

# Cessnock Road upgrade at Testers Hollow

Submissions report

Roads and Maritime Services | November 2019





# **Cessnock Road upgrade at Testers Hollow**

Submissions report

Roads and Maritime Services | November 2019

Prepared by Jacobs and Roads and Maritime Services

**COPYRIGHT:** The concepts and information contained in this document are the property of Roads and Maritime Services NSW (Roads and Maritime). Use or copying of this document in whole or in part without the written permission of Roads and Maritime constitutes an infringement of copyright



# Executive summary

## The proposal

Roads and Maritime Services (Roads and Maritime) proposes to upgrade MR195 Cessnock Road (also known as Main Road) at Testers Hollow, between Gillieston Heights and Cliftleigh. The proposal would raise the height of Cessnock Road at Testers Hollow to provide a more reliable connection during certain flood events. The proposal is located in the Cessnock Local Government Area (LGA), directly alongside the western boundary of Maitland LGA.

Key features of the proposal include:

- A new two lane 60 and 80 kilometre per hour road, one lane in each direction with two metre shoulders. It would be around 900 metres long between Gillieston Heights and Cliftleigh, built alongside the existing Cessnock Road
- The new road would be about 1.5 metres higher than the existing Cessnock Road, which would allow access in a five per cent Annual Exceedance Probability (AEP) flood event. AEP refers to the likelihood of a flood event occurring in any one year
- The new road would tie in with the existing road at the northern and southern extents
- Existing access arrangements would be maintained to private property and to the existing combined U-turn bay and intersection at Avery Lane
- New drainage to allow water to pass freely under the new road
- Utility and street light relocations
- Partial property acquisitions
- Ancillary works including drainage works, safety barriers, signs, linemarking, landscaping and environmental protection works
- Temporary ancillary facilities including site compounds and stockpile sites.

## Display of the Review of Environmental Factors

Roads and Maritime prepared a review of environmental factors (REF) for the Cessnock Road upgrade at Testers Hollow. The REF was publicly displayed for community feedback between 30 July and 20 August 2019 at Cessnock City Council and Maitland City Council. The REF was also made available for download and viewing at [rms.work/testershollow](https://rms.work/testershollow).

The display locations and website link were made available to the community via a community update, advertisements in the local papers, social media and direct mail. An invitation to comment was sent directly to key government, utility and industry stakeholders.

## Summary of issues and responses

Public display of the REF and the supporting consultation resulted in a total of 11 submissions, of which six were from the general community, one from Cessnock City Council and four from government agencies.

Of these submissions, one supported the proposal, one objected to the proposal and two partially supported the proposal. The remaining seven submissions offered no position on whether they supported or objected to the proposal.

The main issues raised related to design elements of the proposed road and are summarised below.

### **Road height**

Respondents queried the height of the proposed new Cessnock Road, stating that the proposal is not high enough for flood-proofing.

*Roads and Maritime considered a number of design options for the new road height. The five per cent AEP option is considered the best overall solution as it:*

- *Substantially reduces the impact, frequency and duration of flood events along Cessnock Road at Testers Hollow*
- *Improves connectivity between the Maitland area and broader community during a flood event*

- *Has the least environmental impact and property acquisitions compared to the other options considered*
- *Optimises the benefits for the cost of investment and minimises disruption during construction.*

### **Road capacity (number of lanes)**

Respondents queried why the proposal does not provide four lanes, with some respondents stating traffic is increasing on Cessnock Road and likely to increase in the future.

*The main objective of the proposal is to provide increased flood immunity along Cessnock Road between Gillieston Heights and Clifftleigh. Any future proposal to increase the traffic capacity of the road would be subject to separate funding and environmental approvals.*

### **Next steps**

Roads and Maritime as the determining authority will consider the information in the REF and this submissions report and make a decision whether or not to proceed with the proposal.

Roads and Maritime will inform the community and stakeholders of this decision. Where a decision is made to proceed, Roads and Maritime will continue to consult with the community and stakeholders before and during the construction phase.

# Contents

Executive summary .....	i
Contents .....	iii
<b>1. Introduction and background .....</b>	<b>1</b>
1.1 The proposal .....	1
1.2 REF display .....	1
1.3 Purpose of the report .....	2
<b>2. Response to issues .....</b>	<b>7</b>
2.1 Overview of issues raised .....	7
2.2 Need for the proposal .....	8
2.3 Design .....	8
2.4 Hydrology, flooding and water quality.....	10
2.5 Traffic, transport and access.....	11
2.6 Air quality.....	12
2.7 Issues outside the scope of the proposal .....	13
<b>3. Environmental management.....</b>	<b>14</b>
3.1 Environmental management plans (or system) .....	14
3.2 Summary of safeguards and management measures .....	14
3.3 Licensing and approvals .....	29
<b>4. References .....</b>	<b>30</b>
<b>Terms and acronyms used in the REF and submissions report for this project .....</b>	<b>31</b>

## Tables

Table 1-1 Display locations.....	2
Table 2-1 Respondents, submission numbers and sections where issues are addressed .....	7
Table 3-1 Summary of environmental safeguards and management measures.....	15
Table 3-2 Summary of licensing and approvals required .....	29

## Figures

Figure 1-1 Location of the proposal .....	3
Figure 1-2 The proposal .....	4

## Appendices

Appendix A	Invitation to comment letter
Appendix B	Community update

# 1. Introduction and background

## 1.1 The proposal

Roads and Maritime Services (Roads and Maritime) proposes to upgrade MR195 Cessnock Road (also known as Main Road) at Testers Hollow, between Gillieston Heights and Cliftleigh. The proposal would raise the height of Cessnock Road at Testers Hollow to provide a more reliable connection during certain flood events. The proposal is located in the Cessnock Local Government Area (LGA), directly alongside the western boundary of Maitland LGA.

Key features of the proposal include:

- A new two lane 60 and 80 kilometre per hour road, one lane in each direction with two metre shoulders. It would be around 900 metres long between Gillieston Heights and Cliftleigh, built alongside the existing Cessnock Road
- The new road would be about 1.5 metres higher than the existing Cessnock Road, which would allow access in a five per cent Annual Exceedance Probability (AEP) flood event. AEP refers to the likelihood of a flood event occurring in any one year
- The new road would tie in with the existing road at the northern and southern extents
- Existing access arrangements would be maintained to private property and to the existing combined U-turn bay and intersection at Avery Lane
- New drainage to allow water to pass freely under the new road
- Utility and street light relocations
- Partial property acquisitions
- Ancillary works including drainage works, safety barriers, signs, linemarking, landscaping and environmental protection works
- Temporary ancillary facilities including site compounds and stockpile sites.

The location of the proposal is shown in **Figure 1-1** and an overview of the proposal is provided in **Figure 1-2**. Chapter 3 of the REF describes the proposal in more detail.

## 1.2 REF display

Roads and Maritime prepared a review of environmental factors (REF) to assess the potential environmental impacts of the proposal. The REF was displayed for community feedback between 30 July and 20 August 2019 at two locations, as detailed in **Table 1-1**. It was also made available for viewing and download at [rms.work/testershollow](https://rms.work/testershollow).

The REF display locations and website link were made available to the community via:

- About 3,500 community updates (refer to **Appendix B**) featuring project background, key features, concept design and display details distributed to Gillieston Heights and Cliftleigh (postcode 2321) on 19 August 2019
- Advertisements in Maitland Mercury, Cessnock Advertiser and Newcastle Herald on 21 August 2019
- Post on NSW Roads Facebook page on 20 August 2019.

In addition to the public display, an invitation to comment was sent directly to the following key stakeholders (refer to **Appendix A**):

- Department of Planning, Industry and Environment, including:
  - The former Office of Environment and Heritage
  - The former Department of Industry – Lands and Water
  - The former Department of Primary Industries (Fisheries)
  - NSW Resources and Energy – Division of Resources and Geoscience
- Cessnock City Council
- Maitland City Council
- Subsidence Advisory NSW
- Environment Protection Authority (EPA)
- State Emergency Services (SES)
- Registered Aboriginal parties (RAP)
- Local Land Services – Hunter
- AAPT / PowerTel
- Ausgrid
- Hunter Water
- Jemena (Gas)
- NBN
- Telstra
- Optus.

