
- >90% of groundcover vegetation is cleared.

3.3 Threatened Flora

No threatened flora was recorded during the survey nor have any been assigned a reasonable likelihood of occurrence.

3.4 Noxious Weeds

Two species of noxious weed were recorded during the survey. They included:

- Lantana (**Lantana camara*) – Class 5;
- Giant Parramatta Grass *(*Sporobolus fertilis*) – Class 4;

Class 4 weeds require the growth and spread of the plant which must be controlled according to the measures specified in a management plan published by the local control authority (Locally controlled). Class 5 weeds require that the requirements in the *Noxious Weeds* Act (1993) for a notifiable weed must be complied with (Notifiable – Sale restricted).

Figure 3-1. Distribution of ecological features at 556 Pacific Highway Lot 2454, DP 610363.

3.5 Fauna

3.5.1 Fauna Habitat

The subject site is largely comprised of cleared land with degraded dry sclerophyll forest (Map Units 1a and 1b) in the north western part of the site and an aquatic habitat (Map Unit 3) in the form of a farm dam in the central part of site.

The overstorey of Pink Bloodwood, Tallowwood, Northern Grey Ironbark, Thick-leaved White Mahogany, Bancroft's Red Gum and rarely Small-fruited Grey Gum is representative of the local study area (<1 km) and provides a foraging resource to a number of nectivorous fauna including honeyeaters (i.e. Yellow-faced Honeyeater, Noisy Friarbird, Lewin's Honeyeater), Grey-headed Flying Fox and marsupial gliders (i.e. Sugar Glider and Feather-tail Glider). Denning and roosting habitat is restricted to four trees with the suitability of these resources discussed in more detail in Section 3.5.1i.

Dense shrub cover is largely restricted to Map Unit 4. It is likely to provide habitat for a range of common fauna including nectivorous birds (i.e. Yellow-faced Honeyeater, Noisy Friarbird, Scarlet honeyeater). Some small passerine birds including wrens, Red-browed Firetail and some thornbills would also utilise these areas with a small number potentially choosing to select these sites for nesting in spring-early summer.

The groundcover is predominantly comprised of grasses including Carpet Grass (*Axonopus compressus*), Common Couch (*Cynodon dactylon var. dactylon*), Rhodes Grass (*Chloris gayana*) and White Clover (*Trifolium repens*) which provide a foraging resource to herbivores including kangaroos and wallabies whilst small skinks including the Grass Skink (*Lampropholis delicata*) commonly occur through the site.

The dam provides habitat for a range of common frog fauna including the Common Eastern Froglet (*Crinia signifera*), Eastern Dwarf Frog (*Litoria fallax*) and the Striped Marsh Frog (*Limnodynastes peroni*). It is unlikely to be inhabited by threatened frogs known from the study area.

i. Tree Hollow Resources

Four hollow bearing trees were recorded on the subject site (Figure 3-1). They have been referenced as:

- T013 – Bancroft's Red Gum (2 small limb hollows);
- T048 – Pink Bloodwood (large trunk hollow, 2 small limb hollows, 1 medium limb hollow);
- T049 – Tallowwood (4 medium limb hollows, 3 small limb hollows); and
- T055 – Pink Bloodwood (2 small limb hollows[1]).

Given the surrounding habitat and characteristics of the tree hollows themselves, they are considered suitable for a range of hollow dependant fauna including bats, scansorial and arboreal mammals (i.e. Common Brush-tail Possum, Antechinus) and herpetofauna with arboreal habits, particularly Bleating Tree Frog, Peron's Tree Frog and Green Tree Snake.

ii. *Allocasuarina* Resources

Occasional stems of Black She-oak (*Allocasuarina littoralis*) are distributed in the north western part of the site, extending north from T049. At the time of this survey, none of the *Allocasuarina* has been used by the threatened Glossy Black Cockatoo. In contrast, the *Allocasuarina littoralis* that overhangs much of the site's western boundary shows signs of use by the Glossy Black Cockatoo in the past 1-3 months. The implications of this finding are discussed more in Section 5.0.

3.5.2 Habitat Corridor Value

According to DEC *Key Habitats and Corridors* mapping (Scotts *et al.* 2000), the site abuts a mapped east-west corridor linking lands in the west (i.e. Kalateenee State Forest) with areas further to the south and extending east into Maria National Park. Focal species within this corridor network include the Yellow-bellied Glider and Brush-tailed Phascogale, both known from within 5 km of the site. Key habitat has also been mapped to the west of the site.

[1] Based on opening of hollow entrance; small = <50 mm opening, medium = 50-150 mm, large = >150 mm

3.5.3 Fauna Species

Forty-three species were recorded during the survey which included six mammals, 31 birds, three frogs and three reptile species. This included three threatened species:

- Glossy Black Cockatoo;
- Koala; and
- Varied Sitella.

i. Glossy Black Cockatoo

Glossy Black Cockatoo was recorded on the western boundary of the site (Figure 3-1). At this location, chewed cones from several stems were observed, however, the extent of activity would suggest more investigative foraging as birds search for cones with a profitable seed/kernel ratio.

ii. Koala

Koala scats were recorded from a single location where trees were overhanging the western boundary (Figure 3-1). No Koala scats were recorded from trees growing on the site, although the area has been mapped as preferred Koala habitat (*see* Section 4.3).

iii. Varied Sitella

Varied sittella was recorded from the north western part of the site (Figure 3-1). A feeding flock was observed moving through the canopy before flying to the west of the site. This species is likely to periodically move through the dry sclerophyll forest in the north western part of the site.

4.0 ECOLOGICAL CONSTRAINTS

The main ecological constraints for this site have been summarised under relevant legislation of the *Threatened Species Conservation* Act, *Environmental Protection and Biodiversity Conservation* Act and the Comprehensive Koala Plan of Management for Eastern Portion of Kempsey Shire LGA.

4.1 Threatened Species Conservation Act

4.1.1 Vegetation Communities

Map Unit 2 has been classified as Swamp Sclerophyll Forest, an Endangered Ecological Community. It has currently assigned as having a 'low' condition given the following:

- Native overstorey percentage foliage cover <25% of the lower value of the overstorey percentage foliage;
- Cover benchmark for that vegetation type;
- <50% of groundcover vegetation is indigenous species, or
- >90% of groundcover vegetation is cleared.

This community extends further to the north of the property for at least 270 m. Although a seven part test of significance would need to be prepared, the outcome of this test is likely to state that impacts would be of insufficient magnitude to warrant the preparation of a Species Impact Statement.

