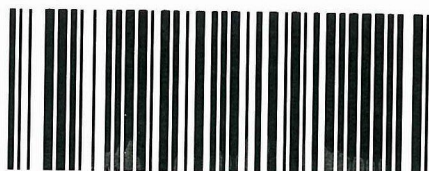




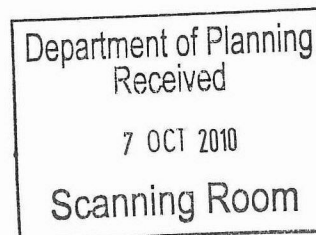
# Transport



PCU015287

Centre for Transport Planning & Product Development  
Level 14, 227 Elizabeth Street  
SYDNEY NSW 2000

Mr Michael Young  
Senior Planning Officer  
Infrastructure Projects  
Department of Planning  
GPO Box 39  
SYDNEY NSW 2001



Dear Mr Young,

## **PACIFIC HIGHWAY UPGRADE (MP07\_0090) EXHIBITION OF ENVIRONMENTAL ASSESSMENT**

I refer to your letter dated 13 September 2010 seeking a written submission on the draft Environmental Assessment (EA) for the proposed upgrade of the Pacific Highway between Oxley Highway and Kempsey. Transport NSW (TNSW) appreciates the opportunity to comment on this project.

As you would be aware, TNSW provided comment on the draft Director General's Requirements (DGRs) for this major project application in August 2007 (see copy attached). TNSW has reviewed the draft EA prepared by GHD and requests that:

1. The relevant public transport and school bus providers are consulted regarding the staging and preparation of the location specific management and control plans;
2. The 2.5m wide shoulders along the proposed upgrade are maintained across bridges and at pinch points to minimise conflict between cyclists and vehicles. This will assist with implementing action 2.17 of the NSW Bikeplan; and
3. Opportunities to provide cycle way connections to adjoining communities be investigated, in accordance with the DGRs.

I trust that these comments are of assistance. Should you wish to discuss this matter further, please contact Ben Colmer on 9268 2259 or email [ben.colmer@transport.nsw.gov.au](mailto:ben.colmer@transport.nsw.gov.au).

Yours sincerely

*William Gastineau-Hills* 1.10.10

William Gastineau-Hills  
**A/Senior Manager**  
**Centre for Transport Planning**



## Environment, Climate Change & Water

Your reference: 9036869  
Our reference: DOC10/41900  
Contact: Ian Greenbank, 66402510



Mr Michael Young  
Senior Planner, Pacific Highway Assessment Team  
Infrastructure Projects  
Department of Planning  
GPO Box 39  
SYDNEY NSW 2001



Dear Mr Young

### **Pacific Highway Upgrade – Oxley Highway to Kempsey (07\_0090): Exhibition of Environmental Assessment**

I refer to the Project Application, Environmental Assessment (EA), and accompanying information provided for the Oxley Highway to Kempsey Upgrade proposal received by Department of Environment and Climate Change (DECCW) on 14 September 2010.

DECCW has reviewed the information provided in the EA and accompanying documents and has provided comments in Attachment 1 (Proposed Amendments to the Draft Statement of Commitments) and Attachment 2 (General Comments and Recommendations). The matters raised in Attachment 1 and 2 represent issues where further clarity and certainty of environmental controls and outcomes are warranted to ensure that impacts of the project are appropriately managed.

In assessing the proposal DECCW identified a number of broader environmental and conservation issues that the Department of Planning may wish to consider in its overall assessment of the application and several recommended conditions of approval. These comments and recommendations are detailed in Attachment 2 and include the following issues:

1. Operational & Construction Noise Assessment;
2. Erosion, Sedimentation, Water Quality;
3. Ecology; and
4. Aboriginal Cultural Heritage Values.

Based on this assessment DECCW has determined that it is able to support the proposal, subject to our proposed amendments to the draft statement of commitments being satisfactorily addressed and the recommended conditions of approval being incorporated.

DECCW is also seeking an opportunity to review the draft Director-General's Environmental Assessment Report for this proposal. If DECCW's proposed amendments to the draft Statement of Commitments are not incorporated, we will be recommending that they are included as Conditions of Approval, if approval is recommended by the Department of Planning.

The Department of Environment and Climate Change NSW is now known as the Department of Environment, Climate Change and Water

PO Box 498 Grafton NSW 2460  
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DECCW would also appreciate receiving a copy of the submissions received by the Department of Planning (or a report summarising these submissions) received in response to the exhibition of the Environmental Assessment. This is to assist DECCW to review the draft Director-General's Report and to recommend conditions of approval, if required.

It is noted that the proposal will need an Environment Protection Licence to operate. The proponent will need to make a separate application to DECCW to obtain this licence once development project approval is granted.

If you have any questions, or wish to discuss this matter further please contact Craig Dunk (6640 2514) regarding pollution control issues or Craig Harre (6659 8223) regarding biodiversity issues.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Brett Nudd', with a stylized, cursive script.

**BRETT NUDD**  
**Manager North Coast Region**  
**Environment Protection and Regulation Group**

**Attachment 1 – Proposed Amendments to the Draft Statement of Commitments (SOC) contained in the Environmental Assessment – Oxley Highway to Kempsey**

**General Construction issues: erosion, sedimentation and water quality.**

The use of water from sediment basins for such things as dust control is preferred to the use of town water or water from natural systems. DECCW recommends that an additional statement of commitment outlining a commitment to appropriate water use hierarchy.

***New SOC – Where available and of appropriate chemical and biological quality for its purpose, the Proponent shall use stormwater, recycled water or other water sources in preference to potable water for construction including concrete mixing and dust control.***

Leachate from excess mulch can cause water pollution. An additional statement of commitment relating to the storage of mulch is recommended. DECCW considers it appropriate to calculate how much mulch will be required for the site prior to clearing commencing. Only the mulch required for onsite restoration activities should be retained onsite, with the balance to be reused offsite in an appropriate manner.