**Table 1-1 Display locations**

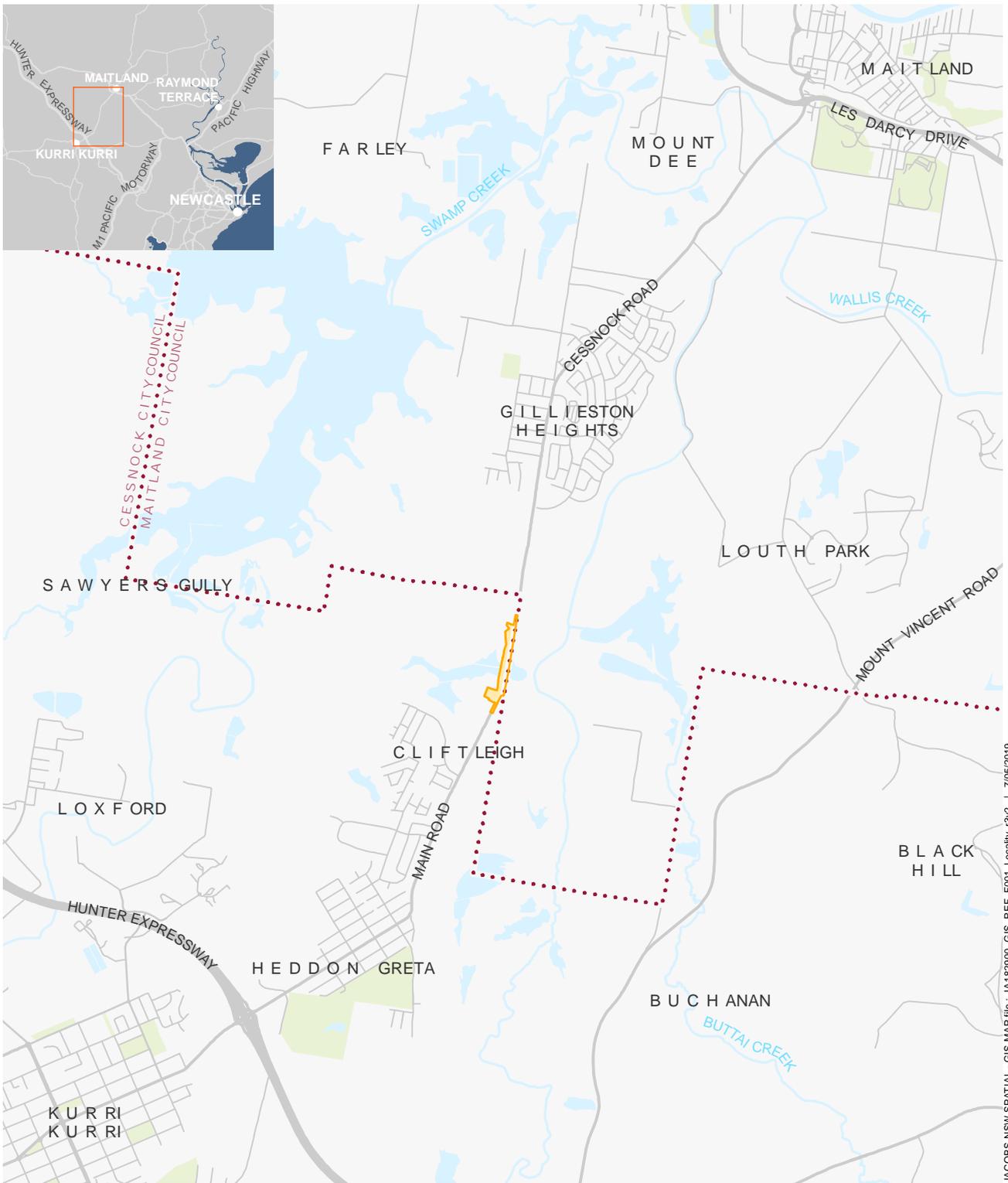
Location	Address
Cessnock City Council	62-78 Vincent Street, Cessnock NSW
Maitland City Council	285-287 High Street, Maitland NSW

## 1.3 Purpose of the report

This submissions report relates to the REF prepared for the Cessnock Road Upgrade at Testers Hollow 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**).

No changes are proposed that would require further environmental assessment. No revisions have been made to the environment assessment as documented in the REF. Minor changes to the management measures have been made in response to submissions (**Chapter 3**).



**Legend**

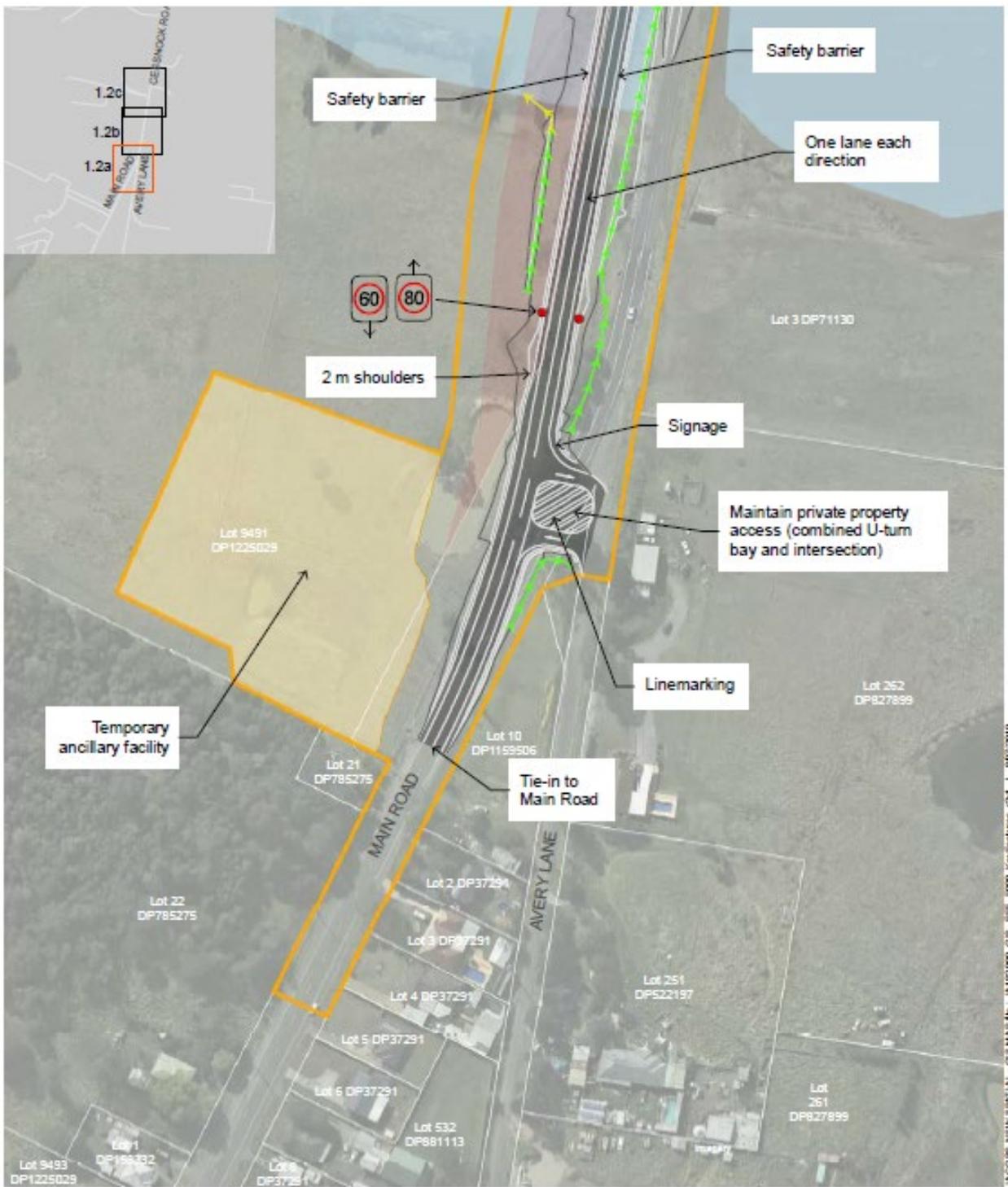
 Proposal area



1:50,000 @ A4



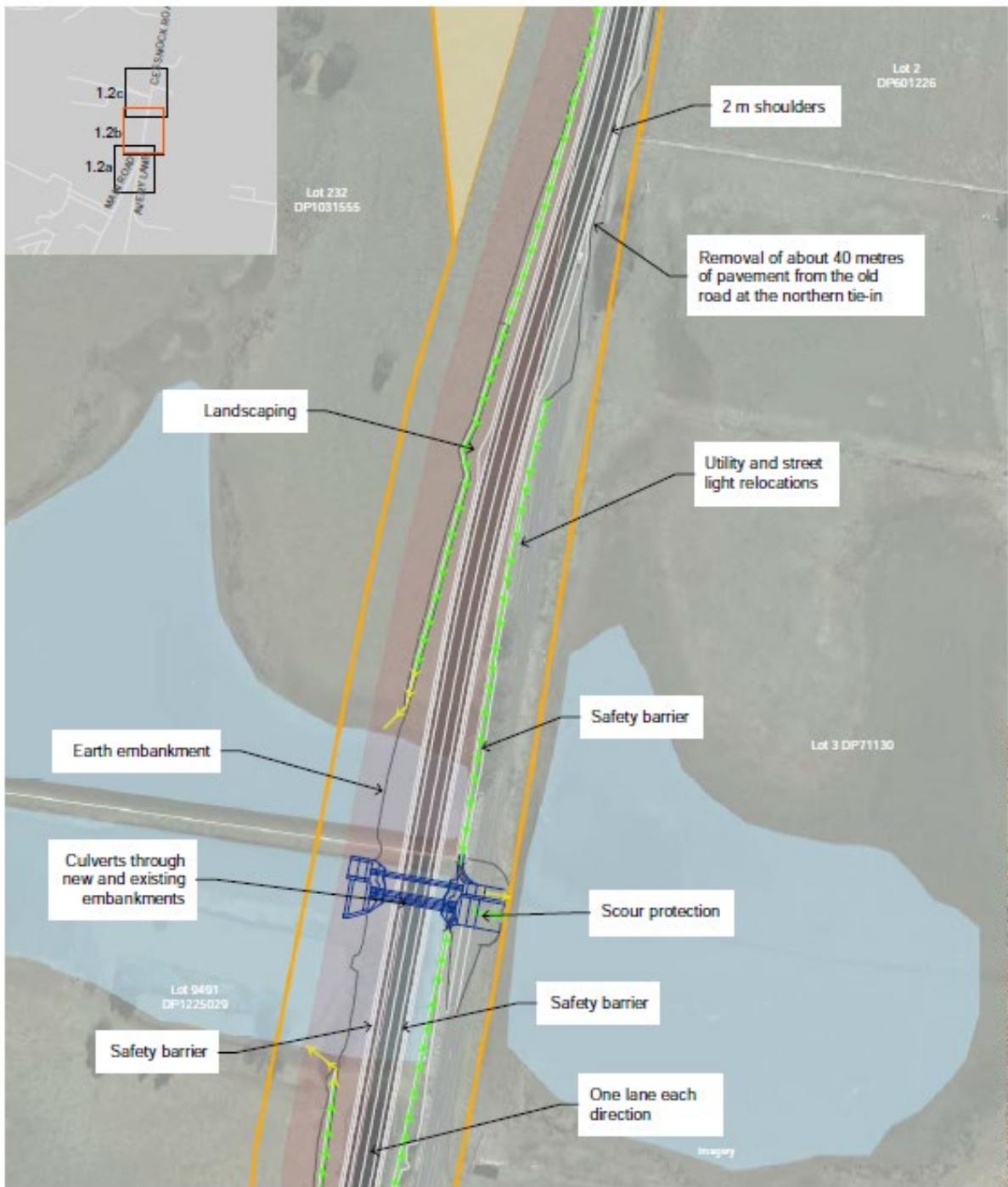
**Figure 1.1** | Location of the proposal



