

Enquiries: Peter McMurray  
65787270

Our Ref: 18/28195

11 May 2018

Mr Joel Rosendahl  
Project/Contract Manager  
Roads and Maritime Services  
Locked Bag 9028  
North Sydney NSW 2059

*joel.rosendahl@rms.gov.au*

Dear Mr Rosendahl

**Re: Invitation to comment – consultation regarding proposed Singleton –  
New England Highway Bypass**

Further to the notification received by Council on 19 April 2018 regarding the proposed Singleton New England Highway By-Pass (Option B), please see below comments and advice from Council regarding interests, concerns and statutory requirements relating to the project. As Council understands, comments on the proposed project will be considered in preparing the Review of Environmental Factors (REF), which, will be displayed for community and stakeholder feedback in early 2019.

By way of background, it is noted that that three shortlisted route options were displayed for community feedback between 28 September and 23 October 2015. Of the 168 submissions received from the community and stakeholders in response to the display, a total of 27 issues were raised, the most common issues included:

- Changes to hydrology and potential impacts to local flooding (13%)
- Property acquisition/compensation (12%)
- Traffic forecasts, use of local routes and travel times (9%)
- Isolation or fragmentation of agricultural land (8%)
- Impact on business/Trade loss (6%)
- Property value (5%)

On review of the above submissions, a preferred option (B) was announced in December 2016, which involves building a new section of highway west of Singleton starting near Newington Lane and re-joining the New England Highway north of McDougalls Hill.

Taking into consideration the concerns raised by both the community, (and noting the RMS responses to the submissions as part of the Consultation Report for Option B), and on further review by Council in regard to impacts on water and sewer infrastructure, please see below seven (7) Council comments submissions in regard to the REF for Option B route as follows:

1. *Changes to hydrology and potential impacts to local flooding – concerns were raised as part of the public exhibition process for Option B ('the public exhibition process') with regard to the impacts the proposed route will have on flooding levels, particularly within the Doughboy and Glenridding areas. It was requested by the community that any proposed route must consider livestock evacuation during flood events. In response the RMS indicated that, due to the size and scale of the local flood plain surrounding Singleton, all shortlisted route options would cross the flood plain and that the selected option would aim to minimise flooding impacts. It was also indicated that the RMS would carry out further flood modelling that would help identify the preferred bypass route and that the flood modelling would include the Doughboy Creek system.*

Council requests that the RMS provide details in the REF of:

- how the impacts of the flood modelling will be addressed, particularly in relation to flooding levels within the Doughboy and Glenridding areas.
  - what factors will be put in place that address livestock evacuation during flood events
2. *Property acquisition/compensation - Property Value - Changing value of property and land - concerns were raised as part of the public exhibition process with regard to the impacts the proposed route will have on potential property acquisition and associated emotional and financial concerns in regard to property values. In response the RMS indicated that it would need to acquire properties to build the future bypass and that acquisition generally would not start until the project is approved for construction. It was indicated also that construction approval would not be granted until a preferred route is selected, (which Option B now has), a concept design finalised and an environmental assessment completed and displayed. While it is acknowledged by Council that, at this stage, a timeline for construction has not been confirmed, it was clearly outlined in the RMS response to submissions that the RMS would strive to work with landowners and prefers to achieve a mutually acceptable agreement for purchase and that the impact on individual properties would not be known until a preferred route is chosen and further investigations and design are completed.*

Given that a preferred route has now been chosen:

Council requests that the RMS provide details in the REF of:

- what properties have been impacted by the preferred route
- what are the proposed impacts of the preferred route on those identified properties
- full details in regard to how those impacts will be addressed

- what will be the impacts on property values
3. *Traffic forecasts, use of local routes and travel times - concerns were raised as part of the public exhibition process with regard to the impacts the proposed route will have on the number of vehicles, including heavy vehicles, using the New England Highway, accessing the bypass and local roads and benefits to travel times. In response the RMS indicated that traffic volumes on the highway through Singleton are predicted to increase to more than 30,000 vehicles per day over the next 25 years. These increased traffic volumes are based on residential population growth forecast by the Bureau of Transport Statistics and future land developments outlined in the Singleton Council Local Environmental Plan (LEP). Potential interchange locations have been identified for each bypass route in conjunction with the traffic modelling carried out as part of the options assessment.*

Council requests that the RMS, include in the REF, in priority order:

- Priority 1 - A full interchange at Putty Road is essential! Council does not consider there should be any compromise on this. A full interchange at Putty Road will provide the best outcome in terms of commercial and customer access to and from the Singleton town centre.
  - Priority 2 - A northbound exit and southbound entry at the southern (Maitland) end of the by-pass is considered essential as a minimum to provide safe and easy access/egress for both commercial vehicle access and for residents living on the south/west and south/east ends of Singleton.
  - Priority 3 - A northbound entry and southbound exit at Magpie Street end of the by-pass is considered essential as a minimum to provide safe and easy access/egress for both commercial vehicle access and for residents living on the north/west and north/east ends of Singleton.
  - Priority 4 - Gowrie Gates Exit - not essential, if money needs to be saved sacrifice this exit. The Magpie Street exit can service this area.
4. *Isolation or fragmentation of agricultural land Impact of the proposed routes on agricultural land - concerns were raised as part of the public exhibition process with regard to the preferred route impacting on viable farming land. In response the RMS indicated that once a preferred route is selected, a concept design would be developed and an environmental assessment completed. It was also indicated that during this stage of the project a socio-economic study would be completed to assess the potential impacts of a future bypass including impacts on agriculture and farming.*

Council requests that the RMS, include in the REF, details that show specifically what the impacts the preferred route will have on agriculture and farming and what measures will be put in place to mitigate/address these issues.

5. *Impact on business/Trade loss Impact of the future bypass on business. - In response to the public exhibition process, the RMS indicated that once a preferred route is selected, a concept design would be developed and an environmental assessment completed. It was also indicated that during the next stage of the project a socio-economic study would be completed to assess the*

*potential impacts of a future bypass including impacts on businesses, agriculture and farming.*

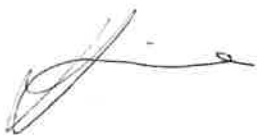
Council requests that the RMS, include in the REF, details that show specifically what the impacts of the preferred by-pass will have on business and trade loss impacts. If this is not proposed as part of the REF then specific details be provided as to when the planned socio-economic study will be completed, how it will address impacts on businesses, agriculture and farming and what measures will be put in place to mitigate/address these issues.

6. *Property Value - Changing value of property and land – refer point 2 submission notes.*
7. *Impact on Utilities - The proposed bypass area affects sewer assets, most particularly the sewer rising main to the Sewage Treatment Plant and the rising main that connects the Maison Dieu area to Singleton. It will also have a significant impact on water infrastructure, which includes the large mains that connect across west and east sides of the river as well as several key water assets including Water Works Lane Depot, Army Camp Water Pump Station and Control Valve 2. The consideration of these assets is critical in the planning of the bypass to ensure Council is able to operate and maintain the assets during the construction and operation of the bypass (as well as replace these assets in the future) - these impacts can most likely be mitigated through proper planning. Council raises serious concerns as to it will be able to continue to operate Water Works Lane from under a bridge.*

Council requests that the RMS, include in the REF, details that show specifically what the impacts of the preferred by-pass will have on water infrastructure, with specific reference to the large mains that connect across west and east sides of the river as well as key water assets including Water Works Lane Depot, Army Camp Water Pump Station and Control Valve 2.

Please contact me should you require any further information.

Yours faithfully



**Jason Linnane**  
General Manager

Joel Rosendahl  
RMS  
Level 9  
101 Miller st  
NORTH SYDNEY NSW 2060

Dear, Joel

**Re: s199 consultation – Singleton Bypass.**

Thank you for your letter dated 16 April 2018 requesting comment from Industry and Investment (Fisheries) NSW on the above proposal.

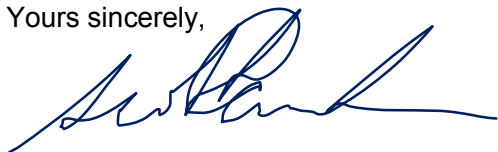
Fisheries NSW is responsible for ensuring that fish stocks are conserved and that there is no net loss of key fish habitats upon which they depend. To achieve this, Fisheries NSW ensures that developments comply with the requirements of the *Fisheries Management Act 1994* (namely the aquatic habitat protection and threatened species provisions in Parts 7 and 7A of the Act, respectively), and the associated *Policy and Guidelines for fish habitat conservation and management Update 2013*. In addition, NSW DPI is responsible for ensuring the sustainable management of commercial and recreational fishing in NSW.