4.1.2 Threatened Species

No threatened species of flora were recorded during the survey nor have any been assigned as having a reasonable likelihood of occurrence. In contrast, three threatened species of fauna were recorded including Koala, Varied Sitella and Glossy Black Cockatoo. Based on the geographic location and habitat attributes of the site, another 15 species (i.e. Powerful Owl, Greater Broad-nosed Bat, Little Lorikeet, Brush-tailed Phascogale) have been assigned as having a moderate or high likelihood of occurrence. Although a seven part test of significance would need to be prepared for all of these species the outcomes of the test are likely to find that impacts of the proposal are of insufficient magnitude to warrant the preparation of a Species Impact Statement.

4.2 Environmental Protection and Biodiversity Conservation Act

A protected matters search revealed there are no World Heritage Properties, Wetlands of International Significance (Ramsar Wetlands), Commonwealth Marine Areas, Threatened Ecological Communities within 10 km of the site. Twenty-three threatened species and 15 migratory species were identified as known or potentially occurring in this search area. Of these, only the Spotted-tailed Quoll and Grey-headed Flying Fox would be likely to occasionally inhabit the site. The proposal to redevelop the site is unlikely to significantly affect either species as important habitat does not occur on or adjacent to the site. For example, the site does not contain suitable roosting habitat for the Grey-headed Flying Fox with the nearest flying fox camp occurring 2 km to the north at Kempsey Swamp. The Spotted-tail Quoll might occasionally traverse the site, however, the recognised movement corridor for this species occurs around 1-2 km to the south (i.e. Stumpy Creek and the Maria River).

A number of migratory species would be expected to occasionally inhabit the site including Great Egret, Cattle Egret, White-throated Needle-tail, Rainbow Bee-eater, Rufous Fantail, Black-faced Monarch and Latham's Snipe. Under the EPBC Act, an action is likely to have a significant impact on a migratory species if it substantially modifies, destroys or isolates an area of important habitat for the species (DEH 2006). An 'assessment of significance' test pursuant to this legislation and the Policy Statement 1.1 'Significant Impact Guidelines' (DEH 2006) would identify the site as not containing important habitat for either of these species.

4.3 Comprehensive Koala Plan of Management for Eastern Portion Kempsey Shire LGA

The mapping provided in the CKPoM identifies the site as containing a small area of Secondary Class B habitat in the north western corner (Map Unit 1a) with the remainder of the site mapped as 'unknown' which is described as predominantly or partially cleared.

The development and rezoning assessment pathway requires that surveys be undertaken to determine whether or not the native vegetation qualifies as Core Koala Habitat in accordance with the CKPoM. Vegetation surveys of the site found that both Map Units 1a and 1b qualify as Secondary Class A habitat given they contain Tallowwood (a primary feed tree species) growing in association with Small-fruited Grey Gum (a secondary feed tree species).

Koala scat surveys of all trees with a diameter at breast height over bark (DBHOH) exceeding 250 mm and all primary and secondary feed trees as listed in the Preferred Koala Feed Tree Schedule on page 8 of the CKPoM failed to record any evidence of Koala inhabiting the site. In accordance with the plan, Map Units 1a and 1 b remain as Preferred Koala Habitat and given the nature of the proposal one of two options (i.e. pathways) are available.

Option A
The retention of preferred koala feed trees with a dbhob ≥250mm would allow Kempsey Shire Council to assess the development application (DA) according to:
(a) maximise retention and minimise degradation of native vegetation across the subject land;
(b) minimise the removal of any identified preferred koala food trees, where they occur across the subject land;
(c) ensure such trees will not be negatively impacted by subsequent development works including the construction of buildings, associated infrastructure and/or provision of public utilities;
(d) maintain key linkages across the landscape, where they occur, to reduce the effects of habitat fragmentation;
(e) comply with the Habitat Compensation Measures where relevant as per Section 4.12 of this plan;
(f) Where Onsite PKFT Tree Replacement Measures have been applied, as per Section 4.9 of this plan, measures to ensure the retention of replacement trees over time, which may include but are not limited to restrictions on title; and
(g) Where koala habitat and associated linkages are proposed to be retained on the development site to mitigate impacts, measures to ensure the protection of those areas in the long term, which may include but are not limited to restrictions on title;
(h) Appropriate measures (i.e. erection of exclusion fencing) are to be in place to ensue koalas are protected during site construction works. Should koalas be found on site during clearing, construction or site works then provisions (i) and (j) in Section 4.11 apply.

Option B
The removal of one or more of the preferred Koala fee trees would trigger a requirement to provide compensatory measures 1 or more of these PKFT requires removal then the Habitat Compensation Measures in Section 4.12 and nominated Performance Criteria for Areas Mapped as PKH and Determined to be PKH in Section 4.10 of this plan are to be applied to the DA/Rezoning application where relevant.

Section 4.10 of the CKPoM does acknowledge KSC may grant consent with or without conditions where the following criteria are met:

(a) maximise retention and minimise degradation of native vegetation across the subject land;
(b) minimise the removal of any identified preferred koala food trees, where they occur across the subject land;
(c) ensure such trees will not be negatively impacted by subsequent development works including the construction of buildings, associated infrastructure and/or provision of public utilities;
(d) maintain key linkages across the landscape, where they occur, to reduce the effects of habitat fragmentation;
(e) comply with the Habitat Compensation Measures where relevant as per Section 4.12 of this plan;

(f) Where Onsite PKFT Tree Replacement Measures have been applied, as per Section 4.9 of this plan, measures to ensure the retention of replacement trees over time, which may include but are not limited to restrictions on title; and
(g) Where koala habitat and associated linkages are proposed to be retained on the development site to mitigate impacts, measures to ensure the protection of those areas in the long term, which may include but are not limited to restrictions on title;
(h) Appropriate measures (i.e. erection of exclusion fencing) are to be in place to ensue koalas are protected during site construction works. Should koalas be found on site during clearing, construction or site works then provisions (i) and (j) in Section 4.11 apply.

4.4 Other Matters

The dam and drainage line to the south do not pose any significant ecological value. Whilst it is likely to contain some native species including native fishes (i.e. Striped Gudgeon), Long-finned Eel, Eastern Long-necked Turtle.

Vegetation mapped as Map Unit 5 (red) has recently been removed to accommodate the Southern Interchange for the Kempsey Bypass Project. There are now no ecological constraints associated with this area.

