Pacific Highway upgrade – Ourimbah Street to Parsons Road, Lisarow
Submissions Report
October 2016
Roads and Maritime Services

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Submissions report
October 2016

Prepared by Jacobs and Roads and Maritime Services

RMS 16.506

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Executive summary

Roads and Maritime Services propose to upgrade around 1.6 kilometres of the Pacific Highway to a four lane road divided by a raised concrete median between Ourimbah Street and Parsons Road, Lisarow.

The proposal would involve:

- Widening the existing road to include two additional 3.3 metre wide lanes (one northbound and one southbound)
- Widening of shoulders by up to two metres to achieve consistent widths along the length of the proposal
- Shared pedestrian cycleways and footpaths
- A new road surface and new kerb and guttering along the length of the proposal.
- A new road bridge over rail to replace the existing bridge
- Six intersection upgrades and eight new retaining walls
- Drainage infrastructure including:
  - Two new open stormwater drainage channels
  - One construction sediment basin
  - One operational water quality basin
  - Two vegetated swales
- Removal of unused bus stops
- Establishment and use of ancillary construction facilities
- Relocation and adjustment of utilities during construction
- Property acquisition, demolition and adjustments.

A review of environmental factors (REF) and Species Impact Statement (SIS) was prepared to assess the environmental impacts of the proposal. The Review of Environmental Factors and Species Impact Statement were placed on public display between 18 July 2016 and 19 August 2016. A staffed display about the Review of Environmental Factors and Species Impact Statement was held at Lisarow Plaza on Thursday 11 August 2016 between 4pm and 7pm.

The Review of Environmental Factors and Species Impact Statement were also available to download from the Roads and Maritime website and available for review at the Service NSW Centres at Gosford and Tuggerah.

The public display was advertised in the Central Coast Express Advocate on 3 August 2016, the Sydney Morning Herald and the Daily Telegraph on 27 July 2016. Media releases were issued by the NSW Government on 11 July 2016 and 15 August 2016 advising of the display. A Community Update inviting comments was distributed to properties in the surrounding areas.

This submissions report summarises the issues raised during this display period and provides responses to each issue.

A total of eight submissions were received in response to the public display of the Review of Environmental Factors and Species Impact Statement. Submissions were generally supportive of, or neutral towards, the upgrade proposal.
The main issues raised in the submissions related to:

- Design
- Stakeholder and community consultation
- Biodiversity
- Traffic and transport
- Flooding and hydrology
- Land use and property.

No additional design refinements have been made to the concept design and no environmental assessments need to be done following display of the Review of Environmental Factors and Species Impact Statement. Following consideration of the submissions received by Roads and Maritime no amendments are proposed to the proposal. However, a number of items have been identified for further consideration during the final stage of design – detailed design.

Additional safeguards and management measures are included in this report to capture commitments made in this submissions report relating to design, biodiversity and flooding.

**Conclusion**

Roads and Maritime has considered the submissions received and no additional environmental assessment is needed. Changes to the safeguards and management measures have been applied as necessary to capture commitments made in this submissions report.

In summary, the proposal as described in the Review of Environmental Factors and Species Impact Statement meets the proposal objectives, while minimising and mitigating environmental impacts and appropriately considering community issues.
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## Terms and abbreviations

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<thead>
<tr>
<th>Term/abbreviations</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEP</td>
<td>Annual exceedance probability</td>
</tr>
<tr>
<td>ARI</td>
<td>Average recurrence interval</td>
</tr>
<tr>
<td>BOS</td>
<td>Biodiversity Offset Strategy</td>
</tr>
<tr>
<td>CEMP</td>
<td>Construction Environmental Management Plan</td>
</tr>
<tr>
<td>EOAR</td>
<td>East Ourimbah Access Road</td>
</tr>
<tr>
<td>EPA</td>
<td>Environment Protection Agency</td>
</tr>
<tr>
<td>EPBC Act</td>
<td><em>Environment Protection Biodiversity Conservation Act 1999</em></td>
</tr>
<tr>
<td>ESCP</td>
<td>Erosion and sediment control plan</td>
</tr>
<tr>
<td>LEP</td>
<td>Local Environmental Plan</td>
</tr>
<tr>
<td>FRMSP</td>
<td>Floodplain Risk Management Study and Plan</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Area</td>
</tr>
<tr>
<td>NATA</td>
<td>National Association of Testing Authorities</td>
</tr>
<tr>
<td>NMP</td>
<td>Noise Management Plan</td>
</tr>
<tr>
<td>NSW</td>
<td>New South Wales</td>
</tr>
<tr>
<td>OEH</td>
<td>Office of Environment and Heritage</td>
</tr>
<tr>
<td>PAH</td>
<td>Polycyclic aromatic hydrocarbons</td>
</tr>
<tr>
<td>PEMP</td>
<td>Project environmental management plan</td>
</tr>
<tr>
<td>REF</td>
<td>Review of Environmental Factors</td>
</tr>
<tr>
<td>SEPP</td>
<td>State Environmental Planning Policy</td>
</tr>
<tr>
<td>SIS</td>
<td>Species Impact Statement</td>
</tr>
<tr>
<td>SWMP</td>
<td>Soil and Water Management Plan</td>
</tr>
<tr>
<td>TMP</td>
<td>Traffic Management Plan</td>
</tr>
<tr>
<td>TSC Act</td>
<td><em>Threatened Species Conservation Act 1995</em></td>
</tr>
<tr>
<td>VMP</td>
<td>Vegetation Management Plan</td>
</tr>
</tbody>
</table>
1 Introduction and background

1.1 The proposal

Roads and Maritime Services propose to upgrade around 1.6 kilometres of the Pacific Highway to a four lane road divided by a raised concrete median between Ourimbah Street and Parsons Road, Lisarow. The proposal’s location in the region is shown on Figure 1.1.

The proposal would involve; widening the existing road to include two additional 3.3 metre wide lanes (one northbound and one southbound); widening of shoulders by up to two metres to achieve consistent widths along the length of the proposal; shared pedestrian cycleways and footpaths; a new road surface and new kerb and guttering along the length of the proposal; a new road bridge over rail to replace the existing bridge; and six intersection upgrades and eight new retaining walls.

Drainage infrastructure would also be improved including, two new open stormwater drainage channels, one construction sediment basin, one operational water quality basin and two vegetated swales. Other aspects of the proposal include removal of unused bus stops, establishment and use of ancillary construction facilities, relocation and adjustment of utilities during construction and property acquisition, demolition and adjustment. An overview of the proposal is provided in Figure 1.2.

A more detailed description of the proposal is provided in the Upgrade the Pacific Highway, Ourimbah Street to Parsons Road, Lisarow Review of Environmental Factors (REF), prepared by Roads and Maritime in June 2016.

1.2 Review of Environmental Factors and Species Impact Statement display

Roads and Maritime prepared a Review of Environmental Factors and Species Impact Statement (SIS) to assess the environmental impacts of the proposal. The Review of Environmental Factors and Species Impact Statement were publically displayed for 33 days between 18 July 2016 and 19 August 2016 at two locations, as detailed in Table 1.1.

A staffed display for the Review of Environmental Factors and Species Impact Statement was held at Lisarow Plaza on Thursday 11 August 2016 between 4pm and 7pm. The Review of Environmental Factors and Species Impact Statement were available to download on the Roads and Maritime project website (rms.nsw.gov.au/lisarow).

The display locations and website link were advertised in the Central Coast Express Advocate on 3 August 2016 and the Sydney Morning Herald and the Daily Telegraph on 27 July 2016. Media releases were issued by the NSW Government on 11 July 2016 and 15 August 2016 advising of the display.

In addition to the above public display, an invitation to comment on the Review of Environmental Factors and Species Impact Statement was sent directly to general stakeholders and authority stakeholders as listed in Appendix A.

A Community Update was distributed to over 4000 local residents and business in the area of the proposal. The letterbox drop of the Community Update started on 19 July 2016 and included information about the proposal, Review of Environmental Factors and Species Impact Statement and how to provide comments. The Community Update and frequently asked questions were published on the Roads and Maritime website, refer to Appendix B.
### Table 1.1: Display locations

<table>
<thead>
<tr>
<th>Location</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gosford Service Centre</td>
<td>131-135 Henry Parry Drive, Gosford</td>
</tr>
<tr>
<td>Tuggerah Service Centre</td>
<td>Tuggerah Super Centre, 2 Bryant Drive, Tuggerah</td>
</tr>
</tbody>
</table>

Approximately 35 community members visited the staffed display at Lisarow Plaza. Roads and Maritime staff were available to explain and answer questions in relation to the proposal.

Feedback forms were available for the community to provide feedback on the proposal, although none were submitted. In general, the informal feedback received through discussions with Roads and Maritime staff indicated support for the proposal and community members mainly wanted to know when the proposal would proceed. There was also interest in the next stage of the Pacific Highway upgrade to the south of Parsons Road. The community was advised a Community Update and display was planned by Roads and Maritime in September 2016 for the proposal.

### 1.3 Purpose of the report

This submissions report relates to the Review of Environmental Factors and Species Impact Statement prepared for the proposed upgrade of the Pacific Highway between Ourimbah Street and Parsons Road at Lisarow (the proposal).

Four written submissions and four submissions by telephone relating to the proposal, Review of Environmental Factors and Species Impact Statement were received by Roads and Maritime.

This submissions report:

- Summarises the issues raised and provides responses to each issue (Chapter 2)
- Identifies environmental management measures (Chapter 3).

As detailed further in Chapter 2 and 3, no amendments to the proposal have been identified through the public display process. Accordingly, this submissions report does not include sections detailing changes to the proposal, associated environmental impacts or additional environmental assessments.

Changes to the safeguards and management measures from the Review of Environmental Factors have been applied as necessary to capture commitments made by Roads and Maritime in this submissions report in response to community comments received.
Figure 1.1 | Regional locality

Legend

- The proposal location
- Watercourse
- National Parks and Reserves
- Road
- Water body
- Local Government Area
- Railway
- State forest
Figure 1.2 | The proposal

Legend

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray</td>
<td>Concept design</td>
</tr>
<tr>
<td>Orange</td>
<td>Retaining wall</td>
</tr>
<tr>
<td>Red</td>
<td>Power line</td>
</tr>
<tr>
<td>Red</td>
<td>Stockpile site</td>
</tr>
<tr>
<td>Orange</td>
<td>Compound site stage 3a</td>
</tr>
<tr>
<td>Black</td>
<td>Existing rail gate</td>
</tr>
<tr>
<td>Blue</td>
<td>Construction sediment basin</td>
</tr>
<tr>
<td>Blue</td>
<td>Construction sediment basin and operational water quality basin</td>
</tr>
<tr>
<td>Blue</td>
<td>Vegetated swale</td>
</tr>
<tr>
<td>Blue</td>
<td>Construction access road</td>
</tr>
<tr>
<td>Blue</td>
<td>New footpath</td>
</tr>
<tr>
<td>Light purple</td>
<td>Shared pedestrian and cycle path</td>
</tr>
<tr>
<td>Light green</td>
<td>Existing footpath</td>
</tr>
<tr>
<td>White</td>
<td>Cadastre</td>
</tr>
<tr>
<td>Black</td>
<td>Railway</td>
</tr>
</tbody>
</table>

Roads and Maritime Services 2016
AUSIMAGE 2015
LPI 2015
Jacobs 2016

SUBMISSIONS REPORT
Upgrade of the Pacific Highway, Ourimbah Street to Parsons Road, Lisarow
2 Response to issues

The issues raised and Roads and Maritime response to these issues forms the basis of this chapter.

Roads and Maritime received eight submissions, accepted up until the 19 August 2016. Table 2.1 lists the respondents and each respondent’s allocated submission number. The table also indicates where the issues from each submission have been addressed in this report.

Table 2.1: Respondents

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Submission number</th>
<th>Section number where issues are addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>1</td>
<td>2.2.1, 2.2.2 and 2.2.3</td>
</tr>
<tr>
<td>Individual</td>
<td>2</td>
<td>2.2.3, 2.2.4, 2.6.1, 2.7.1 and 2.8.1</td>
</tr>
<tr>
<td>Individual</td>
<td>3</td>
<td>2.4.2</td>
</tr>
<tr>
<td>Individual</td>
<td>4</td>
<td>2.5.1</td>
</tr>
<tr>
<td>Individual</td>
<td>5</td>
<td>2.3.1</td>
</tr>
<tr>
<td>Individual</td>
<td>6</td>
<td>2.2.2</td>
</tr>
<tr>
<td>Central Coast Council</td>
<td>7</td>
<td>2.2.4, 2.2.5, 2.4.1, 2.4.2 and 2.6.1</td>
</tr>
<tr>
<td>Member of the NSW Parliament</td>
<td>8</td>
<td>2.2.3, 2.2.4, 2.5.2 and 2.8.2</td>
</tr>
</tbody>
</table>

2.1 Overview of issues raised

A total of eight submissions were received in response to the display of the Review of Environmental Factors and Species Impact Statement. This included one submission from a Member of the NSW Parliament, one submission from Central Coast Council and six submissions from the community.

Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses have been provided. Where similar issues have been raised in different submissions, only one response has been provided.

Of the submissions received, concerns were raised regarding specific aspects of the proposal but no objections were received. Two submissions specifically expressed support for the proposal.