Fisheries NSW has reviewed the information provided in tenletter and is satisfied at this stage that the most pressing issues for the department appear to be addressed. We look forward to the future development of this project.

If the location or design of this proposal changes Fisheries NSW will need to re-assess this proposal prior to obtaining owners consent on these amendments from Crown Lands. Note that conditions may be amended or the modified proposal rejected.

If you require any further information please contact me on (02) 4916 3931.

Yours sincerely,



Scott Carter  
**Regional Manager – Central/Metro,  
Aquatic Ecosystems**

11 May 2018

Roads and Maritime Services  
Locked Bag 928  
NORTH SYDNEY NSW 2059

Attention: Joel Rosendahl  
By email: joel.rosendahl@rms.nsw.gov.au

**Singleton Bypass Project**  
**Consultation regarding the preparation of a Review of Environmental Factors**

I refer to your letter to the Environment Protection Authority (EPA) dated 16 April 2018, seeking the EPA's comment on the preparation of a Review of Environmental Factors (REF) for the Singleton Bypass Project (the Proposal) by Roads and Maritime Services (RMS).

The EPA has considered the Proposal and has identified in **Attachment A** the information it requires to assess the Proposal. The EPA's key information requirements for the project include an adequate description and assessment of:

1. Impacts on water quality and site water management, with specific reference to potential impacts on the Hunter River and an assessment of background water quality.
2. Potential noise impacts due to construction and operation with specific reference to proposed community consultation and management measures during the construction phase.

In carrying out the assessment, RMS should refer to the relevant guidelines listed in **Attachment B** and any relevant industry codes of practice and best practice management guidelines.

RMS should also be aware that any commitments made in the REF may be formalised as environment protection licence conditions. Pollution control measures should not be proposed if they are impractical, unrealistic or beyond the financial viability of the development. It is important that all conclusions are supported by adequate data.

If you require any further information regarding this matter, please contact Anthony van der Horst on 4908 6808 or by email to [hunter.region@epa.nsw.gov.au](mailto:hunter.region@epa.nsw.gov.au).

Yours sincerely

A handwritten signature in black ink, appearing to read 'MB' followed by a stylized flourish.

**MITCHELL BENNET**  
**Head – Strategic Programs Unit - Hunter Region**  
**Environment Protection Authority**

Encl: **Attachment A** – EPA's Recommended REF Requirements – Singleton Bypass Project  
**Attachment B** – Guidance Material



## **ATTACHMENT A**

### **EPA's Recommended REF Requirements – Singleton Bypass Project**

#### **1 Environmental impacts of the project**

Impacts related to the following environmental issues need to be assessed, quantified and reported on:

- Air Quality
- Noise and Vibration
- Water and Soil Quality and Management
- Waste Management
- Dangerous Goods, Chemical Storage and Bunding

The Review of Environmental Factors (REF) should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines is at Attachment B.

#### **2 Licensing requirements**

The REF should confirm if the proposal will involve activities listed in Schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act). If scheduled activities are to be undertaken as part of the Proposal, the scale of the activity should be clearly stated.

#### **3 The Proposal and Premises**

The objectives of the Proposal should be clearly stated and refer to:

- The size and type of the operation;
- The nature of the processes and the products, by-products and wastes produced;
- The types and quantities of any chemicals to be used and stored onsite;
- Proposed operational hours, including any heavy vehicle movements;
- Proposed maximum and average annual production rates that will occur at the premises; and
- Proposed staging and timing of the proposal.

The REF will need to fully identify all the processes and activities intended for the site over the life of the development. This will include details of:

- The location of the proposed facility and details of the surrounding environment;
- The proposed layout of the site;
- Appropriate land use zoning;
- Ownership details of any residence and/or land likely to be affected by the proposed operations;
- Maps/diagrams showing the location of residences and properties likely to be affected and other industrial developments, conservation areas, wetlands, etc. in the locality that may be affected by the facility;
- All equipment proposed for use at the site;
- All chemicals, including fuel, used on the site and proposed methods for their transportation, storage, use and emergency management;
- Clearly detail the boundary of the premises; and
- Methods to mitigate any expected environmental impacts of the development.

## 4 Air Issues

### 4.1 Air quality

The REF should include an air quality impact assessment (AQIA) in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW. The AQIA must identify and describe in detail all possible sources of air pollution and activities/ processes with the potential to cause air pollutants including odours and fugitive dust emissions beyond the boundary of any premises proposed to be licenced by an EPL. The AQIA should cover both the construction and operational phases of the development. The AQIA should include cumulative impacts associated with existing developments and any developments having been granted development consent but which have not commenced.

The REF should demonstrate that the Proposal will operate within EPA's objectives which are to minimise adverse effects on the amenity of local residents and sensitive land uses and to limit the effects of emissions on local, regional and inter-regional air quality.

The REF should describe in detail the measures proposed to mitigate the impacts and quantify the extent to which the mitigation measures are likely to be effective in achieving the relevant environmental outcomes.

The AQIA must describe the methodology used and any assumptions made to predict the impacts. Air pollutant emission rates, ambient air quality data and meteorological data used in the assessment must be clearly stated and justified.

## 5 Noise and Vibration

The following matters should be addressed in relation to noise and vibration impacts associated with the proposal. This includes identification of the hours of operations, assessment of all activities where proposed, and impacts on sensitive receivers associated with the proposed hours of operation. The following matters should be addressed as part of the REF.

### General

- Construction noise associated with the proposed development should be assessed using the Interim Construction Noise Guideline (DECC, 2009).
- Vibration from all activities (including construction and operation) to be undertaken on the premises should be assessed using the guidelines contained in the Assessing Vibration: a technical guideline (DEC, 2006).
- Blast impacts should be demonstrated to be capable of complying with the guidelines contained in Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC, 1990). If an alternative methodology or guidelines are presented in the REF, justification must be provided.

### Road

- Noise on public roads from increased road traffic generated by land use developments should be assessed using the guidelines contained in the NSW Road Noise Policy (DECCW, 2011).
- Noise from new or upgraded public roads should be assessed using the NSW Road Noise Policy (DECCW, 2011).



## Monitoring

- Detail monitoring that will be conducted to assess the impacts of the proposal.

## **6 Water and Soils**

### **6.1 Water Quality**

#### Describe Proposal

- Describe the proposal including position of any intakes and discharges, volumes, water quality and frequency of all water discharges.
- Demonstrate that all practical options to avoid discharges have been implemented and environmental impact minimised where discharge is necessary.
- Where relevant include a water balance for the development including water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

#### Background Conditions

- Describe existing surface and groundwater quality. An assessment needs to be undertaken for any water resource likely to be affected by the proposal. Issues to be discussed should include but are not limited to:
  - a description of any impacts from existing industry or activities on water quality
  - a description of the condition of the local catchment e.g. erosion, soils, vegetation cover, etc.
  - an outline of baseline groundwater information, including, for example, depth to water table, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
  - historic river flow data
- State the Water Quality Objectives for the receiving waters relevant to the proposal. These refer to the community's agreed environmental values and human uses endorsed by the NSW Government as goals for ambient waters (<http://www.environment.nsw.gov.au/ieo/index.htm>). Where groundwater may be impacted the assessment should identify appropriate groundwater environmental values.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be based on the ANZECC (2000) Guidelines for Fresh and Marine Water Quality as a minimum but should also be based on advice from Hunter Water Corporation given the sensitive receiving environment of Grahamstown Dam water supply.
- State any locally specific objectives, criteria or targets which have been endorsed by the NSW Government.