***New SOC – Mulch stockpiles must be appropriately sited, with clean water diversions implemented and strategies for the management of leachate implemented to protect receiving water from tannin laden runoff.***

It is imperative that clean water diversion is implemented prior to earthworks commencing.

***New SOC – Temporary clean water diversion works for all creeks, perennial creeks and drains will be implemented before topsoil is removed or filling operations begun.***

All bridges need to have adequate stormwater controls provided for operational use.

***New SOC – All bridges shall incorporate suitable drainage of scuppers back to adequate operational basins and other devices designed to capture the first flush of stormwater and any spills. Scuppers will not drain directly into waterways.***

**Groundwater**

***New SOC - Further groundwater investigations will be undertaken in areas where impacts of more than a 5m drawdown on the water table are likely. Where an adverse impact is identified, steps shall be taken to determine the magnitude of the impact and subsequent proposed management, diversion or remedial action should be outlined. Investigations are to include, but not be limited to, the use of water levels from bore holes (including geotech holes), pump test data, bore location and construction data of licensed groundwater users, groundwater surface discharge mapping, vegetation mapping, and construction cut level data.***

Refer to comments provided in attachment 2 under the heading groundwater.

**Ecology**

***SOC F16 (revised) – Culverts and bridges identified in the EA as having a potential role in fauna crossing will be designed to facilitate movements, and the designs refined in consultation with DECCW and DII, including the changes recommended below.***

**Recommended changes and queries relating to Volume 2, Table 6-2 Details of proposed fauna crossings.** (For further discussion of fauna crossing structures including design features and placement in the landscape please see comments provided in attachment 2).

*Chainage 1620* - DECCW recommends a Reinforce Concrete Box Culvert (RCBC) of at least 3.0m x 3.0m is provided to facilitate the identified target species. The skylight should be removed from the proposal and replaced with a split in the median if the culvert is greater than 50m in length. This is a dedicated fauna crossing designed to facilitate potential Koala movement. The culvert should therefore be of sufficient height to incorporate post and rail fauna furniture of 2.0m height which will provide refuge from wild dog predation.

*Chainage 2625* – DECCW recommends a RCBC of at least 3.0m x 3.0m is provided to facilitate the target species. The structure at this location is proposed to be 2.7m height. This is not of sufficient height to be considered an effective mitigation measure for the target species. Additionally, there appears to be no vegetation on the west of the highway at this point. Fauna crossings are shown to be viable only if they link patches of vegetation.

*Chainage 3605* – The vegetation to the east of this culvert does not appear to be connected to larger remnants. DECCW therefore questions why a 3.0m x 2.1m dedicated RCBC is proposed at this point. DECCW does not recommend changing this structure but requires further understanding of its inclusion. If research has revealed potential Koala movement at this site then DECCW recommends the structure is increase in size to 3.0m x 3.0m.

*Chainages 10680, 11151 & 11692* – The crossing structures at these points are located within a regional corridor and within an area of proposed glider crossing. Currently, there are no dedicated structures or bridges in this section of the upgrade. DECCW recommends these 3 structures are combined with a median and upgraded to 3.0m x 3.0m to reflect the importance of maintaining connectivity within this regionally significant wildlife corridor.

*Chainage 28295* – It is unclear to DECCW why the proponent proposed 2 x 3.0m x 3.0m dedicated fauna crossings adjacent to a bridge at this location. Bridge structures provide superior opportunities for fauna passage if designed appropriately and would presumably negate the need for the adjacent RCBCs. DECCW recommends that further justification for the current proposal is provided or preferably the Table is amended to consolidate fauna passage at the bridge and confirm that the bridge will be designed in a manner to facilitate effective fauna crossing.

*Chainage 33390–37790* – Given the high number of glider and Koala records in this regional wildlife corridor, this section of the upgrade should be considered a priority area for incorporation of a retained vegetated median. Terrestrial fauna would also benefit from an opportunity to split box culverts in the median thereby reducing the overall perceived “tunnel effect”.

*Chainage 34086* - DECCW recommends a RCBC of at least 3.0m x 3.0m is provided to facilitate the target species.

*Chainage 347146* - DECCW recommends a RCBC of at least 3.0m x 3.0m is provided to facilitate the target species.

DECCW supports the development of a **Biodiversity Offset and Mitigation Strategy** as proposed in **SOC F18**. We note that DECCWs expectations in relation to consultation in this context include genuine engagement very early in the process to develop the strategy. The Strategy should

provide a framework for developing the Biodiversity Offsets Package and should follow the format and principles of strategies developed for other Pacific Highway upgrade projects.

Additionally, DECCW stresses the importance of a final 'impact audit' at the completion of the project which summates all of the additional and unforeseen impacts to biodiversity which were not calculated or assessed in this EA. For example, the final audit should include impacts associated with changes to footprint due to design changes; changes to predicted impacts resulting from changes to or failure of mitigation measures; additional impacts associated with ancillary facilities; and additional impacts associated with service road construction, properties not surveyed during the EA and inconsistencies in EEC and wetland mapping.

The offset strategy should be based on best available regional scale spatial data. The forest ecosystems vegetation classification system will allow easy comparison across north east NSW in the process of identifying 'like for like' compensatory habitat. Additionally, forest ecosystems mapping includes a key for verifying vegetation types in the field. DECCW recommends the following process is used to derive a potential offsets map:

1. Identify forest ecosystems vegetation communities that correspond to vegetation communities identified in the EA.
2. Use Northern Rivers CMA vegetation mapping and DECCW's spatial layer of biodiversity conservation priorities to identify potential offset sites.

It should be noted that these datasets are of a regional scale, therefore ground truthing is required to validate forest types. However the map outputs can be used as a guide to indicate priority areas for investigation.

**SOC F19 (revised)** – *Development of a targeted monitoring program including a minimum of 5 monitoring events over 10 years after construction is complete will occur in consultation with DECCW.*

The proposed monitoring program should take place for a minimum of 5 monitoring periods, preferably over 10 years. This is due to the significantly high biodiversity and consequent sensitivity of the site. Additionally, the project mitigation is also reliant on revegetation efforts at the egress to fauna crossing structures which will only provide benefit once established.