The issues raised in the submissions related to:

Government

- Design
  - Clearances to be provided to public utilities managed by Central Coast Council
  - Ongoing coordination and design of water and sewer assets impacted by the proposal
  - New pedestrian bridge or extension to the existing bridge on Tuggerah Street
• Biodiversity
  – Location of offsets
  – How biodiversity offsets may be facilitated
  – Provision of management and monitoring plans for Lisarow Wetland to Council

• Hydrology and flooding
  – Raising of the realigned Tuggerah Street between the Pacific Highway and Macdonalds Road to facilitate a potential eastern overland flood route.

Community

• Design
  – Right-turn lane turning bay modifications at The Ridgeway and Tuggerah Street
  – Extension of traffic lights to the intersection of Railway Crescent and Dora Street
  – Parking areas in the vicinity of Lisarow Railway Station
  – Raised and lit pedestrian crossing in Macdonalds Road
  – Pedestrian access across the Pacific Highway and to Lisarow Railway Station

• Stakeholder and community consultation
  – Availability of Review of Environmental Factors and Species Impact Statement documents for review

• Biodiversity
  – Availability of private land for biodiversity offset use

• Traffic and transport
  – Congestion due to limited scope of upgrade
  – Provision of dedicated bus lanes.

• Hydrology and flooding:
  – Drainage controls to reduce flooding

• Land use and property
  – Impacts to access and property boundary resulting from the proposal.

• Issues outside the proposal scope
  – Installation of measures to reduce motorist speeding along Macdonalds Road
  – Extension of footpath east along The Ridgeway.

It is important to note Roads and Maritime follows issues based decision making. This means although preferences on options and frequency of a comment or issue are noted, Roads and Maritime examines the issues raised throughout the consultation period using a fact based assessment process.
2.2  Design

2.2.1  Turning bay modifications

Submission number
1 – Individual

Issue description
The respondent requested turning lane provisions into The Ridgeway and Tuggerah Street should be doubled to avoid blocking through traffic on the Pacific Highway.

Response
The proposal includes two right-turn lanes about 100 metres long on the northern approach to The Ridgeway and Pacific Highway intersection. The proposal also includes a single right turn lane about 150 metres long on the northern approach to the Tuggerah Street and Pacific Highway intersection.

The length of these lanes have been calculated using traffic modelling to ensure adequate intersection performance in future years (refer to Section 6.2 of the Review of Environmental Factors and Appendix K of the Review of Environmental Factors – the Traffic and Transport Assessment). The length of these lanes would be refined during the detailed design stage for the proposal to ensure adequate intersection performance at The Ridgeway and Tuggerah Street intersections with the Pacific Highway would be achieved for the modelled future design years.

2.2.2  Intersection design

Submission numbers
1 – Individual

6 – Individual

Issue description
A respondent expressed concern the removal of the right turn from Dora Street onto Railway Crescent would adversely affect traffic flows as this route is well used. The respondent suggested traffic lights at the Railway Crescent and Pacific Highway intersection are relocated back to the Railway Crescent and Dora Street intersection, or an additional set of lights be provided at Dora Street so traffic can turn right.

A respondent expressed concern the right turn movement from Railway Crescent southbound into Dora Street would be removed. The respondent also queried whether the left turn from Railway Crescent northbound into Dora Street would still be available.

Response
Traffic modelling and road design carried out for the proposal (refer to Section 6.2 of the Review of Environmental Factors and Appendix K of the Review of Environmental Factors – the Traffic and Transport Assessment) indicates the right turn from Dora Street onto Railway Crescent cannot be safely provided as part of the proposal, while maintaining adequate intersection performance at the Railway Crescent and Pacific Highway intersection. An alternative route along Cambourn Drive and Excelsior Street is available for motorists in Dora Street wishing to travel south along Railway Crescent.

The proposal would allow vehicles to turn left from Dora Street into Railway Crescent. Line marking at this intersection will allow vehicles turning left out of Dora Street to access both the left and right turn lanes at the Railway Crescent and Pacific Highway intersection. The proposal would also retain the right turn from Railway Crescent southbound into Dora Street, and the left turn from Railway Crescent northbound into Dora Street.
2.2.3 Parking

Submission numbers
1 – Individual
2 – Individual
8 – Member of Parliament

Issue description
One respondent requested further information on the use of the water quality basin after construction, and suggested use of the area to the north east of The Ridgeway and the Pacific Highway intersection for parking. Another respondent suggested use of the abandoned part of Macdonalds Road for car parking for Lisarow Public School.

The Member of Parliament requested expansion of the eastern rail station carpark.

Response
The temporary construction sediment basin located to the east of Lisarow Railway Station would be removed and revegetated after construction is complete.

The design has been coordinated with Transport for NSW (TfNSW) and Sydney Trains throughout the development of the proposal to ensure the design integrates with current rail requirements. The design provides for the future expansion of the station carpark by Sydney Trains into the area being used for the temporary construction sediment basin. Roads and Maritime will continue to discuss this opportunity with Sydney Trains.

With regards to parking on Macdonalds Road for Lisarow Public School, it is noted that the part of Macdonalds Road that will no longer be used as a road but will be used for drainage purposes, landscaped and revegetated after construction. Revegetation of this area meets part of the commitments that Roads and Maritime have made in the Review of Environmental Factors to ensure replanting uses species representative of the natural ecological communities of the immediate area. In addition, this area will be bounded by the Pacific Highway and Tuggerah Street and use of this area for parking would pose a hazard for pedestrians walking to and from this area.

2.2.4 Pedestrian and cycle facilities

Submission number(s)
2 – Individual
7 – Central Coast Council
8 – Member of Parliament

Issue description
The respondent requested a raised pedestrian crossing with lighting be provided across Macdonalds Road.

Central Coast Council noted that with the removal of the bus stop from the new section of Tuggerah Street, pedestrian safety to and from the bus stop at Tuggerah Street east of the bridge needs to be considered. Central Coast Council requested Roads and Maritime provide either a new pedestrian bridge, an extension to the width of the existing bridge and consider a shared path and / or safety barrier.

The Member of Parliament requested a pedestrian footbridge or underpass be provided to enable pedestrians to cross the Pacific Highway, in particular in the vicinity of the Lisarow Railway Station. The Member of Parliament requested consideration of separate pedestrian and cyclist facilities.
throughout the proposal, and discussions happen with TfNSW to facilitate better access to the west side of the station.

Response
Roads and Maritime will examine the detailed configuration of the Tuggerah Street and Macdonalds Road intersection during the detailed design of the project. A detailed design which provides for the safe movement of pedestrians across Macdonalds Road where the shared pathway terminates will be provided.

The existing bus stops on Macdonalds Road are being removed as part of the Macdonalds Road, Tuggerah Street and Pacific Highway intersection upgrade. Removal of these bus stops has been done in consultation with Busways, who have confirmed these bus stops are not currently used for school buses. The existing bus stops on Tuggerah Street near Fagans Road are currently used by Lisarow Public School students. This arrangement would not be affected or changed by the proposal. Consideration of pedestrian facilities in Tuggerah Street (beyond any facilities already committed to by Roads and Maritime as part of the proposal) is the responsibility of Central Coast Council, as it is the roads authority for Tuggerah Street.

The design provides pedestrian crossing facilities at the traffic control signals at The Ridgeway and Tuggerah Street intersections with the Pacific Highway. These facilities provide a safe way for pedestrians to cross the Pacific Highway at these locations and are interconnected by shared pathways on both sides of the road.

The traffic lights at The Ridgeway and Pacific Highway intersection provide for safe pedestrian movements in all directions. At this time there is no warrant for a separate pedestrian footbridge over the highway, however the design does not preclude its inclusion should it be warranted in the future.

The shared pedestrian and cycle pathways are being provided in accordance with Roads and Maritime and AUSTROADS standards and are considered appropriate for the expected usage.

In relation to access to the west side of the train station, this is a matter for Sydney Trains and outside the scope of this project.

2.2.5 Public utilities

Submission number(s)
7 – Central Coast Council

Issue description
Central Coast Council noted the proposal may impact on existing stormwater drainage, water and sewer assets. Central Coast Council requested that minimum clearances from stormwater drainage, water and sewer assets in accordance with requirements be provided.

Central Coast Council also noted the requirements for asset relocations, adjustments and protection are currently being addressed in ongoing discussions between Roads and Maritime and the Council’s Water Assessment Team.

Response
Central Coast Council’s requirements regarding clearances to stormwater drainage, water and sewer assets are noted. As the detailed design develops and utility clearances are better understood, Roads and Maritime will work with Central Coast Council if desired clearances cannot be achieved.

Roads and Maritime will continue to consult with Central Coast Council’s Water Assessment Team regarding the relocation, adjustment and protection of Council’s water and sewer assets.
2.3 Stakeholder and community consultation

2.3.1 Availability of Review of Environmental Factors and Species Impact Statement documents for review

Submission number(s)
5 – Individual

Issue description
The respondent indicated they were unable to attend the community session. The respondent requested further detail about other ways the proposal documents could be reviewed, particularly with regards to impacts in the vicinity of the respondent’s property around flooding, noise, landscaping, pedestrian facilities and traffic calming measures.

Response
Roads and Maritime provided the respondent with the website link to where the documents could be downloaded and advised the respondent that hard copies of the proposal and documentation could be viewed at the Gosford and Tuggerah Service Centres. Roads and Maritime provided the respondent with the following section references in the Review of Environmental Factors that appeared to be relevant to respondent’s area of interest.

- Section 3.2.8 Pedestrian and cycle pathways (page 65 of Review of Environmental Factors)
- Section 6.3 Flooding and hydrology (page 195 of Review of Environmental Factors) and Appendix J – Flooding and Hydrology Assessment
- Section 6.4 Noise and Vibration (page 204 of Review of Environmental Factors) and Appendix M – Noise and Vibration Assessment
- Section 6.7 Landscape Character, Visual Impact Assessment and Urban Design (page 247 of Review of Environmental Factors) and Appendix D – Landscape Character, Visual Impact Assessment and Urban Design.

Roads and Maritime also provided the respondent with an opportunity for a discussion with the project manager at an alternate time.

2.4 Biodiversity

2.4.1 Management and monitoring plans for Lisarow Wetland

Submission number(s)
7 – Central Coast Council

Issue description
Central Coast Council acknowledged the proposal would have an unavoidable impacts on Lisarow Wetlands. Central Coast Council noted it has obtained a five year grant to encourage protection and regeneration of *Melaleuca biconvexa* within Lisarow Wetland. Central Coast Council requested further management and monitoring plans relating to Lisarow Wetland are provided to Central Coast Council for further consultation.

Response
Roads and Maritime has developed a Wetland Management Plan, which has been included as Appendix D of the Species Impact Statement. The Wetland Management Plan outlines management measures and monitoring to be carried out as part of the proposal.

Roads and Maritime is currently carrying out baseline monitoring of flows, water levels and water quality in Lisarow Wetland. This data can be made available to Central Coast Council. Roads and Maritime will continue to consult with Central Coast Council as the management measures and
component plans of the Wetland Management Plan are further developed during pre-construction, construction and post-construction phases of the proposal.

2.4.2 Biodiversity offsets

Submission number(s)
3 – Individual
7 – Central Coast Council

Issue description
A respondent indicated that their property, located in Ourimbah, contains *Melaleuca biconvexa*. The respondent suggested their property could be used as a potential site for offset purposes and for additional planting of *Melaleuca biconvexa*.

Central Coast Council noted the Parks and Reserves division have no objection to the proposal provided that Roads and Maritime adhere to the requirements noted below.

Central Coast Council requested that proposal offsets for Lisarow Wetland Reserve (R0219) and Pacific Highway / Chamberlain Road Reserve (R0034) be located within the Central Coast Council local government area (LGA). Central Coast Council also requested that Roads and Maritime provide its top three preferred locations for assessment.

Central Coast Council noted the final agreed offset site is to be funded in perpetuity, and noted programs such as BioBanking exist to facilitate funding.

Response
Biodiversity offsets are proposed for the project in accordance with the Biodiversity Offset Strategy (BOS) documented in Appendix E of the Species Impact Statement. The methodology to obtain the necessary ecosystem and species credits is outlined in Section 2.2 of the BOS. This could include purchasing credits on the open market or securing credits through a BioBanking Agreement on an offset site. Roads and Maritime is continuing to liaise with the Office of Environment and Heritage to secure an appropriate offset package for the proposal.

Roads and Maritime note that Council’s preference for the biodiversity offset site(s) to be located within the Central Coast Council LGA. However, this may not be achievable if credits are being purchased from the open market or if offset site(s) cannot be economically secured.

Roads and Maritime will investigate the opportunity to utilise the property in Ourimbah and any sites owned by Central Coast Council as a potential offset site(s) as part of the BOS.

2.5 Traffic and transport

2.5.1 Regional traffic impacts

Submission number(s)
4 – Individual

Issue description
The respondent raised concern that the limited scope of the proposal between Ourimbah Street and Parsons Road would only alleviate traffic congestion in the local area. The respondent raised concerns the proposal would not improve regional flows between the proposal, Wyoming and Gosford.
Response

The proposal is a component of an overall upgrade program along the Pacific Highway and Manns Road between the M1 Pacific Motorway at Ourimbah and the Central Coast Highway at West Gosford. The projects that make up part of this program include:

- The M1 Pacific Motorway to Glen Road, Ourimbah (upgrade complete)
- Glen Road, Ourimbah to Ourimbah Street, Lisarow (currently under construction)
- Ourimbah Street to Parsons Road, Lisarow (the subject of this submissions report)
- Parsons Road, Lisarow to Narara Creek Road, Narara (currently in the concept design phase)
- Narara Creek Road, Narara, to Stockyard Place, West Gosford (in strategic design phase).