#### Impact Assessment

- Describe the nature and degree of impact that any proposed discharges will have on the receiving environment, both surface water and groundwater.
- Detail contractual and other arrangements that will be put in place to prevent pollution from haul roads and unsealed roads per se, particularly rights of carriageways not owned by the proponent.
- Assess impacts against the relevant ambient water quality outcomes. Demonstrate how the proposal will be designed and operated to:

- protect the Water Quality Objectives for receiving waters where they are currently being achieved; and
- contribute towards achievement of the Water Quality Objectives over time where they are not currently being achieved.
- Where a discharge is proposed that includes a mixing zone, the proposal should demonstrate how wastewater discharged to waterways will ensure the ANZECC (2000) water quality criteria for relevant chemical and non-chemical parameters are met at the edge of the initial mixing zone of the discharge, and that any impacts in the initial mixing zone are demonstrated to be reversible.
- Propose water quality limits for any discharge(s) that adequately protects the receiving environment.
- Assess impacts on groundwater and groundwater dependent ecosystems.
- Describe how stormwater will be managed both during and after construction.

### Monitoring

- Describe how predicted impacts will be monitored and assessed over time.

## **6.2 Soil**

The REF should include:

- An assessment of potential impacts on soil and land resources should be undertaken, being guided by Soil and Landscape Issues in Environmental Impact Assessment (DLWC 2000). The nature and extent of any significant impacts should be identified. Particular attention should be given to:
  - Soil erosion and sediment transport - in accordance with Managing urban stormwater: soils and construction, vol. 1 (Landcom 2004) and vol. 2 (A. Installation of services; B Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (DECC 2008).
  - Mass movement (landslides) – in accordance with Landslide risk management guidelines presented in Australian Geomechanics Society (2007).
  - Urban and regional salinity – guidance given in the Local Government Salinity Initiative booklets which includes Site Investigations for Urban Salinity (DLWC, 2002).
- A description of the mitigation and management options that will be used to prevent, control, abate or minimise identified soil and land resource impacts associated with the project. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

## **7 Waste**

The REF should:

- Include a detailed plan for in-situ classification of waste material, including the sampling locations and sampling regime that will be employed to classify the waste, particularly with regards to the identification of contamination hotspots.
- Identify, quantify, characterise and classify all waste that currently exists at the site. Identify the intended end use, for example reuse or disposal, and the end use location(s) for the waste. Also, specify the mechanism under which waste will be reused or disposed, such as a Resource Recovery Exemption. Note: All waste must be classified in accordance with EPA's Classification Guidelines.
- Identify, characterise and classify all waste that will be generated onsite through excavation, demolition or construction activities, including proposed quantities of the waste. Note: All waste must be classified in accordance with EPA's Waste Classification Guidelines.

- Identify, characterise and classify all waste that is proposed to be disposed of to an offsite location, including proposed quantities of the waste and the disposal locations for the waste. This includes waste that is intended for re-use or recycling. Note: All waste must be classified in accordance with EPA's Classification Guidelines.
  - Include a commitment to retaining all sampling and classification results for the life of the project to demonstrate compliance with EPA's Waste Classification Guidelines.
  - Provide details of how waste will be handled and managed onsite to minimise pollution, including:
    - a) Stockpile location and management
      - Labelling of stockpiles for identification, ensuring that all waste is clearly identified and stockpiled separately from other types of material (especially the separation of any contaminated and non-contaminated waste).
      - Proposed height limits for all waste to reduce the potential for dust and odour.
      - Procedures for minimising the movement of waste around the site and double handling.
      - Measures to minimise leaching from stockpiles into the surrounding environment, such as sediment fencing, geofabric liners etc.
    - b) Erosion, sediment and leachate control including measures to be implemented to minimise erosion, leachate and sediment mobilisation at the site during works. The REF should show the location of each measure to be implemented. The Proponent should consider measures such as:
      - Sediment traps
      - Diversion banks
      - Sediment fences
      - Bunds (earth, hay, mulch)
      - Geofabric liners
      - Other control measures as appropriate
- The Proponent should also provide details of:
- how leachate from stockpiled waste material will be kept separate from stormwater runoff;
  - treatment of leachate through a wastewater treatment plant (if applicable); and
  - any proposed transport and disposal of leachate off-site.
- Provide details of how the waste will be handled and managed during transport to a lawful facility. If the waste possesses hazardous characteristics, the Proponent must provide details of how the waste will be treated or immobilised to render it suitable for transport and disposal.
  - Include details of all procedures and protocols to be implemented to ensure that any waste leaving the site is transported and disposed of lawfully and does not pose a risk to human health or the environment.
  - Include a statement demonstrating that the Proponent is aware of EPA's requirements with respect to notification and tracking of waste.
  - Include a statement demonstrating that the Proponent is aware of the relevant legislative requirements for disposal of the waste, including any relevant Resource Recovery Exemptions, as gazetted by EPA from time to time.
  - Outline contingency plans for any event that affects operations at the site that may result in environmental harm, including: excessive stockpiling of waste, volume of leachate generated exceeds the storage capacity available on-site etc.

## **8 Dangerous Goods, Chemical storage and Bunding**

- The REF must outline all details regarding the transport, handling, storage and use of dangerous goods, chemicals and products, including fuel, both on site and with ancillary activities and describe the measures proposed to minimise the potential for leakage or the migration of pollutants into the soil/waters or from the site.
- The REF should identify any fuel or chemical storage areas proposed for the site.
- The REF should consider compliance with the following legislation, standards and guidelines where relevant:
  - Australian Standard AS1692:1989 Tanks for Flammable and combustible liquids;
  - The DECC's "Bunding and Spill Management" Technical Guideline (November 1997)
  - Australian Standard AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids
  - Australia Standard AS 4452-1997: The Storage and Handling of Toxic Substances;
  - Australian/New Zealand Standard AS/NZS 4452:1997: The Storage and Handling of Mixed Classes of Dangerous Goods in Packages and Intermediate Bulk Containers; and
  - Road and Rail Transport (Dangerous Goods) Act 1997

## **9 Monitoring Programs**

The REF should include a detailed assessment of any noise, air quality, weather, water or waste monitoring required during the construction and on-going operation of the site to ensure that the development achieves a satisfactory level of environmental performance. The evaluation should include a detailed description of the monitoring locations, sample analysis methods and the level of reporting proposed.

**ATTACHMENT B****Guidance Material**

<b>Title</b>	<b>Web address</b>
<b><u>Relevant Legislation</u></b>	
<i>Environmentally Hazardous Chemicals Act 1985</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N</a>
<i>Environmental Planning and Assessment Act 1979</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N</a>
<i>Protection of the Environment Operations Act 1997</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N</a>
<i>Water Management Act 2000</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N</a>
<b><u>Licensing</u></b>	
Guide to Licensing	<a href="http://www.environment.nsw.gov.au/licensing/licenceguide.htm">www.environment.nsw.gov.au/licensing/licenceguide.htm</a>
<b><u>Air Issues</u></b>	
<b>Air Quality</b>	
Approved methods for the Modelling and Assessment of Air Pollutants in NSW (2016)	<a href="http://www.epa.nsw.gov.au/resources/epa/approved-methods-for-modelling-and-assessment-of-air-pollutants-in-NSW-160666.pdf">http://www.epa.nsw.gov.au/resources/epa/approved-methods-for-modelling-and-assessment-of-air-pollutants-in-NSW-160666.pdf</a>
Approved methods for the Sampling and Analysis of Air Pollutants in NSW (2016)	<a href="http://www.epa.nsw.gov.au/resources/air/07001amsaap.pdf">http://www.epa.nsw.gov.au/resources/air/07001amsaap.pdf</a>
Coal Mine Particulate Matter Control Best Practice – Site specific determination guide	<a href="http://www.epa.nsw.gov.au/resources/air/20110813coalmineparticulate.pdf">www.epa.nsw.gov.au/resources/air/20110813coalmineparticulate.pdf</a>
POEO (Clean Air) Regulation 2010	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N</a>
<b><u>Noise and Vibration</u></b>	
Interim Construction Noise Guideline (DECC, 2009)	<a href="http://www.environment.nsw.gov.au/noise/constructnoise.htm">http://www.environment.nsw.gov.au/noise/constructnoise.htm</a>
Assessing Vibration: a technical guideline (DEC, 2006)	<a href="http://www.environment.nsw.gov.au/noise/vibrationguide.htm">http://www.environment.nsw.gov.au/noise/vibrationguide.htm</a>
Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC, 1990)	<a href="http://www.environment.nsw.gov.au/noise/blasting.htm">http://www.environment.nsw.gov.au/noise/blasting.htm</a>
NSW Industrial Noise Policy	<a href="http://www.epa.nsw.gov.au/resources/noise/ind_noise.pdf">http://www.epa.nsw.gov.au/resources/noise/ind_noise.pdf</a>
NSW Road Noise Policy (DECCW, 2011)	<a href="http://www.epa.nsw.gov.au/resources/noise/2011236nswroadnoisepolicy.pdf">http://www.epa.nsw.gov.au/resources/noise/2011236nswroadnoisepolicy.pdf</a>
<b><u>Waste</u></b>	
Waste Classification Guidelines (EPA, 2014)	<a href="http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm">http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm</a>
Resource recovery exemption	<a href="http://www.epa.nsw.gov.au/wasteregulation/recovery-exemptions.htm">http://www.epa.nsw.gov.au/wasteregulation/recovery-exemptions.htm</a>