**SOC F20 (new)** – *no barbed wire should be used in any boundary fencing erected as part of the proposal.*

### **Aboriginal Cultural Heritage Values**

DECCW recommends that the following comments are reflected in the SOC for this project.

1. The proponent will continue to consult meaningfully with and involve all of the registered Aboriginal stakeholders for the project for the duration of the project in relation to the ongoing management of all Aboriginal Cultural Heritage matters relevant to this project. Evidence of this consultation must be documented and provided to the consent authority.
2. The proponent will provide fair, equitable and reasonable opportunities for all of the local Aboriginal stakeholders to collect and salvage any identified Aboriginal objects likely to be impacted by the project in a way which is approved by the Director-General, Aboriginal stakeholders and DECCW.
3. The proponent will develop an Aboriginal Heritage Management Plan (AHMP) for the project area. The AHMP is to be developed and implemented in full consultation with the registered

local Aboriginal stakeholders. The plan must include procedures for ongoing Aboriginal consultation and involvement, details of the responsibilities of all stakeholders, management of any recorded sites within the project area, details of additional proposed field assessments, procedures for the identification and management of previously unrecorded sites (excluding human remains), identification and management of any proposed cultural heritage conservation area(s), compliance procedures, and details of an appropriate keeping place agreement with local Aboriginal community representatives for any Aboriginal objects salvaged through the development process, details of proposed mitigation and management strategies for sites identified to be impacted within the construction impact zone; including methodologies for hand excavations, mechanical surface scapes, salvage/collection, and monitoring.

4. In the event that surface disturbance identifies a new Aboriginal site, all works must halt in the immediate area to prevent any further impacts to the object(s). A suitably qualified archaeologist and representatives from all of the local Aboriginal stakeholders must be contacted to determine the significance (cultural and scientific) of the object(s). The site is to be registered in the AHIMS (managed by DECCW) and the management outcome for the site included in the information provided to the AHIMS. The proponent will consult with the local Aboriginal stakeholders, the archaeologist and DECCW to develop and implement management strategies for all objects/sites.
5. If human remains are located, all works must halt in the immediate area to prevent any further impacts to the remains. The NSW Police are contacted immediately. No action is to be undertaken until police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact DECCW's Enviroline on 131555 and representatives of the local Aboriginal community. No works are to continue until DECCW provide written notification to the proponent.
6. All reasonable efforts must be made to avoid impacts to Aboriginal cultural heritage at all stages of the development works. If impacts are unavoidable, mitigation measures are to be negotiated with the local Aboriginal community and DECCW. All sites impacted must have a DECCW Aboriginal Site Impact Recording (ASIR) form completed and submitted to DECCW AHIMS unit within 6 months of completion of these works.
7. An Aboriginal Cultural Education Program must be developed for the induction of all personnel and contractors involved in the construction activities on site. Records are to be kept of which staff/contractors were inducted, and when, for the duration of the project. The program should be developed and implemented in collaboration with the Aboriginal community.



## Attachment 2 – General Comments and Recommendations

### Operational and Construction Noise Assessments

#### Operational Noise:

The NIA proposes the 'new road' criteria under the *Environmental Criteria for Road Traffic Noise* (DECCW, 1999 -ECRTN) for the Telegraph Point bypass section and Hastings River deviation section and the redeveloped road criteria for the remainder of the project. The 'new road' base criteria is LAeq, 15hrs 55dB(A) and LAeq,9hrs 50dB(A), or where the existing traffic noise levels already exceed these levels, not to increase noise by more than 0.5dB(A). The 'redeveloped' base criteria is LAeq, 15hrs 60dB(A) and LAeq,9hrs 55dB(A), or where the existing traffic noise levels already exceeds these levels, not to increase noise by more than 2dB(A).

Noise modelling has been undertaken on the basis of the *United Kingdom, Department of Transport, Calculation of Road Traffic Noise (UK, DoT, CORTN)* procedures as modified for Australian conditions. This procedure is regularly used in the assessment of noise for road projects.

The NIA identifies 352 receivers in 22 catchments. The receivers are generally isolated and not grouped closely in villages or townships.

Noise modelling has been undertaken on the basis of the EA stage design (not detailed design). Criterion exceedances have been identified for 92 residences. The primary treatment option being considered is architectural acoustic treatments (AAT). The major reason for this treatment option, as opposed to 'in corridor' options such as low noise pavements and barriers, is the isolated nature of the receivers. A noise barrier was considered in the area of the Wilson River southern floodplain, however this was rejected principally on the basis of hydrological considerations. The decision to proceed with receiver based mitigation options (i.e. AAT) appears to be based on qualitative considerations, as opposed to the quantitative process outlined in the RTA, Environmental Noise Management Manual (RTA, ENMM). The decision to prefer AAT needs to be further supported through the quantitative process outline in the RTA, ENMM. This could occur as part of the proponents response to submissions.

It is normal practice for Project Approvals for road projects to include a requirement for the preparation of a 'review of operational noise mitigation measures' that demonstrates, on the basis of detailed design, the noise performance of the project, and the exact manner in which noise impacts are to be mitigated. An example of the general wording of such a condition is contained in condition 2.20 of the Project Approval for the Pacific Highway Upgrade Kempsey to Eungai. This is the current standard approach that affords DECCW a consultation role with respect to the projects detailed acoustic design.

(<http://majorprojects.planning.nsw.gov.au/files/23387/Instrument%20of%20Approval.pdf>). This approach is recommended for this project, as our EPL will not include operational noise requirements. It is however recommended that the condition be modified to include the following phrase; "The Review shall include confirmation from the RTA that they endorse, as correct, the traffic data used in the detailed noise modelling. Also, the Review shall include noise model validation that compares traffic noise measurements against modelled noise levels using traffic count data acquired during the noise measurement period".

It is further recommended that the project approval include a requirement for compliance monitoring, for example condition 3.2 and 3.3 in the aforementioned approval. DECCW notes that Statement of Commitments ON1 and ON2 commits to further consideration of operation noise mitigation measures during detailed design, and post operational compliance assessment measures.



