Empire Bay Drive at The Scenic Road, Kincumber Intersection Upgrade

Submissions report

Roads and Maritime Services | May 2018
Empire Bay Drive at The Scenic Road, Kincumber Intersection Upgrade

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Roads and Maritime Services | May 2018

Prepared by NGH Environmental and Roads and Maritime Services

(NGH Environmental Reference: 17-308)
RMS.18.836

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# Document controls

## Approval and authorisation

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| Accepted on behalf of NSW Roads and Maritime Services by: | Tony Lai  
Project Manager/Engineer  
Roads and Maritime – Greater Sydney Project Office |
| Signed: | |
| Dated: | 18 May 2018 |

## Document status

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<th>Reviewed by</th>
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<td>Lauren Byrne</td>
<td>Fiona McKay</td>
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Executive summary

Roads and Maritime Services NSW (Roads and Maritime) propose to upgrade the intersection of Empire Bay Drive at The Scenic Road and Cochrone Street, Kincumber (the proposal). The intersection is about 200 metres south of Avoca Drive. The proposal is located within the Central Coast Council local government area (LGA) and extends along Empire Bay Drive for around 500 metres, along The Scenic Road for around 100 metres and along Cochrone Street for around 50 metres.

The main features of the proposal are:

- Upgrade of the roundabout from one lane to two lanes
  - Provision of two lanes in the northbound direction on Empire Bay Drive between Kerta Road and the northern extent of the proposal joining to the existing two lanes near Avoca Drive
  - Provision of two lanes in the southbound direction along Empire Bay Drive from the northern extent of the proposal to around 50 metres south of the roundabout
  - Provision of two lanes on the approach from The Scenic Road with one being a dedicated right turn lane
- Re-alignment of the roundabout annulus and widening of Empire Bay Drive on the north-western and north-eastern side of the intersection
- Provision of new mid-block pedestrian signals north of the intersection
- Provision of a right turn lane on Empire Bay Drive at Sundowner Avenue
- Provision of a right turn lane on Empire Bay Drive southbound at the Kerta Road intersection
- Signposting Shipwrights Lane as one way eastbound with left out access only onto Empire Bay Drive
- Provision of an indented bus stop on Empire Bay Drive northbound carriageway, north of the intersection
- Relocation of the existing southbound bus stop on Empire Bay Drive south of The Scenic Road, to just north of Bridge Street
- New road surface on Empire Bay Drive from 30 metres south of Bridge Street to Kincumber Creek, about 170 metres south of Avoca Drive
- New road surface on local roads of up to 50 metres on Cochrone Street and The Scenic Road
- Building a three metre wide shared pathway on both sides of Empire Bay Drive from Kincumber Creek to the intersection of Empire Bay Drive and The Scenic Road
- Provision of 1.5 metre wide footpaths at the south-east and south-west corners of the intersection to connect to existing footpaths south of the intersection
- Widened footpath of two metres across Kincumber Creek on Empire Bay Drive (northbound and southbound).

A review of environmental factors (REF) was prepared for the proposal to assess the potential impact on the environment and identify mitigation measures and safeguards.

The REF was publicly displayed for 26 days between 19 March 2018 and 13 April 2018 at Kincumber Library, Central Coast Council Gosford office and on the Roads and Maritime website.

Local residents were notified via a letterbox drop, two advertisements in the Central Coast Express Advocate before and during the display period and through posts made on Roads and Maritime’s Facebook page.

An information session was held at the Kincumber Village Shopping Centre by Roads and Maritime on 5 April 2018.

Roads and Maritime received 29 submissions in response to the REF.
This included one submission from the Darkinjung Local Aboriginal Land Council and 28 from the community. Of the 29 submissions received, one submission was in support of the proposal and two submissions opposed the proposal. The remaining 26 submissions provided feedback on one or more elements of the proposal.

A summary of the main issues raised by the respondents include:

*Alternative suggestions*

A total of 15 submissions made several alternative upgrade suggestions ranging from new road corridor alignments, extension of shared paths past the limit of works, reconsideration of the traffic signal option and intersection modifications to Kerta Road and Bridge Street such as dedicated turning lanes, a new roundabout or signalising the Kerta Road/Empire Bay Drive intersection.

Many of the suggestions described in the submissions, including those about new corridor alignments, are beyond the scope of this proposal. Some suggestions have previously been considered by Roads and Maritime and found not to be justified based on traffic volume demand and property impacts. The extension of shared paths would be a matter for Central Coast Council’s consideration.

The submissions related to the Kerta Road and Bridge Street intersections with Empire Bay Drive suggested the installation of new turning lanes, roundabouts and traffic signals. These proposed intersection upgrades are beyond the scope of this proposal and will be listed for future investigation in relation to traffic safety.

In relation to the suggested alternative traffic signal option, a comprehensive traffic study was completed for the proposal. The study showed that the proposal achieved an equivalent level of service during peak times and is superior in off peak times.

The preferred option to upgrade the roundabout avoids several community concerns about the traffic signal design and results in significantly less property to be acquired, less impact on local business including business acquisition, retaining access to Sundowner Avenue, retention of most on-street parking at Cochrone Street and retention of some on-street parking on The Scenic Road.

All suggestions made by respondents and Roads and Maritime’s responses are described in Section 2.2.

*Traffic safety*

A total of 11 submissions were made about traffic safety concerns exiting Kerta Road and Bridge Street onto Empire Bay Drive, the relocated southbound bus stop near Bridge Street obstructing line of sight and posted traffic speed limit for Empire Bay Drive. The concerns about exiting Kerta Road and Bridge Street onto Empire Bay Drive will be listed for future investigation. Roads and Maritime will incorporate ‘Keep Clear’ signs and line marking at the Kerta Road intersection; and will adjust line marking at Bridge Street to improve sight distances when exiting onto Empire Bay Drive to avoid views being obstructed by buses at the relocated bus stop.

A speed zone review of Empire Bay Drive has been carried out which determined existing speed limits were appropriate and a speed reduction is not required. Roads and Maritime will investigate the road geometry options to reduce the speed of westbound traffic approaching the roundabout and will forward any speed related issues to local police and Central Coast Council for consideration.

The remaining submissions raised issues including:

- Pedestrian safety
- Scope/ justification of works
- Traffic congestion
- Access
- Construction impacts
- Parking
- Biodiversity impacts
• Property.

**Additional assessment and environmental management**

In response to the submissions and other feedback received during the REF display, Roads and Maritime has introduced four changes to the proposed design, to improve safety for road users, pedestrians and cyclists. These are:

- Extending the stop line at Bridge Street closer to Empire Bay Drive to allow for adequate sightlines with the interactions of the southbound bus stop north of Bridge Street
- Addition of ‘Keep Clear’ signs at the Kerta Road/ Empire Bay Drive intersection to improve right and left turn movements out of Kerta Road onto Empire Bay Drive
- Inclusion of additional advance warning signs to inform motorists of the pedestrian refuge near Kerta Road
- Addition of new line marking to delineate a shoulder edge line on The Scenic Road (eastbound). This would divert the main traffic away from the kerb and driveways along The Scenic Road. New line marking will also formalise areas for on-street parking which would be marked up to 2.5 metres off the kerb.

In addition, since the display of the REF the following design refinements have been made by Roads and Maritime:

- Extending the extent of line marking along Empire Bay Drive to Avoca Drive, 100 metres west along Cochrone Street and 100 metres east along The Scenic Road during construction, to assist with traffic control during work
- Drainage work along the eastern side of Empire Bay Drive to the properties north of Sundowner Avenue to avoid ponding and reduce the potential for flooding post construction
- Inclusion of a short length of path from the new bus stop north of Bridge Street to connect the bus shelter to the existing path along the property boundary
- Additional drainage works along the eastern side of Empire Bay Drive, south of The Scenic Road and just north of Kerta Road.

The environmental management and mitigation measures as described in the REF remain appropriate to minimise potential impact. Six new safeguards and mitigation measures have been included to address issues raised in submissions including traffic safety, pedestrian safety and property. These are:

- Further investigation into the option to extend the shared pathway on the eastern side of Empire Bay Drive from Kincumber Creek to Avoca Drive
- Further investigation into road geometry options that may help reduce traffic speeds when approaching the roundabout
- Continue consultation with affected property owners regarding entry and exit to properties along The Scenic Road and Empire Bay Drive
- Further investigation into whether minor adjustments are necessary to improve pedestrian safety at the existing pedestrian refuge at Kerta Road
- Continue consultation with Darkinjung Local Aboriginal Land Council to ensure future site access is considered to Lot 1008 DP 1239890 (formerly Lot 500 DP 823145)
- Replace or restore any kerb (or accesses) damaged during construction.

**Conclusion of this report**

After consideration of all matters raised in public and stakeholder submissions and proposed design changes, the proposed potential impact is not considered significant and would be managed by implementing the safeguards and mitigation measures identified in this report.
In summary, the proposal as described in the REF, including changes made to the design documented in this submissions report, meets the proposal objectives, while minimising environmental impact and appropriately considers community and stakeholder issues.
Contents

Executive summary ....................................................................................................................................... i

Contents ........................................................................................................................................................ v

1. Introduction and background ............................................................................................................... 1
   1.1 The proposal .................................................................................................................................. 1
   1.2 REF display .................................................................................................................................. 4
   1.3 Purpose of the report ................................................................................................................... 4

2. Response to issues ............................................................................................................................... 5
   2.1 Overview of issues raised ............................................................................................................. 6
   2.2 Alternative approaches and suggestions .................................................................................... 7
   2.3 Traffic safety ................................................................................................................................ 13
   2.4 Pedestrian safety .......................................................................................................................... 15
   2.5 Scope/ justification of works ...................................................................................................... 16
   2.6 Traffic congestion ....................................................................................................................... 17
   2.7 Access ....................................................................................................................................... 18
   2.8 Construction impact ................................................................................................................... 18
   2.9 Errors and omissions ................................................................................................................... 19
   2.10 Parking .................................................................................................................................... 20
   2.11 Biodiversity impacts ................................................................................................................ 21
   2.12 Property ................................................................................................................................... 25
   2.13 Support ................................................................................................................................... 25

3. Changes to the proposal ..................................................................................................................... 26
   3.1 Bridge Street and Kerta Road Line marking ................................................................................. 28
   3.2 Signage at the Kerta Road pedestrian refuge ........................................................................... 29
   3.3 Shoulder line marking on the corner of The Scenic Road ........................................................... 29
   3.4 Line marking along Empire Bay Drive, Cochrone Street and The Scenic Road ....................... 30
   3.5 Drainage work along Empire Bay Drive .................................................................................... 30
   3.6 Pathway from Bridge Street Bus Stop ....................................................................................... 30
   3.7 Additional kerb and drainage works .......................................................................................... 30

4. Environmental assessment ................................................................................................................ 31
   4.1 Revised safeguards and management measures ......................................................................... 32

5. Environmental management ............................................................................................................. 32
   5.1 Environmental management plans (or system) ......................................................................... 32
   5.2 Summary of safeguards and management measures ............................................................... 32
   5.3 Licensing and approvals ............................................................................................................ 58

6. References ......................................................................................................................................... 59
Tables
Table 1-1 Display locations............................................................................................................................. 4
Table 2-1 Respondents .................................................................................................................................. 5
Table 2-2 Respondents .................................................................................................................................. 7
Table 4-1 Proposed new safeguards addressing issues raised in submissions ........................................... 31
Table 5-1 Summary of environmental safeguards and management measures ........................................... 33
Table 5-2 Summary of licensing and approval required ................................................................................ 58

Appendices

| Appendix A | Assessment of Significance - Kincumber Scribbly Gum Forest CEEC |
1. Introduction and background

1.1 The proposal

Roads and Maritime Services NSW (Roads and Maritime) propose to upgrade the intersection of Empire Bay Drive at The Scenic Road and Cochrone Street, Kincumber (the proposal). The intersection is about 200 metres south of Avoca Drive. The proposal extends along Empire Bay Drive for around 500 metres, along The Scenic Road for 100 metres and along Cochrone Street for around 50 metres.