A Community Update for the section south of Parsons Road is currently being prepared and is expected to be available at the end of September 2016. More information can be found at rms.nsw.gov.au/nararatolisarow.

The upgrade work is extensively modelled to provide the best possible outcome for road users and the wider community. This includes both the ultimate and staged arrangements. As construction of the entire corridor between the M1 Pacific Motorway and the Central Coast Highway at West Gosford would be disruptive and impractical for motorists and residents, staging of the various upgrade sections is necessary to minimise impacts to road users during construction.

2.5.2 Public Transport

Submission number

8 – Member of Parliament

Issue description

The Member of Parliament noted dedicated bus lanes should be provided where possible to improve public transport amenity.

Response

The design has been coordinated with TfNSW and Busways and considers their future plans for the area. Based on the limited bus routes and the need to minimise the project footprint and environmental impacts, dedicated bus lanes have not been provided in the design as the capacity enhancements to the highway will be sufficient to ensure buses keep to their timetables.

2.6 Flooding and hydrology

2.6.1 Flooding impacts at the Pacific Highway and Tuggerah Street intersection and associated mitigation measures

Submission number(s)

2 – Individual

7 – Central Coast Council

Issue description

A respondent raised concern that decommissioning drainage structures under Macdonals Road would result in localised stormwater to bank up near Macdonals Road. The respondent requested that additional drainage controls be applied to reduce flooding in the locality.
Central Coast Council noted the design criteria for the proposal identifies that flood immunity and serviceability of other local roads and this is to be maintained at existing Annual Exceedance Probability (AEP).

Central Coast Council advised it is currently preparing, through WMA Water, a Floodplain Risk Management Study and Plan (FRMSP) for the Ourimbah Creek catchment. Through this study, WMA Water has identified that Tuggerah Street:

- Is flooded in the 0.5 exceedances per year (EY) and potentially more frequent events are not modelled
- In the 0.2 EY event, experiences depths of more than 0.5 metres and velocities of about one metre per second. Based on the new Managing the floodplain: a guide to best practice in flood risk management in Australia (Australian Government, 2013), the flood hazard in this event is classified as an H3, which means that it is unsafe for all vehicles
- In the one per cent ARI event, would experience depths of more than 1.8 metres and velocities of more than 1.5 metres per second, placing flooding in the H5 flood hazard classification, which means that it poses an extreme risk to motorists
- Motorists using the proposed Tuggerah Street exit onto the Pacific Highway at times of flood are subject to high levels of risk. Due to the frequency of which the exit is flooded, the risk to life is particularly high.

Central Coast Council also noted within the draft FRSMP a key flood mitigation measure, the Eastern Overland Flood Route (also known as the East Ourimbah Access Road (EOAR)), contains a critical connection at the Pacific Highway and Macdonalds Road intersection.

Central Coast Council notes without a one per cent AEP immunity between Tuggerah Street and the Pacific Highway, the viability of the EOAR would diminish and would increase future capital and indirect costs. Central Coast Council also noted while the EOAR provides a flood route to Wyong Road, it would also provide an opportunity to evacuate flood-sensitive properties in and near the Tall Timbers estate. Currently the options available to these flood sensitive properties are voluntary purchase and elevated emergency access, which are expensive (in the order of $13 million).

In summary of the above, Central Coast Council requested that Tuggerah Street be raised between the Pacific Highway and Macdonalds Road. Alternatively, Central Coast Council requested that an elevated footpath or cycleway be provided to Lisarow Primary School.

Response

The Flooding and Hydrology Assessment completed for the Review of Environmental Factors (refer to Appendix J of the Review of Environmental Factors) confirms the flood immunity and serviceability of adjacent local roads and adjoining private property will be maintained at existing levels following the proposal.

Roads and Maritime note that Council is currently developing a floodplain risk management study and plan for the Ourimbah Creek catchment and is examining opportunities to manage flooding and egress routes along the local road network. In this regard, Roads and Maritime note that Council has responsibility for any local road upgrades required to achieve the recommendations of the floodplain risk management study and plan. This includes any work required to augment Tuggerah Street in the vicinity of the Pacific Highway to provide greater flood immunity than currently exists.

During the detailed design of the proposal, Roads and Maritime will examine the feasibility of raising Tuggerah Street along its proposed alignment between the Pacific Highway and Macdonalds Road. Once this analysis is complete and the costs of augmentation are known, Roads and Maritime will consult with Central Coast Council further regarding the inclusion, or otherwise, of this work into the project and associated funding by Central Coast Council.
2.7 Land use and property

2.7.1 Impacts on property boundaries

Submission number(s)
2 – Individual

Issue description
The respondent requested further information regarding how the new driveway on an adjacent property would be constructed by Roads and Maritime and how this would impact on the respondent’s boundaries.

Response
Property adjustment drawings will be prepared as part of detailed design for the proposal. Roads and Maritime have contacted the respondent and agreed to meet with the respondent to discuss the property adjustment drawings once they are available.

2.8 Issues outside the proposal area or outside the proposal scope

2.8.1 Speeding on existing roads

Submission number(s)
2 – Individual

Issue description
The respondent expressed concern regarding motorist speed on Macdonalds Road, as it is currently a shortcut to The Ridgeway. The respondent suggested speed warning signs, a raised crossing or speed bumps be incorporated into the Macdonalds Road design to discourage motorists from speeding.

Response
This is outside the scope of the project and is the responsibility of Central Coast Council as Macdonalds Road is a local road. Roads and Maritime will raise this matter with Central Coast Council when coordinating the tie in of the proposal to Macdonalds Road.

2.8.2 Extension of Footpath in The Ridgeway

Submission number
8 – Member of Parliament

Issue description
The Member of Parliament requested consideration of an extension of the footpath on the northern side of The Ridgeway to residential areas further east along The Ridgeway.

Response
The footpath on the northern side of The Ridgeway has been extended to the existing pedestrian refuges adjacent to Lisarow High School. Any further extension of this footpath is outside the scope of the project and would be the responsibility of Central Coast Council being the road authority for The Ridgeway.
3 Environmental management

The Review of Environmental Factors and Species Impact Statement for the Upgrade of the Pacific Highway – Ourimbah Street to Parsons Road, Lisarow, identified the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts (Section 7.2 of the Review of Environmental Factors).

After consideration of the issues raised in the public submissions, no amendments to the proposal are needed. However, the safeguard and management measures of the Review of Environmental Factors have been revised to include additional commitments made by Roads and Maritime in respect to further detailed analysis during the detailed design and implementation phases of the project. This includes:

- Review of right-turn lane lengths from the Pacific Highway into The Ridgeway and into Tuggerah Street during detailed design, as discussed in Section 2.2.1
- Detailed design of the Macdonalds Road and Tuggerah Street intersection to ensure a safe crossing at the end of the shared pathway, as discussed in Section 2.2.4
- Further consultation with Central Coast Council as the management measures and component plans of the Wetland Management Plan are developed during the pre-construction, construction and post construction phases of the project, as discussed in Section 2.4.1
- Examination of the feasibility of raising Tuggerah Street between Pacific Highway and Macdonalds Road during detailed design, and ongoing discussions with Central Coast Council regarding the inclusion, or otherwise, of this work into the proposal (subject to funding by Council), as discussed in Section 2.6.1.

After consideration of the issues raised in the public submissions, the safeguard and management measures identified in the Review of Environmental Factors and as amended above are considered adequate for the proposal.

Should the proposal proceed, environmental management will be guided by the framework and measures outlined below.

### 3.1 Environmental management plans (or system)

A number of safeguards and management measures have been identified in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these management measures would be incorporated into the detailed design, and applied during the construction and operation of the proposal.

Project Environmental Management Plan (PEMP) and a Construction Environmental Management Plan (CEMP) will be prepared to describe safeguards and management measures identified. The PEMP and CEMP will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The PEMP and CEMP will be prepared before to construction of the proposal and must be reviewed and certified by Roads and Maritime environment staff before any on site work begins. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements.

### 3.2 Summary of safeguards and management measures

The Review of Environmental Factors for the proposal identified a range of environmental outcomes and management measures that would be required to avoid or reduce the environmental impacts.
After consideration of the issues raised in the public submissions, the environmental management measures for the proposal (refer to Chapter 7 of the Review of Environmental Factors) have been revised. Should the proposal proceed, the environmental management measures as presented in Table 3.1 will guide the subsequent phases of the proposal. Additional and/or modified environmental safeguards and management measures to those presented in the Review of Environmental Factors have been included as underlined blue text.

Table 3.1 should be read in conjunction with the Review of Environmental Factors as the cross references within the table refer to the chapters, sections, figures and appendices included in the Review of Environmental Factors.
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| G-1 | General | All environmental safeguards must be incorporated within the following:  
• Project Environmental Management Plan  
• Detailed design stage  
• Contract specifications for the proposal  
• Contractor's Environmental Management Plan. | Project manager | Pre-construction |
| G-2 | General | The following measures will be implemented:  
• A risk assessment must be carried out on the proposal in accordance with the Roads and Maritime Services Project Pack and PMS risk assessment procedures to determine an audit and inspection program for the works. The recommendations of the risk assessment are to be implemented.  
• A review of the risk assessment must be undertaken after the initial audit or inspection to evaluate is the level of risk chosen for the proposal is appropriate.  
• Any works resulting from the proposal and as covered by the REF may be subject to environmental audit(s) and/or inspection(s) at any time during their duration. | Project manager and regional environmental staff | Pre-construction - After first audit |
| G-3 | General | The environmental contract specificationsG36, G38 and G40 must be forwarded to the Roads and Maritime Services Environment (Central Coast region) for review at least 10 working days prior to the tender stage.  
A contractual hold point must be maintained until the CEMP is reviewed by the Roads and Maritime Services Environment Manager (Central Coast region). | Project manager | Pre-construction |
<p>| G-4 | General | The Roads and Maritime Services Project Manager must notify the Roads and Maritime Services Environment Officer (Central Coast region) at least five working days prior to work commencing. | Project manager | Pre-construction |
| G-5 | General | All businesses and residences likely to be affected by the proposed works must be notified at least five working days prior to the commencement of the proposed activities. | Project manager | Pre-construction |</p>
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<td>G-6</td>
<td>General</td>
<td>Environmental awareness training must be provided, by the contractor, to all field personnel and subcontractors.</td>
<td>Contractor</td>
<td>Pre-construction and during construction as required.</td>
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**Biodiversity**

| B-1 | Impacts to native vegetation | Impacts to native vegetation are to be avoided where possible, through the detailed design stage following review of biodiversity constraints and sensitive placement of construction compounds. The proposal will be designed to minimise impacts to areas of high condition vegetation and the population of the threatened *Melaleuca biconvexa* where possible during the detailed design phase. | Roads and Maritime | Detailed design |