DECCW has not undertaken any detailed check calculations. This is not considered to be a significant risk given the post approval processes will include additional noise modelling using the detailed design, and standard requirements generally imposed in Project Approval relating to compliance assessment. (See text above with respect to conditions 2.20, 3.2 and 3.3).

### Construction Noise:

The construction noise assessment contained in the NIA has adopted the Interim Construction Noise Guidelines (DECCW, 2009).

The construction noise assessment is based on concept design information as detailed methods of construction, and the location of concrete batch yards, lay down areas, pre cast areas etc have not been finalised.

The EA is suggesting standard hours in excess of those recommended in the ICNG, with proposed hours of 6am to 6pm Monday to Friday and 7am to 4pm Saturday. Additional circumstances where out of standard hours works may be required are also outlined in the EA. The EA is not based on detailed information regarding construction practices, work methods, compound design etc. Also it is unlikely that the community has been consulted on the specifics of the construction process. DECCW is of the opinion that it is premature to agree to the requested out of hours construction. The project approval, as with normal practice, can include a post approval process to seek, and have determined, out of hours works, when supported by an NIA that is based on detailed design, an analysis of feasible and reasonable noise mitigation measures, and the outcomes of community consultation / negotiation as required. The ICNG provides a framework for this process and it is recommended that it be referenced in conditions of approval.

With reference to the Pacific Highway Upgrade Kempsey to Eungai, construction noise requirements are outlined under 2.12, 2.13, 2.14, 2.15, 2.16, 2.17, 2.18, 2.19, and 6.5(c). It is recommended that the following changes to these conditions are made, so that they will be generally consistent with the requirements likely to be included in a road construction EPL.

1. 2.12 – This condition outlines standard construction hours consistent with those in the Interim Construction Noise Guideline. It is recommended that standard construction hours are reflected in the project approval. The ICNG, inter alia, suggest that out of hours work needs to be adequately justified, that all feasible and reasonable noise mitigation practices be applied, and in some cases mandates negotiation with the affected community. Conditions 2.13 and 2.14 allows for the consideration of out of standard hour work.
2. 2.13 & 2.14: These conditions relate to out of standard hours work. It is recommended that condition 2.14(d) be amended to reflect the following text; "accompanied with a noise impact assessment consistent with the requirements of the Interim Construction Noise Guideline (DECCW, 2009)".
3. 2.15: This condition relates to blasting hours. The conditions in the project approval are consistent with the ICNG and therefore acceptable.
4. 2.16: This condition relates to special consideration for educational institutions.
5. 2.17: This condition recommends construction noise goals on the basis of the formerly published EPA Noise Control Guideline, and is therefore not appropriate given the release of the DECCW Interim Construction Noise Guideline, 2009. It is therefore recommended that the following text be recommended to the DoP to replace this condition; "Construction Noise Management Levels (CNML) shall be established using the Interim Construction Noise Guideline (DECCW, 2009). Any construction activities identified as exceeding the CNML shall be managed in accordance with the Construction Noise and Vibration Management Plan (CNVMP) specified in condition 6.5(c) of this approval".
6. 2.18 and 2.19: The air blast overpressure and ground vibration limits align with DECCW requirements and are therefore acceptable.
7. 6.5(c): This condition requires the preparation of a CNVMP and is considered acceptable with the changes proposed to condition 2.17 and the inclusion of an additional point; vi) The

*CNVMP shall be generally consistent with the guidelines contained in the Interim Construction Noise Guidelines (DECCW, 2009).*

### **Erosion, Sedimentation and Water Quality.**

#### **Water Quality:**

If it is proposed to use flocculating agents they must comply with a strict toxicity rating as determined by a NATA registered laboratory testing for a LC50 >100mg/L. Alum will not be suitable for this site and uncontrolled placement of potentially hazardous flocculating agents will not be allowed.

#### **Sediment basin footprint:**

The EA doesn't indicate what size of sediment basin or the type of basin that will be used. We note that the project will cross some very significant creeks and rivers. DECCW will expect a high level of sediment and erosion controls and would encourage the proponent to ensure that adequate area is available to construct appropriate structures.

#### **Water Reuse:**

DECCW supports the development of a Water Use and Re-use sub plan where the water from basins should be reused wherever possible. The use of water from the sediment retention basins has benefits in terms conserving water in natural systems and environmental sustainability. Further, because the discharge from basins is reduced, there are consequent benefits of decreased effort and cost associated with a reduced need for monitoring and management.

#### **Contaminated Sites:**

The EA indicates that targeted contaminated soil investigations would be carried out during the design phase. DECCW suggests that these targeted investigations be based on historical evidence of contaminating activities such as timber mills, CCA Treatment Plants, relevant agriculture activities and oyster farming worksites. This work will need to be carried out in accordance with the DECCW guidelines.

In addition the project will need to be managed in such a way that its operations do not create contaminated sites. Key areas to control will be asphalt plants, concrete batching works, fuel depots and acid sulphate soil stockpiles.

### **Groundwater**

The main impacts on groundwater associated with the project appear to be the impacts of the cuttings in Cooperabung Hill and Maria River State Forest areas. At least four cuttings are expected to intercept groundwater and may therefore impact on groundwater flows. It is expected there would be a drawdown of between 1 metre and up to 5 metres within these cuttings. The impacts are likely to be localised.

Dewatering would also be required during the construction of cuttings through Cooperabung Hill and Maria River State Forest areas and for the construction of fill embankments across the Hastings and Wilson River floodplains. As dewatering is required the proponent will be required to obtain a groundwater licence from NOW under the *Water Act 1912/ Water Management Act 2000*, prior to the works being undertaken.

It is unclear in the EA if other bores are located nearby which could be impacted on by any of the works associated with the project. The EA does mention that an unlicensed bore will need to be removed. This bore would need to be decommissioned to the appropriate standards.