5.0 RECOMMENDATIONS

Based on the results of Stage I the following recommendations have been proposed:

1. The concept design is developed taking into account the ecological constraints associated with the north western part of the site; these constraints being delineated by Map Units 1a, 1b and 2. The concept design should take into account a buffer or protective zone from the base of the tree (normally referred to as the drip zone). In this case 6-10 m would be adequate;
2. The proponent advise as to what option or pathway the proposal would like to proceed with (Option A or B in Section 4.3);
3. Stage II ecological assessment be prepared once the concept design has been prepared;
4. The proponent give due consideration to the need for mitigation measures that would accompany the stage II ecological assessment report including:
    a. Fauna exclusion fencing (floppy top design) along the sites western boundary to reduce the interface between a facility of this nature (i.e. dogs, vehicles) which possesses secondary impacts to Koala. This fencing would need to be offset from the boundary to minimise impacts on Glossy Black Cockatoo (2-5 m from the western boundary would suffice);
    b. The reclaiming/dewatering of the dam should be done so under the guidance of an ecologist familiar with this process;
    c. An ecologist supervises the removal of habitat tree (T55) along the site's eastern boundary if it cannot be retained and any other habitat tree (T013, T048, T049). In this event, habitat compensation in the form of nest boxes to offset the loss of tree hollows may be a cost effective action.

6.0 REFERENCES

Comprehensive Koala Plan of Management (2011). Comprehensive Koala Plan of Management for Eastern Portion of Kempsey Shire LGA, Kempsey Shire Council.

Department of Environment and Heritage (DEH) (2006). EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance.

GeoLINK (2011). Local Environmental Study For Lots 100 and 104 in DP 776239 Pacific Highway, South Kempsey.

Gibbons, P., Briggs, S.V., Ayers, D., Seddon, J., Doyle, S., Cosier, P., McElhinny, C., Pelly, V. and Roberts, K. (2005). BioMetric Operational Manual. A Terrestrial Biodiversity Assessment Tool for the NSW Property Vegetation Plan. NSW Department of Environment and Conservation.

Kendall and Kendall Ecological Services Pty Ltd (2003). Flora and Fauna Assessment Draft Local Environmental Study "South Kempsey" Kempsey. Prepared for GHD Appendix C In Rezoning Justification Report GHD

Parsons Brinckerhoff (2006). Kempsey to Eungai: Upgrading the Pacific Highway Project Application Report Supporting Information Ecological Assessment. Report prepared for Roads and Traffic Authority NSW.

Scotts, D. (2000) *Key habitats and corridors for fauna as a framework for regional biodiversity conservation planning in north-east New South Wales. Conference Proceedings Royal Australian Planners Institute (NE NSW Branch)*, Coffs Harbour, NSW.

APPENDIX 5

Archaeological Study

ARCHAEOLOGICAL SURVEY OF

556 PACIFIC HIGHWAY, SOUTH KEMPSEY

FOR

CENTRESTONE DEVELOPMENTS PTY

LIMITED, HORNSBY

SUZANNE R HUDSON CONSULTING
CONSULTING ARCHAEOLOGIST
15 JUDITH STREET, ARMIDALE NSW 2350
PHONE: (02) 6771 4877
MOBILE: 0412 649 580
EMAIL: sue.hud@bigpond.net.au

SEPTEMBER 2011

Client: Centrestone Developments Pty Limited c/o Axis Project Management Pty Limited PO Box 218, HORNSBY NSW 2077	**Client's Representative**: Angus Witherby, Wakefield Planning PO Box 5450 Mordialloc VIC 3195
Project: 556 Pacific Highway, South Kempsey	**Brief Number**:
Authors: Suzanne R Hudson	**Date**: September 2011

Distribution:	**No. of copies**
Axis Project Management	1
Wakefield Plaqnning	1
Aboriginal Land Council, Kempsey	1
Suzanne R Hudson Consulting	1

TABLE OF CONTENTS

SECTION 1 INTRODUCTION

1.1 BACKGROUND

On 22nd August, 2011 I was contacted by Angus Witherby, Project Manager with Wakefield Planning, to undertake an archaeological study on the proposed development at 556 Pacific Highway, South Kempsey.

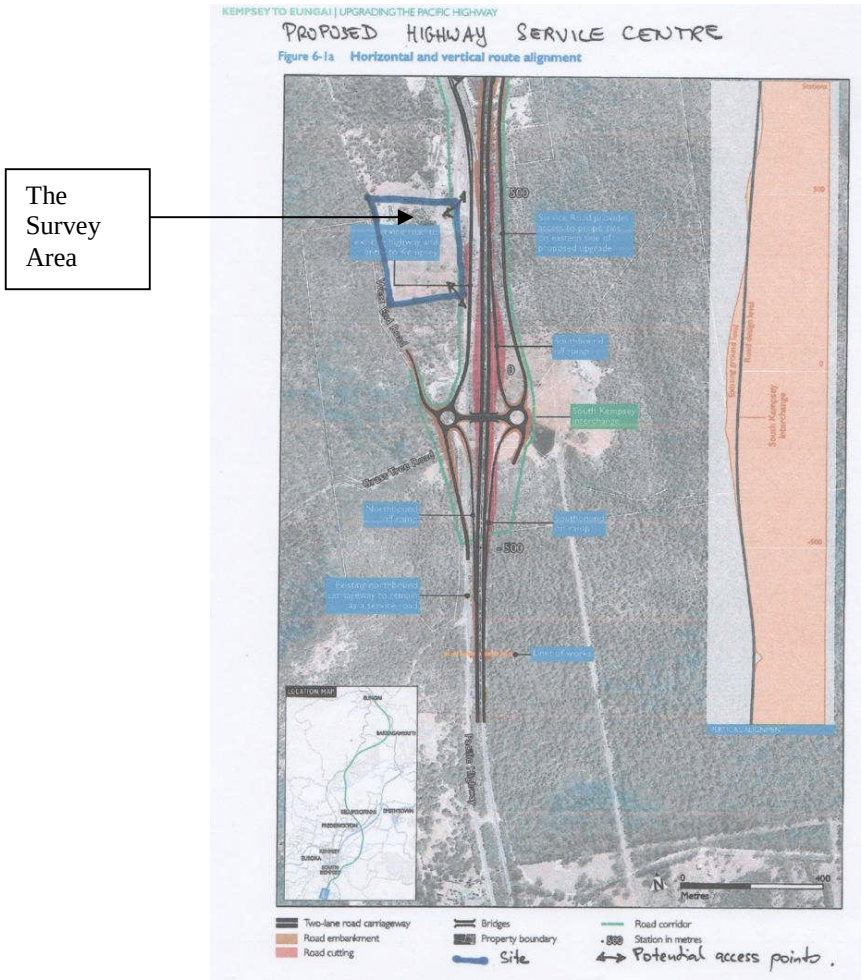


PLATE 1. THE STUDY AREA

1.2 THE BRIEF

Contact was made with Kempsey Land Council, who advised its members that the survey was to be undertaken. I was then contacted by Kevin Smith, Senior Elder for the area and arrangements were made with him to undertake the survey with two site Officers (Graham Smith and Craig Smith) from the Land Council.