| B-2 | Impact on flora and fauna | A Flora and Fauna Management Plan will be prepared as part of the Construction Environmental Management Plan (CEMP). It will be prepared in accordance with the Roads and Maritime *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA 2011) (Biodiversity Guidelines) and Section 4.8 of *QA Specification G36 Environment Protection*. The plan will include a clearing procedure which will include:  
• The process for pre-clearing surveys in accordance with Guide 1 of the Biodiversity Guidelines  
• A procedure for dealing with unexpected threatened species finds on site  
• Identifying, defining and managing exclusion zones for construction sites, including temporary fencing requirements, to avoid damage to vegetation. Maps of exclusion zones will be provided and developed in accordance with Guide 2 of the Biodiversity Guidelines  
• Staged habitat removal in accordance of Guide 4 of the Biodiversity Guidelines  
• A process for fauna handling in accordance with Guide 9 of the Biodiversity Guidelines including a requirement to contact a local vet and wildlife handler before vegetation clearance to ensure they will be willing to treat any fauna injuries that may occur during clearing and other construction activities  
• Identified nearby habitats along the proposal suitable for the release of fauna, should they be encountered any time during construction, including | Construction contractor | Pre-construction and during construction |
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<td>pre-clearing and clearing process</td>
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<td>• Provision for the education of all construction personnel with regards to the importance of clearing limits, exclusion zones and remnants/individual trees of value</td>
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<td>• Coarse woody debris and rocks removed in the process of clearing shall, where practical, be placed in areas of vegetation located next to the proposal in accordance with Guide 5 of the <em>Biodiversity Guidelines</em>.</td>
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<td>• Measures to prevent the introduction and/or spread of pathogens such as bacteria and fungi need to be incorporated into the CEMP for the proposal.</td>
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<td>• Measures to confirm the presence of pathogens/disease causing agents such as bacteria and fungi may be undertaken before construction and would inform the need to development site specific management actions. This includes a background search of government-maintained websites for the most recent known locations of contamination and for the most up-to-date hygiene protocols for each pathogen. If risks are identified in the vicinity of the proposal, testing from a National Association of Testing Authorities (NATA) approved laboratory may be required to confirm the presence of pathogens in the soil and/or water.</td>
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<td>B-3</td>
<td>Impacts to retained vegetation</td>
<td>Existing trees, plants, and other vegetation that are to remain within or adjacent to the proposal are to be preserved where practical to prevent damage or injury and in accordance with the Roads and Maritime <em>Biodiversity Guidelines</em> (RTA 2011). Areas of retained vegetation are to be identified and protected as exclusion zones in accordance with the <em>Biodiversity Guidelines</em> RTA 2011).</td>
<td>Construction Contractor</td>
<td>Construction</td>
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<td>B-4</td>
<td>Removal of vegetation</td>
<td>A <em>Landscape Management Plan</em> (refer to mitigation measure LA-5) and a Wetlands Management Plan (refer to mitigation measure B-13) will be developed for the proposal to manage impacts from the removal of vegetation. The <em>Landscape Management Plan</em> will cover all areas of vegetation and the <em>Wetland Management Plan</em> will specifically cover areas of EEC and the threatened flora <em>Melaleuca biconvexa</em> impacted by construction of the proposal. The plans will include but not be limited to the following: • Replanting using species representative of the natural ecological</td>
<td>Construction contractor</td>
<td>Pre-construction and post-construction</td>
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| B-5 | Removal of vegetation           | During the detailed design phase opportunities to reduce the requirement for clearing will be sought and undertaken where possible. This could include:  
• Maintain and where possible minimise the width of the alignment in areas where the road adjoins EECs and/or *Melaleuca biconvexa*  
• By use of temporary or permanent retaining walls and/or dry stone walls in place of batters around individual indigenous trees and around stands of *Melaleuca biconvexa* in order to protect vegetation and avoid loss  
• Minimising the size of the construction footprint and subsequent removal of vegetation. Specific measures include:  
  − Avoiding threatened flora species where possible, particularly areas of *Melaleuca biconvexa* this may include replacing batters in some locations to retaining walls  
  − Minimise impacts to areas of higher condition terrestrial and aquatic habitats  
  − Minimise impacts to threatened ecological communities  
  − Maintaining existing water quality and hydrological flow regimes. | Roads and Maritime | Detailed design |
<p>| B-6 | Removal of vegetation           | Vegetation removal to be in accordance with Roads and Maritime Specification G40 Clearing and Grubbing.                                                                                                                   | Construction contractor | During construction |
| B-7 | Impact on aquatic ecosystems    | The design of creek and waterway crossings will maintain fish passage in accordance with “Why do fish need to cross the road? Fish passage”                                                                        | Roads and Maritime | Detailed design |</p>
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<td>B-8</td>
<td>Impact on <em>Melaleuca biconvexa</em></td>
<td>Individuals of <em>Melaleuca biconvexa</em> within the construction footprint will be retained where possible. The clearing footprint includes a 10 metre buffer from the base of batters. Following construction this area would likely regenerate naturally and is expected that regeneration of <em>Melaleuca biconvexa</em> would occur. Soil disturbance in this area will be avoided where possible to maintain the viability of propagules (ie seeds, roots, rhizomes) in the soil so that this area will readily regenerate following construction.</td>
<td>Roads and Maritime</td>
<td>Pre-construction</td>
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| B-9 | Controlling the spread of noxious weeds | A *Weed Management Plan* will be developed as part of the CEMP in accordance with *Roads and Maritime Biodiversity Guidelines* (Guide 6: Weed Management) and *Introductory Weed Management Manual* (Natural Heritage Trust 2004). Specific attention will be given to the areas of EEC and *Melaleuca biconvexa* on Roads and Maritime controlled lands or alternatively specific weed management actions will be incorporated into the *Wetland Management Plan*. Noxious weeds will be disposed of to a licensed waste facility. The *Weed Management Plan* should be consistent with other plans of management for the area. As part of the weed management plan a site assessment by an ecologist or person trained in weed identification and management would be required to assess the extent and severity of weed species in the clearing footprint with particular emphasis on noxious weed species. A weed management plan should also be consistent with other plans of management for the area. The *Weed Management Plan* or specific actions would include descriptions and mapping of major weed infestations during pre-clearing surveys and appropriate management actions to be undertaken for each infestation. The details of the *Weed Management Plan* may include:  
• Weed management priorities and objectives.  
• Sensitive environmental areas on Roads and Maritime controlled lands.  
• Location of weed infested areas. | Construction contractor | Construction |
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|     |         | • Mechanical weed control methods such as slashing or mowing, as well as a range of herbicides to avoid the development of herbicide resistance.  
• Measures to prevent the spread of weeds.  
• A monitoring program to measure the success of weed management.  
• Appropriate disposal of weed infested materials and soils to be identified in the CEMP.  
• Communication strategies to improve contractor awareness of weeds and weed management. | Construction contractor | Construction |
| B-10 | Controlling the spread of pathogens/diseases | If pathogens/disease causing agents are found to be present, measures to prevent the introduction and/or spread of these pathogens/disease causing agents are to be incorporated into the CEMP for the proposal. The CEMP will be developed in accordance with Guide 7 Pathogen Management of the Roads and Maritime Biodiversity Guidelines (RTA 2011) and will include the following:  
• Vehicle and boot wash down procedures and facilities will be made available to ensure vehicles and footwear are free of pathogens before entering and leaving site  
• Regular communication to staff and contractors during inductions and toolbox talks, of the risk of spreading pathogens and the mitigation measures required on site.  
• To avoid the introduction of pathogens into the area, all new plant and top soil material brought to site will be certified disease-free by the supplier  
• Construction work will be programmed to move from uninfected areas to any known infected areas  
• Restricting vehicles to designated tracks, trails and parking areas. | Construction contractor | Construction |
| B-11 | Wildlife connectivity | Revegetation around and beneath the rail overbridge will aim to provide some low cover for fauna approaching and exiting the structure.  
In-stream structures will be designed and constructed to minimise potential impacts to fish passage with consideration to "Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings" (Fairfull and Witheridge 2003). | Construction contractor | Construction |
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<td>B-12</td>
<td>Impacts to EECs</td>
<td>Before clearing, exclusion zones will be erected to identify environmentally sensitive areas such as EECs in accordance with <em>Roads and Maritime Biodiversity Guidelines (Guide 2 Exclusion Zones)</em>. The location of EECs will be mapped and identified in the CEMP.</td>
<td>Construction contractor</td>
<td>Construction</td>
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</table>
| B-13 | Impacts to EECs and *Melaleuca biconvexa* | A suitably qualified ecologist will develop a *Wetland Management Plan* that will document specific pre-construction and construction mitigation measures. The plan should include a program to monitor the effectiveness of mitigation measures and will be prepared before the start of construction. The contents of the *Wetland Management Plan* will include but not be limited to the following:  
  - **Introduction** – purpose, objectives, background and report structure  
  - **Management and mitigation measures** – environmental management responsibilities, pre-construction management measures, including survey, type and location of control measures. Construction measures will include but not limited to contractor education and induction, hygiene and pre-clearance protocols, fencing, during construction  
  - **Monitoring** – methods, timing, intensity and duration, controls, performance indicators and criteria, proposal review and monitoring, responsibility, timing and corrective actions reporting requirements and periods.  
  - A summary and implementation schedule.  
  
*Roads and Maritime will consult with Central Coast Council during development of the component plans of the Wetland Management Plan, including in areas such as weed control and revegetation.* | Roads and Maritime | Detailed design |
| B-14 | Impacts to EECs and *Melaleuca biconvexa* | A *Biodiversity Offset Strategy* (for inclusion as Appendix E of the SIS) will be prepared to investigates the offsets required and the availability of suitable offsets in the region to compensate for the loss of important habitat associated with the proposal. The offset strategy will focus on identifying offsets that contain a population of *Melaleuca biconvexa* and the endangered ecological communities (swamp sclerophyll forest and/or freshwater wetlands) and which would include potential habitat for threatened fauna species affected by the proposal. The final selection of offset sites will be subject to site survey using the | Roads and Maritime | Detailed design |
### BioBanking Assessment Methodology

To compare the condition of the site habitats and ecosystem credits with those being impacted.

The revised figures for vegetation clearing impacts to the two EECs; Freshwater Wetlands and Swamp Sclerophyll Forest (as summarised in Table 6-8) and individuals of *Melaleuca biconvexa* (as summarised in Section 6.1.3) will be published in the SIS and used in the Biodiversity Offset Strategy for calculating offset requirements for the proposal.

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<td>B-15</td>
<td>Management of unexpected finds</td>
<td>Pre-clearing surveys will be undertaken by an experienced ecologist to identify any nesting/roosting animals present in the proposal area. In particular it would be important to conduct a pre-clearing inspection for any artificial structures such as culverts which are proposed to be physically disturbed. The inspection is required to identify if threatened bat species are present and are using the structure for roosting and/or breeding habitat. The inspection will be conducted during the day and will ensure that all cracks, fissures, scuppers, lifting holes, etc., within concrete structures are inspected for microbats prior to any works commencing. Because no structures are proposed to be demolished, it is unlikely works will have a significant impact on any microbats roosting in adjacent structures. However, if bats are found, an appropriately qualified ecologist will be engaged and provide advice on work methods and timing to minimise impacts on the bats. If exclusions are required, these will be done in accordance with a Bat Management Plan prepared by an appropriately qualified ecologist. While the study area has been assessed as containing sub-optimal habitat for threatened frogs there is low to moderate potential for some species to occur. Because of this, the unexpected threatened species finds procedure will be followed as outlined in the <em>Roads and Maritime Biodiversity Guidelines</em> (RTA 2011). This procedure is particularly relevant to the potential presence of microbats in artificial structures and threatened frogs in freshwater aquatic habitats. The procedure is to be adopted through the construction phase of the proposal. As a first step photos and descriptions of roosting bats and threatened frogs are to be included in the CEMP and/or the flora and fauna management sub-plan. All personnel will be inducted on the potential for these threatened species occurring on site and the unexpected threatened species finds procedure.</td>
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<td>B-16</td>
<td>Impacts to threatened flora and fauna</td>
<td>All conditions and requirements from the OEH SIS concurrence will be incorporated into the CEMP, Wetlands Management Plan, or plans.</td>
<td>Construction contractor</td>
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| TT-1| Impacts to traffic flow and property access during construction         | A detailed traffic management plan (TMP) will be prepared during the detailed design phase. The TMP will be prepared in accordance with the Roads and Maritime Guide to Traffic Control at Work Sites and Roads and Maritime QA Specification G10 Traffic Management and will include guidelines, general requirements and procedures to be used when activities or areas of work have a potential impact on existing traffic arrangements. The TMP may be submitted in stages to reflect the progress of work and will:  
  - Consider other developments that may also be under construction, to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic  
  - Make provision for consultation with relevant local government authorities, emergency services, the community and transport service providers, as appropriate. Consultation will be in accordance with the consultation strategy for the proposal. | Construction contractor | Pre-construction          |
| TT-2| Impacts to traffic flow and property access during construction         | Traffic control plans (TCPs) will be prepared for the appropriate stage of work in accordance with the Roads and Maritime Traffic Control at Worksites Manual and Roads and Maritime QA Specification G10 Traffic Management.  
  Roads and Maritime will consider safe access options to Lisarow Station from Railway Crescent in consultation with Sydney Trains during the detailed design. | Construction contractor | Pre-construction, construction |
<p>| TT-3| Impacts to traffic flow and property access during construction         | A vehicle movement plan (VMP) and appropriate haulage routes will be developed in accordance with Roads and Maritime QA Specification G10 Traffic Management, to ensure that traffic associated with the works manoeuvre safely into and out of traffic streams and work areas. This will include consideration of emergency vehicle access. | Construction contractor | Pre-construction          |
| TT-4| Modification of public transport routes and                            | Temporary bus stops (including the stop east of Lisarow Station) will be installed as close as reasonable to existing stops to limit impact to commuters and bus                                                                 | Construction contractor/ Roads and Maritime | Pre-construction          |</p>
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<td>The temporary bus stop locations will be selected in consultation with Busways, Red Bus Service and NSW Trains to identify appropriate sites. The bus stops (with the exception of the removed bus stops) will be reinstated after construction. The temporary locations will also be identified as part of the Traffic and Transport Management Plan which will be developed as part of the CEMP in accordance with Roads and Maritime QA specification G10 Traffic Management and Disability Standards for Accessible Public Transport 2010. Roads and Maritime will consult with Busways, Red Bus Service and NSW Trains to identify appropriate sites for bus stops. Bus stops will be reinstated after construction is complete.</td>
<td>Construction contractor/Roads and Maritime</td>
<td>Detailed design and pre-construction</td>
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<tr>
<td>TT-5</td>
<td>Impacts to rail traffic from rail track possessions</td>
<td>The timing and duration of rail track possessions will be scheduled through consultation with NSW Trains, and where possible occur concurrently with other track possessions. The design of the bridge will be developed during the detailed design phase to minimise the number of track possessions required during construction.</td>
<td>Construction contractor/Roads and Maritime</td>
<td>Detailed design and pre-construction</td>
</tr>
<tr>
<td>TT-6</td>
<td>Impacts to local roads during construction</td>
<td>Roads and Maritime will undertake a photographic inspection of local roads surrounding the proposal before construction in order to identify condition of the local roads. Follow-up condition surveys will be taken during and at the end of construction to identify any damage from construction vehicles during construction of the proposal. Any damage to the local roads will be repaired by Roads and Maritime to that identified in the existing condition survey.</td>
<td>Roads and Maritime</td>
<td>Pre-construction</td>
</tr>
<tr>
<td>TT-7</td>
<td>Capacity of right-turn lanes from Pacific Highway into The Ridgeway and Tuggerah Street</td>
<td>Undertake a review of traffic modelling and confirm the lengths of the right-turn lanes from the Pacific Highway into The Ridgeway and also into Tuggerah Street during detailed design</td>
<td>Detail designer</td>
<td>Detailed design</td>
</tr>
<tr>
<td>TT-8</td>
<td>Pedestrian and cyclist facilities</td>
<td>Undertake further detailed investigations of the Macdonalds Road / Tuggerah Street intersection to ensure a safe crossing at the end of the shared pathway.</td>
<td>Detail designer</td>
<td>Detailed design</td>
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<td></td>
<td>Flooding and hydrology</td>
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</table>
|     | FH-1 Flood impacts during operation of the proposal | • Enlargement and optimisation of the cross drainage culverts where possible  
• Inclusion of debris guards at the inlets of selected culverts to reduce the risk of blocking  
• Use of land between the Pacific Highway and railway line, north of Lisarow Station for temporary flood detention  
• Placement of a concrete retaining wall along the railway corridor to keep flood level increases within low lying land, and to avoid impact on the Main Northern Railway  
• In the selection of road furniture, consider avoiding solid obstructions and features, such as noise barriers, which will obstruct flows in extreme flood events during which the highway will be overtopped  
• Maintain finished surface levels on Macdonalds Road and The Ridgeway close to existing levels to avoid flood level increases.  
• Remodelling of flooding impacts will be undertaken during detailed design for the construction of the viaduct option for the southern approach to the rail overbridge.  
• The remodelling will consider the changed water levels during flood events on Wetlands A, B and C and where possible design out changes in hydrology  
• Investigate scour protection measures downstream of the new Macdonalds Road culverts to manage flow velocity increases as part of the proposal. | Detailed design | Detailed design |
|     | FH-2 Flooding impacts on construction site compounds and stockpiles | The stockpile sites are to be located in areas away from flood flow paths, and preferably where peak flood depths and velocities are likely to be low. | Construction contractor | Pre-construction |
|     | FH-3 Flooding and scour impacts from diverting drainage lines | The design and capacity of temporary diversions and clean water pipes will be appropriately assessed and monitored to ensure there are no scour or flooding impacts during construction. | Construction contractor | Construction |
### Upgrading the Pacific Highway, Ourimbah Street to Parsons Road, Lisarow