Key features of the proposal include:

- Upgrade of the roundabout from one lane to two lanes
  - Provision of two lanes in the northbound direction on Empire Bay Drive between Kerta Road and the northern extent of the proposal joining to the existing two lanes near Avoca Drive
  - Provision of two lanes in the southbound direction along Empire Bay Drive from the northern extent of the proposal to around 50 metres south of the roundabout
  - Provision of two lanes on the approach from The Scenic Road with one being a dedicated right turn lane
- Re-alignment of the roundabout annulus and widening of Empire Bay Drive on the north-western and north-eastern side of the intersection
- Provision of new mid-block pedestrian signals north of the intersection
- Provision of a right turn lane on Empire Bay Drive at Sundowner Avenue
- Provision of a right turn lane on Empire Bay Drive southbound at the Kerta Road intersection
- Signposting Shipwrights Lane as one way eastbound with left out access only onto Empire Bay Drive
- Provision of an indented bus stop on Empire Bay Drive northbound carriageway, north of the intersection
- Relocation of the existing southbound bus stop on Empire Bay Drive south of The Scenic Road, to just north of Bridge Street
- New road surface on Empire Bay Drive from 30 metres south of Bridge Street to Kincumber Creek, about 170 metres south of Avoca Drive
- New road surface on local roads of up to 50 metres on Cochrone Street and The Scenic Road
- Building a three metre wide shared pathway on both sides of Empire Bay Drive from Kincumber Creek to the intersection of Empire Bay Drive and The Scenic Road
- Provision of 1.5 metre wide footpaths at the south-east and south-west corners of the intersection to connect to existing footpaths south of the intersection
- Widened footpath of two metres across Kincumber Creek on Empire Bay Drive (northbound and southbound).

A more detailed description of the intersection upgrade is found in the Empire Bay Drive at The Scenic Road, Kincumber Intersection Upgrade REF prepared by Roads and Maritime in 2018.

The location and layout of the proposal is shown on Figure 1-1 and Figure 1-2, respectively.
Figure 1-1 Location of the proposal
Figure 1-2 Location and layout of the updated proposal
1.2 REF display

Roads and Maritime prepared a review of environmental factors (REF) to assess the potential environmental impacts of the proposed works. The REF was publicly displayed for 26 days between 19 March 2018 and 13 April 2018 at two locations, as detailed in Table 1-1. The REF was placed on the Roads and Maritime project website and made available for download. The display locations were Kincumber Library and Central Coast Council – Gosford Office and on the Roads and Maritime website. Local residents were notified through a letterbox drop, two advertisements in the Central Coast Express Advocate prior to and during the display period and through posts made on Roads and Maritime’s Facebook page.

In addition to the above public display, an information session was held at the Kincumber Village Shopping Centre by Roads and Maritime on 5 April 2018.

Table 1-1 Display locations

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<td>Gosford NSW 2250</td>
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<tr>
<td>Kincumber Library</td>
<td>3 Bungoona Road</td>
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<td>Kincumber NSW 2251</td>
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1.3 Purpose of the report

This submissions report relates to the REF prepared for the Empire Bay Drive at The Scenic Road, Kincumber Intersection Upgrade and should be read in conjunction with that document.

The REF was placed on public display and submissions relating to the proposal and the REF were received by Roads and Maritime. This submissions report summarises the issues raised and provides responses to each issue (Chapter 2), it outlines the adjustments to the current design in response to the submissions received since the REF display (Chapter 3), describes and assesses the environmental impact of changes to the proposal (Chapter 4) and identifies new or revised environmental management measures (Chapter 5).

No substantial changes are proposed that would trigger the preparation of a preferred infrastructure report.
2. Response to issues

Roads and Maritime Services received 29 submissions, including submissions received during the public information session held at Kincumber Village Shopping Centre, accepted up until 13 April 2018, and no late submissions received past the closing date. 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 Chapter 3 of this report.

Table 2-1 Respondents

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<th>Submission No.</th>
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<td>Individual</td>
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<td>Section 2.3.11</td>
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A total of 29 submissions were received in response to the display of the review of environmental factors. This included one submission from the Darkinjung Local Aboriginal Land Council and 28 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 to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and Roads and Maritime’s response to these issues forms the basis of this chapter.

One submission stated support for the proposal, particularly around the improvements of safety and shared pathways.

There were two submissions (4 and 11) objecting to the proposal in its entirety with the main concern being that upgrading the Empire Bay Drive at The Scenic Road intersection would not improve traffic flow. Other concerns suggested changes or queried one or more elements of the proposal.

Comments raised in the submissions focused on the following key issues:

- Alternative approaches and suggestions
- Traffic safety
- Pedestrian safety
- Scope/ justification of works
- Traffic congestion
- Access
- Construction impacts
- Errors and omissions
- Parking
- Biodiversity impacts
- Property.

The majority of the comments related to alternative approaches and suggestions for the design of the proposal and others related to traffic and road safety issues (refer to Table 2-1 and Table 2-2).

These issues are described in more detail in sections 2.2 to 2.13.
2.1.1 Main issues raised by individuals

Twenty-eight submissions were received by individuals during the display of the REF as detailed in Table 2-1. The issues raised by individuals are listed in Table 2-2.

Table 2-2 Respondents

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<td>Section 2.4</td>
</tr>
<tr>
<td>Scope/ justification of works</td>
<td>2, 3, 11</td>
<td>3</td>
<td>Section 2.5</td>
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<td>2, 22</td>
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<td>Biodiversity impacts</td>
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<tr>
<td>Support</td>
<td>2</td>
<td>1</td>
<td>Section 2.13</td>
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2.1.2 Main issues raised by other stakeholders

One submission was received from the Darkinjung Local Aboriginal Land Council (DLALC). No submissions were received from the Central Coast Council. Council has previously provided feedback on the proposal as part of ISEPP consultation during the preparation of the REF. The main issue raised by the DLALC was in relation to property and future site access. This is further discussed in section 2.12.

2.2 Alternative approaches and suggestions

Alternative approaches and suggestions were raised in 15 submissions, mainly relating to proposing a new road corridor. Other alternative approaches and suggestions include adding traffic lights, reducing the speed limit and adding more shared paths and footpaths. These are described below.

2.2.1 New road

Submission numbers

1, 2, 11
**Issue description**

- Suggests traffic levels could be reduced at the roundabout by building a new connection between Empire Bay Drive to Hawke Street behind the bus terminal then joining onto Killuna Road.

- Suggests traffic levels could be reduced at the Empire Bay Drive/ The Scenic Road/ Cochrone Street roundabout by building a new one way connection between Empire Bay Drive to Hawke Street via a one way left hand turn from Empire Bay Drive. Also widen the existing pedestrian bridge over Kincumber Creek at Hawke Street to a one way car bridge with pedestrian access from Hawke Street to Killuna Road. Retain Killuna Road/ Avoca Drive roundabout with additional traffic lights during peak times. Suggesting this option would assist in minimising noise for the residents along Killuna Road by only allowing a one way cut through car bridge, not trucks, from the corner of Hawke Street and Cochrone Street. The left hand turn would not allow traffic coming from the north along Empire Bay Drive.

- Suggests building an alternate road from Woy Woy to connect with the Central Coast Highway to better cater for future increased traffic.

**Response**

The bridge connection from Hawke Street to Killuna Avenue is beyond the scope of the proposed Empire Bay Drive and The Scenic Road intersection upgrade. In addition to building a new bridge across Kincumber Creek with traffic carrying capacity, it would require complete reconstruction of Hawke Street and Killuna Avenue and a major upgrade of the existing roundabout at Avoca Drive and Killurna Avenue. The suggested proposal would likely also require significant property acquisition, including residential and business property.

A new road from Woy Woy to the Central Coast Highway is not practical given the topography and the waterways. The cost of another roadway cannot be justified for the relative number of road users. The current volume of Empire Bay Drive is about 9,500 vehicles each way per weekday. More than 60,000 vehicles per day in each direction would be required for a new road to be viable given the significant cost.

**2.2.2 Shared paths and footpaths**

**Submission number**

2

**Issue description**

- Suggests extending the footpaths and shared paths further along Empire Bay Drive past the end of works.

- Suggests adding a multi-use shared path as well as a left turn lane from The Scenic Road.

**Response**

The proposal includes a 1.5 metre pathway for pedestrians from The Scenic Road into Empire Bay Drive and has two traffic lanes, with the left lane allowing for left turning from The Scenic Road into Empire Bay Drive. The proposal includes shared pathway on both sides of Empire Bay Drive from Kincumber Creek to the intersection of Empire Bay Drive and The Scenic Road.

The work has been designed to maximise the available space for the road and pedestrian/cyclist movements, while minimising impacts on surrounding residents from land acquisition. The proposed design allows for pedestrian movements as well as a left turning lane from The Scenic Road. The shared path
network utilises Hawke Street, past the bus depot to the MacKillop Oval and De La Salle Recreation Area. Any extension of this path system is a matter for Central Coast Council to consider.

Roads and Maritime Services will investigate the option to extend the shared pathway on the eastern side of Empire Bay Drive from Kincumber Creek to Avoca Drive. Any further extension of this path system is a matter for Central Coast Council to consider.

2.2.3 Traffic lights

Submission number
3

Issue description
- Suggests that the traffic light option be reconsidered to improve traffic flow.

Response
Roads and Maritime has carried out a comprehensive traffic study including the Empire Bay Drive and The Scenic Road intersection. The study showed the proposed roundabout upgrade provides equivalent results to traffic signals during peak times and is superior in off peak times.

An upgraded roundabout will also alleviate a number of community concerns over the signal design proposal including;
- Significantly less property needing to be acquired.
- Less impact on local businesses with business acquisition unlikely to be needed.
- Allowing for the retention of most on-street parking at Cochrone Street.
- Allowing for the retention of some on-street parking on The Scenic Road.
- Retaining access to Sundowner Avenue.
- Allowing Wallan Road to stay disconnected (closed) from The Scenic Road/Cullens Road roundabout.

2.2.4 Speed limit

Submission number
4

Issue description
- Suggests that the speed limit along The Scenic Road be lowered or speed humps installed as traffic approaches the roundabout at Empire Bay Drive/ The Scenic Road/ Cochrone Street at high speeds.

Response
The Scenic Road is a regional road which is used by heavy vehicles. A speed zone review of The Scenic Road and Empire Bay Drive has been carried out which determined existing speed limits are appropriate and a speed reduction is not required. Traffic calming features, such as the suggested speed humps, are
not suitable as it may cause a safety hazard for these vehicles and create unacceptable noise and disruption to nearby residents.

Roads and Maritime will forward any speed related issues to local police and Central Coast Council for consideration and will further investigate road geometry options that may help reduce traffic speeds when approaching the roundabout.

2.2.5 Culvert

Submission number
5

Issue description
• Suggests additional work be carried out within the culvert at Kincumber Creek and downstream to allow water to flow unimpeded through the pipes so the pipe is not partially submerged.

Response
The proposal does not include extension or upgrade of the existing piped culverts in Kincumber Creek. It does include maintenance of the culverts to clear existing debris. It is not proposed clearing be carried out upstream or downstream, nor to reshape the creek.

The downstream sections of Kincumber Creek are outside of the project scope and the responsibility for maintenance is with Central Coast Council.

2.2.6 Kerta Road and/or Bridge Street

Submission numbers
9, 13, 17, 18, 23, 25

Issue description
• Suggests alternate option for exiting the Kerta Road/Bridge Street subdivision by opening the eastern end of Brushwood Avenue, with a left turn only or a safe right hand merging lane from Bridge Street.
• Suggests installing a roundabout at Kerta Road on Empire Bay Drive, to service industrial traffic to the west, and residential traffic to the east.
• Suggests right turn lane out of Bridge Street onto Empire Bay Drive or lights at Kerta Road/ Empire Bay Drive intersection.
• Suggests installing a right turning lane out of Bridge Street onto Empire Bay Drive.
• Suggests restricting traffic to turning left only from east Kerta Road onto Empire Bay Drive.
• Suggests restricting traffic to turning left only from west Kerta Road onto Empire Bay Drive.

Response
• Community concerns have been noted about the exiting of Kerta Road and Bridge Street. Further upgrades to Empire Bay Drive outside of the scope of this proposal will be listed for further
investigations. Opening Brushwood Avenue to The Scenic Road is a matter for Central Coast Council. Discussions to date indicate Council does not support this proposal.

- The proposal will be amended to include ‘Keep Clear’ signs and line marking for traffic on Empire Bay Drive at the Kerta Road intersection to help traffic turn right out of Kerta Road. The line-marking at the Bridge Street intersection will be moved closer to the intersection, to give greater line of sight for traffic exiting Bridge Street and will also be more visible to traffic on Empire Bay Drive. A major upgrade of this intersection is beyond the scope of this proposal.

- The proposal will now include ‘Keep Clear’ signs and line-marking for traffic on Empire Bay Drive at the Kerta Road intersection to help traffic turn right out of Kerta Road. Community concerns have been noted about the exiting of Kerta Road and Bridge Street. Further upgrades to Empire Bay Drive outside of the scope of this project will be listed for future investigations.

- Restricting turns out of Kerta Road east of Empire Bay Drive has been investigated and is not considered to be warranted at this time.

2.2.7 The Scenic Road

Submission number
16

Issue description
- Suggests a traffic calming feature be included along The Scenic Road before Empire Bay Drive to address traffic coming from The Scenic Road failing to stop at the roundabout.