The survey was undertaken on Wednesday 7th September, 2011. Both Site Officers were in attendance and Kevin Smith accompanied us to the site. Arrangements were made with Kevin to send a draft report to the Land

Council for their input into the survey and recommendations for the development to proceed. The developer requires a scientific study to be conducted by my company with a report of the findings.

1.2.1 Geology

The local stratigraphy comprises the Kullantine Formation (clastic sedimentary sequence) overlain by Yessabah Limestone which is then overlain by Warbro Creek Formation (siltstone, lithic sandstone, mudstone). The area is extensively intruded by fractionated felsic to intermediate igneous rocks which form part of a northwest trending zone of high-level, possibly post-tectonic granite intrusions. Major plutons include the Carri Granodiorite in the northwest and the Glen Esk Adamellite/Gundle Granite complex in the southeast. The Mt Jacob prospect area is centred within an area known as the Mount Mystery Thermal High, a semi-circular area of metamorphic zonation that includes minor igneous intrusions and circular topographic structures that probably indicate the presence of a composite pluton at relatively shallow depths (PlatSearch, Internet 2011).

1.2.2 Vegetation

The Kempsey Shire has quite a diverse range of individual plant species as well as vegetation communities, ranging from coastal heathland, to sub-tropical, warm temperate and cool temperate rainforests. The Comprehensive, Adequate and Representative (CAR) Assessment, completed in 1999-2000 identified the following major vegetation communities existing in the Shire (Kempsey Shire Council, internet):

- sub-tropical, warm temperate and cool temperate rainforest
- wet and dry sclerophyll forest
- swamp forest
- woodland eg Melaleuca, Eucalypt and Casuarina spp
- scrubland eg Banksia and Leptospermum spp
- grassland (native and modified) and pasture
- wetland, aquatic and marine eg saltmarshes, rushlands, mangroves, seagrass, etc.
- dunal communities eg littoral rainforest
- wet and dry heathland
- riparian vegetation.

1.2.3 Soils

Extensive terrace and flood plain deposits occur along the Lower Macleay River. A sequence of terraces from oldest to youngest was named: Madron, Corangula, Mungay, Mooneba, Belgrave and Macleay deposits (contemporary). Basal sediments in the Mooneba terrace were dated by radiocarbon analysis at 3,280 ± 55 years; basal sediments of the Mungay terrace were dated at 6,425 ± 105 years. The Madron and Corangula terraces are considered very much older than the Mungay. The flood plain consists of two early cycles of aggradation buried under 23m of estuarine sediment, which in turn is overlain by up to 6m of alluvium (Journal of the Geological Society of Australia 1970).

1.3 REPORT OBJECTIVES AND STRUCTURE

- A review of the archaeological literature and National Parks and Wildlife Service site records for the area – no sites recorded in the survey area (AHIMS).

- Assess the cultural significance of the land situated in the survey area – this was undertaken with consultation with the Land Council and Senior Elder.

- Liaison with local Indigenous communities to determine their interest in the survey area and for their assessment of the Indigenous significance of any sites identified in the study area – this was undertaken in consultation with Kevin Smith.

- Assessment of the Indigenous, historic, scientific, aesthetic, and public significance of any sites identified in the survey area.

- Advice on preferred management options for any sites and associated artefacts found during the survey through the community people working on-site – this was not applicable as no sites were found in the survey area.

- Investigate the site to ascertain if there are any relics, sites or cultural remains present on the land – this was not applicable as no sites were found in the survey area.

- Prepare a report for the developer describing relics that were located – this was not applicable as no sites were found in the survey area.

1.4 LIMITATIONS TO THE SURVEY

This report has been prepared using evidence collected from a range of sources: libraries, special collections, and primary sources. However, this form of investigation is time consuming. The focus has been concentrated on collections relating to agricultural, forestry and oral history from Indigenous Elders and the local community.

Other limitations include:

- No excavation was undertaken during the survey. It should be noted that the result of any archaeological surface survey can only be representative of the *visual* rather than the *existing* archaeological record. There was no excavation undertaken to determine the amount of artefactual material subsurface.
- The Kempsey area had been subjected to heavy local rainfall and the ground was up to 90% covered with grass.

1.5 LIAISON WITH LOCAL COMMUNITIES

Liaison was made with the Local Aboriginal Land Council in Kempsey, A draft report will be sent to the LALC for their input into the finished product. Two Aboriginal Officers were chosen from the local community, representing the two interest groups from the area, they were Graham Smith and Craig Smith, who accompanied me on the survey.

SECTION 2 ABORIGINAL PEOPLE OF AUSTRALIA

2.1 THE ARRIVAL OF PEOPLE TO AUSTRALIA

Australia became an island continent when it separated from Gondwanaland some 80 million years ago. The first Australians must have arrived by sea and almost certainly came from Pleistocene (Ice Age) Southeast Asia, via the islands between the land masses. The dating of sites accelerated with the oldest site dated 20,000 years ago in 1962, and then 30,000 in 1969 and in 1973 it had stretched to 40,000 years ago. Today, the oldest site recorded in Australia comes from Malakunanja shelter in Arnhem Land with a date of 53,000 years (Mulvaney & Kamminga 1999:139).

Non-Indigenous recording of Indigenous history left much to be desired as far as recording their lifestyle and hunting techniques. McBryde (1978:247-261) includes in her work the writings of Mrs. McPherson who once lived at Keera Station, Bingara. Although much of her recollections are based more on her Eurocentric background, she does give an insight into the skills that Indigenous people had for hunting. She writes:

> "Not that they are without relish for beef and mutton, especially when taken or killed by themselves, but still they retain a partiality for their native delicacies for the flesh of kangaroo, opossum, emu, native turkey and wild duck. The kangaroo they generally catch in nets, into which the animal is hunted, by the aid of mongrel curs, which swarm at every bush encampment. These nets … are generally made of the fibres of the corryjong (sic) tree. The netting needle they use is a piece of hard, smooth wood, and the string is wound around it. They work without a mesh, yet the regularity of the loops is quite astonishing".

2.2 PEOPLE OF THE KEMPSEY AREA

Indigenous Occupation in Coastal Areas

All Aboriginal people were semi-nomadic hunters and gatherers, with each clan having its own territory from which they 'made their living'. These territories or 'traditional lands' were defined by geographic boundaries such as rivers, lakes and mountains. They all shared an intimate understanding of, and relationship with, the land. It was the basis of their spiritual life. While their tools varied by group and location, Aboriginal people all had knives, scrapers, axe-heads, spears, various vessels for eating and drinking, and digging sticks. Not all groups had didgeridoos and, contrary to popular belief, many did not have boomerangs. Some groups developed more tools than others.