**Submissions Report**

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<tr>
<td>FH-4</td>
<td>Raising Tuggerah Street to improve flood evacuation</td>
<td>Examine the feasibility of raising Tuggerah Street between Pacific Highway and Macdonalds Road during detailed design, and have ongoing discussions with Central Coast Council regarding the inclusion, or otherwise, of these works into the proposal (subject to funding by Council)</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
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#### Noise and vibration

<p>| NV-1 | Impacts to sensitive receivers from operational noise | Following consultation with affected landholders, feasible and reasonable measures that could be selected to manage potential operational noise impacts, will be identified. All feasible and reasonable measures will be considered in accordance with the NSW Road Noise Policy (DECCW, March 2011) and Practice Note iv of the Roads and Maritime Environmental Noise Management Manual (ENMM). | Roads and Maritime | Detailed design |
| NV-2 | Impacts to sensitive receivers from operational noise | Post-construction monitoring will be undertaken in accordance with Practice Note viii of Roads and Maritime Environmental Noise Management Manual. The monitoring will be undertaken between 6-12 months of opening of the proposal to identify the effectiveness of the operational noise mitigation measures. Where noise levels exceed the predictions all further feasible and reasonable measures will be considered. | Roads and Maritime | Post construction |
| NV-3 | Impacts to sensitive receivers from construction noise | A Noise Management Plan (NMP) and a Vibration Management Plan (VMP) will be prepared as part of the CEMP before construction in accordance with QA Specification G36 Environment Protection. The NMP and VMP will address all stages of construction. These plans will include but not be limited to:  - The use of alternative low-noise processes and equipment  - The placement of work compounds, parking areas, equipment and material stockpile sites away from noise-sensitive locations  - The use of screening or enclosures for noise-generating equipment.  - Restrictions on times when noisy work can be carried out  - A process for assessing maximum noise levels for each proposal phase  - Put the compound buildings close to sensitive receivers to form a buffer from the compound site. | Construction contractor | Pre-construction |</p>
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|     |                                                                           | Consultation with affected residents before construction occurring and throughout works. A consultation strategy will be developed and will include:  
  • A process for handling and responding to noise or vibration related complaints  
  • The maintenance and operation of construction plant and equipment. All plant and equipment will be:  
    − Fitted with properly maintained noise suppression devices in accordance with the manufacturer’s specifications  
    − Maintained in an efficient condition  
  • Operated in a proper and efficient manner.                                                                                     |                |                            |
| NV-4| Noise impacts from out-of-hours construction                             | Where out-of-hours construction is required, a detailed assessment will be carried out to identify specific impacts and mitigation measures. Following the development of a detailed construction methodology, a detailed assessment of likely construction noise impacts will be undertaken to identify specific impacts and mitigation measures. | Construction contractor | Construction    |
| NV-5| Noise impact for acutely affect residences                              | General mitigation and construction noise management measures will be implemented for the proposal and additional consideration will be given to the category of 'highly noise affected' receivers.  
Sensitive receivers will be notified before any work planned to be carried out outside normal construction hours starts.  
Appropriate noise mitigation measures in accordance with the ENMM practice note (iv) will be investigated during detailed design and applied as necessary before construction. | Construction contractor | Construction    |
| NV-6| Vibration impacts on buildings and heritage items                       | Building condition inspection reports must be completed in accordance with QA Specification G36 for all heritage structures in the work area and any other nearby structures or buildings at risk from vibration impacts.  
Undertake a follow up building condition inspection of all heritage structures in the work area when work is complete. | Construction contractor | Pre-construction and during construction as required |
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<tr>
<td>NV-7</td>
<td>General vibration during construction</td>
<td>Appropriately sized equipment will be selected to minimise vibration emissions where required.</td>
<td>Construction contractor</td>
<td>Construction</td>
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</table>
| NV-8 | Vibration monitoring near the cemetery | To avoid or reduce the impact of vibration during construction near the cemetery:  
- Undertake vibration monitoring proactively and in response to community complaints to determine the extent of actual vibration levels  
- Carry out attended vibration monitoring in accordance with the criteria set out in DIN 4150 -3, Part 3: Structural Vibration in Buildings: Effects on Structures as construction approaches the Lisarow Cemetery. Monitoring is to be carried out by suitable qualified and experienced specialists. The purpose of this monitoring will be to determine site specific separation distances for ongoing work  
- If any damage to graves occurs based on the photographic pre-condition survey of graves completed before work starts all work must stop and, safeguards as set out in mitigation measure NA-7 must be implemented. | Construction contractor | Construction |

**Water quality**

| WQ-1 | Pollution as a result of sediment entering waterways during construction | Water management controls and an associated maintenance and inspection program will be developed during detailed design in accordance with the water quality control strategy for the proposal included in Appendix L. Controls to improve the water quality from construction sites will include sediment basins as shown in Figure 1-2. During detailed design, the following will be confirmed:  
- Location and size of sedimentation basins  
- Capacity for spills in the sediment basin design volume  
- Installation of other water quality measures where required. | Design contractor and Roads and Maritime | Detailed design |
| WQ-2 | Pollution as a result of sediment entering waterways during construction | A Soil and Water Management Plan (SWMP) will be developed in accordance with the Managing Urban Stormwater – Soils and Construction, Volumes 1 and 2D (Landcom, 2004 and DECCW, 2008) and RTA Road Design Guideline: Section 8 Erosion and Sedimentation (RTA 2003) and QA Specification G38 Soil and Water Management (SWMP) (Roads and Maritime, 2011c). | Construction contractor | Pre-construction |
### No. | Impacts | Environmental safeguards | Responsibility | Timing
---|---|---|---|---
WQ-3 | Pollution as a result of sediment entering waterways during construction | A soil conservationist from the Roads and Maritime Erosion, Sediment and Soil Conservation Consultancy Services Register will be engaged during Detailed Design stage to develop an Erosion and Sediment Management Report which will inform the SWMP. The construction contractor will undertake regular inspections throughout the construction phase of the proposal to ensure the mitigation measures included in the SWMP are implemented. | Roads and Maritime Construction contractor | Detailed design Construction
WQ-4 | Site management erosion controls | Construction activities will be sequenced and managed to minimise potential water quality degradation due to erosion. Management methods will include: 
- Early installation of physical controls, including cross drainage to convey clean water around or through the site and the construction of the two | Construction contractor | Construction

The SWMP will include, but not be limited to procedures for controlling the following standard activities:

- Mud and litter transfer
- Maintenance and cleaning of sediment controls
- Soil and stockpile management (in accordance with Roads and Maritime Stockpile Site Management Guideline (RTA 2011f))
- Work within wetlands and in Cut Rock Creek
- Tannin leachate management control (if stockpiling of vegetation will occur during construction)
- Chemical water quality controls
- Maintenance regimes for all controls
- Water quality monitoring method and checklists.

The SWMP will include a preliminary erosion and sediment control plan (ESCP) which will identify the erosion and sediment control measures that will be implemented on site.