The EA states the impacts on the groundwater resource in the area would be limited by the detailed design and chosen construction methods. It is important the Statement of Commitments includes a key action for groundwater in case of any adverse impacts, in particular on other groundwater users in the locality, groundwater dependent ecosystems and the National Parks in the area. NOW would also like the opportunity to review information produced as part of Statement of Commitment SGW6.

The EA states further groundwater modelling will be undertaken and a Water Management Plan will be developed at a later stage. Any further work undertaken during the detailed design stage on potential groundwater impacts must be undertaken by a suitably qualified groundwater consultant.

## **Ecology**

**Main Volume 15.1.2 Field Surveys, page 318** – *“It was determined that mapped areas (of SEPP 14 wetlands) were not consistent with ground conditions”*. From this statement DECCW understands existing SEPP 14 wetland mapping was found to be inconsistent on the ground during field validation. However there is no explanation of the nature or extent of these inconsistencies. Is the difference a consequence of the scale of the mapping, temporal variations, differing interpretation from botanists, or some other reason? DECCW recommends these inconsistencies are quantified and explained in more detail.

**Main Volume 15.2.7 Aquatic flora and fauna watercourses and wetlands** – The EA makes a similar statement to the preceding point regarding inconsistencies in wetland mapping; however in this section it is referring to all mapped wetland within the study area. There appears to be a significant flaw in either the mapping that has been utilised for this project or alternatively a consistent variation in the interpretation of wetland. Given the extent and magnitude of this issue is not offered in the EA, DECCW recommends this issue is resolved prior to the detailed design phase.

**Main Volume 15.4.1 Minimising vegetation clearance and habitat loss, Green-thighed frog** – on page 370 the EA states *“Consideration would be given to constructing artificial breeding ponds to provide artificial habitat”*. DECCW is seeking a firm commitment from the proponent to provide artificial breeding ponds in locations of known or potential Green-thighed frog habitat. It is envisaged that the design details of the ponds and location would be established once new drainage patterns are established following construction. This is the approach to be taken on the Kempsey Bypass.

**Main Volume 15.4.2 edge effects and weed infestation** – The EA recommends protocols are developed to prevent the introduction or spread of *Phytophthora cinnamomi*. DECCW recommends sampling and testing for *Phytophthora* presence in the study area prior to construction. The results from the testing should then dictate an appropriate management response.

**Main Volume 15.4.3 Fragmentation, terrestrial barrier effects and road mortality, Aerial fauna crossings** – The EA proposes mitigation measures such as rope ladders and poles as a means to provide aerial connectivity, however retained vegetation in the median and on road verges in areas of glider habitat should be considered a priority over rope ladders and glider poles. Strategically identified retained vegetation will provide certainty of connectivity during construction and operation plus it will not require the same level of maintenance as rope ladders - which require regular replacing.

The potential locations for a widened median should be investigated and decided at this point in the project planning rather than during the detailed design phase. The justification given in the EA for deferring location of gliding structures is sound from an ecological and engineering perspective and is not restricted by the size of the approved project corridor. However a similar situation would not necessarily occur where a widened median was preferred or deemed the only suitable option for aerial connectivity. A widened median would normally extend between 20m – 50m and would therefore require larger parcels of land acquisition.

If suitable 'gliding' trees cannot be retained in the median in areas of glider habitat, preference should be given to creating aerial crossing zones using a combination of poles and rope bridges to maximise crossing opportunities. It is understood the proponent derived a glider crossing proposal consisting of two types of crossings in different areas, however the process followed is not explained in detail. Following Figures 12a – 12c there appears to be 10 glider crossing zones identified, therefore the proponent should commit to providing up to 10 glider crossing zones using a combination of these three connectivity measures.

## Volume 2

**Volume 2 working paper 6.1 Minimising vegetation clearance and habitat loss, Green-thighed frog/Giant barred frog** – DECCW supports targeted surveys prior to construction and specific mitigation measures such as frog fencing and artificial habitat creation at targeted areas. The breeding frog design principles listed in the EA have consequently been refined and are currently been developed on the Kempsey Bypass project.

DECCW recommends a similar commitment is made to mitigation measures for the Giant barred frog.

**6.3 Fragmentation, terrestrial barrier effects and road mortality** – DECCW supports the process reported to be undertaken in determining the location for fauna crossing structures in the proposal. However skylights are not needed. Alternatively, consideration should be given to the use of a split in the median combined with fauna fencing.

**6.3.2 Aerial fauna crossings, glider poles** – Following the 7th dot point "Because of the known risk to fauna and gliders in particular, of entanglement, no barbed wire should be used in any boundary fencing erected as part of the proposal". DECCW recommends this commitment is included in the SOC.

**6.5 Offsets** – DECCW broadly agrees with the offsetting principles outlined in this section except for the following two:

- DECCW does not support management of offset land currently identified as Zone 4 to be preserved in a RTA managed road reserve.
- **3<sup>rd</sup> dot point - Management by non-government conservation organisations or by private landholders** – DECCW does not support conservation by private landholders for parcels of land with high conservation value, and which will not be considered viable as DECCW estate, unless they are protected to a level of International Union for Conservation of nature (IUCN) category iv, iii, ii or i.

## Table 6-2 Details of proposed fauna crossings

DECCW understands the proposed fauna crossing structures were positioned in the landscape following the rationale presented by the five dot points presented on page 137. This arrangement will provide a limited extent of connectivity across the highway barrier as there appears to be a reliance on infrequently placed combined structures to facilitate fauna movement. This project

predominantly traverses through areas of intact native vegetation with a wide variety of habitat types and condition. Over the 37km length as few as 9 dedicated fauna crossing structures and several bridges are provided.

It is unlikely that all habitat types (and therefore all species assemblages) will be catered for with this arrangement. Combined structures are necessarily located in waterways and are thereby subject to inundation and are generally described in Table 6-2 with opening dimensions smaller than dedicated crossing structures. Where the proponent is relying on combined structures to provide movement in areas of natural habitat they should be no less than 3m x 3m. This is particularly critical from *chainage 31500 northwards* in the Maria River corridor.