Title	Web address
<b><u>Water and Soils</u></b>	
<b>Soils – general</b>	
Soil and Landscape Issues in Environmental Impact Assessment (DLWC 2000)	<a href="http://www.dnr.nsw.gov.au/care/soil/soil_pubs/pdfs/tech_rep_34_new.pdf">http://www.dnr.nsw.gov.au/care/soil/soil_pubs/pdfs/tech_rep_34_new.pdf</a>
Managing urban stormwater: soils and construction, vol. 1 (Landcom 2004) and vol. 2 (A. Installation of services; B. Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (DECC 2008)	Vol 1 - Available for purchase at <a href="http://www.landcom.com.au/whats-new/publications-reports/the-blue-book.aspx">http://www.landcom.com.au/whats-new/publications-reports/the-blue-book.aspx</a> Vol 2 - <a href="http://www.environment.nsw.gov.au/stormwater/publications.htm">http://www.environment.nsw.gov.au/stormwater/publications.htm</a>
Landslide risk management guidelines	<a href="http://www.australiangeomechanics.org/resources/downloads/">http://www.australiangeomechanics.org/resources/downloads/</a>
Site Investigations for Urban Salinity (DLWC, 2002)	<a href="http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf">http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf</a>
Local Government Salinity Initiative Booklets	<a href="http://www.environment.nsw.gov.au/salinity/solutions/urban.htm">http://www.environment.nsw.gov.au/salinity/solutions/urban.htm</a>
<b>Water</b>	
Water Quality Objectives	<a href="http://www.environment.nsw.gov.au/ieo/index.htm">http://www.environment.nsw.gov.au/ieo/index.htm</a>
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	<a href="http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality">http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality</a>
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	<a href="http://deccnet/water/resources/AWQGuidance7.pdf">http://deccnet/water/resources/AWQGuidance7.pdf</a>
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	<a href="http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf">http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf</a>

DOC18/251922-1

SF2012/00949

Joel Rosendahl  
Project / Contact Manager  
Roads & Maritime Services  
[joel.rosendahl@rms.nsw.gov.au](mailto:joel.rosendahl@rms.nsw.gov.au)

Dear Mr Nevill

**OEH Environmental Assessment Requirements for an REF under Division 5.1 of the EP&A Act 1979 (a Part 5 activity) – Proposed Singleton – New England Highway Bypass – Singleton**

I refer to your letter dated 16 April 2018 seeking input from the Office of Environment and Heritage into the environmental assessment requirements for the preparation of a Review of Environmental Factors (REF) to assess the impacts of the project under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act)

OEH understands that the activity (development) is for the proposed Singleton – New England Bypass at Singleton, which includes about nine kilometres of new highway (single lane in each direction), a 3.1-kilometre bridge over the Main Northern Railway, Doughboy Hollow and the Hunter River floodplain, and highway exit ramps at both the northern and southern ends of Singleton to provide town access. OEH understands from the correspondence that the proposed activity is a Part 5 application pursuant to the (EP&A Act). The EP&A Act requires that the REF should fully describe the proposal, the existing environment and impacts of the proposal. It is the responsibility of the proponent and determining authority to adequately consider the requirements under the EP&A Act and the Environmental Planning and Assessment Regulation 2000. OEH has considered your request and provides input to a REF for the proposed activity in **Attachment 1**. OEH acknowledges that the attached information is generic and some sections may not be relevant to the proposal.

OEH recommends the REF needs to appropriately address the following, if applicable:

1. Aboriginal cultural heritage
2. threatened biodiversity and offsetting
3. impacts to OEH estate
4. soils and water
5. flooding, floodplain management and coastal erosion.

If you require any further information regarding this matter please contact Steve Lewer, Regional Biodiversity Conservation Officer, on 4927 3158.



Yours sincerely

A handwritten signature in dark ink, appearing to be 'SC', with a long horizontal line extending to the right.

**STEVEN COX**

**Senior Team Leader – Planning  
Hunter Central Coast Branch  
Regional Operations Division**

11 May 2018

Contact officer: STEVE LEWER  
02 4927 3158

Enclosure: Attachments 1 and 2

## Attachment 1 – OEH’s recommended environmental assessment requirements for a Part 5 activity Review of Environmental Factors

---

### TABLE OF CONTENTS

1. The proposal.....	3
2. Environmental impacts of the proposal .....	3
3. Aboriginal cultural heritage .....	4
4. Biodiversity .....	4
5. OEH estate.....	10
6. Water and soils.....	11
7. Flooding.....	13
8. Coastal hazards.....	14
9. Historic heritage.....	14

### 1. The proposal

The objectives of the proposal should be clearly stated and identify:

- the size, scale and type of the proposed activity / development
- all anticipated environmental impacts including: direct and indirect; construction and operational; and extent of vegetation / habitat clearing or disturbance
- threatened species, populations, ecological communities or habitats impacted upon
- the staging and timing of the proposal
- the proposal’s relationship to any other proposals and developments.

### 2. Environmental impacts of the proposal

The proponent must consider, assess, quantify and report on the likely environmental impacts of the proposal if applicable, particularly:

- Aboriginal cultural heritage
- threatened biodiversity
- OEH estate: land reserved or acquired under the *National Parks and Wildlife Act 1974*
- flooding, floodplain issues and coastal erosion
- acid sulfate soils
- historic heritage.

The Review of Environmental Factors (REF) should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines and reference material is presented in **Attachment 2**. Appropriate justification should be provided in instances where the below matters are not addressed.

### 3. Aboriginal cultural heritage

- The REF must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the proposal. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and consultation with OEH regional branch officers. The Due Diligence process is not appropriate to use as an assessment here.
- Impacts on Aboriginal cultural heritage values are to be assessed and documented in an Aboriginal Cultural Heritage Assessment Report (ACHAR). The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.
- Consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR.
- Where harm to an Aboriginal object or declared Aboriginal place cannot be avoided, an Aboriginal Heritage Impact Permit (AHIP) will be required from OEH under the *National Parks and Wildlife Act 1974*. You must apply to OEH for an AHIP prior to commencing works that will directly or indirectly harm an Aboriginal object or a declared Aboriginal place.

#### Project specific requirements

- The assessment of cultural heritage values must include a surface survey undertaken by a qualified archaeologist in areas with potential for subsurface Aboriginal deposits. The result of the surface survey is to inform the need for targeted test excavation to better assess the integrity, extent, distribution, nature and overall significance of the archaeological record. The results of surface surveys and test excavations are to be documented in the ACHAR.
- The ACHAR must outline procedures to be followed if Aboriginal objects are found at any stage of the life of the development to formulate appropriate measures to manage unforeseen impacts.
- The ACHAR must outline procedures to be followed in the event Aboriginal burials or skeletal material is uncovered during construction to formulate appropriate measures to manage the impacts to this material.

### 4. Biodiversity

OEH understands that proposal is a 'Part 5' activity under Section 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act 1979). Under this Act (and associated Regulation), the determining authority (RMS) must consider the environmental impact of the proposal to its fullest extent. Clause 288 of the Environmental Planning and Assessment Regulation 2000 sets out factors that must be considered when assessing the impact of an activity on the environment.

It is noted that Section 1.7 of the EP&A Act provides the legislative requirement to apply Part 7 of the *Biodiversity Conservation Act 2016* (BC Act) to the operation of the EP&A Act in connection with terrestrial environments and impact assessment.