Progressive ESCPs will be developed throughout construction to reflect the changes in activities and risk throughout the construction process. The plan will include diagrams of erosion and sediment control techniques and details of when and where these measures will be applied.
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|     |         | sedimentation basins identified in Jacobs (2014, j) refer to Figure 1-2 and Appendix L  
- Minimising the duration of exposed topsoil by retaining topsoil cover, grassed drainage lines and shrub cover on the soil surface for as long as possible  
- Minimising the extent of disturbed areas  
- Minimising stockpiling areas  
- Minimising the lengths of slopes through limiting the extent of excavations and the use of diversion drains to reduce water velocity over disturbed areas  
- Where possible, constructing working platforms from rock fill so that bare earth is not exposed  
- Progressive rehabilitation or sealing of work areas. | Construction contractor | Construction        |
| WQ-5 | Contaminants entering receiving environments during construction | The following measures will be implemented to minimise the risk of contaminants entering receiving environments:  
- All fuels, chemicals and liquids will be stored and disposed of in accordance with DECC Storing and Handling Liquids: Environmental Protection Participants Manual, (May 2007) and stored in impervious bunded areas located a minimum of 50 metres from drainage lines or waterways  
- Do not refuel or maintain plant and equipment, mix cutting oil with bitumen, or carry out any other activity which may result in spillage of a chemical, fuel or lubricant at any location which drains directly to waters or environmentally sensitive areas, without the appropriate temporary bunding being provided  
- Plant, equipment and vehicle wash down will occur in a designated bunded area away from waterways and drainage lines  
- All concrete washout will occur into a sealed receptacle or bunded concrete washout with an impermeable liner. The concrete washout must be sized to be 120 per cent of the estimated volume of the waste that will be received into the washout at any one time  
- Any material transported onto road surfaces will be swept and removed at the end of each working day. | Construction contractor | Construction        |
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</table>
| WQ-6| Impacts on downstream water quality during construction and operation | A Water Quality Monitoring Plan will be prepared in accordance with Roads and Maritime’s Guideline for Construction Water Quality Monitoring (RTA, 2003). The plan will focus on the water quality of receiving waterways. It will include water quality monitoring:  
  - Before construction: Water quality monitoring at sites where the most recent sampling data is over one year old to provide assurance of compliance with regulatory requirements. Sampling locations, monitoring frequency and monitoring methodology will be determined during detailed design  
  - During construction: Monitoring to immediately detect any environmental degradation as a result of construction work.                                                                                      | Roads and Maritime     | Pre-construction, construction |
| WQ-7| Contaminants entering receiving environments during operation          | Water management controls and an associated maintenance and inspection program will be developed during detailed design in accordance with the water quality control strategy for the proposal (Jacobs, 2014j). Currently this includes the water quality controls as shown in Figure 2-7.  
  Scour mitigation devices such as energy dissipaters will be included in the drainage design where scour may occur along drainage outlet points, existing natural channels, batter outlets and basin spillways. After construction, the operational water quality basin will be managed and maintained by Gosford City Council, who will be responsible for periodically cleaning out the basins during operation. | Roads and Maritime     | Detailed design and operation  |
<p>| WQ-8| Pollution of downstream waterways due to maintenance practices during operation | Roads and Maritime’s standard maintenance controls will be applied in a manner that will minimise any potential water pollution due to maintenance practices (such as herbicide use, mowing, and road surface cleaning).                                                                                                                             | Roads and Maritime     | Detailed design and operation  |
| WQ-9| Accidental spill / contamination of the surrounding environment during construction | A site specific emergency spill plan will be developed, and include spill management measures in accordance with the Roads and Maritime Code of Practice for Water Management and Bunding and Liquid Chemical Storage, Handling and Spill Management (DEC 2005b). Should a spill occur during construction, the emergency spill plan will be implemented and the incident will be managed in accordance with the Roads                                                                 | Construction contractor | Construction                  |</p>
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| WQ-10 | Pollution as a result of sediment runoff from stockpiles | The location of the stockpile and storage areas within the main construction compound area and construction footprint would be subject to the site location criteria set out in the Stockpile Site Management Procedure (RTA 2011) and QA specification R44-Earthworks - IC-QA-R44 (Roads and Maritime, 2011a). They would ideally be located:  
  - On relatively level ground  
  - In a place accessible to construction traffic and deliveries  
  - Away from areas of ecological and heritage conservation value  
  - In areas previously disturbed within the proposal area that do not require the clearing of native vegetation  
  - Away from residential buildings or heritage items  
  - In plain view of the public to deter theft and illegal dumping  
  - Close to key construction activities to minimise transport of materials and equipment  
  - Within the area of potential impact on minimise impacts on private and public property  
  - In areas not prone to flash flooding and more than 40 metres from a watercourse  
  - Outside the drip line of trees. | Construction contractor | Construction |
| WQ-11 | Pollution as a result of waste onsite | Liquid and solid waste would be removed by tanker or truck and disposed of off-site at a suitably licensed facility able to accept those wastes for storage, reuse or disposal. Fuel and chemical storage areas would be bunded and protected in accordance with the specifications set out by the Office of Environment and Heritage (OEH) and WorkCover.  
Each site would be securely fenced with temporary fencing. Signage would be erected advising the general public of access restrictions. Upon completion of | Construction contractor | Construction |
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<tr>
<td>NA-1</td>
<td>Impacts to heritage items of local significance</td>
<td>Consultation will be undertaken with Gosford City Council about potential impacts to the Lisarow Cemetery which is listed under the Gosford LEP, refer further to Table 5-2.</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
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<tr>
<td>NA-2</td>
<td>Demolition of the Pryor Brothers Store</td>
<td>As required as part of DA for the demolition of Pryor Brothers Store, archival and photographic recording of the Pryor Brothers Store has been undertaken in order to document the character of the building prior to its demolition. Roads and Maritime will install a plaque to commemorate the history and heritage values of the former building during the construction phase of the proposal. The plaque will be installed in accordance with Roads and Maritime’s draft <em>Heritage Interpretation Guidelines</em> or advice from Roads and Maritime’s heritage specialists.</td>
<td>Roads and Maritime</td>
<td>Pre-construction and construction</td>
</tr>
<tr>
<td>NA-3</td>
<td>Impact on heritage items from construction activities</td>
<td>Construction site inductions will include a briefing of heritage items located close to the proposal area and construction areas. Heritage items will be fenced off and appropriate signage erected.</td>
<td>Roads and Maritime and construction contractor</td>
<td>Construction</td>
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</table>
| NA-4 | Removal and relocation of the cemetery gates | The Lisarow Cemetery gates will be removed and relocation as part of the proposal. To minimise impact on the heritage significance of the cemetery, the following must be undertaken:  
- Before the gates are removed, detailed photography of the gate will be completed and then each stone of the gate will be numbered with a non-permanent marking to ensure that they can be restored in the exact same order  
- Remove the stone and the gates from the construction site and store securely to prevent loss or theft of the original material  
- Remove and relocate the gates using an appropriately qualified stonemason  
- The existing cemetery gate will be relocated and incorporated into the stairs | Roads and Maritime and construction contractor | Construction |
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<tr>
<td>NA-5</td>
<td>Removal of the vegetation along the cemetery boundary</td>
<td>Fast growing native tree species (such as <em>Acacias</em> spp identified within Coastal Narrabeen Moist Forest) will be planted along the new border of the cemetery. More permanent, slow growing species (such as Spotted Gum (<em>Corymbia maculate</em>) and Bottlebrush (<em>Callistemon</em> sp.) will also be planted that will become a replacement for the fast growing trees, refer to the landscape plan, Figure 12 in Appendix D.</td>
<td>Roads and Maritime and construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>NA-6</td>
<td>Potential physical damage to the headstones and the above ground components of the graves</td>
<td>Before the start of the construction work, barrier fencing must be installed between the graves and the proposal with a buffer of five metres between the graves and the fencing. The fencing must not intrude into the ground surface of the cemetery. No machinery or vehicles are to be used or parked within the boundary of the cemetery. All mechanical work must be undertaken from the road and road reserve. When required, workers may work within the boundary of the cemetery only if they are on foot.</td>
<td>Roads and Maritime and construction contractor</td>
<td>Pre-construction and construction</td>
</tr>
<tr>
<td>NA-7</td>
<td>Potential physical damage to the headstones and the above ground components of the graves due to vibration.</td>
<td>Construction methods with reduced levels of vibration, and monitoring of vibration levels will be required in accordance with the Noise and Vibration Assessment for the proposal. A building condition inspection report including a photographic record of the graves will be undertaken before the start of work by a qualified contractor, and the condition reassessed following the completion of construction. Ongoing monitoring of the condition of headstones and other grave components must also take place throughout construction. If any damage occurs during construction, additional protection of the headstones and grave components will be required. Protective measures may include:</td>
<td>Roads and Maritime and construction contractor</td>
<td>Construction</td>
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<td>NA-8</td>
<td>Unexpected heritage find</td>
<td>If unexpected heritage item/s, archaeological remains or potential relics are uncovered during construction, all work will near the material/find and the Roads and Maritime Standard Management Procedure - Unexpected Archaeological Finds (Roads and Maritime 2015) will be followed.</td>
<td>Roads and Maritime and construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>LA-1</td>
<td>Change of landscape character and visual impact</td>
<td>Detailed design will be undertaken according to the urban design vision, objectives and principles which underpin the concept design.</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
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</table>
| LA-2 | Visual impact of earthwork: retaining walls, embankments and cuttings | Retaining walls will be designed to complement the character of the precinct in which they occur with an emphasis on natural materials. Retaining wall finishes will be constructed of materials that will:  
- Minimise the opportunity for graffiti through selection of surface texture  
- Visually integrate with the surrounding geology, landscape and heritage of the cemetery  
- Retaining walls located below the road corridor should be dark in colour  
- The retaining wall along the edge of Lisarow Cemetery will consider using wall treatment such as a sandstone finish to integrate with the heritage values of this location.  
Roads and Maritime will consult with potentially impacted property owners/representatives in relation to the treatment of retaining wall (RW1) and | Roads and Maritime | Detailed design |
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<td>the boundary fence in this location (refer to Figure 1-2).</td>
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| LA-3 | Visual impact of the new railway overbridge                           | • The girders of the new bridge will be dark in colour to blend in to the shadows of the bridge  
• Consideration will be given to the utilisation of surplus bridge deck to provide art work which, mark the transition from the floodplain to the foothills  
• Opportunities will be considered to developed the zones between the road and the bridge as markers of the changing alignment context with structural art or plantings to integrate the bridge with the surroundings  
• Throw screens to protect the rail corridor will be integrated with the bridge barrier. | Roads and Maritime                      | Detailed design                  |
| LA-4 | Maintaining connectivity and movement                                 | • Connection will be maintained between land uses and transport linkages  
• Shared paths will be provided which will tie-into the exiting pathways  
• Opportunities to separate the shared path from the road will be investigated around the wetlands and the cemetery to enhance the pathways functionality and experience. | Roads and Maritime and construction contractor | Construction |
| LA-5 | Visual impact of the construction crew, stockpiles, plant and equipment during construction | • Work sites will be tidied at the end of each working day. Rubbish and garbage will be appropriately disposed of at an appropriately licensed facility  
• Vegetation will be maintained as long as possible, and removed according to construction staging requirements  
• Cleared areas will be progressively rehabilitated as each construction stage is completed, in accordance with the Landscape Management Plan which includes a site specific rehabilitation plan and which will be included in the CEMP)  
• The Landscape Management Plan will incorporate and integrate all relevant biodiversity safeguards where the proposal is impacting on biodiversity values. The Landscape Management Plan will specifically consider and incorporate the requirements from the Wetlands Management Plan (B13). | Roads and Maritime and construction contractor | Construction |
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| TG-1 | Impact on potentially contaminated sites    | - An *Asbestos Management Plan* will be prepared as part of the CEMP prior to any excavation works within the fill area adjacent to The Ridgeway (asbestos impacted area). Suitably trained and equipped workers will be present to implement the plan and to ensure that all works are undertaken with appropriate control measures to reduce the potential for impacts to workers and the community. Controls will ensure that any surface water flows are controlled during ground disturbance works, to reduce the potential for offsite migration. In addition, the *Asbestos Management Plan* will also include but not be limited to:  
  - Identification of areas with known and potential asbestos on site  
  - Procedures to manage and handle asbestos both known and unknown sources  
  - Procedures for disposal of asbestos in accordance with NSW EPA *Protection of the Environment (Waste) Regulation 2005 Roads and Maritime Waste Fact Sheet 5* and relevant Australian Standards  
  - All asbestos material will be removed by a licensed contractor and be disposed of at a licensed waste facility.  
- A *Contaminated Land Management Plan* will be prepared as and implemented as part of the CEMP for any areas of existing contaminated land or to address land contamination likely to be caused by the activity. The plan will be prepared in accordance with relevant requirements of the Roads and Maritime Guideline for the Management of Contamination and, as a minimum address the following matters:  
  - Identification of contaminated areas and sensitive surrounding environments  
  - Control measures to divert surface runoff away from the contaminated land  
  - Capture and manage any surface runoff contaminated by exposure to the contaminated land  
  - Manage the remediation and subsequent validation of the contaminated land, including any certification required | Construction contractor | Pre-construction |
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<td>TG-2</td>
<td>Land contamination during construction</td>
<td>Construction contractor</td>
<td>Construction</td>
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To avoid or limit the impact of contamination during construction:

- Standard contingency measures (including for unknown contaminants, asbestos-containing materials and site operations) in accordance with QA G36 Environment protection will be incorporated into the CEMP to allow for

- Measures to ensure the safety of site personnel (including hygiene practices) and local communities during construction
- Procedures to deal with unexpected contamination (e.g. stained or odorous soil and/or waters encountered during construction).

- Ground disturbance works within the rail corridor (adjacent to the rail overpass) and workshop area (identified benzo(a)pyrene impacted areas) will implement controls, such as, appropriate hygiene practices and standard construction controls (soil and water management) to minimise the potential for exposure to workers and the surrounding environmental receptors
- Prior to construction, workers will be informed of the potential for contamination, based on historical practices and if any stained or odorous soil and/or waters are encountered, works will be ceased and advice regarding management will be sought.
- Additional contamination investigations will be undertaken in the area identified as workshops to determine the extent of polycyclic aromatic hydrocarbons (PAH) contamination. Additional testing will inform the Contaminated Land Management Plan, specifically:
  - The interaction of the construction work with contaminated materials
  - Workplace, health and safety requirements to ensure the safety of site personnel (including hygiene practices) and local communities during construction
  - Waste classification for any material that is to be removed from site or managed on site
  - Provide details on the management of any residual contamination in relation to the final land use and whether a remediation action plan is required to validate the site
  - Procedures to deal with unexpected contamination (e.g. stained or odorous soil and/or waters encountered during construction).
<table>
<thead>
<tr>
<th>No.</th>
<th>Impacts</th>
<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
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</thead>
</table>
| TG-3 | Erosion and sedimentation leading to impacts on water quality, air quality and downstream biodiversity | - Further investigation and treatment/disposal as appropriate.  
- All potentially contaminated wastes generated during construction will be classified according to the *Waste Classification Guidelines: Parts 1 and 2* (DECC, 2008). Wastes will be disposed to a licensed disposal facility or reused in construction, as appropriate.  
- All road base/bitumen excavated during roadwork will be re-used or disposed of in accordance with the *Waste Classification Guidelines: Parts 1 and 2* (DECC, 2008).  
- Further investigations would be carried out before construction, to determine the most appropriate disposal of excavated materials. These investigations would also consider the suitability of these contaminated areas for treatment and use for road infrastructure and in some portions of the workshop area, for residential purposes. To manage these areas of contamination during construction, an *Asbestos Management Plan* and a *Contaminated Land Management Plan* would be prepared and implemented to manage impacts and the contamination at the site is considered manageable. | Construction contractor | Construction |
<table>
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<tr>
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<th>Timing</th>
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<tbody>
<tr>
<td>TG-4</td>
<td>Pollution as a result of sediment and other contaminants entering waterways during construction</td>
<td>• Channels and other concentrated flow paths will be lined&lt;br&gt;• Exposed batters will be lined, if required&lt;br&gt;• Run-off will be captured from exposed areas within sediment basins and treated to reduce sediment to the required level before it is discharged into downstream waterways&lt;br&gt;• A schedule for the ongoing maintenance and inspection of temporary erosion and sediment controls will be developed.</td>
<td>Construction contractor</td>
<td>Construction</td>
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</table>