There were between 200 and 250 Aboriginal languages spoken, with many different dialects, producing up to 700 varieties. This makes Aboriginal groups one of the most linguistically diverse areas on the planet. Within the space of 80 kilometres you can still pass through the territories of three languages 'less closely related than English, Russian and Hindu.' (The Oxford Companion to Australian History, 1998). Language is vitally important in understanding Aboriginal heritage as much of their history is an oral history.

Aboriginal people were supremely expert in adapting to their environments. There were coastal and inland tribes. Their 'territories' ranged from lush woodland areas to harsh desert surroundings. Different groups needed to develop different skills and build a unique body of knowledge about their particular territories.

Their tools and implements reflected the geographical location of these different groups. For example, it is known that coastal tribes used fishbone to tip their weapons, whereas desert tribes used stone tips.

Land is fundamental to the well-being of Aboriginal people. The 'dreamtime' stories explain how the land was created by the journeys of the spirit ancestors. For Aboriginal people all that is sacred is localised in the landscape.

The relationship between a clan and its 'territory' involves certain rights, such as the right to use the land and its products. With these rights comes a duty to tend the land through the performance of ceremonies.

Individuals within the clan also have special relationships with places in their territory. Where a person's mother first became pregnant may mean an ongoing responsibility, in terms of right and duties, towards that place.

The creation stories, which describe the marks the spiritual ancestors left on the land, are integral to Aboriginal spirituality. Particular places hold special meaning. These are the sacred sites. Knowledge of a clan's law and the dreamtime is accumulated through life. Ceremonies, such as initiation ceremonies, are avenues for passing on this knowledge.

The system of kinship puts everybody in a specific kinship relationship, each of which has roles and responsibilities attached to it. It can influence marriage decisions and governs much of everyday behaviour. By adulthood people know exactly how to behave, and in what manner, to all other people around them. Kinship is therefore about meeting the obligations of one's clan, and forms part of Aboriginal Law.

Poiner (1976:14) states that most studies on the coast have focused on shell middens (refuse dumps) which has given an overview of their diet (fish, birds and animals) along with what tools they used. They were able to exploit both a marine and riverine environment and used the hinterland for hunting and gathering foods that were not available along the coastal belt. These

hinterland environments include wetlands, rainforests, river plains and wooded country – which could be both steep and rugged.

2.3 WHY CONDUCT A SURVEY FOR INDIGENOUS SITES?

It is important to develop an understanding of the nature, distribution, condition and significance of pre-contact Indigenous sites in the survey area. In addition to developing management recommendations for Indigenous sites, Coffs Harbour Council is also interested in gaining an understanding about Indigenous cultural significance associated with the area as a possible source of future research. Management recommendations for recorded sites can be assessed by them to develop management strategies for the heritage value associated with other sites that may be located in the area.

Movement of Indigenous People in the Landscape include tribes or totemic groups who are a unit, which include a number of families and kinship units who can speak a mutually understandable language but have a degree of independence between themselves as well as access to shared resources (Godwin 1990). Tindale (1974:115) gives a definition of the Australian Indigenous tribes, which have five markers:

1. They inhabit and claim a definite area of country
2. Use a dialect or language peculiar to themselves
3. Possess a distinctive name
4. Have customs and laws differing from those of their neighbours, and
5. Possess beliefs and ceremonies differing from those held or performed by others.

Long distance movement was undertaken mainly for ceremonial and social gatherings and in Indigenous society, rituals associated with men's or women's business, initiations, funerals and corroborees were held from time to time, sometimes taking several months in duration (Beck, Somerville, Duley & Kippen 2003:37). Use of rivers by Indigenous people was dependant upon water being present for drinking water and food hunting, gathering and fishing opportunities, which in turn provided breeding grounds for birds, fish and animals.

2.4 PREDICTIVE MODEL FOR INDIGENOUS SITES IN THE AREA

Indigenous sites that may be found on the hinterland slopes could include:

- Habitation or living sites (camp sites)
- Scarred or carved trees (bark removed for tools/utensils or ceremonial markings)
- Artefact scatters associated with living sites or hunting places
- Manufacturing places (quarries, grinding grooves)
- Sacred/ceremonial places including burial sites

- Dreamtime, story telling and oral history places
- Men's/women's sites
- Burial sites

2.4.1 Stone artefacts

Stone artefacts (called lithics) are found almost everywhere because stone is a very durable material. This is the most common type of pre-European site in areas where there are no habitable rockshelters or caves. These scatters signify different human activities and are often found in conjunction with organic refuse and hearths.

Most sites located on or adjacent to the coast were habitation sites that contained stone and sometimes bone material in middens. Scatters consisted of flakes (silcrete, chert and quartzite) spear points, blades and grindstones.

Hearths are the remains of fireplaces were Indigenous people cooked their meals. These can be located on the surface of the ground and may contain charcoal remains, sometimes recognisable as a black stained area or more commonly by hearth stones that have been manufactured out of termite antbeds, rolled into balls, heated in the coals and used to cook food.

2.4.2 Scarred trees

Why do we look for scarred trees? The main reason is to ensure their future wellbeing and this can only be achieved if they can be identified, protected and managed. This can only be achieved by recognition so that they are left unharmed by on-ground works or other form of human land use, such as logging, firewood removal or taking steps against natural or incidental processes such as bushfire, stock damage, vandalism, timber rotting or tree collapse (Long nd:7). The presence or lack thereof of scarred trees at sites is an indicator of the degree of use of Indigenous people made of the resource.

2.4.3 Ceremonial/sacred sites

These sites can only be assessed by Aboriginal people from the area, as these sites can be intangible, natural formations or places of spiritual significance. These sites are generally found along ridgelines in close proximity to major streamlines (the need for close drinking water for participants).

SECTION 3 RESULTS OF THE SURVEY

3.1 RESULTS

A global position system was used to record each landholding in the study area using a Magellan Triton 400 hand-held device. All roads and tracks within the development area were examined for evidence of Aboriginal occupation, this was undertaken on foot and each bare area along sides of the road were examined. Where bare ground was located, an extensive search was undertaken to ascertain if there were any stone artefacts on the soil surface. This process was hampered as heavy local rainfall in the area had increased the grass cover so that up to 90% was covered, but the team were happy that all areas had been covered.

No Aboriginal sites were located in the survey area. All older trees were inspected for scarring but most of the trees were regrowth and not old enough for pre-European traditional use.