JACOBS NEW SW/ITAL - GIS MAP No. 1: 1612100\_GIS\_REF\_1000\_KeyFeatures\_01 | 06/12/19



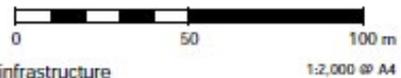
**Figure 1.2a** | Key features of the proposal



JACOBS NSW SP/NTAL - GIS MAPFILE - W:\102940\_08\_RIF\_1600\_KeyFeatures\_204 | 16/1/2018

**Legend**

- |                          |                     |                         |
|--------------------------|---------------------|-------------------------|
| Proposal area            | Alignment pavement  | Drainage infrastructure |
| Potential ancillary site | Property aquisition | Channel - concrete      |
| Design                   | Waterbody           | Channel - grass         |
| Batter slope             |                     | Channel - rock          |
|                          |                     | Culvert                 |



**Figure 1.2b** | Key features of the proposal

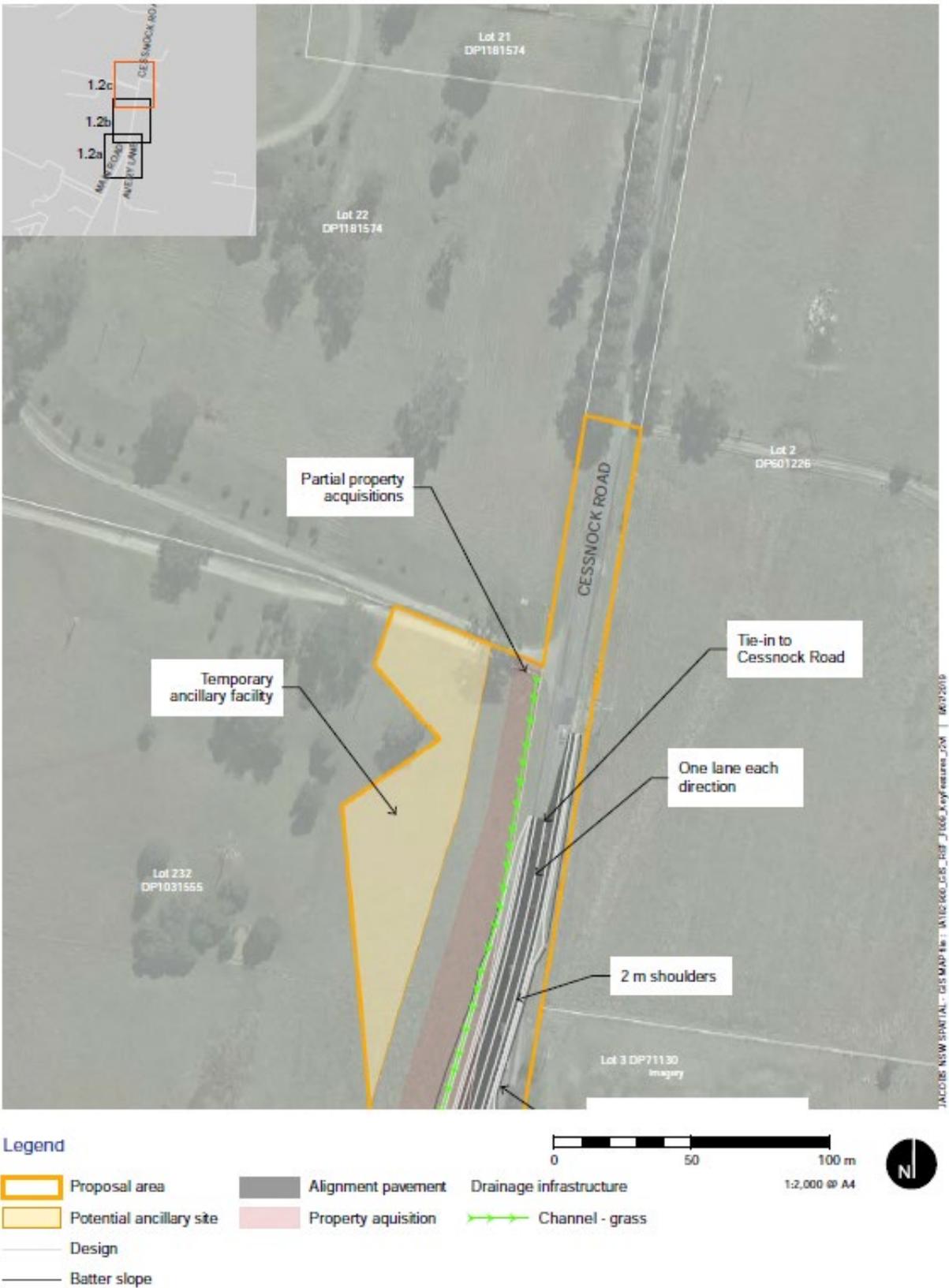


Figure 1.2c | Key features of the proposal

## 2. Response to issues

Roads and Maritime received 11 submissions during the display period. **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, submission numbers and sections where issues are addressed**

Respondent	Submission no.	Section number where issues are addressed
Individual	1	2.1
Subsidence Advisory NSW	2	2.1
Individual	3	2.3.1, 2.3.2, 2.5.1
Individual	4	2.2
Department of Planning, Industry and Environment (the former Department of Primary Industries (Fisheries))	5	2.1
Individual	6	2.3.1, 2.3.2, 2.7
Individual	7	2.3.2, 2.4.1
NSW State Emergency Service	8	2.5.2
Environment Protection Authority	9	2.4.2, 2.6
Individual	10	2.3.3
Cessnock City Council	11	2.3.1, 2.3.2

### 2.1 Overview of issues raised

A total of 11 submissions were received in response to the display of the review of environmental factors. This included submissions from four government agencies, six community respondents and Cessnock City Council.

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 response to these issues form the basis of this chapter.

Of these submissions, one supported the proposal, one objected to the proposal and two were partially supportive of the proposal. The remaining seven submissions offered no position on whether they supported or objected to the proposal.

Government agencies provided responses relating to traffic during construction, surface water quality monitoring and dust control measures. The Subsidence Advisory NSW and the Department of Planning, Industry and Environment (the former Department of Primary Industries (Fisheries)) noted no issues in relation to the proposal.

The issues raised by Cessnock City Council related to road capacity, proposed urban release areas and height of the new Cessnock Road.

The issues raised by the community related to road height and capacity, need for the proposal, safety, flooding impacts, Avery Lane turning lane and cyclist and pedestrian facilities.

## 2.2 Need for the proposal

### **Submission number(s)**

4 – Individual

### **Issue description**

One respondent queried the justification for the proposal after reviewing the flooding impact report. The respondent noted the flood impact report states an average reduction in the isolation of Gillieston Heights by 1.4 hours per year. The respondent queried how the cost of a \$17 million upgrade could be justified with a reduction of 1.4 hours per year. The respondent gave a suggestion for other solutions to reduce Gillieston Heights' isolation time. The respondent also queried why the project is being considered when the cost outweighs the benefits.

### **Response**

The proposed upgrade of Cessnock Road at Testers Hollow was developed following a commitment of funding from the NSW and Australian governments. It is intended to reduce the impact of flooding and provide a more reliable connection during flood events. Section 2.1 of the REF discusses the need for the proposal in further detail.

The cost benefit analysis of the project considers other benefits in addition to reducing the isolation time of Gillieston Heights.

With the proposal, Cessnock Road would be flood free in a five per cent AEP event and any smaller flood event. Cessnock Road is currently overtopped by flood waters during events equivalent to, and in excess of 20 per cent AEP flood events, which are floods that have a 20 per cent chance of occurring in a year.

The average annual duration of inundation at Cessnock Road would be substantially reduced after flooding events larger than the five per cent AEP. The proposal would reduce the average annual duration of inundation by 79 per cent (18.5 hours), from 23.5 hours to five hours. Further detail is provided in Section 6.3 of the REF.

The proposal would reduce the road closure frequency as a result of road repairs. Flood hazard on Cessnock Road would be reduced by the proposal. In all cases but the Hunter River probable maximum flood event, the proposal has a positive impact on flood hazard categories (ie. reduces flood hazard).

## 2.3 Design

### 2.3.1 Road capacity (number of lanes)

#### **Submission number(s)**

3 – Individual

6 – Individual

11 – Cessnock City Council

#### **Issue description**

One respondent queried why the proposal is only two lanes when developers are required to install four lane intersections.

Two respondents, as well as Cessnock City Council, stated traffic is increasing on Cessnock Road and the proposal should include four lanes, with two lanes in each direction.

Cessnock City Council stated that several urban release areas in the corridor are likely to use Cessnock Road in the future including Cliftleigh, Averys Village, Kurri Autos and Hydro. These urban release areas would add a substantial amount of traffic to Cessnock Road and the impact of these areas should be considered in future planning and designing the proposal.