**Climate change and air quality**

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<tr>
<td>AQ-1</td>
<td>Excessive exhaust emissions arising from construction plant and equipment</td>
<td>Ensure that plant and equipment operates in a proper and efficient manner by:&lt;br&gt;• Inspecting the plant/equipment before the start of construction on site&lt;br&gt;• Conduct routine servicing and maintenance, and subsequent inspections to ensure that equipment continues to operate efficiently.</td>
<td>Construction contractor</td>
<td>Pre-construction and routinely during construction</td>
</tr>
<tr>
<td>AQ-2</td>
<td>Dust emissions arising from disturbed, exposed and/or non-vegetated surfaces and stockpiled materials</td>
<td>Stage work to minimise to the extent practical exposed areas and stockpiles. Wherever possible, avoid completing work with a high potential to result in dust during dry conditions when winds are blowing in the direction of nearby receivers.&lt;br&gt;Regular watering of exposed and disturbed areas and stockpiles, especially during dry weather conditions.</td>
<td>Construction contractor</td>
<td>Pre-construction and during construction</td>
</tr>
<tr>
<td>No.</td>
<td>Impacts</td>
<td>Environmental safeguards</td>
<td>Responsibility</td>
<td>Timing</td>
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</table>
| AQ-3 | Dust emissions arising during the haulage of materials and construction vehicle movements | During construction the following measures will be implemented to minimise dust emissions to nearby sensitive receivers:  
  - Ensure that loads are covered  
  - Regularly water unsealed traffic routes  
  - Impose speed limits along unsealed routes  
  - Where possible, restrict movements along unsealed routes. | Construction contractor | During construction |
| AQ-4 | Dust emissions arising from non-vegetated surfaces                     | Staging of work to ensure that finished areas are revegetated as soon as possible.  
Regular maintenance and watering of revegetation areas to aid the establishment of adequate vegetation cover. | Construction contractor | During and post-construction |
| AQ-5 | Dust emissions emanating beyond the proposal area                      | Install depositional dust gauges to monitor and measure depositional dust at one of the most potentially affected receivers along the northern and southern ends of the alignment to evaluate compliance with EPA criteria. | Construction contractor | Construction |

### Aboriginal heritage

| AH-1 | Finding unexpected artefacts                                           | In the event of an unexpected find of an Aboriginal heritage item (or suspected item), work will cease in the affected area and the *Unexpected Archaeological Finds Procedure* (Roads and Maritime, 2015) will be followed. | Construction contractor | Pre-construction, construction |

### Land use and property

<p>| LU-1 | Change in land use                                                     | Consultation will be undertaken with property owners partially or wholly impacted by the proposal. | Roads and Maritime      | Detailed design |
| LU-2 | Property acquisition                                                   | Roads and Maritime will consult with property owners and known legal interests impacted by the proposal. Property acquisition will be managed in accordance with the provisions of Roads and Maritime’s Land Acquisition Policy (Roads and Maritime, 2012c) and the <em>Land Acquisition (Just Terms Compensation) Act 1991</em>. | Roads and Maritime      | Detailed design |</p>
<table>
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<th>Impacts</th>
<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
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<tr>
<td>LU-3</td>
<td>Property access</td>
<td>Property access will be maintained wherever possible. Before any unavoidable disruption to access, consultation will be undertaken with the affected property owner. The treatment of new accesses will be made in consultation with the property owners and will be to a similar standard to that used for the existing driveways.</td>
<td>Construction contractor</td>
<td>Prior and during construction and operation</td>
</tr>
</tbody>
</table>

**Socio-economic**

<p>| SE-1 | Start of construction       | Local residents will be notified before construction starts. They will also be regularly kept informed of construction activities during the construction process as part of the wider Pacific Highway upgrade program. | Roads and Maritime                     | Pre-construction and construction |
| SE-2 | Community                   | The community will be kept informed about upcoming road construction activities, including through advertisements in the local media and by prominently placed advisory notices and/or variable message signs. | Roads and Maritime                     | Pre-construction and construction |
| SE-3 | Complaints                  | A complaints-handling procedure and register will be included in the CEMP.                | Roads and Maritime                     | Pre-construction                   |
| SE-4 | Access and connectivity     | The following measures relating to maintaining access and connectivity:                  | Roads and Maritime and construction contractor | Construction                       |
|      |                              | • Where necessary, construction work will occur outside of peak travel times to minimise traffic disruptions |
|      |                              | • Where possible, pedestrian and cyclist access will be maintained throughout construction |
|      |                              | • Provision of signage outlining the pedestrian and cyclist diversion routes will be displayed during construction |
|      |                              | • There will be advance notification of any construction work that affect pedestrians and cyclists |
|      |                              | • Local residents are to be notified about any new or changed construction activities which will affect access to their properties or otherwise disrupt the residents’ use of their premises, at least five working days before commencing work affecting residents |
|      |                              | • The traffic management plan will include measures to minimise heavy vehicle usage and parking on local roads. Where practicable, deliveries of |                                      |                                     |</p>
<table>
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<tr>
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<tr>
<td></td>
<td></td>
<td>construction plant and materials will be undertaken outside of peak traffic periods</td>
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<td></td>
<td></td>
<td>• Access to appropriate bus stop locations will be maintained during construction in consultation with bus operators</td>
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<td></td>
<td></td>
<td>• Ongoing updates on locations and access to bus stops will be provided to the community during construction period to ensure that disruption is minimised</td>
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<tr>
<td></td>
<td></td>
<td>• Access to Lisarow Station will be maintained at all times.</td>
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</tr>
<tr>
<td>SE-5</td>
<td>Emergency vehicle access</td>
<td>Access will be maintained for emergency vehicles in the vicinity of construction work. Roads and Maritime will consult with emergency services throughout construction to ensure that potential impacts are identified and appropriately managed.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>SE-6</td>
<td>Interruptions to utility services</td>
<td>Roads and Maritime will inform residents before any interruptions to utility services that may be experienced when utilities need to be relocated.</td>
<td>Roads and Maritime</td>
<td>Construction</td>
</tr>
</tbody>
</table>

**Waste and resource management**

<p>| WR-1 | Generation of construction waste | The construction contractor will prepare a waste management plan and a waste management register in accordance with the requirements of Roads and Maritime’s QA Specification G36 – Environmental Protection (Management System). The plan will include the process for managing excess material. | Construction contractor | Pre-construction |
| WR-2 | Generation of construction waste | A pre and post construction land condition assessment for site facilities must be undertaken in accordance with QA Specification G36 Environment Protection to ensure no unauthorised wastes attributed to the activity are left behind. | Construction contractor | Pre and post construction |
| WR-3 | Generation of construction waste | The generation of construction waste is to be managed under the principles of avoiding unnecessary resource consumption, resource recovery, and lastly disposal (in accordance with the Waste Avoidance and Resource Recovery Act 2001). | Construction contractor | Construction |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Impacts</th>
<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR-4</td>
<td>Generation of construction waste</td>
<td>The construction contractor will regularly address housekeeping at the construction site. This will include collection and sorting of recycling, general waste and green waste. Waste will be disposed regularly at a licensed waste facility.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>WR-5</td>
<td>Generation of construction waste</td>
<td>Minimise disturbance of asphalt containing coal tar during detailed design and construction. Any coal tar requiring removal will be handled following appropriate guidelines and disposed of offsite at an appropriate facility.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>WR-6</td>
<td>Generation of construction waste</td>
<td>All waste generated will be disposed of by an appropriately licensed waste disposal contractor at an approved facility. The nearest landfill facility is the Mangrove Mountain landfill Waste Management facility located about 22 kilometres north of Lisarow.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>WR-7</td>
<td>Construction waste from the demolition of existing structures</td>
<td>The demolition of any structure will be undertaken in accordance with Australian Standard AS2601: The demolition of structures. Before the demolition of any structures, an inspection will occur to assess the potential for the presence of asbestos or other hazardous materials. If hazardous materials are found on site, measures to protect the health of workers and the general community will be developed. In order to reduce potable water consumption, alternate sources of water will be investigated including using treated water collected in sediment basins.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>WR-8</td>
<td>Waste generation during operation</td>
<td>Green waste from maintenance activities will be disposed of appropriately or re-used where practicable. Wastes such as oils and greases will be disposed of to an appropriate licensed facility.</td>
<td>Roads and Maritime</td>
<td>Operation</td>
</tr>
</tbody>
</table>

**Cumulative**

<p>| CE-1  | Cumulative traffic, biodiversity, noise and air quality impacts due | To minimise potential impacts during construction, the construction timetable for the upgrades will be co-ordinated to minimise disruption to motorists. This will allow construction to be carried out on a section-by-section basis. This approach | Roads and Maritime | Detailed design, pre-construction |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Impacts</th>
<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
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<tbody>
<tr>
<td></td>
<td>to construction of multiple projects</td>
<td>will ensure that negative cumulative impacts on both the function of the Pacific Highway and the surrounding environment will be minimised where possible.</td>
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</tr>
</tbody>
</table>
3.3 Licensing and approvals

The licences and approvals required for the proposal are outlined in Section 7.3 of the Review of Environmental Factors and listed in Table 3.2.

Table 3.2: Summary of licensing and approval required

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Requirement</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Act 1912</td>
<td>Should the construction contractor have the need to establish bores for the purpose of taking or using of water from the aquifer including for dewatering purposes, a licence will be required under Section 112 of the Water Act 1912 from the NSW Department of Primary Industries – Water.</td>
<td>Before taking or using any water from the bore.</td>
</tr>
<tr>
<td>Roads Act 1993</td>
<td>In accordance with Section 138 of the Roads Act 1993, a road occupancy licence will need to be obtained from Roads and Maritime for construction work within the road corridor.</td>
<td>Before construction within the road reserve.</td>
</tr>
<tr>
<td>Threatened Species Conservation Act 1995 (TSC Act)</td>
<td>Roads and Maritime will be submitting the Review of Environmental Factors, Submissions Report and Species Impact Statement to the Office of Environment and Heritage for approval under the TSC Act. Although not anticipated by Roads and Maritime, conditions imposed by OEH during this process may trigger some further design and construction phase actions and/or investigations. These will be published with project information on the website and outlined in future community updates.</td>
<td>Prior to start of the activity</td>
</tr>
</tbody>
</table>
4 References


Roads and Maritime Services (2016), *Upgrade the Pacific Highway – Ourimbah Street to Parsons Road, Lisarow Draft Review of Environmental Factors*, prepared by Jacobs.
Appendix A

General and authority stakeholders for the proposal
<table>
<thead>
<tr>
<th>Stakeholder category</th>
<th>Stakeholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Central Coast Council</td>
</tr>
<tr>
<td></td>
<td>Office of Environment and Heritage</td>
</tr>
<tr>
<td></td>
<td>Department of Primary Industries – Fisheries NSW</td>
</tr>
<tr>
<td></td>
<td>Department of Planning and Environment</td>
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<td></td>
<td>Department of Housing</td>
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<tr>
<td>Members of Parliament</td>
<td>Member for The Entrance</td>
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<td>Member for Wyong</td>
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<tr>
<td>Indigenous group</td>
<td>Darkinjung Local Aboriginal Land Council</td>
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<tr>
<td>Transport groups</td>
<td>Busways Group Pty Ltd</td>
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<td></td>
<td>Sydney Trains</td>
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<tr>
<td>Emergency services</td>
<td>Ambulance Service of NSW</td>
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<td></td>
<td>NSW Police</td>
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<tr>
<td></td>
<td>Fire and Rescue NSW</td>
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<tr>
<td></td>
<td>NSW Rural Fire Service</td>
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<tr>
<td></td>
<td>NSW State Emergency Service</td>
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<tr>
<td>Health</td>
<td>Gosford Hospital</td>
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<tr>
<td>Environment groups</td>
<td>Community Environment Network</td>
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<tr>
<td></td>
<td>Narara Creek Bushcare Group</td>
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<td></td>
<td>Australian Conservation Foundation – Central Coast</td>
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<tr>
<td></td>
<td>Lisarow Wetland</td>
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<tr>
<td>Business groups</td>
<td>Gosford City Chamber of Commerce and Industry Incorporated</td>
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<td></td>
<td>Lisarow Shopping Village</td>
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<tr>
<td></td>
<td>Central Coast NSW Business Chamber</td>
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<tr>
<td>Community groups/individuals</td>
<td>Gosford Church of Christ</td>
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<td></td>
<td>Wyoming/North Gosford Residents’ Association</td>
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<td></td>
<td>Central Coast Council</td>
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<td></td>
<td>Ourimbah Region Residents Association</td>
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<td>Central Coast Football</td>
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<tr>
<td>Stakeholder category</td>
<td>Stakeholder</td>
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<tr>
<td></td>
<td>Community members and residents that have previously registered to be kept informed about the project</td>
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<tr>
<td>Utility authorities</td>
<td>Optus</td>
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<td></td>
<td>Nextgen</td>
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<td></td>
<td>Central Coast Council</td>
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<td>Telstra</td>
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<td>Jemena</td>
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<tr>
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<td>NBN</td>
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<td>Ausgrid</td>
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Appendix B

Community update and frequently asked questions
Pacific Highway upgrade, Lisarow

July 2016

The NSW Government has provided $7 million in 2016/17 for the planning of the Pacific Highway upgrade, between Ourimbah Street and Parsons Road, Lisarow to improve traffic flow and safety.

This community update provides information about the Review of Environmental Factors, Species Impact Statement and updated road design.

The community are invited to comment on the Review of Environmental Factors and Species Impact Statement by Friday 19 August 2016.

Background

The Pacific Highway provides the main north-south link for road transport between Gosford and the M1 Pacific Motorway, and vital connections to business districts and residential suburbs within the Central Coast.

The 1.6 kilometre section of road between Parsons Road and Ourimbah Street is used by around 30,000 vehicles a day. During peak travel times motorists experience congestion and slow travel times. The planned upgrade would improve traffic flow and safety.

In 2015, Roads and Maritime Services displayed the concept design and draft Review of Environmental Factors for community comment.

The draft Review of Environmental Factors found the proposed road upgrade would have a significant impact on Melaleuca Biconvexa, a threatened flora species. As a result of this a Species Impact Statement has been prepared to thoroughly assess the potential impact and identify measures to avoid or minimise this impact.