SECTION 4 SIGNIFICANCE

4.1 SIGNIFICANCE ASSESSMENT OF THE STUDY AREA

Archaeology is primarily concerned with the interpretation of human history and cultural evolution through the study of material remains, discarded because of past human activities. The record is both fragile and non-renewable and any major disturbance of the environment such as landscape-altering development, poses a threat to this valuable cultural resource. The major cause of destruction of much of the archaeological record is development since European settlement and the impact of natural erosional processes, thus what is left is even more valuable.

The assessment of the significance of these sites, both potential and realised is fundamental to cultural heritage management planning (Moratto & Kelly 1978:1-30). Significance can be assigned to particular sites and places and cultural heritage significance may be greater that the sum of its individual sites and places (Kerr 1990:3).

4.2 ABORIGINAL SIGNIFICANCE

This area is of great cultural significance to the local Indigenous community. The area is recorded in the Indigenous oral history of the local people. Indigenous significance of relics and sites can *only* be assessed by the Indigenous community. It is the responsibility of the archaeologist to ensure that the Elders, or in their absence, elected representatives of the community are advised of the survey results and are consulted as to their knowledge and opinions of the significance of the area. This area holds special significance to the community, as there are cultural affinities significant to the Indigenous community.

For most Indigenous groups, contact sites (e.g. missions and camp sites and walking tracks) have strong social significance. Some of these sites/places may be recognisable due to landscape modification or material remains whereas others may consist of natural physical features.

4.3 HISTORIC SIGNIFICANCE

A site or place has historical significance if it is associated with either significant persons or events. Kerr (1990:10) notes that these may include incidents relating to exploration, settlement foundation, Indigenous/European contact, disaster, religious, literary fame, technological innovation and notable discovery. Historical significance may also include the ability of a site/place to be representative of cultural patterns from a particular historical period (Moratto & Kelly 1978:4). There is no specific historic significance to the site.

4.4 SCIENTIFIC SIGNIFICANCE

The scientific significance of sites/places represents their ability to furnish data

on and insight into either past cultural activities or past environmental conditions. Archaeological sites provide unique information on human activities, particularly everyday lifestyles, which are often not recorded in documentary sources. The scientific significance of sites/places should be assessed according to specific research questions and research potential (Bowdler 1984:1). The focus of both research potential and representativeness can change over time as research interests vary and methods and technique criteria are re-evaluated. At the present time, there is no discernable scientific significance to the study area.

4.5 PUBLIC/SOCIAL SIGNIFICANCE

Cultural heritage sites/places can have important educational significance by providing opportunities for people to visually examine and better appreciate the nature of these sites for themselves. Such opportunities not only have important or profound social consequences in terms of maintaining a community's identity, substance and sense of place but also can have significant economic consequences in terms of cultural tourism and competition with alternative land use activities. Although seen as mutually exclusive pursuits, cultural heritage preservation and economic/social development can work together. Best results occur when heritage issues are considered and accommodated for in the planning stages of the development. There is no public/social significance associated with the site.

4.6 AESTHETIC SIGNIFICANCE

Kerr (1990:10) states that aesthetic significance relates to the scale, form, materials, texture, colour, space and relationship of the components of the place. The relationship of the place with its setting is equally important. There is little aesthetic significance to these sites.

4.7 MANAGING SIGNIFICANT INDIGENOUS PLACES

The Burra Charter has not always been found appropriate for places of significance to Indigenous people. For this reason the "Guidelines for the Protection, Management and Use of Indigenous and Torres Strait Islander Cultural Heritage Places" has been drafted. It includes five points:

A Indigenous and Torres Strait Islander Involvement

1. Indigenous or Torres Strait Islander people have the right to be involved in decisions affecting their cultural heritage and in the on-going management of their cultural heritage. Their management must be continuous and at the level, they consider appropriate.

2. Indigenous or Torres Strait Islander people who have rights to speak for the place, and/or have interests in the place should be identified and involved in decisions affecting that place. This will include wide and inclusive consultation, at the beginning of and throughout the process.

3. Decisions, which have an effect at the local level, need to have full local level involvement. Regional planning should accommodate local level input. Local level planning should be integrated with regional planning.

B. All Interests Should be Considered

1. The concerns of all interest groups must be taken into account. Some places have cultural values for both Indigenous people and other groups in the community. All relevant groups should be consulted to allow agreement to be reached on the future of the place.

C. Cultural Significance

1. Cultural heritage place management must look after the cultural significance of a place. The "cultural significance" of a place describes the value or importance the place has to a community and includes the 'social, aesthetic, historic and research or scientific value of the place for present, past and future generations'. The term 'social value' includes spiritual values.

D. Process and Actions

1. Decisions about cultural heritage places should be made because of a conscious and logical planning process. This process, guided by and maintaining the cultural significance of the place, takes into account all the management issues affecting the place and identifies the objectives for the management of the place.
2. Actions affecting the place need to be considered only after the cultural significance of the place has been established, and a statement of objectives has been agreed upon by the relevant Indigenous community or owners.

3. Physical intervention or other management actions should be taken to support cultural significance and should be the minimum required to achieve this aim. Actions which conserve cultural significance have top priority.

E. Making and Keeping Records

1. Records of places, records of decisions made about them and records of actions taken at heritage places should be made, kept, stored and accessed in a way, which is appropriate to the place and meets the wishes of the community. Ownership of, storage and use of, and access to information should be openly agreed at the outset of a project with the people who own, provide or have rights to the information. Availability of information supports the cultural significance of the place.

RECOMMENDATIONS

As there were no Aboriginal sites, places or significant areas located within the survey area, it is recommended that the project can proceed.

BIBLIOGRAPHY

Kerr, J. 1990. The Conservation Plan: a guide to the preparation of conservation plans for places of European cultural significance. National Trust of Australia (NSW).

Hudson, S. 2006. Archaeological Assessment of Copeton Dam & Gwydir River in Copeton Dam Upgrade Project. Unpublished report for State Water Corporation.

Geological Society of Australia *Volume 16*, *Issue 2*, 1970
McBryde, I. 1978. Records of Times Past. AIAS, Canberra

Moratto, M.J. & Kelly, R.E. 1978. Optimising strategies for evaluating archaeological significance. In Advances in Archaeological Method and Theory. 1:1-30.