### **Response**

The objectives of the proposal are listed in Section 2.3.1 of the REF. The main objective of the proposal is to provide increased flood immunity along Cessnock Road between Gillieston Heights and Cliftleigh and not to increase the road capacity.

Any future proposal to increase the traffic capacity of the road would be subject to separate planning, funding and environmental approvals.

Previous consultation with Cessnock City Council and Roads and Maritime responses relating to the number of lanes for the proposal is summarised in Table 5.3 of the REF.

## **2.3.2 Road height**

### **Submission number(s)**

3 – Individual

6 – Individual

7 – Individual

11 – Cessnock City Council

### **Issue description**

Two respondents queried the height of the proposed new road and stated that increasing the road height by 1.5 metres is not enough to flood-proof Cessnock Road at Testers Hollow. One respondent also stated the area is subject to major flooding and the height of the proposal would only help in minor floods.

One respondent queried why the proposal is not being built above a standard flood level for Testers Hollow. The respondent stated that floodwaters are normally two metres above the current road level during a flood event.

Cessnock City Council noted that while the five per cent AEP is often used for design, the proposal's flood immunity would still result in road closure of five days in the event of a flood similar to the 2007 flood event.

Cessnock City Council also requested:

- Consideration to be given to the extra cost to provide a higher flood immunity
- The flood immunity provided by the proposal should be considered in the context of the timeframes for when an alternative flood route could be provided.

### **Response**

Roads and Maritime considered several design options for the new road height. Section 2.4 (Alternatives and options considered) of the REF summarises the methodology for selecting the preferred option, identified options and analysis of options, while Section 2.5 of the REF summarises the preferred option and why it was selected.

The five per cent AEP option was identified as the option that best met the proposal objectives. It is also considered the best overall solution as it:

- Substantially reduces the impact, frequency and duration of flood events along Cessnock Road at Testers Hollow
- Improves connectivity between the Maitland area and broader community during a flood event
- Has the least environmental impact and property acquisitions compared to the other options considered
- Optimises the benefits for the cost of investment and minimises disruption during construction.

## 2.3.3 Safety

### ***Submission number(s)***

10 – Individual

### ***Issue description***

One respondent requested a turning lane be included for vehicles turning into Avery Lane from Cessnock Road. The additional lane may reduce the number of rear-end collisions involved with vehicles on Cessnock Road waiting for a break in traffic to turn into Avery Lane.

### ***Response***

The design improves safety for vehicles turning from Cessnock Road into Avery Lane. The design provides improved, wider shoulders on both sides of the intersection with Avery Lane, allowing vehicles to slow and pass turning vehicles.

## 2.4 Hydrology, flooding and water quality

### 2.4.1 Flood impacts

#### ***Submission number(s)***

7 – Individual

#### ***Issue description***

One respondent queried if the increased road height would affect flood impacts at 4, 6 or 8 Main Road, Cliftleigh.

#### ***Response***

Section 6.3.3 of the REF describes the impacts the proposal would have on hydrology, flooding and water quality.

The Flood Assessment (Appendix H of the REF) indicates that there would be no adverse impacts to flooding as a result of raising Cessnock Road at Testers Hollow, including the properties located closest to the proposal area (which includes 4, 6 and 8 Main Road in Cliftleigh).

## 2.4.2 Water quality during construction

### **Submission number(s)**

9 – Environment Protection Authority

### **Issue description**

The EPA stated that Section 6.3.2 of the REF notes that surface waters in the vicinity of the proposal may be impacted by historic mine workings. The EPA recommended that surface water quality monitoring be carried out upstream and downstream of the proposal before construction to document the natural fluctuations in background water quality. The EPA stated that water quality monitoring would help Roads and Maritime assess whether there are any impacts on downstream water quality from the construction and operation of the proposal.

### **Response**

Roads and Maritime has collected water quality information before construction as discussed in Section 6.3 of the REF. Roads and Maritime will commence further upstream and downstream monitoring before construction. Monitoring will be carried out in accordance with the pre-construction phase safeguards and management measures in Section 6.3.4 of the REF.

The water quality information will be used to assess potential water quality impacts by the proposal as part of the Soil and Water Management Plan (SWMP). The SWMP will be developed and implemented in accordance with the construction phase safeguards and management measures in Section 6.3.4 of the REF.

The SWMP and water quality monitoring will be implemented through Roads and Maritime contract specifications including G36 Environmental Protection and G38 Soil and Water Management.

## 2.5 Traffic, transport and access

### 2.5.1 Cyclist and pedestrian facilities

#### **Submission number(s)**

3 – Individual

#### **Issue description**

One respondent stated their support for the road shoulders for cyclist and pedestrian access.

#### **Response**

Roads and Maritime note the respondent's support.

## 2.5.2 Emergency service access

### **Submission number(s)**

8 – NSW State Emergency Services

### **Issue description**

The SES stated the proposal would have minimal risk to the SES response operations. However, if construction causes disruption to the operation of Cessnock Road, emergency vehicles along the road may be impacted. The SES requested that notification be provided where there is likely to be delays in the operation of the roads affected by the proposal.

### **Response**

Roads and Maritime notes the SES request for notification in situations where access on Cessnock Road is impacted. During construction, Roads and Maritime would notify the SES in the event of delays to traffic.

## 2.6 Air quality

### **Submission number(s)**

9 – Environment Protection Authority

### **Issue description**

Section 6.10.1 of the REF notes the proposal would involve placing a substantial amount of fill material near the existing Cessnock Road. A substantial quantity of traffic would continue to use the existing road during construction of the proposal. Given the ongoing dry conditions in the Hunter region, the EPA recommended Roads and Maritime consider alternative dust control measures such as:

- Physical control measures such as soil binders
- Temporary sealing products or covers (for example during the period of preload for the embankment)
- Measures to ensure that vegetated groundcovers will survive so that they provide long-term soil stabilisation after construction is completed.

### **Response**

Roads and Maritime has incorporated several measures to reduce dust generation and risk in the REF and the proposal design. Before construction, a Construction Environmental Management Plan (CEMP), Erosion and Sediment Control Plan (ESCP) and Soil and Water Management Plan (SWMP) would be prepared, aiming to reduce erosion and generation of dust. A specific Air Quality Management Plan with a focus on managing dust risk from the preload embankment would be prepared. These management plans would implement controls such as watering (where permitted by water restrictions), soils binders, temporary seals and covers. These management plans will be implemented through Roads and Maritime contract specifications including G36 Environmental Protection and G38 Soil and Water Management.

The design for the preload embankment includes a temporary seal during settlement to prevent the generation of dust.

## 2.7 Issues outside the scope of the proposal

### ***Submission number(s)***

6 – Individual

### ***Issue description***

One respondent stated that Cessnock Road should be two lanes in each direction from the Maitland train station roundabout to the Hunter Expressway.

### ***Response***

The purpose of the proposal is to reduce the impact of flooding on Cessnock Road at Testers Hollow.

Increasing the road capacity on Cessnock Road between Maitland train station roundabout and the Hunter Expressway is outside the scope of the proposal.

Any future proposal to increase the traffic capacity of the corridor and outside the current proposal area would be subject to separate funding and environmental approvals.

## 3. Environmental management

The REF for the Cessnock Road upgrade at Testers Hollow identified the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts (Section 7.2 of the REF).

After consideration of the issues raised in the public submissions, Roads and Maritime revised the safeguard and management measures in the REF. The key changes include:

- An additional traffic and transport mitigation measure to ensure that the most disruptive work will be carried out at night to minimise potential impacts on the regional road network
- An additional traffic and transport mitigation measure for Roads and Maritime to notify the SES in the event that construction activities are likely to delay traffic.

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

### 3.1 Environmental management plans (or system)

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

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

The PEMP and CEMP will be prepared prior to construction of the proposal and must be reviewed and certified by environment staff (northern), 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 PEMP and 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
- QA Specification G10 – Traffic Management.

### 3.2 Summary of safeguards and management measures

The REF for the Cessnock Road upgrade at Testers Hollow identified a range of environmental outcomes and management measures that would be required to avoid or reduce the environmental impacts.

After consideration of the issues raised in the public submissions, the environmental management measures for the proposal (refer to Chapter 7 of the REF) have been updated. Updated or new safeguards have been underlined. Should the proposal proceed, the environmental management measures in **Table 3-1** will guide the subsequent phases of the project.