The findings of the Species Impact Statement have been incorporated into the Review of Environmental Factors. The Review of Environmental Factors also includes minor changes to the concept design following consideration of comment received by the community in 2015.
Species Impact Statement findings and Review of Environmental Factors

Roads and Maritime has prepared a Review of Environmental Factors to assess the potential environmental and social impacts of the proposed road upgrade and identify measures to mitigate these impacts.

The draft Review of Environmental Factors identified the likely significant impact on the threatened flora species, Melaleuca Biconvexa. A Species Impact Statement has been developed to confirm and further understand the impact on this threatened species as required by the Threatened Species Conservation Act 1995.

The Species Impact Statement confirmed there is likely to be an unavoidable and significant impact on about 2.6 hectares of Melaleuca Biconvexa, despite the mitigation measures that have been developed. The proposal is unlikely to have a significant impact on any other threatened species, once mitigation measures are implemented.

Biodiversity offsets

Roads and Maritime would obtain biodiversity offsets to compensate for the impact on threatened species as a result of this proposal.

To offset the removal of some vegetation clearing required, ‘Biodiversity offsets’ are proposed which could include measures like protection and conservation of an area of land with similar conservation value.

A Biodiversity Offset Strategy has been developed in consultation with NSW Office of Environment and Heritage, to confirm the availability of suitable offsets and to outline the steps Roads and Maritime will take to implement.

You can view the updated Review of Environmental Factors, Species Impact Statement and proposed design at rms.nsw.gov.au/lisarow

The proposal

The proposal involves widening the Pacific Highway to provide two lanes in each direction between Ourimbah Street and Parsons Road.

Key features include:

• Two lanes in each direction on the Pacific Highway
• A new bridge over the rail line, replacing the existing narrow bridge near Railway Crescent
• New traffic lights at the Railway Crescent and Tuggerah Street (formerly Macdonalds Road) intersections with the Pacific Highway
• Upgrading the existing traffic lights at The Ridgeway
• Improving pedestrian and cycle paths along and across the highway
• Improving access to the parking area at Lisarow Railway Station.

Benefits

Key benefits include improved:

• Traffic flow and more consistent travel times on the Pacific Highway
• Access to connecting roads
• Safety for all road users
• Pedestrian and cycle network.
Minor changes have been made to the road design since the 2015 public display. The changes considered community feedback and further investigations. These include:

- Lengthening the left turn bay from the Pacific Highway into Railway Crescent by 35 metres to minimise traffic queuing for through traffic.
- Installing temporary and permanent water quality basins to manage water runoff from the Pacific Highway:
  - A temporary basin will be created to manage erosion and sediment during construction and will be located next to the Lisarow Station car park.
  - A permanent basin will be located on the western side of the Pacific Highway to the south of Tuggerah Street.
- Installing a new retaining wall at the northern side of Dora Street to minimise the impact on Lisarow cemetery.
- Extending the currently proposed retaining walls in various locations. Retaining walls are being extended to minimise the impact of the proposal on the surrounding environment.
- Extending the shared pedestrian and cycle path along the eastern side of the Pacific Highway between The Ridgeway and MacDonalds Road, to provide better connection to Lisarow Public School.
Community involvement

Roads and Maritime is committed to working with the community and stakeholders during the planning process to identify issues and minimise potential impact of the upgrade.

Roads and Maritime will consider comments when in finalising the design.

The community is invited to view the plans and find out more information at a staffed display on Thursday 11 August between 4pm to 7pm at Lisarow Plaza outside Coles, on the corner of the Pacific Highway and Parsons Road, Lisarow.

Project development process

- Planning and investigations
- Consultation on the proposed upgrade
- Concept design and Review of Environmental Factors
- Development of Species Impact Statement
- Review of Environmental Factors and Species Impact Statement displayed for community comment
- Approval to proceed
- Detailed design
- Construction

What happens next?

The community are invited to comment on the Review of Environmental Factors and Species Impact Statement by Friday 19 August 2016.

After consideration of community comments, Roads and Maritime will work with the Office of Environment and Heritage to seek agreement on the Species Impact Statement. This will determine if the proposal should go ahead as proposed, or if changes are needed.

The community will be kept informed throughout this process.

Please send us your comments by Friday 19 August 2016.
Frequently Asked Questions

Pacific Highway upgrade, between Ourimbah Street and Parson Road, Lisarow

July 2016

The NSW Government allocated $7 million in 2016/17 for the planning of this future upgrade.

Feedback on the proposed design is invited by 19 August 2016 and will be considered when finalising the design.

Why is the upgrade needed?

A future upgrade of the Pacific Highway, between Ourimbah Street and Parsons Road at Lisarow would have regional and local benefits, by supporting access to and from the Central Coast and the region.

The upgrade would address current congestion and future traffic growth, improving traffic flow and the efficiency of freight. It would also improve safety and reduce the risk of crashes, and improve access for pedestrians and cyclists.

The proposal is part of a broader strategy to upgrade the Pacific Highway on the Central Coast between Wyoming and the Pacific Motorway (M1). The upgrade is being delivered over four key stages:

- **Stage 1** – Upgrading the intersection of the Pacific Highway with Dog Trap Road, (completed July 2007).
- **Stage 2** – Widening the Pacific Highway between Glen Road and Burns Road at Ourimbah, (completed January 2010)

Stage 3 has been broken down into two stages to minimise community disruption:

- **Stage 3A** – Pacific Highway upgrade between Ourimbah Street, Lisarow to Glen Road, Ourimbah (construction started in January 2016)
- **Stage 3B** – Pacific Highway upgrade between Parsons Road to Ourimbah Street, Lisarow (this project)
- **Stage 4** – Pacific Highway upgrade between Narara Creek Road, Narara to Parsons Road, Lisarow (in development)
How many cars travel along the Pacific Highway at Lisarow each day?

The 1.6 kilometre section of the Pacific Highway between Parsons Road and Ourimbah Street at Lisarow is used by around 30,000 vehicles a day. This includes commercial transport, servicing the Narara and Lisarow areas.

I own a business in Lisarow. How will this affect me?

Roads and Maritime would liaise with local business during the construction to make sure access for customers is maintained and any impact minimised.

When will upgrade work start?

The NSW Government has allocated $7 million to continue planning for this upgrade. The proposed design is part of the NSW Government's commitment to planning for future important road infrastructure.


Will the upgrade change the way I use the Pacific Highway and local roads at Lisarow?

The upgrade would improve travel times and safety, and reduce congestion along the Pacific Highway Lisarow.

Access to the Pacific Highway and side streets would be improved through the installation of traffic lights and dedicated turning lanes.

The new intersection at Railway Crescent will restrict right turns out of Dora Street. A right turn bay could not be provided safely along Dora Street due to land constraints at this location.

Access will be improved to Lisarow train station through the relocation of the access road to the north and dedicated turning bays provided on the Pacific Highway.

Will there be paths for pedestrian and cyclist?

Yes. The upgrade would improve pedestrian and cycle facilities along the Pacific Highway and connections would be provided to current paths.

Review of Environmental Factors

What is the purpose of the Review of Environmental Factors?

A Review of Environmental Factors is an environmental assessment carried out by Roads and Maritime Services. This assesses the potential environmental and social impacts of the proposed road upgrade. The Review of Environmental Factors also identifies measures to manage and mitigate these impacts.

Why is the Review of Environmental Factors being displayed for community comment for a second time?

The initial display of the draft Review of Environmental Factors found the proposal would likely have a significant impact on the threatened flora species *Melaleuca biconvexa* (Biconvex Paperbark).

This has required the development of a Species Impact Statement under the *Threatened Species Conservation Act 1995*. The findings of the Species Impact Statement have updated the Review of Environmental Factors meaning it must be displayed again in conjunction with the Species Impact Statement.

What impacts will the proposal likely have on biodiversity?

A biodiversity assessment found the proposal would require the removal of exotic and native vegetation, including 3.1 hectares of Endangered Ecological Communities listed under the *Threatened Species Conservation Act 1995*. These communities include Swamp Sclerophyll Forest (2.8 hectares) and Freshwater Wetlands (0.3 hectares).

The biodiversity assessment also found the proposal would likely have a significant impact on the threatened flora species *Melaleuca biconvexa*. It is estimated 2.6 hectares of the species would be removed or impacted by the proposal.

Further assessments found the proposal unlikely to have a significant impact on other Endangered Ecological Communities or threatened flora and fauna species.
Will the proposal have an impact on flooding?
Yes. It is expected the proposal would likely have a temporary impact on flooding during construction.

Measures would be put in place to relieve potential flooding impacts to existing developments. These are summarised in the Review of Environmental Factors at rms.nsw.gov.au/lisarow

Studies show there would be a minor impact to flooding after construction.

Will the proposal have an impact on heritage items?
There would be small permanent changes to Lisarow cemetery, which is a locally listed heritage item. The impact includes the relocation of the cemetery gates on the highway, removal of vegetation and reducing the distance between the graves and the travel lanes on the Pacific Highway.

Measures would be put in place during construction to minimise the risk of impact.

Will there be an impact to the community and motorists during construction?
We expect there would be temporary disruptions to traffic flow and delays during construction.

Property access may be temporary affected. We will discuss this with property owners before work starts.

Some work will be noisy and we are planning a range of mitigation measures for these activities. One of these measures is construction staging.

Construction is expected to be implemented in four stages to minimise impacts to traffic, businesses and residents.

The majority of construction would be carried out during normal construction hours (Monday to Friday between 7am and 6pm and on Saturdays between 8am and 1pm). However, to ensure the safety of our workers and to limit the impact on traffic flow, some work would be required outside of normal construction hours.

We will notify the community before the start of any out of hours or night work.

Will there be traffic noise impacts once the upgrade is complete?
Noise modelling has indicated that a small number of residences may be impacted by traffic noise once the upgrade work is complete.

Roads and Maritime will consult directly with affected property owners during the next stage of planning. Operational noise mitigation measures will be examined to minimise traffic noise impact on affected residents.

Species Impact Statement

What is the purpose of the Species Impact Statement?
A Species Impact Statement has been developed to thoroughly investigate the impacts the proposal would have on the threatened flora species Melaleuca biconvexa and Endangered Ecological Communities (Swamp Sclerophyll Forest and Freshwater Wetlands).

Mitigation measures and safeguards have been developed as part of the Species Impact Statement to minimise impacts to threatened species.

Details of the mitigation measures can be found in the Review of Environmental Factors and Species Impact Statement. You can view the updated Review of Environmental Factors and Species Impact Statement at rms.nsw.gov.au/lisarow

What are the Species Impact Statement findings?
Despite mitigation measures, the Species Impact Statement has confirmed there is likely to be an unavoidable and significant impact on about 2.6 hectares of Melaleuca Biconvexa.

The proposal is unlikely to have a significant impact on any other threatened species, once mitigation measures are implemented.

To compensate for the impact the proposed road upgrade would have on threatened species,
Roads and Maritime would purchase biodiversity offsets.

**What are biodiversity offsets?**

Roads and Maritime would obtain biodiversity offsets to compensate for the impact on threatened species as a result of this proposal.

To offset the removal of some vegetation clearing required, ‘Biodiversity offsets’ are proposed which could include measures like protection and conservation of an area of land with similar conservation value.

A Biodiversity Offset Strategy has been developed in consultation with NSW Office of Environment and Heritage, to confirm the availability of suitable offsets and to outline the steps Roads and Maritime will take to implement.

**What happens next?**

**Will you listen to community feedback?**

Yes. Comments and feedback from the community will be considered when finalising the design.

A response to any issues raised by the public during the display of this Review of Environmental Factors and Species Impact Statement will be provided in a Submissions Report.

The Submissions Report will be publicly available on the Roads and Maritime website at rms.nsw.gov.au/lisarow

**What are the next steps?**

Once community feedback is considered, Roads and Maritime will determine if the proposal should proceed, or whether changes to the proposal are needed. The community will be kept informed about this Roads and Maritime determination.

If the proposal is determined as feasible, agreement of the Species Impact Statement and its mitigation measures is needed from the Office of Environment and Heritage for the project to happen.

Final design is now underway and if the proposal is approved, we would call tenders for construction of the project at an appropriate time once funding permits following completion of the design and completion of the purchase of all necessary property.

**How can I find out more information and have my say?**

The community is invited to view the plans and find out more at a staffed drop in community information session at Lisarow Plaza outside Coles, located on the corner of the Pacific Highway and Parsons Road at Lisarow at:

- **Thursday 11 August: 4pm to 7pm**

The plans are available for viewing at:

- **Gosford Service Centre**: 131-135 Henry Parry Drive, Gosford, Monday to Friday 8:30am to 5:30pm and Saturday 8:30am to 12pm.
- **Tuggerah Service Centre**: Tuggerah Super Centre, 2 Bryant Drive, Tuggerah, Monday to Friday 8:30am to 5:30pm and Saturday 8:30am to 12pm.

You can visit rms.nsw.gov.au/lisarow

**How can I provide feedback?**

You can contact us and provide feedback, by:

Phoning: (02) 4379 7020 in business hours

Emailing: central.coast.Office@rms.nsw.gov.au

Online: rms.nsw.gov.au/lisarow

Writing: Daryl Fidge
Roads and Maritime Services
Central Coast Office
Locked Bag 2030
Newcastle NSW 2300

Please send us your feedback by **Friday 19 August 2016**.