Response
The Scenic Road is a regional road, heavy vehicles and buses travel on this route. Traffic calming features are not suitable on this road as it may cause a safety hazard for these vehicles and create unacceptable noise and disruption to nearby residents. Road and Maritime Services will investigate road geometry options to reduce the traffic speed approaching the roundabout.

2.2.8 Additional turning lane

Submission number
20

Issue description
- Suggests two lanes be provided from Cochrone Street, entering the roundabout at Empire Bay Drive.

Response
The extensive traffic study carried out by Roads and Maritime indicates two lanes on Cochrone Street are not required for current or future traffic volumes.
2.2.9 Shipwrights Lane

Submission number
23

Issue description
- Suggests moving the northbound bus stop near Shipwrights Lane further south, closer to Kerta Road.

Response
Roads and Maritime has investigated the option of relocating the northbound bus stop near Shipwrights Lane south of Kerta Road. Due to constraints on sight distances, it is not feasible to relocate the bus stop.

2.2.10 Pedestrian traffic signals

Submission number
23

Issue description
- Suggests moving the pedestrian traffic signals located north of Empire Bay Drive/ Cochrone Street/ The Scenic Road, closer to Kerta Road.

Response
To ensure improved pedestrian safety near the intersection, the new proposal includes pedestrian traffic lights on Empire Bay Drive near the existing pedestrian refuge at the north end of the proposal area, with the existing refuge on the southern side of Kerta Road remaining at its current location.

Installation of safe, alternative/extra pedestrian crossings such as pedestrian lights, footbridge, or underpass at the southern end of the project area, close to Kerta Road, would not be possible for a number of reasons including road alignment and width of road corridor.

Roads and Maritime will further investigate whether minor adjustments are necessary to improve pedestrian safety at the existing pedestrian refuge facility at Kerta Road.

2.2.11 Cochrone Street

Submission number
24

Issue description
- Suggests kerb and gutter on the north side of Cochrone Street for better parking.
Response
Comment is noted for the kerb and gutter on Cochrone Street, however, the scope of work is beyond the project boundary and it is the responsibility of Central Coast Council.

2.3 Traffic safety
Traffic safety issues were raised in 11 submissions relating to entry and exit to properties, exiting out of Kerta Street and Bridge Street onto Empire Bay Drive, the relocated bus stop located north of Bridge Street and traffic speeds along Empire Bay Drive and the approach to the roundabout from The Scenic Road.

2.3.1 Access to residences

Submission number
4

Issue description
- Concerned about entering and exiting property when drivers driving at high speeds on The Scenic Road.

Response
Roads and Maritime has carried out further assessment and proposes a shoulder edge line on the departure leg (eastbound) of the roundabout on The Scenic Road. This proposal diverts the main traffic away from the kerb. Formalising the parking lane to be marked up to 2.5 metres off the kerb. This is shown in Figure 3-3 and is addressed in Section 3.33. Road and Maritime Services will investigate the road geometry options to reduce the traffic speed approaching to the roundabout (westbound).

2.3.2 Turning out of Kerta Road and Bridge Street

Submission numbers
6, 7, 9, 12, 13, 15, 21, 25

Issue description
- Concerned about timing and safety of right hand turns out of Kerta Road and Bridge Street.
- Traffic cannot exit from Kerta Road east onto Empire Bay Drive as traffic blocks the intersection.
- Concerned about traffic turning right out of Kerta Road to Empire Bay Drive. Further investigation of this intersection is required by RMS.
- Concerned about traffic safety for traffic exiting Kerta Road and Bridge Street onto Empire Bay Drive, as they will have to cross four lanes of traffic, which will be continually flowing. This is the only access for the surrounding subdivision, including Pinyary Close, Kerta Road east, Killara Street, Yurara Close, Tingerta Street and Brushwood Avenue.
- Suggests that keep clear signage be included at the Kerta Road/ Empire Bay Drive intersection and Bridge Street/ Empire Bay Drive intersection
- Suggests turning right out of Kerta Road towards Erina is difficult due to traffic banking up on Empire Bay Drive.
- Concerned about safety of traffic exiting Kerta Road onto Empire Bay Drive as a result of the proposal. It is already a major issue and the proposed upgrade will make this worse.

**Response**

- The proposal will be amended to include 'Keep Clear' signage and adjusted line-marking for traffic on Empire Bay Drive at the Kerta Road intersection to help traffic turn right out of Kerta Road. Line marking will be moved closer to the intersection, to give greater line of sight for traffic exiting Bridge Street and will also be more visible to traffic on Empire Bay Drive. A major upgrade of this intersection is beyond the scope of this proposal.
- Keep Clear signs and line marking cannot be installed at Bridge Street due to its close proximity to the Kerta Street intersection.

### 2.3.3 Bus stop near Bridge Street

**Submission numbers**

10, 13, 25

**Issue description**

- Concerned about the location of the bus stop at Bridge Street.
- Concerned about the new proposed bus stop location on Empire Bay Drive obscuring the view of traffic exiting Bridge Street.
- Suggests bus stop on the northern side of Bridge Street will obstruct the view of traffic entering onto Empire Bay Drive from Kerta Road and Bridge Street.
- Concerned about relocated bus stop obstructing the view of traffic from Bridge Street, entering Empire Bay Drive.

**Response**

- Roads and Maritime has investigated the issue and confirm minor adjustments to the line-marking at the Bridge Street intersection will alleviate the sight line issue by moving the stop line closer to the intersection. This will provide greater line of sight for traffic exiting Bridge Street and avoiding views being obstructed by buses at the relocated bus stop.
- Any major upgrade of the Kerta Road and Bridge Street / Empire Bay Drive intersections are beyond the scope of this proposal.

### 2.3.4 Speed limit

**Submission number**

12

**Issue description**

- Concerned about the speed limit along Empire Bay Drive. Requests lowering the speed limit.
Response
Roads and Maritime has carried out a speed zone review of Empire Bay Drive which determined existing speed limits were appropriate and a speed reduction is not required.

Roads and Maritime will forward any speed related issues to local police and Central Coast Council for consideration.

2.3.5 The Scenic Road

Submission number

16

Issue description

- Suggests traffic a calming feature be incorporated for to slow down motorists travelling along The Scenic Road, entering Empire Bay Drive. Suggest motorists generally fail to slow or stop at the roundabout.

Response
The Scenic Road is a regional road used by heavy vehicles. Traffic calming feature is not suitable on this road as it may cause a safety hazard for these vehicles and create unacceptable noise to nearby residents. Road and Maritime will investigate the road geometry options to reduce the traffic speed approaching the roundabout.

2.4 Pedestrian safety

Pedestrian safety issues were raised in four submissions relating to pedestrian access and safety south of Empire Bay Drive near the Kerta Road and Bridge Street intersections.

2.4.1 Kerta Road and/or Bridge Street

Submission numbers

8, 25

Issue description

- Concerned that the proposal would worsen pedestrian crossing facilities south of the Empire Bay Drive / The Scenic Road / Cochrone Street roundabout. Concerned that the proposal would remove the pedestrian refuge near Kerta Road. Pedestrians would then need to walk about 300 metres, cross at the roundabout or alternatively dash across at Kerta Road. Concern that this does not encourage active transport and makes it more dangerous for pedestrians. Asks if pedestrians coming from the north can safely cross at existing underpass near the school and zebra crossing.

- Suggests need for two pedestrian crossings at or near Kerta Road of any kind - refuge, footbridge, underpass, or move pedestrian lights to be more central within project area.

- Concerned about the safety of pedestrians crossing Empire Bay Drive between Kerta Road and Bridge Street. Suggests adding a pedestrian crossing with lights instead of the crossing refuge between Kerta Road and Bridge Street.
Response

- To ensure improved pedestrian safety near the intersection, the new proposal includes pedestrian traffic lights on Empire Bay Drive replacing the existing pedestrian refuge at the north end of the proposal area.

The existing pedestrian refuge on the southern side of Kerta Road will remain at its current location. Roads and Maritime will provide additional advance warning sign posting to inform motorists of the pedestrian refuge and will further investigate whether minor adjustments are necessary to improve the safety at the existing pedestrian refuge.

Installation of safe, alternative/extra pedestrian crossings such as pedestrian traffic lights, footbridge, or underpass at the southern end of the project area, are outside of the scope of the current project.

2.4.2 The Scenic Road and Empire Bay Drive

Submission number

14, 23

Issue description

- Concerned pedestrians would not be able to safely cross the intersection from the south-east to the south-west of Empire Bay Drive. At the information session it was suggested that pedestrians would walk north to the signalised pedestrian crossing, however, this is not viable as they would have to cross three lanes of flowing traffic on The Scenic Road, with no designated pedestrian crossing.

- Concerned about the safety of pedestrians on Empire Bay Drive.

Response

The proposal includes a pedestrian refuge on The Scenic Road at the upgraded roundabout which would allow pedestrians to split their crossing of the road. Also, the new proposal includes pedestrian activated traffic lights on Empire Bay Drive near the existing pedestrian refuge at the northern end of the proposal area and the existing refuge on the southern side of Kerta Road will be available for pedestrians to utilise.

2.5 Scope/ justification of works

Access issues were raised in three submissions relating to solving the congestion issue at the Empire Bay Drive/ The Scenic Road/ Cochrone Street intersection.

Submission numbers

2, 3, 11

Issue description

- The proposed two lane roundabout and pedestrian signals would not solve the traffic congestion at Empire Bay Drive.

- Suggests an additional lane at the roundabout at Empire Bay Drive/ The Scenic Road/ Cochrone Street will not reduce traffic congestion that flows back south toward Bensville at peak times, with traffic still having to merge into one lane eventually towards the north.
Empire Bay Drive cannot cope with increased traffic. It is too narrow with no room for vehicles to overtake, and it passes two schools.

Response

Roads and Maritime has carried out a comprehensive traffic study including the Empire Bay Drive and The Scenic Road intersection. The study showed the proposed roundabout upgrade provides equivalent results to traffic signals during peak periods and is superior in off peak times. An upgraded roundabout will also alleviate a number of community concerns over the signal design proposal including,

- Significantly less property needing to be acquired.
- Less impact on local businesses with business acquisition unlikely to be needed.
- Allowing for the retention of most on-street parking at Cochrone Street.
- Allowing for the retention of some on-street parking on The Scenic Road.
- Retaining access to Sundowner Avenue.
- Allowing Wallan Road to stay disconnected from The Scenic Road/Cullens Road roundabout.

The recent traffic study carried for this proposal indicates Empire Bay Drive is able to cater for current and predicted future traffic volumes. Comments will be considered for future work.

2.6 Traffic congestion

Traffic congestion issues were raised in three submissions relating to turning right out of Kerta Street or Bridge Street south onto Empire Bay Drive. Traffic congestion issues were also raised regarding the location of bus stops and speed limits near the intersection.

Submission numbers

20, 23, 27

Issue description

- Suggests traffic banks up in Cochrone Street due to traffic waiting to turn right or continue straight at the roundabout at Cochrone Street entering Empire Bay Drive.
- Concerned about traffic congestion on Cochrone Street from traffic turning south into Empire Bay Drive.
- Concerned about traffic congestion on The Scenic Road for right traffic turning heading north onto Empire Bay Drive, with two lanes of through traffic on the roundabout instead of one.

Response

Roads and Maritime has carried out an extensive traffic study which confirmed there are no predicted significant impacts on Cochrone Street. The study showed reduced delays and queue lengths on Cochrone Street for morning and afternoon peak periods for the future year of 2039 (refer to Table 6-6 of the Review of Environmental Factors).

The traffic modelling study also confirmed that there are no predicted significant impacts to the traffic on The Scenic Road and showed reduced delays and queue lengths for morning peak periods for the future year of 2039 (refer to Table 6-6 of the Review of Environmental Factors).
2.7 Access

Access issues were raised in two submissions, mainly relating to access to private property along Empire Bay Drive and The Scenic Road.

2.7.1 Private property

Submission number(s)
14, 26

Issue description
- Concerned that access to the property on the southern corner of The Scenic Road may be restricted with the proposed changes. The property has a narrow driveway which requires turning from the west along The Scenic Road to make a slow, wide left turn into the driveway. The proposal may restrict this access as cars will have to turn left from the fast (westbound) lane and cross over the left lane, which is unsafe.
- Concerned about entering property as it can hold up traffic while waiting for the gate to open and with the sharp turn required; this is dangerous with drivers driving at high speeds towards the roundabout.

Response
Roads and Maritime Services has investigated the entry and exit to properties along The Scenic Road and Empire Bay Drive including carrying out vehicle swept path analysis for these properties. The access to properties meets requirements under this design. Roads and Maritime will continue to consult with the affected property owners.

2.8 Construction impact

Construction impact was raised two submissions, mainly relating to traffic congestion at the intersection and construction noise.

2.8.1 Traffic congestion

Submission number
2

Issue description
- Concerned about traffic flow impact during construction.