A recently approved Pac Highway Upgrade project; the Sapphire to Woolgoolga pacific Highway Upgrade proposed 3.0m x 3.0m box culverts every 500m in an area of contiguous habitat supporting numerous threatened species. At least one structure in this section of forest will be located mid slope to facilitate species utilising drier habitats. DECCW supports this notion and recommends placement of 3.0m x 3.0m box culverts *every 500m where the highway bisects regional corridors*.

Conversely, structures as small as 2.4m have proven effective in facilitating fauna passage over relatively short distances, i.e. under 2 lane roads, therefore DECCW recommends all combined structures *outside* of regional corridors are no less than 2.4mx2.4m.

DECCW recommends the location of dedicated Koala crossing structures is refined using recent surveys and habitat mapping found in the Kempsey Shire Council Comprehensive Koala Plan of Management. This plan was recently used to inform crossing structure detail on the Kempsey Bypass. It is also worth considering that the Kempsey Bypass project deferred the provision of comprehensive koala crossing structures to the larger remnants associated with the Maria River corridor.

**Table 6-2 - 'Description' column** – to assist in an understanding of the appropriateness of the crossing type (i.e. if the structure will effectively facilitate the predicted fauna), the *height and width* need to be clearly annotated in this table. Additionally and very importantly the proposed *length* also needs to be described. This is a critical and limiting factor in determining effectiveness of crossing structures. Recent monitoring results from the Bonville Upgrade (AMBS 2009) have shown that a 3.0m x 3.0m x 80m box culvert is not efficiently facilitating fauna movement. In fact fauna have been shown to investigate the openings of this structure but will rarely traverse its entire length.

DECCW's own interpretation of many fauna crossing structure monitoring results (both from Australia and overseas) revealed that greater connectivity is achieved with the use of shorter lengths. DECCW therefore recommends box culverts 3.0m x 3.0m or smaller are restricted to 50m in length. If longer lengths are needed (for example to traverse the main carriageway and service road) it is advisable to split the culvert in an area of fenced, low density vegetation.

Where fish passage is required within a *single* "combined" cell structure, DECCW recommends the floor of the culvert is recessed to bed level rather than consisting of a raised ledge for fauna passage. A raised ledge will decrease overall height clearance. Where multiple cells are required DECCW recommends a single cell is dedicated to fish passage and the remainder raised so that they are dry outside of heavy rain events.

**Table 6-2 - 'Crossing type' column -**

- **bridge** – DECCW recommends all new bridges shall provide no less than 4m fauna passage on each bank.

- **Dedicated** - fauna crossing structures should be no less than 3.0m x 3.0m to be effective and designed and located so that they do not receive surface water runoff.

DECCW notes that the “**Species that may use the crossing**” column is limited to *general fauna*, *Koala*, *quoll* and occasionally *Green-thighed frog* and *the Giant barred frog*. DECCW recommends this column is expanded to include the range of species that are likely to use this structure. This information will be available from fauna records and fauna assemblages found within habitat types. This additional information will assist in clarifying which species are likely to be present in the adjacent habitat or that are likely to use this structure during dispersal.

Following the above modelling of likely or possible use, the dimensions and location of the proposed structure should be considered to ensure it is suitable for these predicted species. In the case of bridges with 4m vegetated fauna passage on either bank this is not necessary. For other structures, namely box culverts the proponent needs to demonstrate the structure will be suitable.

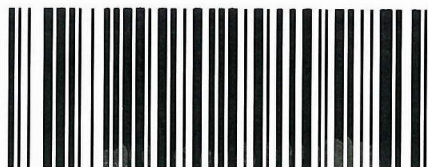
**6.3.1 Fauna underpasses and bridges, Crossing design principles - directing fauna toward underpasses** – DECCW recommends the proponent commits to using frog fencing and Brush-tailed phascogale fencing where these species are highly likely to occur.

**6.3.1 Fauna underpasses and bridges, Bridge design principles** – DECCW recommends bridges are designed with no less than a 3m split between carriageways. Additionally bridge abutments should be constructed at 90 degree angles where fauna passage is 4m or less.

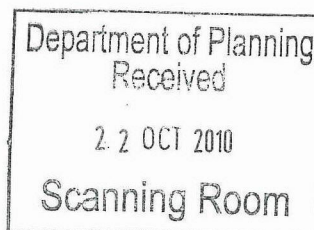




**Industry &  
Investment**



PCU015820



OUT10/16262

Michael Young  
Senior Planning Officer, Infrastructure Projects  
Department of Planning  
GPO Box 39  
Sydney NSW 2001

Dear Michael,

**Re: Pacific Highway Upgrade – Oxley Highway to Kempsey Upgrade (MP 07\_0090) Review of Environmental Assessment and recommended conditions of approval.**

Thank you for providing Industry & Investment NSW (I&I NSW) with the Environmental Assessment (EA) for the Oxley Highway to Kempsey Pacific Highway Upgrade on 13<sup>th</sup> September 2010 for comment and recommended conditions of approval.

**Agricultural issues**

The draft EA for the Pacific Highway Upgrade between Oxley Highway and Kempsey has been reviewed for agricultural issues and impacts that arise from the proposed development.

The proposal will impact on some 49 ha of mapped regionally significant farmland. The chosen alignment does limit some of the impacts on farmland by sections C and D following the existing alignment. There is also mention in the EA as to how the alternatives performed against the key criteria and property and agricultural impacts were taken into account.

The property impacts and acquisition table (Table 10-4) provides a useful summary, though individual property enterprise impacts have not been described, mapped or summarised. The EA does indicate however that individual farm impacts including impacts on farm infrastructure will be mitigated through acquisition on just terms, new fence lines and negotiation arrangements with affected landholders.

The flood modelling suggests that only minor changes to existing flood levels are expected by the proposed works. However, if the works adversely affect access to higher ground for livestock, farm machinery and fodder, it is recommended that alternate flood refuge arrangements be discussed and negotiated with affected landholders including landholders not directly within the highway corridor. For information, I&I NSW has published guidelines on constructing flood mounds - <http://www.dpi.nsw.gov.au/agriculture/emergency/flood/refuge-mounds>.