Mulvaney , J. & Kamminga, J. 1999. Prehistory of Australia. Allen & Unwin, Sydney

APPENDICES

Insert letter of recommendation from LALC

(Note: this has been requested but had not been supplied at the date of this report)

GPS RECORDINGS & PLATES

001 07-SEP-11 10:49:26AM 56 J 483595 6556866 29 m
North eastern corner – facing west

002 07-SEP-11 11:14:00AM 56 J 483381 6556946 42 m
North western corner - facing south

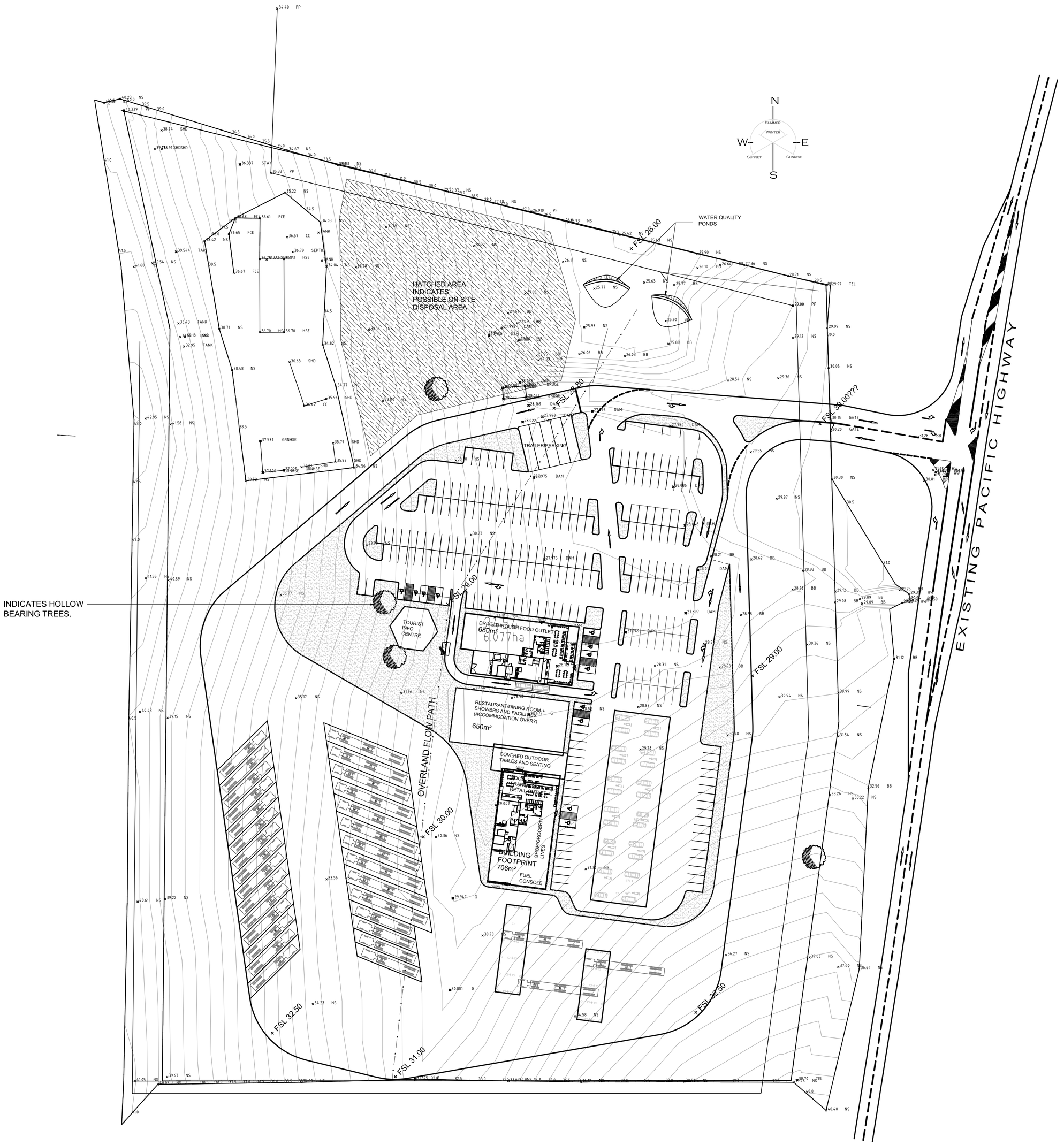
003 07-SEP-11 11:21:14AM 56 J 483450 6556832 37 m
Middle paddock gate – facing east

004 07-SEP-11 11:27:06AM 56 J 483453 6556696 32 m
Bridge over dam. Site Officers:
Craig Smith and Graham Smith

APPENDIX 6

Site Concept Plan

DATE PLOTTED: 7 October 2011 12:34 PM BY : JULIE MARSH (GOSFORD)



XREF's: X-SURVEY
CAD FILE: P:\89022_28_APD\89022890_South Kempsey\Acad\Building Design\PRELIM 20110927.dwg

Rev	Date	Description	Des.	Verif.	Appr.
5	7/10/11	PRELIMINARY LAYOUT REVISED	JM		
4	27/09/11	PRELIMINARY LAYOUT	JM		

Cardno (NSW/ACT) Pty Ltd
ABN: 95 001 145 035
Suite 34, 207 Albany Street North, Gosford, NSW Australia 2250
Phone (+61 2) 4323 2558 Fax (+61 2) 4324 3251
Email: cco@centralcoast.cardno.com.au Web: www.cardno.com.au
Quality Endorsed Company
AS 9001 Lic. 5960 Standards Australia

Drawn	JM	Date 27/09/11
Checked		Date
Designed		Date
Verified		Date
Approved		Date

Client

PRELIMNARY SITE LAYOUT

PROPOSED SERVICE CENTRE
LOT 2454 DP 610363
PACIFIC HIGHWAY
SOUTH KEMPSEY

FOR AXIS PROJECT MANAGEMENT PTY. LTD.