Response
During construction, at one lane in each direction through the work zone will be maintained with a reduced speed limit of 40 km/hr. Work would be staged to allow traffic to travel through the intersection similar to existing geometric arrangements.
To minimise disruption to motorists and disturbance to businesses during the day, some work would be carried out outside standard construction hours, including night and weekend work.

A Traffic Management Plan would be implemented as part of the work to manage and regulate traffic movement during construction.

2.8.2 Noise

Submission number
22

Issue description
- Concerned about construction noise, which previously has affected getting their young infant to sleep.

Response
Construction noise would be managed through the implementation of a Construction Noise and Vibration Management Plan. The plan would ensure noise is kept to a minimum, with measures implemented to reduce noise where possible, including carrying out noisier activities during the day. Affected residents will be notified of work expected to have noise or vibration impact at least seven days before the start of any work.

2.9 Errors and omissions

Errors and omissions were raised in two submissions, mainly relating to mistakes in the Review of Environmental Factors.

Submission numbers
5, 19

Issue description
- Suggests that there is an incorrect title in Appendix L (Detailed Site Investigation on Contamination Report).
- Suggests that Council is the owner of the road, not Roads and Maritime.
- Suggests there is an incorrect date in Appendix L (Detailed Site Investigation on Contamination Report).
- Suggests incorrect zoning reference in the Biodiversity Assessment. Cochrone Street Bushland is zoned as 6(a) Open Space (Recreation). Should be RE1.
- Suggests incorrect classification of vegetation at the proposed compound near Bridge Street in the Biodiversity Assessment. Potentially Scribbly Gum.
- Suggests proposed impact area does not match with proposed works areas/depot areas.

Response
- It is noted that Appendix L of the Review of Environmental Factors titles Appendix L of Appendix L as 'Preliminary Site Investigation for Contamination, Kincumber Creek Culvert Works Area'.
However, the title on Appendix I of Appendix L is called ‘Preliminary Site Investigation for Contamination, Proposed Road Upgrade Empire Bay Drive, Kincumber’. The title referring to Appendix I in Appendix L should reflect the correct title of Appendix I ‘Preliminary Site Investigation for Contamination, Kincumber Creek Culvert Works Area’.

- Empire Bay Drive is a state road (MR349), having been reclassified from a regional road in 2010. Under the Roads Act 1993 Council is the Road Authority and owner of Empire Bay Drive with operation and administration being carried out by Roads and Maritime.

- It is noted that the incorrect date is within Appendix C of Appendix I within Appendix L of the Review of Environmental Factors. Appendix C is titled ‘Surface Gamma Radiation Survey and Soil Radiation Analysis’ prepared by Bartolo Safety Management Service. We recognise that Appendix C refers to incorrect dates in several locations on pages 1 and 2 and should refer to the date as 18/12/17.

- The Biodiversity Assessment incorrectly references the zone 6(a) Open Space (Recreation) in relation to the Cochrone Street Bush Reserve in Section 1.3.5 - SEPP 19 Bushland in Urban Areas. The correct reference should be RE1 - Public Recreation.

- The Biodiversity Assessment identified the area near Bridge Street as ecotonal which included species of Kincumber Scribbly Gum Forest Endangered Ecological Community (EEC). The proposed site for the Bridge Street compound site is predominately cleared vegetation and could not be deemed as an EEC in accordance with Office of Environment and Heritage guidelines, as only a few individual trees were present. Adjoining this location, outside of the proposed work area, vegetation transitions into Kincumber Scribbly Gum Forest EEC, as per the mapping by Bell (2013). Further detail is provided in Section 2.11.

- The Biodiversity Assessment surveyed all vegetated areas in the study area but excluded residential properties where no vegetation was present. Two residential properties are identified as proposed compound sites. The proposed work area for the entire road upgrade would be about 2.77 hectares (as shown in Figure 6-3 of the Review of Environmental Factors). The portion of the work area containing vegetation that would be removed would be about 0.87 hectares, in accordance with ground-truthed mapping by the Biodiversity Assessment. A large portion of the work area does not contain vegetation. The portion of the work area that comprises the potential compound sites (as shown in Figure 3-1 of the Review of Environmental Factors) would be about 0.59 hectares.

### 2.10 Parking

Parking issues were raised in two submissions, mainly parking for residents along Empire Bay Drive and The Scenic Road.

**Submission number**

14, 22

**Issue description**

- Concerned about loss of parking along The Scenic Road for visitors and residents of properties on the corner of Empire Bay Drive and The Scenic Road. The proposal layout shows a 'No Stopping' area along The Scenic Road. Requested confirmation of whether there will be parking allowed in this location from 7am to 10am. If parking is not allowed during these times, alternative locations need to be suggested. The suggested alternative at the information session of parking on a 'side street' is not viable nor logical as it is too far away.

- Suggests proposal would remove parking on the road shoulder of Empire Bay Drive, particularly around 35 Empire Bay Drive. Currently park their second vehicle on road shoulder, which would no longer be possible.
Response

- A No Stopping restriction is proposed on the westbound approach of The Scenic Road, from Monday to Saturday between 7am and 10am. Parking will be permitted outside of these times and parking is available to the east of Property 923 The Scenic Road as there are no proposed parking restrictions in those areas. Please refer to Community Update dated March 2018 on our project website for details.
- Comment is noted. A no stopping zone (24 hours) will be installed on Empire Bay Drive between The Scenic Road and Bridge Street, meaning parking will not be permitted at any time.

2.11 Biodiversity impacts

Biodiversity impacts was raised in one submission relating to the identification of vegetation near proposed compound sites.

2.11.1 Critically endangered ecological communities

Submission number

29

Issue description

- Concerned Kincumber Scribbly Gum Forest within the proposal footprint has been incorrectly identified as ecotonal Smooth-barked Apple-Red Bloodwood Open Forest within the Biodiversity Assessment.
- Concerned impacts and offset requirements of Kincumber Scribbly Gum Forest patches or trees have not been adequately assessed.

Response

The scaling in Figure 6-3 provided in the REF is difficult to determine the boundaries of the mapped vegetation and the proposed work areas. A reduced scaled version of the proposed compound sites in proximity to Kincumber Scribbly Gum Forest is provided below in Figure 2-1 and Figure 2-2. This shows that the construction compounds are outside of any areas mapped as the critically endangered ecological community ‘Kincumber Scribbly Gum Forest’.

The Biodiversity Assessment identified the area near Bridge Street as ecotonal which included species of Kincumber Scribbly Gum Forest Critically Endangered Ecological Community (CEEC). The proposed site for the Bridge Street compound site is within the area noted as ‘cleared/exotic’ which is predominately cleared vegetation and could not be deemed as an CEEC in accordance with Office of Environment and Heritage guidelines, as only a few individual trees were present. Adjoining this location, outside of the proposed work area, the vegetation transitions into Kincumber Scribbly Gum Forest CEEC, as mapped by Bell (2013). Given the proximity to areas of the CEEC, indirect impacts have potential to occur. Please refer to Figure 2-2 for the location of the CEEC.
Figure 2-1 Vegetation communities and work areas/site compounds at Bilinga Road, Kincumber
Figure 2.2 Vegetation communities and work areas/site compounds on Empire Bay Drive and Bridge Street
The vegetation along Bilinga Road has been defined as exotic/cleared adjacent to the road, transitioning to *Smooth-barked Apple-Red Bloodwood Open Forest* in the Biodiversity Assessment. The mapped area of *Kincumber Scribbly Gum Forest CEEC* extends south of the cleared area at Bilinga Road. The proposed work area includes a site compound to be located within a cleared area within the road reserve, defined as urban/exotic. This would not directly impact the CEEC. No vegetation clearing would be required for the proposed Bilinga Road compound site.

The vegetation identified as PCT 1776 *Smooth-barked Apple-Red Bloodwood Open Forest* in the Biodiversity Assessment should have been identified as having some affinity to the final determination of the CEEC. Having further assessed the vegetation species south of the compound, the species show similarity to those shown in the final determination. The contiguous nature of the patch with a mapped area of CEEC, indicate that the CEEC may be present. Refer to Figure 2-2 for the location of the potential CEEC.

In order to adequately assess impacts to the area of this potential CEEC, a test of significance has been prepared which found that a significant impact is unlikely (refer to Appendix A). Also, no biodiversity offset is required to the proposed works.

Although there is a separation distance of about 11 metres between the proposed Bilinga Road compound site and PCT 1776, indirect impacts have the potential to occur, such as weed invasion and dust. These will be managed through the implementation of specific measures in a CEMP.

### 2.11.2 Vegetation clearing

**Submission number**

29

**Issue description**

- Suggests that temporary compound areas should not be located where clearing of Kincumber Scribbly Gum Forest patches or trees occur.

**Response**

The Biodiversity Assessment did not identify Kincumber Scribbly Gum Forest in locations where temporary compound sites are located. Additionally, the Biodiversity Assessment and Review of Environmental Factors outlines no clearing of trees would be carried out for the proposed compound sites. Compound sites would utilise only previously cleared areas. As shown in Figure 2-1 and Figure 2-2 above, the proposed compound sites are located outside of any Kincumber Scribbly Gum Forest.

### 2.11.3 Hollow bearing trees

**Submission number**

29

**Issue description**

- Concerned a large hollow tree on the northern side of the Bridge Street intersection has not been identified or assessed in the Biodiversity Assessment and threatened fauna may be injured if the tree is cleared.
Response
Two hollow bearing trees were identified in the study area, one of these occurs at the boundary of a proposed compound site in Bilinga Road and the other is next to Kincumber Creek (refer to Figure 6-3 of the Review of Environmental Factors). A hollow bearing tree on the northern side of Bridge Street was not identified during the field survey. Hollow bearing trees will be demarcated as an exclusion zone during pre-clearing surveys and would not be impacted. A Flora and Fauna Management Plan would identify the location of hollow bearing trees, the need to establish exclusion zones around them so not to impact them.

2.12 Property
Property issues were raised in one submission relating to the title of Lot 1008 DP 1239890.

Submission number
28

Issue description
- Darkinjung Local Aboriginal Land Council (DLALC) now has the Title of the land Lot 1008 DP 1239890 (previously known as Lot 500 DP 823145). The site is affected by the Native Title Act 1993 (Commonwealth), request Roads and Maritime consider future access requirements for this site.

Response
The proposal has been developed in consultation with the Darkinjung Local Aboriginal Land Council (DLALC), in line with Roads and Maritime's Aboriginal Cultural Heritage Consultation and Investigation procedure.

This included a site walk over the study area to examine the area for Aboriginal cultural heritage. No Aboriginal objects or places were identified within the proposal footprint and no assessment requirements were identified.

Roads and Maritime will continue to consult with the DLALC to ensure future site access is considered and note the ongoing Native Title Act 1993 (Commonwealth) claim over the site.

2.13 Support
Support was noted in one submission. Support was mainly for the improvement of shared paths and footpaths and the addition of a left turn lane from The Scenic Road onto Empire Bay Drive.

Submission number
2

Issue description
- Supports the improvement of footpaths and shared paths.
- Supports the additional left turn lane from The Scenic Road onto Empire Bay Drive.

Response
Support is noted.
3. Changes to the proposal

In response to the submissions and other feedback received during the REF display, and further detailed design work, Roads and Maritime has introduced four changes to the proposed design, to improve road safety for road users, pedestrians and cyclists. These are:

- Extending the stop line closer to Empire Bay Drive at Bridge Street to allow for sightlines which avoid the southbound bus stop north of Bridge Street (Section 3.1)
- Addition of ‘Keep Clear’ signage at the Kerta Road/ Empire Bay Drive intersection to improve right and left hand turns out of Kerta Road to Empire Bay Drive (Section 3.1)
- Inclusion of additional advance warning signs to inform motorists of the pedestrian refuge near Kerta Road (Section 3.2)
- Addition of new line marking to delineate a shoulder edge line on The Scenic Road (eastbound). This would divert the main traffic away from the kerb and driveways along The Scenic Road. New line marking will also formalise areas for on-street parking which would be marked up to 2.5 metres off the kerb (Section 3.3)

In addition, since the display of the REF the following design refinements have been made by Roads and Maritime:

- Extending the extent of line marking along Empire Bay Drive to Avoca Drive, 100 metres west along Cochrone Street and 100 metres east along The Scenic Road during construction, to assist with traffic control during work (Section 3.4)
- Drainage work along the eastern side of Empire Bay Drive to the properties north of Sundowner Avenue to avoid ponding and reduce the potential for flooding post construction (Section 3.5)
- Inclusion of a short length of path from the new bus stop north of Bridge Street to connect the bus shelter to the existing path along the property boundary (Section 3.6)
- Additional drainage works along the eastern side of Empire Bay Drive, south of The Scenic Road and just north of Kerta Road (Section 3.7)

These changes are shown in Figure 3-1.
Figure 3-1  Updated layout of the proposal including changes
3.1 Bridge Street and Kerta Road Line marking

At the Empire Bay Drive/ Bridge Street intersection the design change would involve line marking to bring the stop line forward to allow for better sightlines which avoid the southbound bus stop north of Bridge Street. Currently the view of Empire Bay Drive from Bridge Street would be restricted by the relocation of the bus stop north of Bridge Street. Ensuring the stop line at the intersection is brought forward, clear unobstructed views of oncoming traffic along Empire Bay Drive would be achieved.