## Background

The proponent will need to address the requirements of legislation that currently governs threatened species protection and impact assessment in NSW. BC Act protects all threatened flora and fauna native to NSW (excluding fish and marine plants). The proponent will need to consider the provisions of this Act.

The BC Act contains lists of threatened species, which are divided into several categories – those presumed extinct, endangered species, critically endangered species and vulnerable species. It also contains lists of endangered populations and endangered ecological communities. This Act also allows for the declaration of Areas of Outstanding Biodiversity Values, Serious and Irreversible Impacts, key threatening processes and the preparation of both Recovery Plans and Threat Abatement Plans. These listings and plans must be considered as part of the REF process.

If an activity or development is proposed in a locality **likely** or **known** to be occupied by a threatened species, population, ecological community or critical habitat, any potential impact to that threatened species must be considered during the development assessment process. However, under the EP&A Act, some types of development are not required to go through approval processes. Please note that a licence may still be required under the BC Act if such a development/activity is likely to harm a threatened species, population or ecological community.

Section 7.8 of the BC Act applies to environmental assessment under Part 5 of the EP&A Act. For the purposes of Part 5 of the EP&A Act, an activity is to be regarded as an activity likely to significantly affect the environment if it is likely to significantly affect threatened species. an activity is likely to significantly affect threatened species if:

- A. it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3 of the BC Act, or
- (b) the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or
- (c) it is carried out in a declared area of outstanding biodiversity value.

The assessment of significance or '5-part test of significance' is detailed under Section 7.3 of the BC Act and must be used to determine if an activity is likely to significantly affect threatened species. If an activity results in a significant impact, then the REF is to include or be accompanied by:

- (a) **a species impact statement and Concurrence** from OEH (see A. below), OR
- (b) if the proponent so elects— a '**biodiversity development assessment report**' utilising the Biodiversity Assessment Methodology under the BC Act (see B. below).

### A. Species Impact Statement and Concurrence

#### **\*If opting for a Species Impact Statement and OEH Concurrence.**

OEH understands from your correspondence that the proposed activity is a Part 5 application being considered Roads and Maritime Services (RMS) pursuant to Section 5.1 of the EP&A Act. As such, OEH has a statutory role only if RMS as the determining authority determines that the activity is likely to significantly affect a threatened species, population, ecological community, or its habitat, as listed under the BC Act.

As the determining authority, RMS will need to assess whether or not the proposal will have a significant impact on threatened species, populations, or ecological communities, or their habitat in accordance with Section 7.8 of the BC Act. An assessment of significance (Section 7.3 of the BC Act) should be determined in accordance with the procedures and assessment approaches contained within the Act and any guidance provided. If RMS determines a significant impact is

likely, then pursuant to Section 7.12 of the BC Act, RMS must seek the concurrence of the Environment Agency Head.

Under this scenario OEH will have a concurrence role, which will include the likely provision of Chief Executive Requirements for a Species Impact Statement (SIS) and assessment of the SIS.

If concurrence is required, then RMS will need to produce a SIS to assess the impact. If the RMS decides to proceed with a SIS they will need to write to OEH for SIS Chief Executive Requirements.

If OEH is required to provide concurrence (including the review of the SIS), RMS will need to ensure the following documents are supplied so that the concurrence requirements are satisfied through a:

Species Impact Statement:

- a. A copy of the proposal (activity).
- b. One hard copy and one digital copy of the following:
  - the species impact statement and any document upon which the SIS relies
  - any preliminary fauna and flora assessment (i.e. the report addressing the assessment of significance) undertaken prior to preparation of the SIS
  - any RMS assessment report
  - any submissions or objections received by RMS concerning the development application
  - any social and economic impact assessments that have been undertaken in relation to the development application.
- c. Confirmation that the SIS has been publicly exhibited in accordance with clauses 86–91 of the Environmental Planning and Assessment Regulation 2000, and all public submissions received by RMS are forwarded to OEH for their consideration (including any objections regarding the proposed activity). If no comments were received please advise OEH accordingly.
- d. \$320 administration fee – in accordance with clause 252A of the Environmental Planning and Assessment Regulation 2000; made payable to OEH.

## **Impact assessment**

All direct and indirect impacts (offsite) must be considered in any environmental assessment of the proposal and must be conducted in accordance with the following recommendations:

1. The REF should include a detailed biodiversity assessment, including assessment of impacts on threatened biodiversity, native vegetation and habitat. This assessment should address the matters included in the following sections.
2. A field survey of the surrounding site should be conducted and documented in accordance with relevant guidelines, including:
  - the *NSW Guide to Surveying Threatened Plants* (OEH 2016)
  - the *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians* (DECC 2009)
  - *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC 2004), and
  - Threatened species survey and assessment guideline information on [www.environment.nsw.gov.au/threatenedspecies/surveyassessmentgdlns.htm](http://www.environment.nsw.gov.au/threatenedspecies/surveyassessmentgdlns.htm).

It is preferable for proponents to use the *Biodiversity Assessment Methodology* to collect the vegetation plot data for the project site, and any offset site associated with the project (even when the proponent does not intend to use the BAM credit calculator).

If a proposed survey methodology is likely to vary significantly from the above methods, the proponent should discuss the proposed methodology with OEH prior to undertaking the REF, to determine whether OEH considers that it is appropriate.

Recent (less than five years old) surveys and assessments may be used. However, previous surveys should not be used if they have:

- been undertaken in seasons, weather conditions or following extensive disturbance events when the subject species are unlikely to be detected or present, or
- utilised methodologies, survey sampling intensities, timeframes or baits that are not the most appropriate for detecting the target subject species, unless these differences can be clearly demonstrated to have had an insignificant impact upon the outcomes of the surveys. If a previous survey is used, any additional species listed under the BC Act since the previous survey took place, must be surveyed for.

For targeted surveys, particularly some flora, they must be undertaken during the known flowering / fruiting times of each likely species. Surveying at these times is required for species that are not readily detectable (i.e. are cryptic), where flowers or fruits (or both) are necessary for their positive identification. If targeted flora surveys for these species are conducted outside a species known phenology then justification must be provided as to why; if this is not provided or considered inappropriate, then all such species will be 'considered to be present' on all available habitats and in viable numbers. For species which do not require flowers / fruits for positive identification (e.g. large trees / shrubs), then survey as appropriate (though please provide justification).

Determining the list of potential threatened species for the site must be done in accordance with the *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC 2004 & DECC 2009). The OEH Threatened Species website [www.environment.nsw.gov.au/threatenedspecies/](http://www.environment.nsw.gov.au/threatenedspecies/) and the Atlas of NSW Wildlife database must be the primary information sources for the list of threatened species present. The BioBanking Threatened Species Database, the Vegetation Types databases (available on OEH website at [www.environment.nsw.gov.au/biobanking/VegTypeDatabase.htm](http://www.environment.nsw.gov.au/biobanking/VegTypeDatabase.htm)) and other data sources (e.g. PlantNET, Online Zoological Collections of Australian Museums (<http://australianmuseum.net.au/Australian-Museum-Collection-Search>), previous or nearby surveys etc.) may also be used to compile the list.

3. The REF should contain the following information as a minimum and a guide:

- a. The requirements set out in the *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC 2004 & DECC 2009). (Noting the changes in legislation).
- b. Description and geo-referenced mapping of study area (and spatial data files), for example overlays on topographic maps, satellite images or aerial photos (or both), including details of map datum, projection and zone, all survey locations, all vegetation communities (including classification and methodology used to classify), key habitat features and reported locations of threatened species, populations and ecological communities present in the subject site and study area. Separate spatial files (\*.shp format) to be provided to OEH should include, at a minimum, shapefiles of the project site, impact footprint, vegetation mapping and classification for both the impact and any offset site(s).
- c. Description of survey methodologies used, including timing, location and weather conditions.
- d. Details, including qualifications and experience of all staff undertaking the surveys, mapping and assessment of impacts as part of the REF.