**Table 3-1 Summary of environmental safeguards and management measures**

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
GEN1	General - minimise environmental impacts during construction	<p>A CEMP will be prepared and submitted for review and endorsement of the Roads and Maritime Environment Manager before commencement of the activity.</p> <p>As a minimum, the CEMP will address the following:</p> <ul style="list-style-type: none"> <li>• Any requirements associated with statutory approvals</li> <li>• Details of how the project will implement the identified safeguards outlined in the REF</li> <li>• Issue-specific environmental management plans</li> <li>• Roles and responsibilities</li> <li>• Communication requirements</li> <li>• Induction and training requirements</li> <li>• Procedures for monitoring and evaluating environmental performance, and for corrective action</li> <li>• Reporting requirements and record-keeping</li> <li>• Procedures for emergency, incident and hazard management</li> <li>• Procedures for audit and review.</li> </ul> <p>The endorsed CEMP will be implemented during the undertaking of the activity.</p>	Contractor / Roads and Maritime project manager	Pre-construction	Core standard safeguard GEN1
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 before commencement of the activity.	Contractor / Roads and Maritime project manager	Pre-construction	Core standard safeguard GEN2
GEN3	General – environmental awareness	<p>All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the project. This will include up-front site induction and regular "toolbox" style briefings.</p> <p>Site-specific training will be provided to personnel engaged in activities or areas of higher risk. These include:</p>	Contractor / Roads and Maritime project manager	Pre-construction	Core standard safeguard GEN3

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> <li>• Areas of Aboriginal heritage sensitivity</li> <li>• Aboriginal heritage management including unexpected finds procedures</li> <li>• Threatened species habitat and EEC.</li> </ul>			
GEN4	General – environmental awareness	<p>Standard construction hours:</p> <ul style="list-style-type: none"> <li>• Monday to Friday 7.00 am to 6.00 pm</li> <li>• Saturdays 8.00 am to 1.00 pm</li> <li>• No construction on Sundays or public holidays.</li> </ul> <p>Works outside standard construction hours (including those detailed within this REF) will be carried out in accordance with the management and mitigation measures detailed within the Noise and Vibration Management Plan.</p>	Contractor	Construction	Core standard safeguard GEN4
GEN5	General – environmental awareness	The Roads and Maritime Project Manager will notify the Roads and Maritime Environment Manager at least five business days before the start of the activity. The notification will include a copy of any local community notification carried out (GEN2).	Contractor	Pre-construction	Additional safeguard GEN7
<b>Biodiversity</b>					
B-1	Biodiversity	<p>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:</p> <ul style="list-style-type: none"> <li>• Plans showing areas to be cleared and areas to be protected (including hollow-bearing and habitat trees), including exclusion zones, protected habitat features and revegetation areas and identified on site construction drawings and during construction staff induction</li> <li>• Vegetation and habitat to be cleared and retained to be identified and protected by suitable fencing, signage or markings</li> <li>• Hygiene protocols to manage weeds, pest species and pathogens</li> <li>• Protocols for vegetation removal</li> </ul>	Contractor	Pre-construction	Core standard safeguard B1  Section 4.8 of QA G36 <i>Environment Protection</i>

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> <li>• Protocols for working in waterways</li> <li>• Protocols for unexpected finds procedure for threatened species or ecological communities <u>not identified in the REF</u></li> <li>• Requirements set out in the Landscape Guideline (RTA, 2008)</li> <li>• Pre-clearing survey requirements</li> <li>• Procedures addressing relevant matters specified in the Policy and guidelines for fish habitat conservation and management (DPI Fisheries, 2013)</li> <li>• Protocols to re-establish native vegetation.</li> </ul>			
B-2	Minimise risks to native flora and fauna during construction	In accordance with the Biodiversity Guidelines - Protecting and managing biodiversity on RTA projects (RTA, 2011) a pre-construction check of native flora and fauna species and habitat will be carried out.)	Contractor	Construction	Core standard safeguard B2
B-3	Biodiversity	Measures to further avoid and minimise the construction footprint and native vegetation or habitat removal will be investigated prior to construction and implemented where practicable and feasible.	Contractor	Pre-construction	Core standard safeguard B3
B-4	Protect native flora and fauna, minimise edge effects and avoid inadvertent impacts	All personnel working on site will receive training to ensure awareness of requirements of the Flora and Fauna Management Plan and relevant statutory responsibilities. Site-specific training will be given to personnel when working in the vicinity of areas of identified biodiversity value that are to be protected.	Contractor	Construction	Core standard safeguard B4
B-5	Temporary obstruction to fish	Temporary obstruction of fish passage may require a NSW Fisheries Permit, subject to assessment by the Department of Planning, Industry and Environment.	Contractor	Construction	Additional standard safeguard B8

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
B-6	Removal of juvenile <i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	Thirty-five <i>Eucalyptus parramattensis</i> subsp. <i>decadens</i> would be planted in a suitable location to replace those removed by the proposal.	Contractor	Construction	Additional safeguard
B-7	Stockpiles, plant and ancillary sites	No-go areas will be delineated in accordance with the Biodiversity Guidelines - Protecting and managing biodiversity on RTA projects (RTA, 2011) and the Flora and Fauna Management Plan.	Contractor	Construction	Additional standard safeguard B10
B-8	Fauna handling	Safe fauna handling will be consistent with the Biodiversity Guidelines - Protecting and managing biodiversity on RTA projects, and any specific requirements of the approved Flora and Fauna Management Plan.	Contractor	Construction	Additional safeguard B11
<b>Noise and vibration</b>					
NV-1	Noise and vibration	<p>A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP and updated regularly to account for changes in the noise and vibration issues and strategies. The NVMP will generally follow the approach in the Interim Construction Noise Guideline (ICNG) (DECC, 2009) and identify:</p> <ul style="list-style-type: none"> <li>• All potential significant noise and vibration generating activities associated with the proposal</li> <li>• Feasible and reasonable mitigation measures from the CNVG (Roads and Maritime, 2016) to be implemented</li> <li>• Receivers that require additional mitigation (as listed in <b>Table 4-6 of Appendix I</b>)</li> <li>• Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures</li> <li>• Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.</li> </ul>	Contractor	Pre-construction	<p>Core standard safeguard NV1</p> <p>Section 4.6 of QA G36 <i>Environment Protection</i></p>

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
NV-2	Noise and vibration	<p>All sensitive receivers (local residents) likely to be affected will be notified at least five days before commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of:</p> <ul style="list-style-type: none"> <li>• The proposal</li> <li>• The construction period and construction hours</li> <li>• Contact information for project management staff</li> <li>• Complaint and incident reporting</li> <li>• How to obtain further information.</li> </ul>	Contractor	Pre-construction	Core standard safeguard NV2
<b>Hydrology and flooding</b>					
HF-1	Soil and water	A Soil and Water Management Plan (SWMP) will be prepared and implemented as part of the CEMP. The SWMP will identify all reasonably foreseeable risks relating to soil erosion and water pollution (including expelled groundwater) and describe how these risks will be addressed during construction.	Contractor	Pre-construction	<p>Core standard safeguard SW1</p> <p>Section 2.1 of QA G38 Soil and Water Management</p>
HF-2	Soil and water	<ul style="list-style-type: none"> <li>• A site specific Erosion and Sediment Control Plan (ESCP) will be prepared and implemented as part of the SWMP</li> <li>• The plan will include arrangements for managing wet weather events, including monitoring of potential high risk events (such as storms) and specific controls and follow-up measures to be applied in the event of wet weather.</li> </ul>	Contractor	Pre-construction	<p>Core standard safeguard SW2</p> <p>Section 2.2 of QA G38 Soil and Water Management</p>

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
HF-3	Contaminants entering receiving environments during construction	<p>Control measures to minimise the risk of water pollution will be included in the ESCP. The following measures will be included to limit sediment and other contaminants entering receiving waterways:</p> <ul style="list-style-type: none"> <li>All fuels, chemicals, and liquids will be stored at least 50 metres away from any waterway and stored in an impervious bunded area within the compound site</li> <li>Plant and maintenance machinery will be refuelled in impervious bunded areas at least 40 m from waterways</li> <li>Run-off from ancillary sites will be controlled and treated before discharging into downstream waterways</li> <li>Vehicle washdowns and/or concrete truck washouts would be carried out within a designated bunded area of an impervious surface or carried out off-site.</li> <li>Vehicle movements will be restricted to designated pathways and hardstand areas</li> <li>Areas that will be exposed for extended periods, such as car parks and main access roads, will be stabilised where feasible.</li> </ul>	Contractor	Construction	Additional safeguard
HF-4	Extraction of water	<p>Non potable water sources (including the potential for water extraction from the Hunter River) would be investigated during pre-construction to minimise reliance on potable water where feasible. Any water extraction would occur only after consultation with the Department of Planning, Industry and Environment (who now manages the functions of the NSW Office of Water), and acquisition of associated permits and approvals, if required.</p>	Roads and Maritime / contractor	Pre-construction / Construction	Additional safeguard
HF-5	Flood management for the construction site	<p>A Flood Management Plan will be prepared before construction. This plan will include:</p> <ul style="list-style-type: none"> <li>Review and coordination with existing local flood plans and evacuation procedures</li> <li>Flood emergency preparation, response, and recovery measures which will be implemented during construction</li> <li>Procedure for daily review of the Bureau of Meteorology website</li> </ul>	Contractor	Pre-construction / Construction	Additional safeguard

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> <li>Site protection measures to be implemented before and in the event of flooding.</li> </ul>			
HF-6	Potentially acidic groundwater expelled by preload embankment	A water sampling and management regime will be implemented as part of the SWMP to mitigate against water quality impacts arising from the temporary release of potentially acidic groundwater. The water sampling regime will include monitoring of water quality before construction to provide a baseline.	Contractor	Pre-construction	Additional safeguard
<b>Aboriginal heritage</b>					
AH-1	Impacts to Aboriginal heritage	<p>An AHIP for harm to TH-AS-001 and TH-PAD-001 will be required before potential impact to Aboriginal heritage. The AHIP application will include the following as detailed in the ACHAR (refer to <b>Appendix E</b>):</p> <ul style="list-style-type: none"> <li>A methodology for further archaeological salvage excavation of TH-PAD-001 outside of the proposed exclusion zone, in consultation with the RAPs</li> <li>A proposal for surface collection of artefacts for TH-AS-001 by RAPs</li> <li>Care and control for the recovered assemblage</li> <li>Harm without salvage for all objects in the proposal outside of the existing recorded Aboriginal sites.</li> </ul>	Roads and Maritime	Pre-construction	Additional safeguard
AH-2	Aboriginal heritage	An Aboriginal Heritage Management Plan (AHMP) will be prepared in accordance with the Procedure for Aboriginal cultural heritage consultation and investigation (Roads and Maritime, 2012) and Standard Management Procedure - Unexpected Heritage Items (Roads and Maritime, 2015) and implemented as part of the CEMP. It will provide 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.	Contractor	Pre-construction	Section 4.9 of QA G36 <i>Environment Protection</i>
AH-3	Aboriginal heritage –	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.	Contractor	Pre-construction	Section 4.9 of QA G36