At the intersection of Empire Bay Drive and Kerta Road, ‘Keep Clear’ signage would be marked within the road reserve on both the northbound and southbound lanes of Empire Bay Drive. ‘Keep Clear’ linemarking would also be placed on northbound lanes of Empire Bay Drive at Kerta Road. This design change would help improve traffic safety of vehicles turning right and left out of the Kerta Road intersections.

These features are shown on Figure 3-2. New proposed signs would be within the road reserve in an area assessed by the REF. The design change would not result in changes to traffic such that there would be any measurable change to the environmental assessment.

Figure 3-2 Proposed design changes including Bridge Street and Kerta Road line marking and a new pathway to the bus stop near Bridge Street
3.2 Signage at the Kerta Road pedestrian refuge

Safety concerns were raised by respondents for pedestrians crossing at the pedestrian refuge located near the intersection of Empire Bay Drive and Kerta Road. This refuge is located on a bend in the road and sight lines can be obstructed by vehicles and buses. To improve the safety for pedestrians, advance warning signs would be placed in the road reserve to inform motorists of the pedestrian refuge.

The design change would not result in changes to traffic such that there would be any measurable change to the environmental assessment.

3.3 Shoulder line marking on the corner of The Scenic Road

A shoulder edge line on the departure leg (eastbound) of the roundabout is proposed on The Scenic Road and diverts the main traffic away from the kerb. The road shoulder would be marked up to 2.5 metres off the kerb and would provide on-street parking. This is shown in Figure 3-3.

The design change would be within the road reserve in an area assessed by the REF. The design change would not result in changes to traffic such that there would be any measurable change to the environmental assessment.

Figure 3-3 Shoulder line marking on The Scenic Road
3.4 Line marking along Empire Bay Drive, Cochrone Street and The Scenic Road

Along Empire Bay Drive the proposed change would involve increasing the extent of line marking during construction up to the Avoca Drive roundabout. Along Cochrone Street line marking would extend an additional 100 metres west towards Hawke Street and line marking along The Scenic Road would extend an additional 100 metres east towards the Cullens Road/ The Scenic Road/ Wallan Road roundabout during construction. Line marking would assist in traffic control and safety during construction of the proposal and assist in improving public infrastructure assets.

The work would take place within the existing road corridor. The design change would not result in changes to traffic such that there would be any measurable change to the assessed noise, air quality, visual or other impact on nearby receivers.

3.5 Drainage work along Empire Bay Drive

The proposed design change involves additional drainage work to the footpath in front of properties along the eastern side of Empire Bay Drive, north of Sundowner Avenue. To avoid ponding and potential for flooding due to the difference in levels between Empire Bay Drive and footpaths, additional drains would be installed around the footpath.

The drainage works would be carried out on the existing road reserve and footpaths along Empire Bay Drive, in a zone that is already highly disturbed and of low environmental sensitivity. No property acquisition would be required in order to conduct the drainage work. The design change would be accommodated in an area assessed in the REF and would not require any additional clearing of native vegetation.

The design change would not change the outcomes of the impact assessment on properties next to the work in relation to factors of noise, air quality or visual impact.

3.6 Pathway from Bridge Street Bus Stop

A new section of pathway would be built from the new bus stop north of Bridge Street to connect the bus shelter to the existing path along the property boundary as there is only an existing driveway and no other paths.

The design change would be within the road reserve in an area assessed by the REF. The design change would not result in changes to traffic such that there would be any measurable change to the environmental assessment.

3.7 Additional kerb and drainage works

The REF included kerb, gutter and drainage works along some sections of Empire Bay Drive. Further drainage assessment indicated the need for new drainage on the eastern side of Empire Bay Drive, south of The Scenic Road to just north of Kerta Road. This would include replacement of some existing pits and an upgrade of the pipe network.

The design changes would be within the road reserve in an area assessed by the REF. The design change is required to improve local drainage and would not result in changes such that there would be any measurable change to the environmental assessment.
4. Environmental assessment

In preparing this submissions report, Roads and Maritime has determined additional assessment was not required for the changes to the proposal. Ongoing drainage assessment has identified the need for the replacement of some existing pits and the upgrade of the pipe network on Empire Bay Drive, south of The Scenic Road to just north of Kerta Road.

The proposed changes, as described in Section 3, would not result in any additional impact on the environment.

4.1 Revised safeguards and management measures

Several new safeguards have been identified to address issues raised in submissions, including traffic safety, pedestrian safety and property.

Table 4-1 Proposed new safeguards addressing issues raised in submissions

<table>
<thead>
<tr>
<th>Impact</th>
<th>Environmental safeguard</th>
<th>Responsibility</th>
<th>Timing</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Pedestrian safety – Empire Bay Drive North</td>
<td>Roads and Maritime Services will investigate the option to extend the shared pathway on</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
<td>Additional</td>
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<td></td>
<td>the eastern side of Empire Bay Drive from Kincumber Creek to Avoca Drive</td>
<td></td>
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<td>safeguard</td>
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<tr>
<td>Traffic safety - speed</td>
<td>Roads and Maritime will further investigate road geometry options that may help reduce</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
<td>Additional</td>
</tr>
<tr>
<td></td>
<td>traffic speeds when approaching the roundabout.</td>
<td></td>
<td></td>
<td>safeguard</td>
</tr>
<tr>
<td>Traffic safety – entry and exit to properties</td>
<td>Roads and Maritime will continue to consult with affected property owners regarding entry and exit to properties along The Scenic Road and Empire Bay Drive.</td>
<td>Roads and Maritime/Contractor</td>
<td>Detailed design/ construction</td>
<td>Additional</td>
</tr>
<tr>
<td>Pedestrian safety – Kerta Road</td>
<td>Roads and Maritime will further investigate whether minor adjustments are necessary to</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
<td>Additional</td>
</tr>
<tr>
<td></td>
<td>improve pedestrian safety at the existing pedestrian refuge at Kerta Road.</td>
<td></td>
<td></td>
<td>safeguard</td>
</tr>
<tr>
<td>Property</td>
<td>Roads and Maritime will continue to consult with Darkinjung Local Aboriginal Land</td>
<td>Roads and Maritime/Contractor</td>
<td>Detailed design/ construction</td>
<td>Additional</td>
</tr>
<tr>
<td></td>
<td>Council to ensure future site access is considered to Lot 1008 DP 1239890 (formerly</td>
<td></td>
<td></td>
<td>safeguard</td>
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<tr>
<td></td>
<td>Lot 500 DP 823145).</td>
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<td></td>
</tr>
<tr>
<td>Damage to kerbing and accesses</td>
<td>Any kerb (or accesses) damaged during construction will be replaced or restored</td>
<td>Roads and Maritime/Contractor</td>
<td>Construction</td>
<td>Additional</td>
</tr>
</tbody>
</table>

Empire Bay Drive at The Scenic Road, Kincumber Intersection Upgrade
Submissions report
5. Environmental management

The REF for the Empire Bay Drive at The Scenic Road, Kincumber Intersection Upgrade identified the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts (section 7 of the review of environmental factors).

After consideration of the issues raised in the public submissions and changes to the proposal, the safeguard and management measures have been revised to include that any damage to any kerb (or accesses) during construction will be replaced or restored.

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

5.1 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.

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

The CEMP will be prepared prior to construction of the proposal and must be reviewed and certified by environment staff, Central Coast Region, prior to the commencement of any on-site works. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the specifications set out in the QA Specification G36 – Environmental Protection (Management System), QA Specification G38 – Soil and Water Management (Soil and Water Plan), QA Specification G40 – Clearing and Grubbing and QA Specification G10 – Traffic Management.

5.2 Summary of safeguards and management measures

The REF for the Empire Bay Drive at The Scenic Road, Kincumber Intersection Upgrade 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 6 of the REF) have been revised. Should the proposal proceed, the environmental management measures in Table 5-1 will guide the subsequent phases of the proposal. Additional and/or modified environmental safeguards and management measures to those presented in the REF have been underlined and deleted measures, or parts of measures, have been struck out.
### Table 5-1 Summary of environmental safeguards and management measures