- e. Detailed description of all vegetation communities (both forested and non-woody [e.g. derived grasslands], including classification and methodology used to classify) and including all plot data. Plot data should be supplied to the OEH in electronic format (e.g. MS-Excel) and organised by vegetation community.
- f. Identification of national and state listed threatened biota known or likely to occur in the study area and their conservation status.
- g. Description of the likely impacts of the proposal on biodiversity and wildlife corridors, including direct and indirect and construction and operation impacts. Wherever possible, quantify these impacts such as the amount of each vegetation community or species habitat to be cleared or impacted, or any fragmentation of a wildlife corridor. The proposal should provide an assessment of the cumulative impacts of the proposal in relation to other nearby developments.
- h. Identification of the avoidance, mitigation, offsetting / compensatory habitat and management measures that will be put in place as part of the proposal to avoid or minimise impacts, including details about alternative options considered and how long-term management arrangements will be guaranteed.
- i. Description of the residual impacts of the proposal. If the proposal cannot adequately avoid or mitigate impacts on biodiversity, then a biodiversity offset package is expected (see the requirements for this at point 6 below).
- j. Provision of specific Statement of Commitments relating to biodiversity.

Appropriate justification should be provided in instances where the above issues are not addressed.

- 4. Where appropriate, likely impacts (both direct and indirect) on any adjoining or nearby National Parks and Wildlife Service estate (or both) reserved under the NPW Act or any marine and estuarine protected areas under the *Fisheries Management Act 1994* or the *Marine Parks Act 1997* should be considered. Refer to the *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (DECCW 2010).
- 5. With regard to the Australian Government *Environment Protection and Biodiversity Conservation Act 1999*, the assessment should identify any relevant 'Matters of National Environmental Significance' and whether the proposal has been referred to the Australian Government or already determined to be a controlled action.

## **References**

DEC (2004) *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities*. Draft, Department of Environment and Conservation, Hurstville; available at: [www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf](http://www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf).

DECC (2007) *Threatened Species Assessment Guidelines: The Assessment of Significance*. August 2007. Department of Environment and Climate Change (NSW).

OEH (2014) *BioBanking Assessment Methodology*. Office of Environment and Heritage, detailed at: [www.environment.nsw.gov.au/biobanking/bbreview.htm](http://www.environment.nsw.gov.au/biobanking/bbreview.htm).

OEH (2016) *NSW Guide to Surveying Threatened Plants*. February 2016. Office of Environment and Heritage, Goulburn Street, Sydney.

DECC (2009) *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians*. April 2009. Department of Environment and Climate Change (NSW), Goulburn Street, Sydney.

DECCW (2010) *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water*. DECCW, Sydney.



## B. Biodiversity Assessment Methodology for the Biodiversity Offsets Scheme (BOS)

### \*If opting for BAM.

The REF should include an assessment of the following:

- a. The REF must assess the impact of the proposed development on biodiversity values to determine if the proposed development is “likely to significantly affect threatened species” for the purposes of Section 7.2 of the Biodiversity Conservation Act 2016 (BC Act), as follows:
  - a. The REF must demonstrate and document how the proposed development exceeds, or does not exceed, the biodiversity offsets scheme threshold as set out in Section 7.4 of the BC Act 2016 and Clause 7.1 of the Biodiversity Conservation Regulation 2017 (BC Regulation) by determining whether the proposed development involves:
    - i. **The clearing of native vegetation exceeds the thresholds** listed under Clause 7.23 of the BC Regulation, **or**
    - ii. The clearing of native vegetation, or other action, **on land included on the Biodiversity Values Map** published under Clause 7.23 of the BC Regulation (this map includes areas of outstanding biodiversity value, as declared under Section 3.1 of the BC Act).
  - b. If the proposal does not trigger any of the criteria in (a) above, then the REF must determine whether the proposed development is likely to have a significant impact based on ‘*the test for determining whether proposed development likely to significant affect threatened species or ecological communities*’ in Section 7.3 of the BC Act.
  - c. Where there is reasonable doubt regarding potential impacts, or where information is not available, then a significant impact upon biodiversity should be considered likely when applying the test in Section 7.3 of the BC Act. Where it is concluded that there is no significant impact, the REF must justify how the conclusion has been reached.
  - d. If the development exceeds the thresholds in (a) or (b), then the REF must be accompanied by a biodiversity development assessment report (BDAR) prepared in accordance with Part 6 of the BC Act. That is, the Biodiversity Assessment Methodology applies.

### Required Information

Where development is considered “likely to significantly impact on threatened species” and a Biodiversity Development Assessment Report is required, the following requirements apply:

- Biodiversity impacts related to the proposal are to be assessed in accordance with the Biodiversity Assessment Method and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must include information in the form detailed in the *Biodiversity Conservation Act 2016* (s6.12), Biodiversity Conservation Regulation 2017 (s6.8) and Biodiversity Assessment Method.
- The BDAR must document the application of the avoid, minimise and offset hierarchy including assessing all direct, indirect and prescribed impacts in accordance with the Biodiversity Assessment Method.
- The BDAR must include details of the measures proposed to address the offset obligation as follows:
  - The total number and classes of biodiversity credits required to be retired for the proposal.

- The number and classes of like-for-like biodiversity credits proposed to be retired.
  - The number and classes of biodiversity credits proposed to be retired in accordance with the variation rules.
  - Any proposal to fund a biodiversity conservation action.
  - Any proposal to make a payment to the Biodiversity Conservation Fund.
- If seeking approval to use the variation rules, the BDAR must contain details of the reasonable steps that have been taken to obtain requisite like-for-like biodiversity credits.

The BDAR must be prepared by a person accredited to apply the Biodiversity Assessment Method under s6.10 of the *Biodiversity Conservation Act 2016*.

Where a BDAR is not required and a threatened species assessment is prepared to support a conclusion of “no significant impact”, the REF must include a field survey of the site, conducted and documented in accordance with the relevant guidelines including the Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians (DECCW, 2009), Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft (DEC, 2004) and Guidelines for Threatened Species Assessment (Dept. Planning, July 2005). The approach should also reference the field survey methods and assessment information on the OEH website including the Bionet Atlas, Threatened Species Profile and Bionet Vegetation Classification (see Attachment 2).

## 5. OEH estate

### Land reserved or acquired under the *National Parks and Wildlife Act 1974* (NPW Act)

If the proposed development is within, adjacent to, or in proximity to, or in proximity to a watercourse that flows directly into OEH-managed conservation estate (e.g. a national park, nature reserve, state conservation area, land which is declared wilderness under the *Wilderness Act 1987*) then the REF should include:

- The following (as appropriate):
  - Evidence that the proponent has consulted with OEH on the legal permissibility of the proposal under the NPW Act and its appropriateness.
  - In the case of proposals on land declared as wilderness under the *Wilderness Act 1987*, evidence that the proponent has consulted with OEH on the appropriateness of the proposal. That is, whether it is consistent with the objects of the *Wilderness Act 1987* (section 3) and the management principles for wilderness areas (section 9).
  - Alternative options that have been explored to avoid the OEH estate (on-park) and a clear justification of any on-park components of the proposal.
  - If on-park impacts are considered unavoidable, consideration of the issues, including details of any compensation proposal, consistent with the OEH *Revocation, Recategorisation and Road Adjustment Policy* (2012) for proposals that are located wholly or partly in a National Park or other land acquired or reserved under the *National Parks and Wildlife Act 1974*.
- Consideration of the matters identified in the *Guidelines for developments adjoining land and water managed by the OEH* (DECCW 2010) where a proposal adjoins or is in immediate vicinity of OEH estate, or is upstream of OEH estate.
- A description of the mitigation and management options that will be used to prevent, control, abate or minimise identified impacts associated with the proposal. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

## 6. Water and soils

- The REF must map the following features relevant to water and soils including:
  - Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map)
  - Rivers, streams, estuaries (as described in s4.2 of the Biodiversity Assessment Method)
  - Wetlands (as described in s4.2 of the Biodiversity Assessment Method)
  - Groundwater
  - Groundwater dependent ecosystems
  - Proposed intake and discharge locations.
- The REF must describe background conditions for any water resource likely to be affected by the proposal, including:
  - Existing surface and groundwater.
  - Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations.
  - Water Quality Objectives (as endorsed by the NSW Government) including groundwater as appropriate that represent the community's uses and values for the receiving waters.
  - Indicators and trigger values/criteria for the identified environmental values in accordance with the ANZECC (2000) *Guidelines for Fresh and Marine Water Quality* and / or local objectives, criteria or targets endorsed by the NSW Government.
  - *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions*.
- The REF must assess the impacts of the proposal on water quality, including:
  - The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the proposal protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction.
  - Identification of proposed monitoring of water quality.
  - Consistency with any relevant certified Coastal Management Program (or Coastal Zone Management Plan).
- The REF must assess the impact of the proposal on hydrology, including:
  - Water balance including quantity, quality and source.
  - Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas.
  - Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems.
  - Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches).
  - Changes to environmental water availability, both regulated / licensed and unregulated / rules-based sources of such water.
  - Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options.
  - Identification of proposed monitoring of hydrological attributes.