The EA indicates that there is a poultry farm located adjacent to the upgrade in the northern section though no details are provided. Urban development encroachment onto intensive animal industries including poultry enterprises can create issues. Any issues or challenges created by highway encroachment on the poultry farm in this instance should be identified and managed in consultation with the operator so that any necessary risk reduction measures can be put in place.

All of the statements of commitments mentioned in the body of the document such as the measures to mitigate impacts on rural properties and farms should be included in the formal list of commitments. Compensation for impacts on farm water supplies should not be limited to licensed farm water supplies as not all farm water supplies requiring licensing.

Should you require any further information or advice with regard to agricultural issues, please contact Rik Whitehead on T. (02) 6626 1349 or email [rik.whitehead@industry.nsw.gov.au](mailto:rik.whitehead@industry.nsw.gov.au).

**Minerals issues**

The draft EA for the Pacific Highway Upgrade between Oxley Highway and Kempsey has been reviewed for Minerals issues and impacts that arise from the proposed development and provides the following comments.



The EA adequately addresses issues of interest to Mineral Resources Division. The Division is pleased to note that the proposed highway upgrade design now includes improved road access to Sancrox and Yarrabee Road Quarries.

Should you require any further information or advice with regard to Minerals issues, please contact Iain Paterson on T. (02) 4931 6704 or email [iain.paterson@industry.nsw.gov.au](mailto:iain.paterson@industry.nsw.gov.au).

**Forests NSW issues**

Please refer to separate response from Forests NSW.

Should you require any further information or advice with regard to forestry issues, please contact John Murray Planning Manager, Forests NSW on T. (02) 6656 8125 or email [john.murray@industry.nsw.gov.au](mailto:john.murray@industry.nsw.gov.au).

**Fisheries issues**

I&I NSW Fisheries Ecosystems Unit have reviewed the EA and provides the following comments.

The EA generally addresses issues of interest to I&I NSW Fisheries Ecosystems Unit. I&I NSW believes the following conditions of approval should be included so as to maximise consultation between the proponent and I&I NSW and clarify the specific environmental concerns that I&I NSW wish to see addressed during construction. I&I NSW acknowledge that some of these issues are addressed in the Environmental Assessment and the Statement of Commitments; however, the Department of Planning's conditions of approval provide a clear and direct mechanism to address I&I NSW's concerns.

Where culverts are the preferred structure for waterway crossings the invert of at least one culvert should be set below bed level to provide for low flow fish passage and be constructed in accordance with I&I NSW fish passage requirements as outlined in the *Department's Policy and Guidelines for Fish Friendly Waterway Crossings (2003)*.

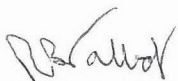
The Proponent will consult I&I NSW in relation to the design and timing of waterway crossings.

The Proponent will develop a Construction Flora & Fauna Management Plan in consultation with I&I NSW.

The Proponent will negotiate a suitable offset package for harm to mangroves and seagrass with I&I NSW.

Should you require any further information or advice with regard to Fisheries issues, please contact James Sakker on T. (02) 6626 1325 or email [James.sakker@industry.nsw.gov.au](mailto:James.sakker@industry.nsw.gov.au).

Yours sincerely

 15/10/10

Bill Talbot

**Director, Fisheries Conservation & Aquaculture**

### PACIFIC HIGHWAY OFFICE

1 8 OCT 2010

PH10/164

**ACTION BY:** R. Fenner

Ref: File 312  
KJA:DLC

13 October 2010

Mr Stevenson  
Action General Manager Pacific Highway  
NSW Roads and Traffic Authority  
PO Box 546 Grafton  
NSW 2460

Email: [plan\\_comment@planning.nsw.gov.au](mailto:plan_comment@planning.nsw.gov.au)

Dear Mr Stevenson

### **PACIFIC HIGHWAY – OXLEY HIGHWAY TO KEMPSEY UPGRADE ENVIRONMENTAL ASSESSMENT**

Thank you for the opportunity to comment on the NSW Roads and Traffic Authority, Pacific Highway upgrade from the Oxley Highway interchange to Stumpy Creek, south of Kempsey.

Following is a list of issues/comments raised by Council regarding the proposed alignment:

- The RTA needs to ensure that adequate access to existing properties is provided both during and after construction;
- Is there support provided for business currently located fronting the Pacific Highway, both during the construction phase and after opening? e.g. additional signage or advertisement;
- What are the signage opportunities for Council in relation to tourism and advertising for the Town both during and after construction including any funding opportunities e.g. entry statements;
- Details are needed in relation to roads/road infrastructure including the hand over of the existing Pacific Highway or other assets and tie-in's to existing infrastructure, defects or maintenance period, road condition and any potential funding arrangements;
- Details are needed regarding flooding information and how/if the new alignment will affect the current flooding within the Shire including Hastings River, Maria River and Connection Creek;
- More information is required to clearly demonstrate the link between the Kempsey Bypass currently under construction and the Oxley Highway to Stumpy Creek alignment, as it is not clearly demonstrated in the proposal.



- Further information is required as to why a left-in/left-out is required at Smiths Creek Road, which is in close proximity to the Kundabung interchange?
- Kempsey Council has prepared a Draft Koala Plan of Management which needs to be considered in the assessment of Koala's within the alignment;
- All fauna corridors and proposed crossing are to be in accordance the DECCW guidelines;
- It is noted that the Mid North Coast Regional Strategy identifies the area between Port Macquarie and Kempsey as having potential to support additional employment lands, however this is not addressed in the documentation in relation to Kempsey. An extract is provided below:

***It is also noted that the Mid North Coast Regional Plan states:***

***The anticipated employment potential associated with expected population growth translates to a projected need for a minimum of 232 hectares of additional industrial land and about 210 hectares of commercial land (total 442 hectares). Coffs Harbour and Port Macquarie in particular will require substantial industrial lands to support their future growth.***

***The Strategy identifies a significant additional supply in all subregions to accommodate the expected needs to 2031. The four major regional centres have been targeted for growth in employment land supply. This will be strategically complemented by large areas near Kempsey and Nambucca Heads.***

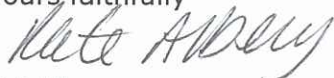
***The minimum amount of additional industrial land needed over the next 25 years when distributed across subregions is:***

***Hastings-Macleay Valley  
subregion—84 hectares***

***The Strategy identifies sufficient industrial land to support the development of possible new industries and new job opportunities, and to establish an employment land bank for the future. This may assist in the affordability of employment land and provide a competitive surplus to encourage the establishment of new industries.***

Any further information please contact Kate Alberry at Kempsey Shire Council's Sustainable Environment on 6566 3200.