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
	unexpected finds	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.			<i>Environment Protection</i>
AH-4	Minimise risks to Aboriginal cultural heritage during construction	All personnel working on site will receive training to ensure awareness of requirements of the AHMP and relevant statutory responsibilities. Site-specific training will be given to personnel when working in the vicinity of identified Aboriginal heritage items.	Contractor	Pre-construction	Additional standard safeguard AH3
AH-5	Aboriginal heritage	An exclusion zone in the area of high archaeological sensitivity within TH-PAD-001 will be identified and fenced off before construction (as shown in the ACHAR (refer to <b>Appendix E</b> )).	Contractor	Construction	Additional safeguard
AH-6	Additional Aboriginal heritage impacts	Any further impacts proposed beyond those assessed in this REF or beyond the boundary of the assessed areas would be subject to further assessment including consultation with Aboriginal stakeholders.	Roads and Maritime	Construction	Additional safeguard
<b>Non-Aboriginal heritage</b>					
NAH-1	Non-Aboriginal heritage	<ul style="list-style-type: none"> <li>The Standard Management Procedure - Unexpected Heritage Items (Roads and Maritime, 2015) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of Non-Aboriginal origin are encountered</li> <li>Work will only re-commence once the requirements of that procedure have been satisfied.</li> </ul>	Contractor	Construction	Section 4.10 of QA G36 <i>Environment Protection</i>

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
NAH-2	Non-Aboriginal heritage	Non-Aboriginal heritage awareness training will be provided for all contractors and personnel before commencement of construction to outline the identification of potential heritage items and associated procedures to be implemented in the event of the discovery of non-Aboriginal heritage materials, features or deposits (that is, unexpected finds), or the discovery of human remains.	Contractor	Pre-construction	Additional safeguard
<b>Topography, geology, soils and contamination</b>					
SC-1	Accidental spill	A site specific emergency spill plan will be developed and include spill management. 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	Pre-construction	Section 4.3 of QA G36 Environment Protection
SC-2	Acid sulfate	An Acid Sulfate Materials Management Plan will be prepared and implemented as part of the CEMP. The Plan will be prepared in accordance with the Guidelines for the Management of Acid Sulfate Materials (RTA, 2005) and Acid Sulfate Soils Management Advisory committee guidelines.	Contractor	Pre-construction	Additional safeguard
SC-3	Stockpile management	Stockpiles will be designed, established, operated and decommissioned in accordance with the Roads and Maritime Stockpile Site Management Guideline 2015.	Contractor	Construction	Additional standard safeguard
SC-4	Soil stabilisation and restoration	The rehabilitation of disturbed areas will be carried out progressively as construction stages are completed, and in accordance with: <ul style="list-style-type: none"> <li>Landcom's Managing Urban Stormwater: Soils and Construction series</li> <li>RTA Landscape Guideline</li> <li>Roads and Maritimes' Guideline for Batter Stabilisation Using Vegetation (2015).</li> </ul>	Contractor	Construction	Additional standard safeguard

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
SC-5	Asbestos containing material	<p>Waste management of contaminated land will be incorporated as part of the CEMP.</p> <p>The Managing asbestos in or on soil (WorkCover NSW, 2014) and the Guideline for the Management of Contamination (Roads and Maritime, 2013), will be adopted to manage surface soils and fill material impacted by asbestos.</p>	Contractor	Pre-construction/ Construction	Additional safeguard
SC-6	Asbestos containing material and other contaminated material	An 'unexpected finds' protocol will be prepared as part of the CEMP to plan for and accommodate potential ACM waste during construction. Any 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	Construction	Additional safeguard
<b>Traffic and transport</b>					
TT-1	Traffic and transport	<p>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 and QA Specification G10 Control of Traffic. The TMP will include:</p> <ul style="list-style-type: none"> <li>• Confirmation of haulage routes</li> <li>• Measures to maintain access to local roads and properties</li> <li>• Site specific traffic control measures (including signage) to manage and regulate traffic movement</li> <li>• Measures to maintain pedestrian and cyclist access</li> <li>• Requirements and methods to consult and inform the local community of impacts on the local road network</li> <li>• Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads</li> <li>• A response plan for any construction traffic incident</li> </ul>	Contractor	Pre-construction	Section 4.8 of QA G36 <i>Environment Protection</i>

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> <li>• 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</li> <li>• Monitoring, review and amendment mechanisms.</li> </ul>			
TT-2	Property access - during construction	Access to properties will be maintained during construction. Where that is not feasible, temporary alternative access arrangements will be provided following consultation with affected landowners and the relevant local road authority. Any disruptions to property access and traffic will be notified to landowners at least five days prior in accordance with the relevant community consultation processes outlined in the TMP.	Roads and Maritime and contractor	Construction	Additional standard safeguard
TT-3	Reduce speeds, traffic delays and disruptions during construction	Road users and local communities will be provided with timely, accurate, relevant and accessible information about changed traffic arrangements and delays owing to construction activities.	Roads and Maritime and contractor	Construction	Additional standard safeguard
<u>TT-4</u>	<u>Impacts to the regional road network</u>	<u>The most disruptive work (such as work that requires lane closures) will be carried out at night to minimise potential impacts on the regional road network.</u>	<u>Roads and Maritime and contractor</u>	<u>Construction</u>	<u>Additional safeguard</u>
<u>TT-5</u>	<u>Emergency vehicle access during construction</u>	<u>Roads and Maritime will notify the SES when construction activities are likely to delay traffic.</u>	<u>Roads and Maritime and contractor</u>	<u>Construction</u>	<u>Additional safeguard</u>

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
<b>Landscape character and visual impacts</b>					
LC-1	Visual impact of ancillary sites	Ancillary sites, including construction areas and supporting facilities (such as storage compounds and offices) will be managed to minimise visual impacts, including avoiding temporary light spill into residences during night works.	Contractor	Construction	Core standard safeguard UD2
LC-2	Visual impact during construction	<ul style="list-style-type: none"> <li>• Revegetation will respond to existing vegetation community composition and landscape character using appropriate native species</li> <li>• Revegetation along the route will assist in defining the alignment and providing visual disconnection from former alignment</li> <li>• Clusters of tree planting will be provided within the route corridor to filter the visibility of the proposal from adjoining residential properties where possible</li> <li>• Night works and associated lighting will be limited to minimise light spill.</li> </ul>	Contractor	Construction	Additional safeguard
<b>Socio-economic, property and land use</b>					
SE-1	Consultation	<p>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):</p> <ul style="list-style-type: none"> <li>• Mechanisms to provide details and timing of proposed activities to affected residents, business owners and commuters including changed traffic and access conditions and amenity impacts</li> <li>• Mechanisms to provide details about proposed changes to emergency services and managers of surrounding community facilities</li> <li>• Contact name and number for complaints.</li> </ul> <p>The CP will be prepared in accordance with Roads and Maritime Community Engagement and Communications Manual (2012).</p>	Contractor	Pre-construction	<p>Core standard safeguard SE1</p> <p>Section 3.7 of QA G36 <i>Environment Protection</i></p>
SE-2	Emergency vehicle access	Access for emergency vehicles will be maintained at all times during construction. Any site-specific requirements will be determined in consultation with the relevant emergency services agency.	Roads and Maritime	Pre-construction and construction	Additional safeguard

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
SE-3	Access and connectivity	Consultation will be carried out during construction with relevant public transport providers regarding the timing, duration and likely impact of construction activities.	Contractor	Construction	Additional safeguard
<b>Other impacts</b>					
OI-1	Air quality	<p>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:</p> <ul style="list-style-type: none"> <li>• Potential sources of air pollution (including the preload embankment)</li> <li>• Air quality management objectives consistent with any relevant published EPA and/or OEH guidelines</li> <li>• Mitigation and suppression measures to be implemented</li> <li>• Methods to manage work during strong winds or other adverse weather conditions</li> <li>• A progressive rehabilitation strategy for exposed surfaces.</li> </ul>	Contractor	Pre-construction	Section 4.4 of QA G36 <i>Environment Protection</i>
OI-2	Impacts on air quality during construction	<p>During construction, the following measures will be considered and implemented where possible:</p> <ul style="list-style-type: none"> <li>• Plant and equipment will be switched off when not in use</li> <li>• Vehicles, plant and construction equipment will be appropriately sized for the task and properly maintained so as to achieve optimum fuel efficiency</li> <li>• Materials will be delivered with full loads and will come from local suppliers, where possible</li> <li>• Energy efficiency and related carbon emissions will be considered when selecting vehicles and equipment</li> <li>• Apply watering to exposed areas, haulage routes and stockpiled materials as identified to be required, and in preparation for windy conditions</li> <li>• Cover stockpiled materials if not to be used for extended periods</li> <li>• Regularly review local meteorological conditions and scale back or suspend activities as necessary during inclement (ie, dry, windy) conditions</li> </ul>	Contractor	Construction	Additional safeguard

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> <li>Remove debris from plant and vehicles prior to entering the existing road network, and apply street sweeping as necessary to remove any tracked materials from the site.</li> </ul>			
OI-3	Generation of construction waste	<p>A Waste Management Plan will be prepared and implemented as part of the CEMP. The WMP will include but not be limited to:</p> <ul style="list-style-type: none"> <li>Measures to avoid and minimise waste associated with the proposal</li> <li>Classification of wastes generated by the proposal and management options (re-use, recycle, stockpile, disposal)</li> <li>Classification of wastes received from off-site for use in the proposal and management options</li> <li>Identifying any statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions</li> <li>Procedures for storage, transport and disposal</li> <li>Monitoring, record keeping and reporting, including any documentation management obligations arising from resource recovery exemptions.</li> </ul> <p>The Plan will be prepared taking into account the Roads and Maritime Environmental Procedure - Management of Wastes on Roads and Maritime Services Land and relevant Roads and Maritime Waste Fact Sheets, as well as the adopting the Resources Management Hierarchy principles of the WARR Act.</p>	Contractor	Pre-construction	Section 4.2 of QA G36 Environment Protection
OI-4	Utilities	<p>Before construction:</p> <ul style="list-style-type: none"> <li>The location of existing utilities and relocation details will be confirmed following consultation with the affected utility owners</li> <li>If the scope or location of proposed utility relocation works falls outside of the assessed proposal scope and footprint, further assessment may need to be carried out.</li> </ul>	Contractor	Pre-construction	Core standard safeguard U1

### 3.3 Licensing and approvals

Licences and approvals required for the proposal are listed in **Table 3-2**.