## Project specific requirements

Where the proposal (or part thereof) is located on land marked Class 1, 2, 3 or 4 on the relevant Acid Sulfate Soil Planning Map OR within 500 metres of adjacent Class 2, 3 or 4 land that is below 5 metres Australian Height Datum (AHD) and likely to lower the water table in this adjacent land below 1 metre AHD, the REF should include the following:

- An assessment of the potential impacts of the proposal on acid sulfate soils in accordance with the relevant guidelines in the Acid Sulfate Soils Manual (Stone *et al.* 1998) and the Acid Sulfate Soils Laboratory Methods Guidelines (Ahern *et al.* 2004).
- Mitigation and management options that will be used to prevent, control, abate or minimise potential impacts from the disturbance of acid sulfate soils to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

Where the proposal is large or high risk with a heightened potential to impact on water quality and hydrology, the REF should include the following:

- A description of existing water quality / hydrology based on suitable data (meaning data collection may be required) and must include:
  - Water chemistry.
  - A description of receiving water processes, circulation and mixing characteristics and hydrodynamic regimes.
  - Lake or estuary flushing characteristics.
  - Sensitive ecosystems or species conservation values.
  - Specific human uses and values (e.g. fishing, proximity to recreation areas).
  - A description of any impacts from existing industry or activities on water quality.
  - A description of the condition of the local catchment e.g. erosion, soils, vegetation cover.
  - An outline of baseline groundwater information, including, for example, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment.
  - Historic river flow data.
- An assessment of the impacts of the proposal on water quality and hydrology including:
  - Water circulation, current patterns, water chemistry and other appropriate characteristics such as clarity, temperature, nutrient and toxicants, and potential for erosion.
  - Changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, and groundwater).
  - Disturbance of acid sulfate soils and potential acid sulfate soils.
  - Stream bank stability and impacts on macro invertebrates.
  - Water quality and hydrology modelling and / or monitoring, where necessary.
- Proposed water quality monitoring in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC 2004). The water quality and aquatic ecosystem monitoring program must include:
  - Adequate data for evaluating maintenance, or progress towards achieving, the relevant Water Quality Objectives.
  - Measurement of pollutants identified or expected to be present.

## 7. Flooding

- The REF must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:
  - Flood prone land
  - Flood planning area, the area below the flood planning level.
  - Hydraulic categorisation (floodways and flood storage areas).
- The REF must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 10%, 1% AEP flood levels and the probable maximum flood, or an equivalent extreme event
- The REF must model the effect of the proposed project (including fill) on the flood behaviour under the following scenarios:
  - Current flood behaviour for a range of design events as identified in 11 above. This includes the 0.5% and 0.2% AEP flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.
- Modelling in the REF must consider and document:
  - The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood.
  - Impacts of the project on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories.
  - Relevant provisions of the NSW Floodplain Development Manual 2005.
- The REF must assess the impacts on the proposed project on flood behaviour, including:
  - Whether there will be detrimental increases in the potential flood affection of other properties, assets and infrastructure.
  - Consistency with Council floodplain risk management plans.
  - Compatibility with the flood hazard of the land.
  - Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land.
  - Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site.
  - Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
  - Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the SES and Council.
  - Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the SES and Council.
  - Emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the SES.
  - Any impacts the development may have on the social and economic costs to the community as consequence of flooding.

## 8. Coastal hazards

- The REF must describe the potential effects of coastal processes and coastal hazards (within the meaning of the *Coastal Protection Act 1979*, including sea level rise and climate change:
  - On the proposal.
  - Arising from the proposal.
- The REF must consider the effects of coastal hazards impacting the site under the following scenarios:
  - Current sea level.
  - Projected future climate change (including sea level rise).
- The REF must have regard to and document:
  - Consistency with any certified Coastal Management Program (or Coastal Zone Management Plan).
  - Consistency with the objectives of coastal management areas mapped under the SEPP 71 Coastal Protection.
  - Consistency with any existing entrance management strategies for coastal lagoons.

## 9. Historic heritage

The REF must provide a heritage assessment including but not limited to an assessment of impacts to State and local heritage including conservation areas, natural heritage areas, places of Aboriginal heritage value, buildings, works, relics, gardens, landscapes, views, and trees. Where impacts to State or locally significant heritage items are identified, the assessment shall:

- outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the NSW Heritage Manual (1996)
- be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria)
- include a statement of heritage impact for all heritage items (including significance assessment)
- consider impacts including, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant)
- where potential archaeological impacts have been identified develop an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations (terrestrial and maritime as relevant) and include the results of these test excavations.

## Attachment 2 – Guidance material

Title	Web address
<b><u>Relevant legislation</u></b>	
<i>Biodiversity Conservation Act 2016</i>	<a href="https://www.legislation.nsw.gov.au/#/view/act/2016/63/full">https://www.legislation.nsw.gov.au/#/view/act/2016/63/full</a>
<i>Coastal Management Act 2016</i>	<a href="https://www.legislation.nsw.gov.au/#/view/act/2016/20/full">https://www.legislation.nsw.gov.au/#/view/act/2016/20/full</a>
<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>	<a href="http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/">http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/</a>
<i>Environmental Planning and Assessment Act 1979</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N</a>
<i>Fisheries Management Act 1994</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N</a>
<i>Marine Parks Act 1997</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N</a>
<i>National Parks and Wildlife Act 1974</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N</a>
<i>Protection of the Environment Operations Act 1997</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N</a>
<i>Water Management Act 2000</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N</a>
<i>Wilderness Act 1987</i>	<a href="http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N">http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N</a>
<b><u>Aboriginal cultural heritage</u></b>	
Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010)	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf</a>
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf</a>
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf</a>
Aboriginal Site Recording Form	<a href="http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf">http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf</a>
Aboriginal Site Impact Recording Form	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf</a>
Aboriginal Heritage Information Management System (AHIMS) Registrar	<a href="http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm">http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm</a>
Care Agreement Application form	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf</a>
<b><u>Biodiversity</u></b>	
BioBanking Assessment Methodology 2014 (OEH 2014)	<a href="http://www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm">www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm</a>
BioBanking Assessment Methodology and Credit Calculator Operational Manual.	Pending - To be advised (check website for regular updates)