Yours faithfully



K J Alberry  
PRINCIPAL AREA PLANNER  
SUSTAINABLE ENVIRONMENT



Your ref: 9036869  
Our ref: OUT10/191

Michael Young  
Infrastructure Projects  
Department of Planning  
GPO Box 39  
Sydney NSW 2001

27 October 2010

Dear Michael,

**RE: Pacific Highway Upgrade – Oxley Highway to Kempsey (07\_0090)  
Exhibition of Environmental Assessment**

Thank you for your letter dated 13<sup>th</sup> September 2010.

The Northern Rivers Catchment Management Authority (NRCMA) has reviewed the Environmental Assessment (EA) for the proposed upgrade, as well as other supporting documentation and would like to recommend a number of conditions relevant to the proposal and our responsibilities.

The basis for our review is the Northern Rivers Catchment Action Plan (CAP). The CAP was developed through considerable consultation with key stakeholders including Local Government and sets out a range of natural resource management targets that the Northern Rivers community aims to achieve. The CAP may be viewed on the NRCMA website at [www.northern.cma.nsw.gov.au](http://www.northern.cma.nsw.gov.au).

The proposal in its current form has the potential to conflict with the intent and achievement of the following CAP Resource Condition Targets:-

- Water – By 2016, river and aquifer condition is improved
- Biodiversity – By 2016, improve the condition of native terrestrial and aquatic ecosystems.

The key conflict lies in the required clearing of 284 hectares of vegetation including 36.3 hectares of Endangered Ecological Communities listed under the Threatened Species Act. The NRCMA recognises that negotiations with State agencies have been undertaken to acquire Compensatory Habitat elsewhere in the region to off-set impacts associated with loss of native vegetation, threatened species and habitat occurring as a result of the development. The opportunity exists for the Roads and Traffic Authority to deliver a net beneficial biodiversity outcome, and the key related mechanism in this proposal is the forthcoming offset strategy. The success of this strategy will hinge on the final offset ratios applied and the availability of suitable land for procurement. The

NRCMA supports the development of a broad scale offset strategy that incorporates other current upgrade projects requiring offsets in the North Coast Bioregion. Such an approach should lead to improved conservation outcomes and potential economies of scale in procurement.

*Recommended condition: The proponent's Biodiversity Offset Strategy should incorporate all highway upgrade projects within the North Coast Bioregion to increase the pool of suitable properties available for selection, provide scope for greater connectivity in acquired land and hence increase the prospects for a better conservation outcome.*

Given the expected difficulties in procurement of suitable offset land with the same communities, more focus needs to be given to the re-establishment and restoration of the impacted communities at other locations, ideally on adjoining land.

*Recommended condition: Difficulties in acquisition of suitable land with the necessary community types should lead to a program of community re-establishment or restoration on vacant or disturbed land within a suitable radius of the project area, with a focus on increasing connectivity between adjacent areas of vegetation.*

The proposed upgrade corridor intersects several National Parks and Wildlife Service - identified regional and subregional wildlife corridors. Any proposed revegetation/regeneration works in these areas (which act to facilitate genetic exchange between populations) need to take provenance into account, using only locally-sourced seed and seedlings to maintain the regional genetic integrity of the affected vegetation communities.

*Recommended condition: The restoration and rehabilitation of wildlife corridors impacted during the construction phase of the project should be restricted to the use of seed and seedlings of local provenance.*

In the current proposal it is not clear whether 11.6 ha of impacted riparian forest and wetland will be offset through procurement and conservation of similar vegetation types. Because of their key role in maintaining water quality and habitat function, these vegetation types are of great strategic value, and an overall net loss in these vegetation types could have significant negative impacts on the water quality and hydrology targets that this proposal is designed to meet.

*Recommended condition: that riparian and wetland vegetation types should only be offset with equivalent vegetation, and that these vegetation types should be given equal status to the EECs in the determination of offset ratios in the proponent's Biodiversity Offset Strategy.*

The NRCMA is responsible for the information access and approval processes of the *NSW Native Vegetation Act 2003*. The Act regulates the clearing of native vegetation on all lands in NSW except for land listed in Schedule 1 of the Act as "Excluded Land". The legislative status of this proposal means that the proposed upgrade corridor is Excluded Land under the Act. As such the NRCMA would not have a legislative role in relation to any vegetation clearing associated with the future use of the land. However, it is recommended that similar principles be applied to Excluded Land as that which underpins the NRCMA CAP targets and Act, and that the proponent endeavours to apply the "maintain and improve" philosophy to the upgrade proposal.

Please contact Land use planning Coordinator Peter Boyd on (02) 6676 7393 should you require clarification of our comments or further assistance with aspects of this proposal.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'D. Tkachenko', with a long, sweeping horizontal stroke extending to the right.

Deb Tkachenko  
General Manager

**From:** <Dan.Croft@pmhc.nsw.gov.au>  
**To:** <michael.young@planning.nsw.gov.au>  
**Date:** 25/10/2010 10:39 am  
**Subject:** MP07-0090 - Pacific Highway Upgrade - Oxley Highway to Kempsey

Michael

I have circulated the EA to relevant Council staff. No issues of concern or requirement for special conditions of approval have been identified.

Please contact me if you have any questions.

Regards

---

Dan Croft  
Manager  
Building and Development Assessment  
Port Macquarie-Hastings Council

PO Box 84, Port Macquarie 2444  
Ph: (02) 6581 8628  
Mob: 0439818621  
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