<table>
<thead>
<tr>
<th>No.</th>
<th>Impact</th>
<th>Environmental safeguards and management measures</th>
<th>Responsibility</th>
<th>Timing</th>
<th>Reference</th>
</tr>
</thead>
</table>
| GEN1| General - minimise environmental impact during construction | A CEMP will be prepared and submitted for review and endorsement of the Roads and Maritime Environment Manager prior to commencement of the activity.  
As a minimum, the CEMP will address the following:  
- Any requirements associated with statutory approvals  
- Details of how the project will implement the identified safeguards outlined in the REF  
- Issue-specific environmental management plans  
- Roles and responsibilities  
- Communication requirements  
- Induction and training requirements  
- Procedures for monitoring and evaluating environmental performance, and for corrective action  
- Reporting requirements and record-keeping  
- Procedures for emergency and incident management  
- Procedures for audit and review  
- The endorsed CEMP will be implemented during the undertaking of the activity. | Contractor / Roads and Maritime project manager | Pre-construction / detailed design | Core standard safeguard |
<p>| GEN2| General - notification                      | All businesses, residential properties and other key stakeholders (eg schools, local councils) affected by the activity will be notified at least five days prior to commencement of the activity. | Contractor / Roads and Maritime project manager | Pre-construction | Core standard safeguard |
| GEN3| General – environmental awareness           | All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the project. | Contractor / Roads and Maritime project manager | Pre-construction / detailed design | Core standard safeguard |</p>
<table>
<thead>
<tr>
<th>No.</th>
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<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN4</td>
<td>Damage to kerbing and accesses</td>
<td>This will include up-front site induction and regular “toolbox” style briefings. Site-specific training will be provided to personnel engaged in activities or areas of higher risk.</td>
<td>Roads and Maritime/Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>GEN5</td>
<td>Property</td>
<td>Roads and Maritime will continue to consult with Darkinjung Local Aboriginal Land Council to ensure future site access is considered to Lot 1008 DP 1239890 (formerly Lot 500 DP 823145).</td>
<td>Roads and Maritime/Contractor</td>
<td>Detailed design/construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>GEN6</td>
<td>Pedestrian safety – Empire Bay Drive North</td>
<td>Roads and Maritime Services will investigate the option to extend the shared pathway on the eastern side of Empire Bay Drive from Kincumber Creek to Avoca Drive</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>GEN7</td>
<td>Pedestrian safety – Kerta Road</td>
<td>Roads and Maritime will further investigate whether minor adjustments are necessary to improve pedestrian safety at the existing pedestrian refuge at Kerta Road.</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>TT1</td>
<td>Traffic and transport</td>
<td>A Traffic Management Plan (TMP) will be prepared and implemented as part of the CEMP. The TMP will be prepared in accordance with the Roads and Maritime Traffic Control at Work Sites Manual (RTA, 2010) and QA Specification G10 Control of Traffic (Roads and Maritime, 2008). The TMP will include: • Confirmation of haulage routes • Measures to maintain access to local roads and properties • Site specific traffic control measures (including signage) to manage and regulate traffic movement • Measures to maintain pedestrian and cyclist access</td>
<td>Contractor</td>
<td>Detailed design / Pre-construction</td>
<td>Core standard safeguard</td>
</tr>
<tr>
<td>No.</td>
<td>Impact</td>
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<tr>
<td></td>
<td></td>
<td>• Requirements and methods to consult and inform the local community of impacts on the local road network</td>
<td>Contractor</td>
<td>Detailed design / Pre-construction</td>
<td>Additional safeguard</td>
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<td></td>
<td>• Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads.</td>
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<td>• A response plan for any construction traffic incident</td>
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<td>• Consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic</td>
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<td></td>
<td>• Monitoring, review and amendment mechanisms.</td>
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<tr>
<td>TT2</td>
<td>Construction traffic</td>
<td>• For each stage of construction, detailed Traffic Control Plans would be developed and implemented. These would be prepared in accordance with the <em>Traffic Control and Worksites</em>, version 4.0 (RTA, June 2010)</td>
<td>Contractor</td>
<td>Detailed design / Pre-construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>TT3</td>
<td>Construction traffic</td>
<td>Traffic Management Plan (TMP) will also include:</td>
<td>Contractor</td>
<td>Pre-construction / construction</td>
<td>Additional safeguard</td>
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<tr>
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<td></td>
<td>• Scheduling the delivery of plant, equipment and construction materials to generally occur out of peak traffic periods</td>
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<td></td>
<td></td>
<td>• Consideration of methods to minimise peak period traffic disruptions during each stage of construction</td>
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<td></td>
<td></td>
<td>• Roads and Maritime to liaise with utilities providers to maintain service accesses to their facilities during construction and following completion of the proposal.</td>
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<tr>
<td></td>
<td></td>
<td>• Consult with bus operators for relocated bus stops and access arrangements.</td>
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<td></td>
<td></td>
<td>The TMP is to ensure the work site and site compound:</td>
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<td>No.</td>
<td>Impact</td>
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<tr>
<td>TT4</td>
<td>Traffic safety - speed</td>
<td>Roads and Maritime will further investigate road geometry options that may help reduce traffic speeds when approaching the roundabout.</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>TT5</td>
<td>Traffic safety – entry and exit to properties</td>
<td>Roads and Maritime will continue to consult with affected property owners regarding entry and exit to properties along The Scenic Road and Empire Bay Drive.</td>
<td>Roads and Maritime/ Contractor</td>
<td>Detailed design/ construction</td>
<td>Additional safeguard</td>
</tr>
</tbody>
</table>
| B1  | Biodiversity                               | A Flora and Fauna Management Plan will be prepared in accordance with Roads and Maritime’s Biodiversity Guidelines: Protecting and Managing Biodiversity on RTA Projects (RTA, 2011) and implemented as part of the CEMP. It will include, but not be limited to:  
- Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas  
- Requirements set out in the Landscape Guideline (RTA, 2008)  
- Pre-clearing survey requirements  
- Procedures for unexpected threatened species finds and fauna handling  
- Procedures addressing relevant matters specified in the Policy and guidelines for fish habitat conservation and management (DPI Fisheries, 2013) | Contractor                  | Detailed design / pre-construction | Core standard safeguard  
Section 4.8 of QA G36 Environment Protection |
<table>
<thead>
<tr>
<th>No.</th>
<th>Impact</th>
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<th>Reference</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>• Protocols to manage weeds and pathogens.</td>
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<tr>
<td>B2</td>
<td>Biodiversity</td>
<td>Measures to further avoid and minimise the construction footprint and native vegetation or habitat removal will be investigated during detailed design and implemented where practicable and feasible.</td>
<td>Contactor, Roads and Maritime</td>
<td>Detailed design / pre-construction</td>
<td>Core standard safeguard</td>
</tr>
<tr>
<td>B3</td>
<td>Removal of native vegetation</td>
<td>Native vegetation removal will be minimised through detailed design.</td>
<td>Contractor, Roads and Maritime</td>
<td>Detailed design</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B4</td>
<td>Removal of native vegetation</td>
<td>Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011b).</td>
<td>Contractor</td>
<td>Prior to construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B5</td>
<td>Removal of native vegetation</td>
<td>Vegetation removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011b).</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B6</td>
<td>Removal of native vegetation</td>
<td>Native vegetation will be re-established in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011b) and the Urban Design Plan. This includes incorporating species of local provenance and that occur within TEC within study area</td>
<td>Contractor</td>
<td>Post construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B7</td>
<td>Removal of native vegetation</td>
<td>The unexpected species find procedure is to be followed under Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011b)</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B8</td>
<td>Removal of threatened species</td>
<td>Habitat removal will be minimised through detailed design</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
<td>Additional safeguard</td>
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<tr>
<td>No.</td>
<td>Impact</td>
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<tr>
<td></td>
<td>habitat and habitat features and threatened plants</td>
<td>Habitat removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011b)</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B9</td>
<td>Removal of threatened species habitat and habitat features and threatened plants</td>
<td>The unexpected species find procedure is to be followed under Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011b) if threatened fauna, not assessed in the biodiversity assessment, are identified in the proposal site.</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B10</td>
<td>Removal of threatened species habitat and habitat features and threatened plants</td>
<td>Aquatic habitat (Kincumber Creek) will be protected in accordance with Guide 10: Aquatic habitats and riparian zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011b) and Section 3.3.2 Standard precautions and mitigation measures of the Policy and guidelines for fish habitat conservation and management - Update 2013 (DPI Fisheries, 2013).</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B11</td>
<td>Aquatic impacts/changes in hydrology</td>
<td>Fisheries NSW (1800 043 536) and the Environment Protection Authority (131 555) is to be notified immediately if any fish kills occur in the vicinity of the works. In such cases, all works other than emergency response procedures are to cease until the issue is rectified and approval is given by Fisheries NSW and/or the Environment Protection authority for the works to proceed.</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B12</td>
<td>Aquatic impacts</td>
<td>Connectivity measures will be implemented in accordance with the Wildlife Connectivity Guidelines</td>
<td>Contractor</td>
<td>Detailed design, during construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B13</td>
<td>Fragmentation of identified habitat</td>
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<td>No.</td>
<td>Impact</td>
<td>Environmental safeguards and management measures</td>
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<tr>
<td>B14</td>
<td>Injury and mortality of fauna</td>
<td>Fauna will be managed in accordance with <em>Guide 9: Fauna handling of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects</em> (RTA, 2011b).</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B15</td>
<td>Invasion and spread of weeds</td>
<td>Weed species will be managed in accordance with <em>Guide 6: Weed management of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects</em> (RTA, 2011b).</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B16</td>
<td>Invasion and spread of pathogens and disease</td>
<td>Potential pathogens will be managed in accordance with <em>Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects</em> (RTA, 2011b).</td>
<td>Contractor</td>
<td>During construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>B17</td>
<td>Noise, light and vibration</td>
<td>Shading and artificial light impacts will be minimised through detailed design.</td>
<td>Roads and Maritime, Contractor</td>
<td>Detailed design</td>
<td>Additional safeguard</td>
</tr>
</tbody>
</table>
| NV1 | Noise and vibration                        | A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in the *Interim Construction Noise Guideline* (ICNG) (DECC, 2009) and identify:  
- All potential significant noise and vibration generating activities associated with the activity  
- Feasible and reasonable mitigation measures to be implemented, taking into account *Beyond the Pavement: urban design policy, process and principles* (Roads and Maritime, 2014a).  
- A monitoring program to assess performance against relevant noise and vibration criteria  
- Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures | Contractor           | Detailed design / pre-construction | Core standard safeguard  
Section 4.6 of QA G36 Environment Protection |
<table>
<thead>
<tr>
<th>No.</th>
<th>Impact</th>
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<th>Timing</th>
<th>Reference</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.</td>
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<tr>
<td>NV2</td>
<td>Noise and vibration</td>
<td>All sensitive receivers (e.g., schools, local residents) likely to be affected will be notified at least 7 days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of: • The project • The construction period and construction hours • Contact information for project management staff • Complaint and incident reporting • How to obtain further information.</td>
<td>Contactor</td>
<td>Detailed design / pre-construction</td>
<td>Core standard safeguard</td>
</tr>
<tr>
<td>NV3</td>
<td>Noise and vibration</td>
<td>Avoid unnecessary revving of engines and turn off plant that is not being used/required. Use only non-tonal reverse alarms (broadband alternatives are needed). Where possible organise the site so that delivery trucks and haulage trucks only drive forward to avoid the use of reversing alarms. Organise and schedule the equipment operations to limit the noisiest machines operating simultaneously. Site set up/movement of plant/delivery of materials/waste removal to site should generally be restricted to the daytime period. Truck drivers are to be informed of site access routes, acceptable delivery hours and must minimise extended periods of engine idling. Ensure there is no unnecessary shouting or loud</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>No.</td>
<td>Impact</td>
<td>Environmental safeguards and management measures</td>
<td>Responsibility</td>
<td>Timing</td>
<td>Reference</td>
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<td></td>
<td>Sleep disturbance</td>
<td>To minimise the potential for sleep disturbance, where stereos/radios on-site. There must be no dropping of materials from heights, throwing of metal items, or slamming of doors. Equipment must be inspected on a regular basis and maintained as necessary, to ensure it is in good working order. This must include inspections of the condition and performance of mufflers. Construction equipment with the most effective mufflers, enclosures and low-noise tool bits and blades must be procured and utilised for the project. Where reasonable and feasible the quietest equipment suitable for a task should be used instead of noise-intensive equipment. Work is to be scheduled during standard construction hours where feasible and reasonable. Work generating high vibration levels should be scheduled during less sensitive time periods. Provide construction respite period during normal hours and out-of-hours work (See Appendix 3 of the Construction Noise and Vibration report (Appendix J) for details). Use quieter and less noise and vibration emitting construction methods where feasible and reasonable. Reduced equipment power- Use only the necessary size and power.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
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<tr>
<td>NV5</td>
<td>Noise</td>
<td>out of hours works are proposed to be undertaken at night, the following controls should be implemented where feasible and reasonable:</td>
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<td>Construction</td>
<td>Additional safeguard</td>
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<td>• Work outside of standard hours should be performed in accordance with the <em>Construction Noise and Vibration Guideline</em> (RMS, 2016b).</td>
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<td>• Path controls that shield stationary noise sources and/or shield sensitive receivers from noisy activities.</td>
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<td></td>
<td>• Schedule activities which are likely to cause maximum noise events such as deliveries, moving material or equipment, compacting and demolition works to occur in standard hours where possible or before 11pm where possible</td>
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<td>• Avoid dropping tools or materials from height, striking materials, dragging materials or making metal on metal contact.</td>
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<td></td>
<td>• Educate workers on the importance of minimising noise and avoid creating short duration high noise level events.</td>
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<td>• Inform surrounding residents by mail of planned works prior to the works commencing. This should include follow up consultation after any extended out of hours work</td>
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<td></td>
<td>• Contingency measures for night-time periods for when sleep disturbance criteria is exceeded.</td>
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<td>NV6</td>
<td>Noise and vibration</td>
<td>A Complaint Management Plan would be developed and implemented by the contractor engaged for the Construction Works. The Complaint Management</td>
<td>Roads and Maritime</td>
<td>Pre-construction, construction</td>
<td>Additional safeguard</td>
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<td>Plan would at a minimum include provisions for the recommendations outlined above. Upon receiving any complaint regarding construction activities, the nominated contact must investigate the source of the complaint. The aim would be for a Project representative to initiate a complaint investigation and to respond to all complaints as soon as possible. Where practicable a visit should be made to the complainant to verify the nature of the complaint and if justified appropriate action should be taken to cease or amend the activity causing the complaint. Attended noise and vibration monitoring should be carried out when a complaint is received.</td>
<td>Roads and Maritime</td>
<td>Pre-construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>NV7</td>
<td>Operational noise</td>
<td>One residential receiver is eligible for consideration of noise mitigation. Roads and Maritime would consult with the landowner regarding appropriate noise mitigation, in line with the Roads and Maritime’s “Noise Mitigation Guideline”.</td>
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|     |                   | A Contaminated Land Management Plan will be prepared in accordance with the Guideline for the Management of Contamination (Roads and Maritime, 2013) and implemented as part of the CEMP. Notwithstanding the outcomes of the Detailed Site Investigation (Douglas Partners, 2018a), the plan will include, but not be limited to:  
  • Capture and management of any surface runoff contaminated by exposure to any areas identified as contaminated land  
  • Further investigations required to determine the extent, concentration and type of contamination to any areas suspected as contaminated land or soils deemed unsuitable for re-use | Contractor          | Detailed design / Pre-construction | Core standard safeguard  
  Section 4.2 of QA G36 Environment Protection                           |
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|     |                   | - Management of the remediation and subsequent validation of the contaminated land, including any certification required  
|     |                   | - Measures to ensure the safety of site personnel and local communities during construction.                                                                                                                                                    |                      |                             |                                                                           |
| C2  | Contaminated land | If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. All other works that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Roads and Maritime Environment Manager and/or EPA. | Contractor           | Detailed design / Pre-construction | Core standard safeguard  
|     |                   |                                                                                                                          |                      |                             | Section 4.2 of QA G36 Environment Protection                             |
| C3  | Contaminated land | The Contaminated Land Management Plan will include awareness training for construction staff to include the procedures for identification, reporting and management of contaminated land.                                                                 | Contractor           | Pre-construction / Construction   | Additional safeguard                                      |
| C4  | Accidental spill  | 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 (RTA, 1999) and relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities (including Roads and Maritime and EPA officers). | Contractor           | Detailed design / Pre-construction   | Core standard safeguard  
<p>|     |                   |                                                                                                                          |                      |                             | Section 4.3 of QA G36 Environment Protection                             |
| C5  | Contaminated land | Undertake an intrusive investigation at Kincumber Creek to confirm the assessed moderate potential for contamination. Given the results of investigations on                                                                 | Roads and Maritime    | Pre-construction             | Additional safeguard                                      |</p>
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<td>adjacent areas, the investigation could be limited to the testing of the soil, sediment and surface water, to be determined prior to undertaking the surveys.</td>
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<tr>
<td>C6</td>
<td>Accidental spill</td>
<td>Emergency spill kits are required to be kept on site at all times and maintained throughout the construction works. All staff must be made aware of the location of the spill kits and trained in their use.</td>
<td>Contractor</td>
<td>Detailed design / Pre-construction / Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>C7</td>
<td>Accidental spill</td>
<td>Refuelling of plant and machinery on-site will be undertaken over a sealed and impervious service. Appropriate equipment to avoid spills and leaks during the refuelling process should be used. If and when feasible, it is preferable that refuelling is undertaken off site within a bunded impervious area.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>C8</td>
<td>Acid Sulfate Soils</td>
<td>The exact extent of acidic and/or acid sulfate soils shall be confirmed through inspection and testing during the construction work by a suitably qualified professional.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
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<tr>
<td>C9</td>
<td>Acid Sulfate Soils</td>
<td>Any excavation or disturbance of site soils be undertaken with reference to a specific Acid Sulfate Soil Management Plan (ASSMP). The plan is to include methods for onsite treatment or offsite disposal of excavated ASS. The plan will make reference to the ASS investigation report findings (Refer to Douglas Partners ASS and Management Plan, December 2018b) and be in accordance with the NSW ASSMAC Guidelines (1998).</td>
<td>Contractor</td>
<td>Pre-construction / Construction</td>
<td>Additional Safeguard</td>
</tr>
<tr>
<td>C10</td>
<td>Asbestos</td>
<td>An Unexpected Find Protocol (UFP) shall be prepared as part of the Contaminated Land Management Plan, to manage possible asbestos impacts, or other</td>
<td>Contractor</td>
<td>Pre-construction</td>
<td>Additional Safeguard</td>
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<td>unexpected contamination, encountered at or below the ground surface.</td>
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<tr>
<td>C11</td>
<td>Soil Radiation</td>
<td>Any excavation or disturbance of site soils be undertaken with reference to the Contaminated Land Management Plan, and the disposal of such materials will be in accordance with the Waste Management Plan to be prepared for the site (WMP).</td>
<td>Contractor</td>
<td>Pre-construction Construction</td>
<td>Additional Safeguard</td>
</tr>
<tr>
<td>C12</td>
<td>Cross contamination of soils</td>
<td>Implement good housekeeping practices including procedure and requirements for proper handling, segregation and storage, and transport of hazardous chemicals and waste.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
</tr>
<tr>
<td>C13</td>
<td>Cross contamination of soils</td>
<td>Contaminated aggregate wastes or excavation material shall be disposed through registered/approved waste contractors at appropriate licenced facilities.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
</tr>
<tr>
<td>C14</td>
<td>Cross contamination of soils</td>
<td>Washing of equipment, machineries, and vehicles will not permitted on site and on un-paved road.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
</tr>
<tr>
<td>C15</td>
<td>Cross contamination of soils</td>
<td>All hazardous construction waste and chemicals, such as oils, will be stored in well-equipped, leak-tight enclosures. Drums of hazardous materials will have drip collectors or be stored in bunded areas to avoid spillage to the ground. The storage tanks of fuels/chemicals shall be properly maintained and stored in bunded area of 110 per cent of their storage capacity.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
</tr>
<tr>
<td>C16</td>
<td>Storage and waste management</td>
<td>Wherever possible, reduce the quantity of chemicals and fuel stored on site to minimum practical level. Infrequently used chemicals will be ordered before they are needed.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
</tr>
<tr>
<td>C17</td>
<td>Storage and waste</td>
<td>All servicing, refuelling, stockpiles, waste disposal and</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
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<td>management</td>
<td>storage areas will be located as far as possible from the creek to reduce potential of pollution via spillage or windblown debris.</td>
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<tr>
<td>C18</td>
<td>Storage and waste management</td>
<td>No hazardous material will be stockpiled.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
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<tr>
<td>C19</td>
<td>Storage and waste management</td>
<td>Induction training for employees to increase their awareness of chemical management protocols including proper handling and storage of chemicals, and emergency response and contingency plans</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
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</table>
| C20 | Site Drainage and Erosion Control | An Erosion and Sedimentation Control Plan (ESCP) shall be developed for the works. The ESCP shall provide for:  
- Disturbed areas will be stabilised to minimise further erosion.  
- The construction footprint will be delineated to ensure that no soil disturbance occurs beyond this.  
- Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets.  
- Reduce water velocity and capture sediment on site.  
- Minimise the amount of material transported from site to surrounding road surfaces.  
- Erosion and sedimentation controls are to be checked and maintained on a regular basis and records kept and provided on request.  
- Erosion and sediment control measures are to be implemented until the works are complete or areas are stabilised.  
- Work areas are to be stabilised progressively during the works  
- Divert clean water around the site (in accordance with applicable regulations) | Contractor     | Pre-construction / Construction                           | Additional Safeguard               |
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<td>with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book)).</td>
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<td>C21</td>
<td>Site Drainage and Erosion Control</td>
<td>The maintenance of established stockpile sites during construction is to be in accordance with the Roads and Maritime Stockpile Site Management Procedures, 2001.</td>
<td>Contractor</td>
<td>Pre-construction/Construction</td>
<td>Additional Safeguard</td>
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<tr>
<td>C22</td>
<td>Site Drainage and Erosion Control</td>
<td>The areas requiring excavation/filling will be clearly demarcated to ensure that the soils are not disturbed outside of the working area.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional Safeguard</td>
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<tr>
<td>C23</td>
<td>Site Drainage and Erosion Control</td>
<td>Disturbed areas on the soft shoulders will be stabilised to minimise sedimentation to waterways in accordance with the landscaping plan.</td>
<td>Contractor</td>
<td>Post-Construction</td>
<td>Additional Safeguard</td>
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<tr>
<td>SW1</td>
<td>Soil and water</td>
<td>A Soil and Water Management Plan (SWMP) will be implemented as part of the CEMP. The SWMP will identify all reasonably foreseeable risks relating to soil erosion and water pollution and describe how these risks will be addressed during construction. The Soil and Water Management Plan (SWMP) will be reviewed by a soil conservationist on the Roads and Maritime list of Registered Contractors for Erosion, Sedimentation and Soil Conservation Consultancy Services. The SWMP will then be revised to address the outcomes of the review.</td>
<td>Contractor</td>
<td>Pre-construction</td>
<td>Core standard safeguard Section 2.1 of QA G38 Soil and Water Management</td>
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</table>
| SW2 | Water quality                     | Consistent with any specific requirements of the approved SWMP and ESCP, control measures will be implemented to minimise risks associated with erosion and sedimentation and entry of materials to drainage lines and waterways. That will include, but not necessarily be limited to:  
  • Early set up and implementation of sediment | Contractor      | Pre-construction/Construction | Additional safeguard                          |
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<td>management devices, such as fencing, hay bales, sand bags, catch drains and outlet protection structures.</td>
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<td>• Measures to divert or capture and filter water prior to discharge, such as drainage channels and first flush</td>
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<td>• Scour protection and energy dissipaters at locations of high erosion risk</td>
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<td>• Installation of measures at work entry and exit points to minimise movement of material onto adjoining roads, such as rumble grids and regular road sweeping</td>
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<td>• Appropriate location and storage of construction materials, fuels and chemicals, including bunding where appropriate</td>
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<td>• Pre-construction and construction water quality monitoring upstream and downstream of the work site.</td>
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<td>SW3</td>
<td>Kincumber Creek works - water quality</td>
<td>An Environmental Work Method Statement (EWMS) will be prepared and implemented for works next to and within Kincumber Creek. As a minimum, the EWMS will include the following:</td>
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<td>Pre-construction/Construction</td>
<td>Additional safeguard</td>
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<td>• Detailed description of the work activity, including plant and equipment to be used.</td>
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<td>• Timing and staging of the activity, including the relationship to other activities.</td>
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<td>• Identifying the environmentally sensitive areas (including downstream SEPP 14 wetlands), the high risk activities and the controls to be applied. Procedures for assessing the performance of the controls and taking remedial actions to address any shortcomings.</td>
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<td>• Consultation requirements with relevant</td>
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<td>government agencies such as WaterNSW (previously NSW Office of Water), DPI (Fishing &amp; Aquaculture) and Office of Environment and Heritage, where relevant.</td>
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<td>SW4</td>
<td>Soil and water</td>
<td>Establish clearing limits and work boundaries that are well defined using barrier tape (or equivalent) prior to construction, clearing or stripping works commencing.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
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</table>
| SW5 | Water quality – risk of spills and leaks | Where practicable, locate designated plant refuelling areas, plant service/maintenance areas and concrete/plant wash down areas and storage areas at least 5 metres from native vegetation and at least 50 metres from the following:  
  - A natural surface drainage area  
  - A built drainage structure such as a storm water pipe or box culvert. | Contractor | Construction | Additional safeguard |
<p>| SW6 | Water quality – risk of spills and leaks | Keep liquid chemicals and fuels in bunded storage areas or sheds that have the capacity to contain spills from leaky containers or from an incident involving a decanting activity. Ensure the bunded capacity is at least 110% of the total capacity of all containers stored inside the bunded area or shed. | Contractor | Construction | Additional safeguard |
| SW7 | Flooding during construction | A Flood Evacuation and Management Procedure will be prepared and implemented as part of the CEMP. | Contractor | Pre-construction | Additional safeguard |
| GW1 | Groundwater quality | A dewatering strategy and groundwater management measures will be prepared and implemented as part of the Soil and Water Management Plan. This will apply for any works where groundwater ingress would occur, particularly for the construction of piers in Kincumber Creek. Management measures will include testing, containment and treatment for any acidic waters. | Roads and Maritime | Pre-construction | Additional safeguard |</p>
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<tr>
<td>GW2</td>
<td>Groundwater quality</td>
<td>Any dewatering activities will be undertaken in accordance with the RTA Technical Guideline: <em>Environmental management of construction site dewatering in a manner that prevents pollution of waters.</em></td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>PL1</td>
<td>Property acquisition</td>
<td>All property acquisition will be carried out in accordance with the <em>Land Acquisition Information Guide</em> (Roads and Maritime, 2012a), the <em>Land Acquisition (Just Terms Compensation) Act 1991</em> and the <em>NSW Government Land Acquisition Reform 2016.</em></td>
<td>Roads and Maritime project manager</td>
<td>Pre-construction and construction</td>
<td>Core standard safeguard</td>
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</table>
| UD1 | Landscape character and visual impact | An Urban Design Plan will be prepared to support the final detailed project design and implemented as part of the CEMP.  