**Table 3-2 Summary of licensing and approvals required**

<b>Instrument</b>	<b>Requirement</b>	<b>Timing</b>
<i>Fisheries Management Act 1994</i>	Approval for dredging and reclamation work from the Department of Planning, Industry and Environment (former NSW Department of Primary Industries) from the Minister.	Prior to start of activity
<i>Fisheries Management Act 1994</i>	Permit to obstruct the free passage of fish (temporary or permanent) from the Minister for Regional New South Wales, Industry and Trade (formerly the Minister for Primary Industries).	Prior to start of activity
<i>Heritage Act 1977 (s139(4))</i>	Excavation Permit Exemption Notification Form from the Department of Planning, Industry and Environment (formerly the NSW Heritage Division).	Prior to start of the activity
<i>National Parks and Wildlife Act 1974 (s90)</i>	Aboriginal heritage impact permit from the Department of Planning, Industry and Environment (formerly the OEH).	Prior to start of the activity
<i>Roads Act 1993</i>	A road occupancy licence would need to be obtained as necessary prior to construction commencing.	Prior to start of the activity

## 4. References

Roads and Maritime, 2019. *Cessnock Road upgrade at Testers Hollow Review of environmental factors*

Roads and Maritime, 2015. *Standard Management Procedure - Unexpected Heritage Items*

Roads and Maritime, 2013. *Guideline for the Management of Contamination*

## Terms and acronyms used in the REF and submissions report for this project

Term / Acronym	Description
AADT	average annual daily traffic
ABS	Australian Bureau of Statistics
AEP	Annual Exceedance Probability, the likelihood of a flood event occurring in any one year, where the probability is expressed as a percentage. An event with a high probability of occurrence is likely to be a small flood, while an event with a low probability of occurrence is likely to be a larger flood. For example, a 50 per cent AEP flood event will have lower water levels than a one per cent AEP flood event.
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal heritage impact permit
AHMP	Aboriginal Heritage Management Plan
AQMP	Air Quality Management Plan
ARI	Annual Recurrence Interval
ASRIS	Australian Soil Resource Information System
ASS	acid sulfate soil
BAM	Biodiversity Assessment Methodology
BAR	Biodiversity Assessment Report
BC Act	<i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
CEMP	Construction Environmental Management Plan
CHL	Commonwealth Heritage List
CNE	Construction Noise Estimator
CNVG	Construction Noise and Vibration Guideline
DICL	ductile iron cement lined
DPI	NSW Department of Primary Industries, now part of the NSW Department of Planning, Industry and Environment
DPE	NSW Department of Planning and Environment, now part of the NSW Department of Planning, Industry and Environment
EBPC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement

Term / Acronym	Description
ENMM	Environmental Noise Management Manual
EPA	Environmental Protection Agency
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW). Provides the legislative framework for land use planning and development assessment in NSW
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically sustainable development. Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased.
Flood immunity	The level at which a road or structure becomes inundated
FM Act	<i>Fisheries Management Act 1994</i> (NSW)
Friable asbestos	Refers to asbestos-containing materials that are generally quite loose, when dry and can be easily reduced to powder by hand. These materials usually contain high levels of asbestos (up to 100% in some cases) loosely held in the material. These asbestos fibres can be easily released into the air.
Heritage Act	<i>Heritage Act 1977</i> (NSW)
GDE	Groundwater dependent ecosystems
ICNG	Interim Construction Noise Guideline
INSW	Infrastructure NSW
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
L <sub>A10</sub>	The L <sub>A10</sub> level is the noise level which is exceeded for 10 per cent of the sample period. During the sample period, the noise level is below the L <sub>A10</sub> level for 90 per cent of the time. The L <sub>A10</sub> is a common noise descriptor for environmental noise and road traffic noise.
L <sub>A90</sub>	The L <sub>A90</sub> level is the noise level which is exceeded for 90 per cent of the sample period. During the sample period, the noise level is below the L <sub>A90</sub> level for 10 per cent of the time. The measure is commonly referred to as the background noise level.
L <sub>Aeq</sub>	The equivalent continuous sound level (L <sub>Aeq</sub> ) is the average energy of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.
L <sub>Amax</sub>	The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.
LALC	Local Aboriginal Land Council
LEP	Local environmental plan. A type of planning instrument made under Part 3 of the EP&A Act.
LGA	Local government area
MCA	Multi-criteria analysis

<b>Term / Acronym</b>	<b>Description</b>
MNES	Matters of National Environmental significance under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
NAHMP	A Non-Aboriginal Heritage Management Plan
NCA	Noise catchment area
NCG	Noise Criteria Guideline
NHL	National Heritage List
NMG	Noise Mitigation Guideline
NML	Noise Management Level. Project specific criteria used to assess the level of impacts at a receiver location. This is derived from the existing background noise levels at representative monitoring locations.
NMVG	Noise Model Validation Guideline
NPWS	National Parks and Wildlife Services.
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
NTAR	National Trust of Australia (NSW) list
NVMP	Noise and Vibration Management Plan
OEH	Office of Environment and Heritage. Its functions are now being performed by the NSW Department of Planning, Industry and Environment.
OOHW	Out of hours work
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PAD	Potential archaeological deposits
PCT	Plant community type
PMF	Probable Maximum Flood. Largest flood could conceivably occur at a particular location, which defines the extent of flood prone lane (the floodplain).
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PPV	Peak particle velocity
QA Specifications	Specifications developed by Roads and Maritime Services for use with road work and bridge work contracts let by Roads and Maritime Services.
RBL	Rating background level
REF	Review of Environmental Factors
RL	Relative level
RNE	Register of the National Estate
RNP	Road Noise Policy
RMS	Roads and Maritime Services

<b>Term / Acronym</b>	<b>Description</b>
Roads Act	<i>Roads Act 1993</i>
ROL	Road Occupancy License
SEPP	State Environmental Planning Policy
SHI	State Heritage Inventory
SHR	State heritage Register
SIS	Species impact statement
Study area	This encompasses the proposal and the area that may be indirectly impacted by the proposal, and may differ for each environmental factor.
SWMP	Soil and Water Management Plan
TEC	Threatened ecological community
TMP	Traffic management plan
UPVC	Unplasticised polyvinyl chloride
VDV	Vibration dose values
VIS	Vegetation Information System
VMS	Variable message signs
VMW	Value Management Workshop
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001</i>
Water land	Land submerged by water (whether permanently or intermittently)
WHL	World Heritage List
Whole of life	Costs associated with the total construction, operation and maintenance costs of the road over its lifespan
WHS	Work health and safety
WMP	Waste Management Plan

# Appendix A

Invitation to comment letter



Dear Sir /Madam

**Invitation to comment. Review of Environmental Factors. Proposed MR195 Cessnock (Main) Road Upgrade at Testers Hollow.**

Roads and Maritime Services is proposing to upgrade Cessnock Road at Testers Hollow to reduce the impact of flooding and improve connectivity. You are invited to comment on the Review of Environmental Factors (REF) for the proposal. All submission must be received by **17<sup>th</sup> September 2019**.

The project would:

- Reduce the frequency, duration and impact of flood events along Cessnock Road at Testers Hollow
- Improve connectivity between the Maitland area, Hunter Expressway and broader community during flood events
- Reduce flood-related social, economic and maintenance costs
- Provide better conditions for on-road cyclists
- Improve safety and reduce hazards.

The REF and supporting documents are available for download at <https://www.rms.nsw.gov.au/projects/hunter/cessnock-road-testers-hollow/index.html> . An overview of the proposal is attached.

You can email a submission to [TestersHollow@rms.nsw.gov.au](mailto:TestersHollow@rms.nsw.gov.au) or write to:

**Roads and Maritime Services**

**Testers Hollow Project Team**

**Locked Bag 2030**

**Newcastle NSW 2300**

For more information, please contact Damien Grace on (02) 4908 7616.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Damien Grace'.

**Damien Grace**  
Project Development Manager  
Northern Project Office

# Appendix B

## Community update



Australian Government

**BUILDING OUR FUTURE**



# Proposed upgrade of Cessnock Road at Testers Hollow

Environmental assessment | August 2019



Cessnock Road at Testers Hollow

Roads and Maritime Services is planning to upgrade Cessnock Road at Testers Hollow to reduce the impact of flooding and improve connectivity.

## Background

Cessnock Road is an important regional transport route connecting the Maitland area with the Hunter Expressway and broader community. The road is subject to flooding at Testers Hollow, which affects local residents, commuters and freight in the surrounding area. Severe weather events can close Cessnock Road, resulting in social, economic and maintenance costs.

The proposed upgrade would raise the height of Cessnock Road at Testers Hollow to provide a more reliable connection during certain flood events.

The NSW and Australian governments are providing \$17 million for the proposed upgrade.

## Have your say

Residents, businesses and community groups are invited to comment on the review of environmental factors (REF) for the proposal.

The REF outlines key features and objectives of the proposal, the options Roads and Maritime has considered, as well as any potential environmental impacts.