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

A.H.D. | Scale | Size A1

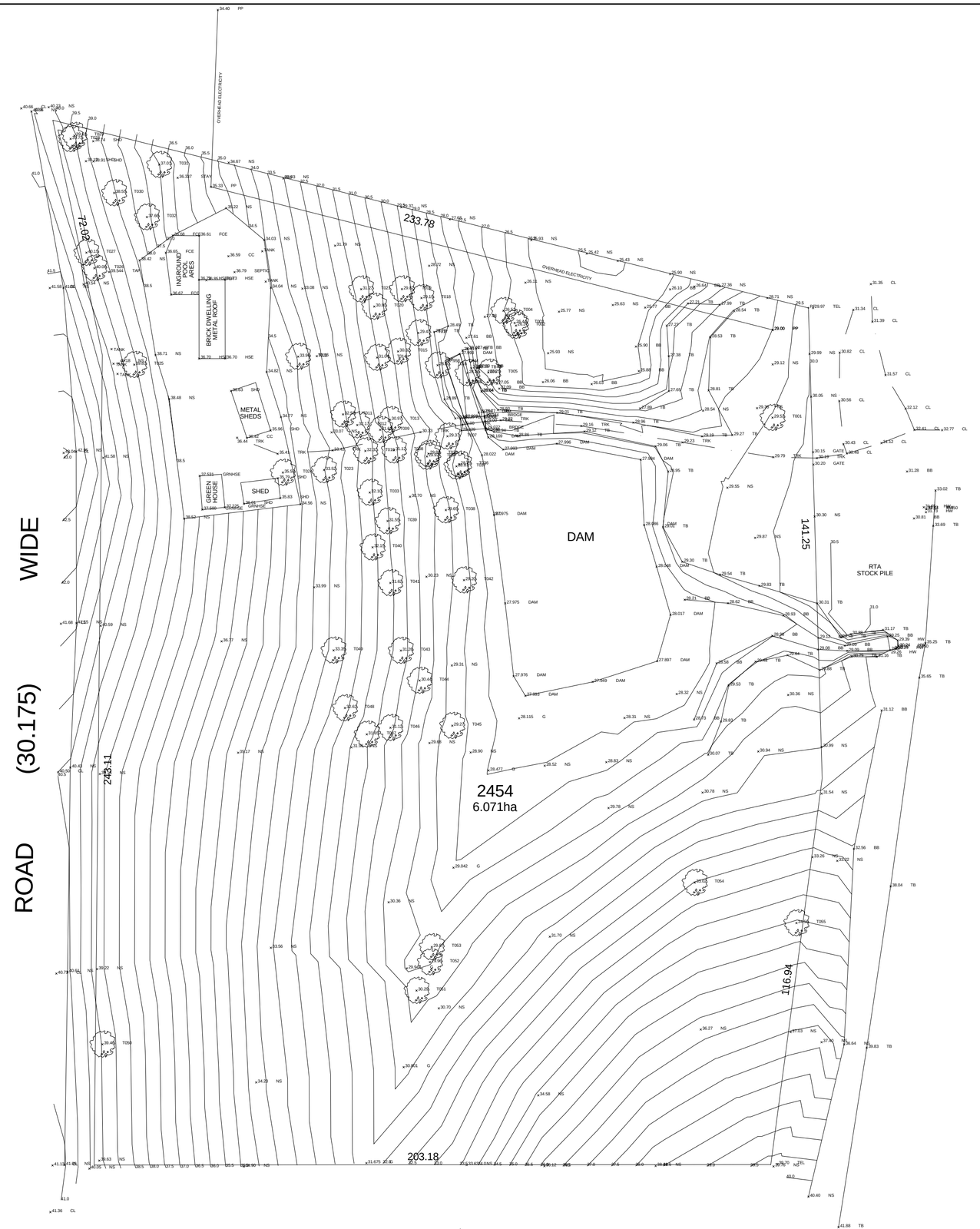
Drawing Number: 89022890-PLO1

Revision: 5

APPENDIX 7

Site Survey Plan

TREE No.	TYPE	TRUNK DIA	SPREAD	HEIGHT
001	IRON BARK	0.8	14.0	18.0
002	BLOODWOOD	0.7	10.0	18.0
003	DEAD	0.4		
004	DEAD	0.4		
005	TALLOWOOD	0.7	12.0	18.0
006	TALLOWOOD	0.6	18.0	18.0
007	TALLOWOOD	0.7	10.0	18.0
008	MAHOGANY	0.7	12.0	18.0
009	MAHOGANY	0.5	10.0	16.0
010	IRON BARK	0.8	16.0	18.0
011	BLOODWOOD	0.8	13.0	18.0
012	GUM	0.4	8.0	15.0
013	GUM	0.7	12.0	18.0
014	IRON BARK	0.7	16.0	18.0
015	IRON BARK	0.5	8.0	18.0
016	TALLOWOOD	0.6	12.0	18.0
017	BLOODWOOD	0.5	10.0	16.0
018	GUM	0.5	8.0	16.0
019	BLOODWOOD	0.6	14.0	18.0
020	GUM	0.4	10.0	16.0
021	GUM	0.7	14.0	18.0
022	STRINGY BARK	0.7	12.0	18.0
023	TALLOWOOD	0.7	12.0	18.0
024	STRINGY BARK	0.6	10.0	18.0
025	GUM	0.5	10.0	16.0
026	TALLOWOOD	0.7	12.0	18.0
027	MAHOGANY	0.5	10.0	18.0
028	TALLOWOOD	0.7	18.0	20.0
029	BLOODWOOD	0.6	12.0	18.0
030	TALLOWOOD	0.4	8.0	16.0
031	GUM	0.7	12.0	20.0
032	STRINGY BANK	0.5	8.0	15.0
033	BLOODWOOD	0.5	12.0	18.0
034	STRINGY BARK	0.7	8.0	18.0
035	BLOODWOOD	0.5	8.0	18.0
036	TALLOWOOD	0.4	10.0	15.0
037	TALLOWOOD	0.6	10.0	20.0
038	BLOODWOOD	0.6	10.0	18.0
039	BLOODWOOD	0.5	10.0	18.0
040	BLOODWOOD	0.6	10.0	18.0
041	IRON BARK	0.6	12.0	18.0
042	BLOODWOOD	0.7	10.0	19.0
043	TALLOWOOD	0.6	14.0	18.0
044	IRON BARK	0.7	14.0	20.0
045	BLOODWOOD	0.4	6.0	17.0
046	STRINGY BARK	0.7	12.0	16.0
047	BLOODWOOD	0.5	8.0	16.0
048	BLOODWOOD	0.9	8.0	20.0
049	TALLOWOOD	1.0	16.0	20.0
050	BLOODWOOD	0.6	10.0	18.0
051	PAPER BARK	0.5	6.0	12.0
052	IRON BARK	0.5	8.0	18.0
053	PAPER BARK	0.6	8.0	10.0
054	IRON BARK	0.9	16.0	19.0
055	BLOODWOOD	0.8	14.0	19.0



DRAFT

M.W. ROGERS & ASSOCIATES PTY LTD
URBAN & RURAL SUBDIVISION PLANNING & DEVELOPMENT

MARK ROGERS B.Surv.,Registered Surveyor, MIS Aust,
ACN 107 723 302
3a/72 Elbow Street, P.O. Box 75, West Kempsey 2440
Phone (02) 6562-6688 Fax (02) 6562-4578
Email mail.mwr@bigpond.net.au

L.G.A.	KEMPSEY
SCALE:	1:1000 (A2)
DATUM:	AHD
DATE:	27/07/2011
APPROVED:	
JOB No.:	16759DET01.VCD
SHEET	1 OF 1

PLAN OF
LOT 2454 DP 610363
PACIFIC HIGHWAY
SOUTH KEMPSEY
For: PHILLIP FOWLER

PLAN PURPOSE & AMENDMENTS

No.	DATE	REVISION
	21/07/2011	DETAIL SURVEY