The Urban Design Plan will present an integrated urban design for the project, providing practical detail on the application of design principles and objectives identified in the environmental assessment. The Plan will include design treatments for:  
- Location and identification of existing vegetation and proposed landscaped areas, including species to be used.  
- Built elements including retaining walls, bridges and noise walls  
- Pedestrian and cyclist elements including footpath location, paving types and pedestrian crossings  
- Fixtures such as seating, lighting, fencing and signs  
- Details of the staging of landscape works taking account of related environmental controls such as erosion and sedimentation controls and drainage  
- Procedures for monitoring and maintaining landscaped or rehabilitated areas.                                                                 | Contractor           | Detailed design / pre-construction | Core standard safeguard      |
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|     |                         | The Urban Design Plan will be prepared in accordance with relevant guidelines, including:  
|     |                         |   - *Beyond the Pavement urban design policy, process and principles* (Roads and Maritime, 2014)  
|     |                         |   - Landscape Guideline (RTA, 2008a)  
|     |                         |   - Bridge Aesthetics (Roads and Maritime 2012)  
|     |                         |   - Noise Wall Design Guidelines (RTA, 2006)  
|     |                         |   - Shotcrete Design Guideline (RTA, 2005).  
|     |                         |                                                                                                                                                                                                                                                                                                                                                                            | Contractor     | Construction         | Additional safeguard            |
| UD2 | Landscape character and visual impact | The Urban Design Plan will include a planting palette, which:  
|     |                         |   - Is consistent with the adjacent bushland and verge planting treatments and adjacent residential planting themes.  
|     |                         |   - Provides an attractive, vegetated central roundabout  
|     |                         |   - Identifies low maintenance species for medians  
|     |                         |   - Where possible provides screen planting to adjacent residences where existing screen planting is removed  
|     |                         |   - Incorporates screen planting along the Empire Bay Drive frontage in the vicinity of the pedestrian lights should it be required  
|     |                         |   - Location of large trees to have regard to future services, road sightlines and current (or future) maintenance access requirements.  
|     |                         |                                                                                                                                                                                                                                                                                                                                                                            | Contractor     | Construction         | Additional safeguard            |
| UD3 | Landscape character and visual impact | The detailed design would be an integrated engineering/urban design outcome in accordance with the environmental assessment, the urban design principles and the project objectives.  
|     |                         |                                                                                                                                                                                                                                                                                                                                                                            | Contractor     | Detailed design / pre-construction | Additional safeguard            |
| UD4 | Landscape character and visual impact | Existing large trees vegetation would be maintained and protected wherever possible noting that the  
<p>|     |                         |                                                                                                                                                                                                                                                                                                                                                                            | Contractor     | Construction         | Additional safeguard            |</p>
<table>
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<tr>
<th>No.</th>
<th>Impact</th>
<th>Environmental safeguards and management measures</th>
<th>Responsibility</th>
<th>Timing</th>
<th>Reference</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>proposal would result in the unavoidable loss of existing roadside vegetation.</td>
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<tr>
<td>UD5</td>
<td>Landscape character and visual impact</td>
<td>A consistent approach would be developed to the detailing of medians, street lighting, pedestrian fences, walls (if needed) and to the extent possible, integrate with the detailing of new roadside elements.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>UD6</td>
<td>Landscape character and visual impact</td>
<td>Develop a limited range of materials, colours and textures for built elements to achieve a simple uncluttered design.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>UD7</td>
<td>Landscape character and visual impact</td>
<td>The proposal site shall be kept tidy during construction minimising visual impact on the adjoining dwellings.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>UD8</td>
<td>Landscape character and visual impact</td>
<td>Lighting would not be directed or spill into any adjoining landholding or dwelling. Occupants of adjoining dwellings would be advised of any night time construction and the proposed lighting requirements.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>UD9</td>
<td>Landscape character and visual impact</td>
<td>Construction lighting and the pedestrian lights would be in accordance with the relevant Australian Standard such as AS4282 – <em>Control of the obtrusive effects of outdoor lighting</em>, AS 1158.4:2015 <em>Lighting for roads and public spaces - Part 4: Lighting of pedestrian crossings</em>.</td>
<td>Contractor</td>
<td>Construction</td>
<td>Additional safeguard</td>
</tr>
</tbody>
</table>
| SE1 | Socio-economic                  | A Communication Plan (CP) will be prepared and implemented as part of the CEMP to help provide timely and accurate information to the community during construction. The CP will include (as a minimum):  
  - Mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions  
  - Contact name and number for complaints. | Contractor     | Detailed design / pre-construction | Core standard safeguard           |
<table>
<thead>
<tr>
<th>No.</th>
<th>Impact</th>
<th>Environmental safeguards and management measures</th>
<th>Responsibility</th>
<th>Timing</th>
<th>Reference</th>
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<tr>
<td></td>
<td></td>
<td>The CP will be prepared in accordance with the <em>Community Involvement and Communications Resource Manual</em> (RTA, 2008b).</td>
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<tr>
<td>SE2</td>
<td>Impacts on properties, businesses and the community during construction</td>
<td>Road users will be informed of changed conditions, including likely disruptions or changes to driveway access during construction. Consultation will be undertaken with all affected landowners and businesses where changes and adjustments are necessary for safe access to properties.</td>
<td>Construction Contractor</td>
<td>Pre-construction / construction</td>
<td>Additional safeguard</td>
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<td>Detailed design / construction</td>
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<tr>
<td>SE3</td>
<td>Community impacts during construction across the proposal</td>
<td>Consultation will be undertaken with potentially affected residences and businesses prior to the commencement of and during works in accordance with Roads and Maritime’s Community Involvement and Communications Resource Manual. Consultation will include but not limited to door knocks, newsletters or letter box drops providing information on the proposed works, working hours and a contact name and number for more information or to register complaints.</td>
<td>Roads and Maritime/ Construction contractor</td>
<td>Pre-construction and construction</td>
<td>Additional safeguard</td>
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<tr>
<td>SE4</td>
<td>Community impacts during construction across the proposal</td>
<td>A complaint handling procedure and register will be included in the CEMP. The complaints register will be maintained throughout construction.</td>
<td>Construction contractor</td>
<td>Pre-construction and construction</td>
<td>Additional safeguard</td>
</tr>
<tr>
<td>AH1</td>
<td>Aboriginal heritage</td>
<td>An Aboriginal Heritage Management Plan (AHMP) will be prepared in accordance with the Procedure for Aboriginal cultural heritage consultation and investigation (Roads and Maritime, 2012c) and Standard Management Procedure - Unexpected Heritage Items (Roads and Maritime, 2015) and implemented as part of the CEMP. It will provide</td>
<td>Contactor</td>
<td>Detailed design / pre-construction</td>
<td>Section 4.9 of QA G36 Environment Protection</td>
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<tr>
<td>No.</td>
<td>Impact</td>
<td>Environmental safeguards and management measures</td>
<td>Responsibility</td>
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<td>specific guidance on measures and controls to be implemented for managing impacts on Aboriginal heritage. The AHMP will be prepared in consultation with all relevant Aboriginal groups.</td>
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<td></td>
<td>Core standard safeguard</td>
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<td>The Standard Management Procedure - Unexpected Heritage Items (Roads and Maritime, 2015) will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. This applies where Roads and Maritime does not have approval to disturb the object/s or where a specific safeguard for managing the disturbance (apart from the Procedure) is not in place. Work will only re-commence once the requirements of that Procedure have been satisfied.</td>
<td>Contactor</td>
<td>Detailed design / pre-construction</td>
<td>Section 4.9 of QA G36 Environment Protection</td>
</tr>
<tr>
<td>AH2</td>
<td>Aboriginal heritage</td>
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<td>Core standard safeguard</td>
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</table>
|     |             | An Air Quality Management Plan (AQMP) will be prepared and implemented as part of the CEMP. The AQMP will include, but not be limited to:  
• Potential sources of air pollution  
• Air quality management objectives consistent with any relevant published EPA and/or OEH guidelines  
• Mitigation and suppression measures to be implemented  
• Methods to manage work during strong winds or other adverse weather conditions  
• A progressive rehabilitation strategy for exposed surfaces.                                                                                                                                  | Contractor      | Detailed design / pre-construction | Section 4.4 of QA G36 Environment Protection                              |
| AQ1 | Air quality  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |                              | Core standard safeguard                                                  |
|     |             | A Waste Management Plan (WMP) will be prepared and implemented as part of the CEMP. The WMP will include but not be limited to:  
• Measures to avoid and minimise waste associated with the project  
• Classification of wastes and management options                                                                                                                                                                                                       | Contractor      | Detailed design / pre-construction | Section 4.2 of QA G36 Environment Protection                              |
<p>| W1  | Waste       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |                              | Core standard safeguard                                                  |</p>
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<tr>
<th>No.</th>
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<th>Responsibility</th>
<th>Timing</th>
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<tbody>
<tr>
<td></td>
<td>(re-use, recycle, stockpile, disposal)</td>
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<td></td>
<td>• Statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions</td>
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<td></td>
<td>• Procedures for storage, transport and disposal</td>
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<td>• Monitoring, record keeping and reporting.</td>
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<td>The WMP will be prepared taking into account the Environmental Procedure - Management of Wastes on Roads and Maritime Services Land (Roads and Maritime, 2014b) and relevant Roads and Maritime Waste Fact Sheets.</td>
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<tr>
<td>U1</td>
<td>Utilities</td>
<td>Prior to the commencement of works:</td>
<td>Contractor</td>
<td>Detailed design / pre-construction</td>
<td>Core standard safeguard</td>
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<td>• The location of existing utilities and relocation details will be confirmed following consultation with the affected utility owners, as outlined in the Communication Plan</td>
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<td></td>
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<td>• If the scope or location of proposed utility relocation works falls outside of the assessed proposal scope and footprint, further assessment will be undertaken.</td>
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<tr>
<td>HAZ1</td>
<td>Hazards and risk management</td>
<td>A Hazard and Risk Management Plan (HRMP) will be prepared and implemented as part of the CEMP. The HRMP will include, but not be limited to:</td>
<td>Contractor</td>
<td>Detailed design / pre-construction</td>
<td>Core standard safeguard</td>
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<tr>
<td></td>
<td></td>
<td>• Details of hazards and risks associated with the activity</td>
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<td>• Measures to be implemented during construction to minimise these risks</td>
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<td></td>
<td>• Record keeping arrangements, including information on the materials present on the site, material safety data sheets, and personnel trained and authorised to use such materials</td>
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<tr>
<td>No.</td>
<td>Impact</td>
<td>Environmental safeguards and management measures</td>
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</table>
|     |        | • A monitoring program to assess performance in managing the identified risks  
|     |        | • Contingency measures to be implemented in the event of unexpected hazards or risks arising, including emergency situations.  
|     |        | The HRMP will be prepared in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice, and EPA or Office of Environment and Heritage publications. | | | |
5.3 Licensing and approvals