Title	Web address
Assessors' Guide To Using The BioBanking Credit Calculator 2014	Pending - To be advised (check website for regular updates)
Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians (DECC, 2009)	<a href="http://www.environment.nsw.gov.au/resources/Threatenedspecies/09213amphibians.pdf">www.environment.nsw.gov.au/resources/Threatenedspecies/09213amphibians.pdf</a>
Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft (DEC 2004)	<a href="http://www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf">www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf</a>
OEH Threatened Species website	<a href="http://www.environment.nsw.gov.au/Threatenedspecies/">www.environment.nsw.gov.au/Threatenedspecies/</a>
Atlas of NSW Wildlife	<a href="http://www.environment.nsw.gov.au/wildlifeatlas/about.htm">www.environment.nsw.gov.au/wildlifeatlas/about.htm</a>
BioBanking Threatened Species Database	<a href="http://www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm">www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm</a>
Vegetation Types databases	<a href="http://www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm">www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm</a>
PlantNET	<a href="http://plantnet.rbgsyd.nsw.gov.au/floraonline.htm">http://plantnet.rbgsyd.nsw.gov.au/floraonline.htm</a>
Online Zoological Collections of Australian Museums	<a href="http://australianmuseum.net.au/Australian-Museum-Collection-Search">http://australianmuseum.net.au/Australian-Museum-Collection-Search</a>
Threatened Species Assessment Guideline - The Assessment of Significance (DECC 2007)	<a href="http://www.environment.nsw.gov.au/resources/Threatenedspecies/tsaguide07393.pdf">www.environment.nsw.gov.au/resources/Threatenedspecies/tsaguide07393.pdf</a>
OEH principles for the use of biodiversity offsets in NSW	<a href="http://www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm">www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm</a>
Biodiversity Values Map	<a href="https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap">https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap</a>
Biodiversity Assessment Method (OEH, 2017)	<a href="http://www.environment.nsw.gov.au/resources/bcact/biodiversity-assessment-method-170206.pdf">http://www.environment.nsw.gov.au/resources/bcact/biodiversity-assessment-method-170206.pdf</a>
Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (OEH, 2017)	<a href="http://www.environment.nsw.gov.au/resources/bcact/guidance-decision-makers-determine-serious-irreversible-impact-170204.pdf">http://www.environment.nsw.gov.au/resources/bcact/guidance-decision-makers-determine-serious-irreversible-impact-170204.pdf</a>
Ancillary rules: Biodiversity conservation actions	<a href="http://www.environment.nsw.gov.au/resources/bcact/ancillary-rules-biodiversity-actions-170496.pdf">http://www.environment.nsw.gov.au/resources/bcact/ancillary-rules-biodiversity-actions-170496.pdf</a>
Ancillary rules: Reasonable steps to seek like-for-like biodiversity credits for the purpose of applying the variation rules	<a href="http://www.environment.nsw.gov.au/resources/bcact/ancillary-rules-reasonable-steps-170498.pdf">http://www.environment.nsw.gov.au/resources/bcact/ancillary-rules-reasonable-steps-170498.pdf</a>
OEH Threatened Species Profiles	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/">http://www.environment.nsw.gov.au/threatenedspeciesapp/</a>
BioNet Atlas	<a href="http://www.environment.nsw.gov.au/wildlifeatlas/about.htm">http://www.environment.nsw.gov.au/wildlifeatlas/about.htm</a>
BioNet Vegetation Classification	<a href="http://www.environment.nsw.gov.au/NSWVCA20PRapp/LoginPR.aspx">http://www.environment.nsw.gov.au/NSWVCA20PRapp/LoginPR.aspx</a>
NSW Guide to Surveying Threatened Plants (OEH, 2016)	<a href="http://www.environment.nsw.gov.au/research-and-publications/publications-search/nsw-guide-to-surveying-threatened-plants">http://www.environment.nsw.gov.au/research-and-publications/publications-search/nsw-guide-to-surveying-threatened-plants</a>
Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians (DECC, 2009)	<a href="http://www.environment.nsw.gov.au/resources/Threatenedspecies/09213amphibians.pdf">www.environment.nsw.gov.au/resources/Threatenedspecies/09213amphibians.pdf</a>
Threatened Species Assessment Guideline - The Assessment of Significance (DECC 2007)	<a href="http://www.environment.nsw.gov.au/resources/Threatenedspecies/tsaguide07393.pdf">www.environment.nsw.gov.au/resources/Threatenedspecies/tsaguide07393.pdf</a> - to be replaced with new 5-part-test guidelines when available.

Title	Web address
Fisheries NSW policies and guidelines	<a href="http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation">http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation</a>
<b><u>OEH estate</u></b>	
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	<a href="http://www.environment.nsw.gov.au/protectedareas/developmnta-djoiningdecc.htm">http://www.environment.nsw.gov.au/protectedareas/developmnta-djoiningdecc.htm</a>
List of national parks	<a href="http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx">http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx</a>
Revocation, recategorisation and road adjustment policy (OEH, 2012)	<a href="http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm">http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm</a>
List of aquatic reserves	<a href="http://www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/mpa">www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/mpa</a>
List of marine parks	<a href="http://www.mpa.nsw.gov.au/contact.html">www.mpa.nsw.gov.au/contact.html</a>
<b><u>Water and soils</u></b>	
<b>Water</b>	
Water Quality Objectives	<a href="http://www.environment.nsw.gov.au/ieo/index.htm">http://www.environment.nsw.gov.au/ieo/index.htm</a>
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	<a href="http://www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1">www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1</a>
Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions	<a href="http://www.environment.nsw.gov.au/research-and-publications/publications-search/risk-based-framework-for-considering-waterway-health-outcomes-in-strategic-land-use-planning">http://www.environment.nsw.gov.au/research-and-publications/publications-search/risk-based-framework-for-considering-waterway-health-outcomes-in-strategic-land-use-planning</a>
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	<a href="http://deccnet/water/resources/AWQGuidance7.pdf">http://deccnet/water/resources/AWQGuidance7.pdf</a>
Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales (DEC 2004)	<a href="http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf">http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf</a>
<b>Acid sulfate soils</b>	
Acid Sulfate Soils Planning Maps via Data.NSW	<a href="http://data.nsw.gov.au/data/">http://data.nsw.gov.au/data/</a>
Acid Sulfate Soils Manual (Stone <i>et al.</i> 1998)	<a href="http://www.environment.nsw.gov.au/resources/epa/Acid-Sulfate-Manual-1998.pdf">http://www.environment.nsw.gov.au/resources/epa/Acid-Sulfate-Manual-1998.pdf</a>
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern <i>et al.</i> 2004)	<a href="http://www.environment.nsw.gov.au/resources/soils/acid-sulfate-soils-laboratory-methods-guidelines.pdf">http://www.environment.nsw.gov.au/resources/soils/acid-sulfate-soils-laboratory-methods-guidelines.pdf</a> This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
<b><u>Flooding</u></b>	
Floodplain Development Manual	<a href="http://www.environment.nsw.gov.au/floodplains/manual.htm">http://www.environment.nsw.gov.au/floodplains/manual.htm</a>
Floodplain Risk Management Guidelines	<a href="http://www.environment.nsw.gov.au/topics/water/coasts-and-floodplains/floodplains/floodplain-guidelines">http://www.environment.nsw.gov.au/topics/water/coasts-and-floodplains/floodplains/floodplain-guidelines</a>
NSW Climate Impact Profile	<a href="http://climatechange.environment.nsw.gov.au/">http://climatechange.environment.nsw.gov.au/</a>
Climate Change Impacts and Risk Management	<a href="#">Climate Change Impacts and Risk Management: A Guide for Business and Government, AGIC Guidelines for Climate Change Adaptation</a>

Title	Web address
<b><u>Coastal erosion</u></b>	
Reforms to coastal erosion management	<a href="http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm">http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm</a>
Guidelines for Preparing Coastal Zone Management Plans	<a href="http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf">http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf</a>
<b><u>Historic heritage</u></b>	
The Burra Charter (The Australia ICOMOS charter for places of cultural significance)	<a href="http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf">http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf</a>
Statements of Heritage Impact 2002 (HO & DUAP)	<a href="http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf">http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf</a>
NSW Heritage Manual (DUAP) (scroll through alphabetical list to 'N')	<a href="http://www.environment.nsw.gov.au/Heritage/publications/">http://www.environment.nsw.gov.au/Heritage/publications/</a>
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	<a href="http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf">http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf</a>



**SINGLETON**  
◆ Business Chamber ◆

Singleton Business Chamber  
1/106 John St  
PO Box 298  
Singleton NSW 2330  
T: 0400 460 412  
[admin@singletonchamber.org.au](mailto:admin@singletonchamber.org.au)  
[www.singletonchamber.org.au](http://www.singletonchamber.org.au)  
ABN: 80 102 612 177

9 May 2018

Joel Rosendahl  
Project/Contact Manager  
Roads and Maritime

Email: [joel.rosendahl@rms.nsw.gov.au](mailto:joel.rosendahl@rms.nsw.gov.au)

Dear Joel,

Thank you for the invitation to the Singleton Business Chamber to comment on the proposal for construction of a Singleton Bypass road.

Just five of our members have provided feedback to us.

In summary:

- Three are positively in favour of a Bypass, while one also supports the proposed route and another raises the question of impact on Singleton businesses as a potential issue in the community.
- One suggests that clearway arrangements be set in place for George Street / New England Highway as an alternative to construction of a Bypass
- Two question the advisability of the proposal to construct the Bypass as a "single lane in each direction" road, nominating road safety concerns and continuing traffic congestion issues (with two lanes converging into one as at present) as causes for concern.

I understand that some Chamber members may have provided submissions direct to Roads and Maritime.

We do hope that you find this information useful, and please feel free to contact the Chamber if anything further is required.

Yours Sincerely,

Sue Gilroy  
President