Table 5-2 lists the licences and approvals which are needed to construct and operate the proposal.

Table 5-2 Summary of licensing and approval required

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Requirement</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads Act 1993 (s138)</td>
<td>Road occupancy licence to dig up, erect a structure or carry out work in, on or over a road</td>
<td>Prior to start of the activity</td>
</tr>
<tr>
<td>Crown Lands Act 1989 (s6)</td>
<td>Licence to occupy areas of Crown Land</td>
<td>Prior to start of the activity</td>
</tr>
<tr>
<td>Water Management Act 2000 (s92)</td>
<td>Water supply work approval required if greater than 3ML of groundwater needs to be extracted for dewater purposes during construction</td>
<td>Prior to start of the activity</td>
</tr>
<tr>
<td>Fisheries Management Act 1994 (s199)</td>
<td>Notification to the Minister of Primary Industries prior to any dredging or reclamation works</td>
<td>A minimum of 28 days prior to the start of work</td>
</tr>
</tbody>
</table>
6. References

Roads and Maritime 2018, Empire Bay Drive at The Scenic Road, Kincumber Intersection Upgrade Review of Environmental Factors.
Appendix A
Assessment of Significance
(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction;
N/A

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:
(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

(i) Kincumber Scribbly Gum Forest is restricted to a small area on the Bouddi Peninsula on the NSW Central Coast south of Kincumber. It occurs in the Gosford LGA. The total remaining area of Kincumber Scribbly Gum Forest is thought to be less than 100 hectares spread over an area of about 4 km². The potential Kincumber Scribbly Gum Forest EEC occurs in two locations within proximity of proposed Bilinga Road and Bridge Street compound sites. No removal of this CEEC would occur, however, there are potential indirect impacts such as weed invasion and impacts from dust. There is also a low risk of accidental clearing. These risks would be managed through specific safeguards.

(ii) The composition of the community within the proposal site and surrounding area is already generally highly modified from past clearing and weed invasion. As the works would not directly impact on this community it is unlikely that it would further modify the composition of the community such that it would be placed at risk of extinction. Measures are recommended within this report to minimise the potential for any further weed introduction or spread.

(c) in relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality

(i) No habitat will be removed or directly modified as a result of the proposed activity. Any indirect impacts as a result of dust are likely to be temporary. The risk of weed invasion from edge effects already exists and is unlikely to be substantially increased as a result of the proposal.

(ii) Due to there being no vegetation removal there will be no fragmentation or isolation from other areas of habitat as a result of the proposed activity.

(iii) No habitat important to the long-term survival of the CEEC will be removed, modified, fragmented or isolated.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly)

No areas of outstanding biodiversity value were present or would be impacted.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process

A number of key threatening processes are relevant to the proposed work including:

• Clearing of native vegetation
• Potential infection of native plants by *Phytophthora cinnamomi*
• Invasion of native plant communities by exotic perennial grasses
• Invasion and establishment of exotic vines and scramblers
• Invasion, establishment and spread of Lantana.

The clearing of native vegetation is considered a major contributor to the loss of biodiversity. In the determination, the NSW Scientific Committee found that ‘clearing of any area of native vegetation, including areas less than two hectares in extent, may have significant impacts on biological diversity’. No clearing of vegetation or potential habitat will occur. Major transport pathways act as conduit for exotic species to invade remnant bushland. Exotic species within the proposed work area currently contain approximately 45% of the total species on site. This is not expected to increase as a result of the proposed works. No obvious signs of Phytophthora were present at these sites or surrounding area; however, management measures will ensure potential infection does not occur.

**Conclusion**

The proposal is considered unlikely to have a significant impact on the Kincumber Scribbly Gum Forest CEEC as:

• No direct impacts will occur to the CEEC
• There will be no reduction in the extent of the community and would not place any local occurrence at risk of extinction
• The proposal would not notably fragment or increase fragmentation of the community or isolate habitat
• The proposal would not notably contribute to any KTP relevant to this community
• Indirect impacts will be managed with the safeguards within the Biodiversity Assessment.