The report is on display between **20 August and 17 September 2019**. You can view it online at [rms.work/testershollow](https://rms.work/testershollow). It is also available at **Maitland City Council at 285-287 High Street, Maitland** or **Cessnock City Council at 62-78 Vincent Street, Cessnock**.

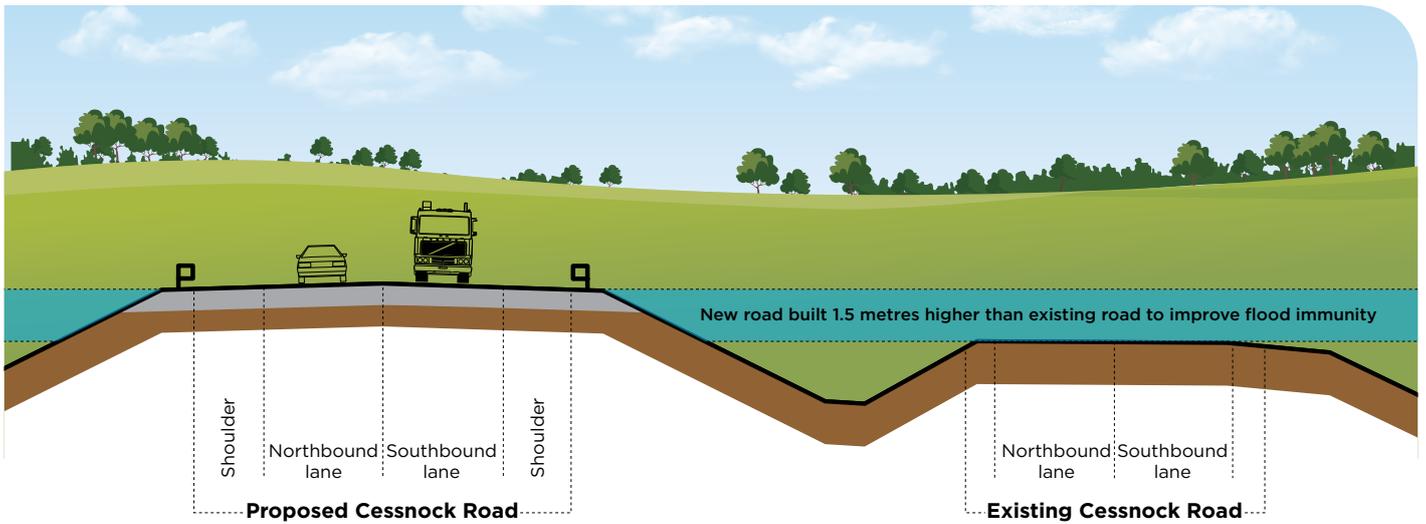
## Project benefits

The project would:

- Reduce the frequency, duration and impact of flood events along Cessnock Road at Testers Hollow
- Improve connectivity between the Maitland area, Hunter Expressway and broader community during flood events
- Reduce flood-related social, economic and maintenance costs
- Provide better conditions for on-road cyclists
- Improve safety and reduce hazards.



Closure of Cessnock Road at Testers Hollow during 2016 flood event



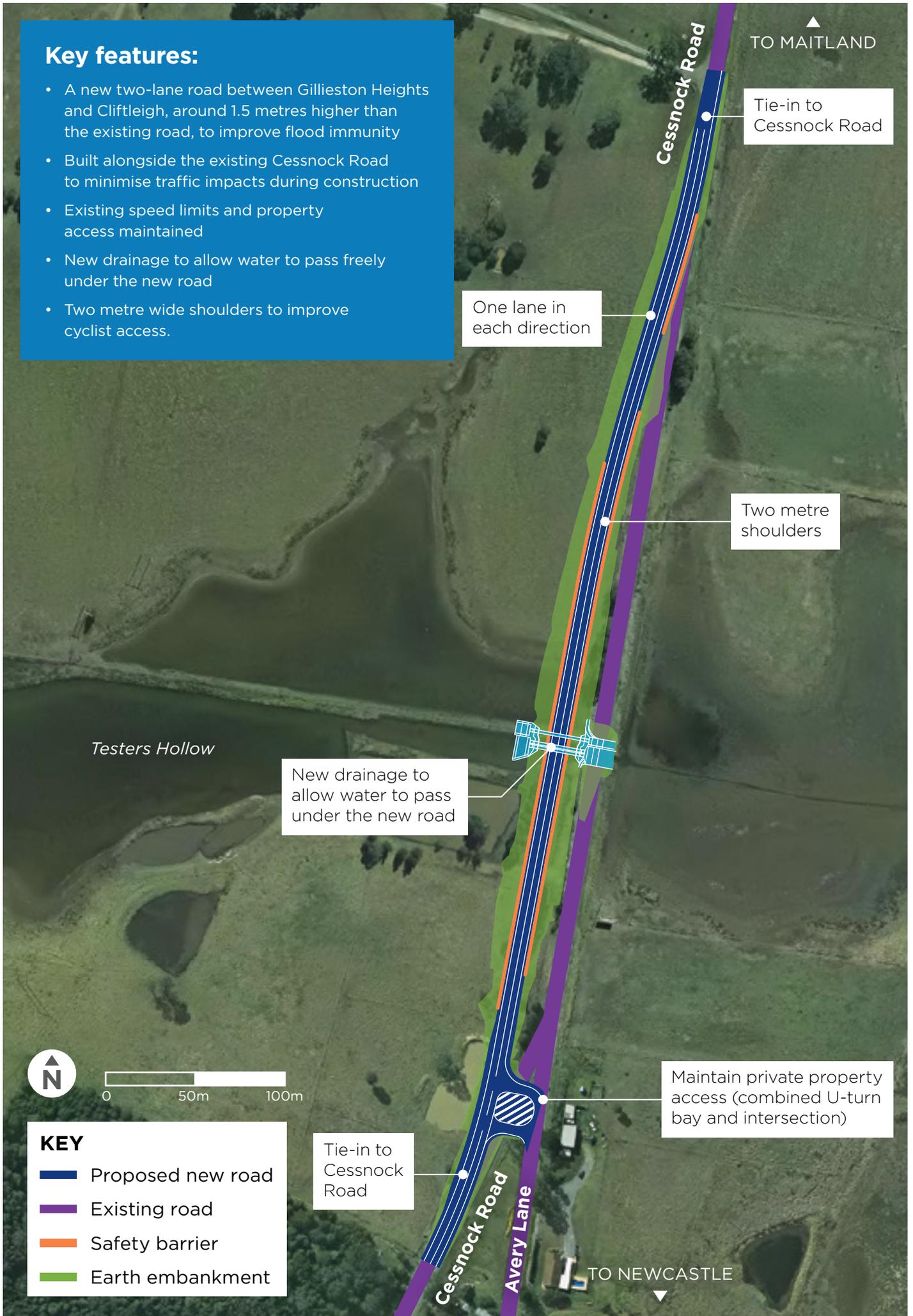
Cessnock Road at Testers Hollow looking north towards Gillieston Heights



Closure of Cessnock Road during 2016 flood event

## Key features:

- A new two-lane road between Gillieston Heights and Cliftleigh, around 1.5 metres higher than the existing road, to improve flood immunity
- Built alongside the existing Cessnock Road to minimise traffic impacts during construction
- Existing speed limits and property access maintained
- New drainage to allow water to pass freely under the new road
- Two metre wide shoulders to improve cyclist access.



## Review of Environmental Factors (REF)

The REF is a planning and assessment report that sets out the proposal, its potential environmental and social impacts and proposed mitigation measures. It is made available for community members and other stakeholders to review and submit their comments and questions.

Roads and Maritime has prepared an REF to assess the potential impacts of the proposal, which may include dust, noise and vibration (during construction), removal of some vegetation, small partial property acquisitions as well as impacts on visual, landscape and Aboriginal heritage.

### Next steps

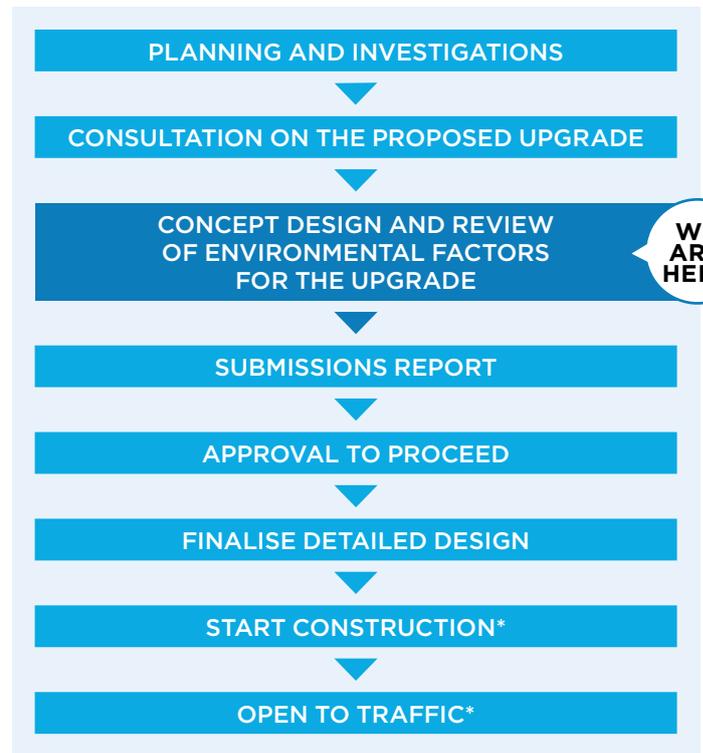
The REF is on display and we invite your comment between **20 August and 17 September 2019**.

You can view it online at [rms.work/testershollow](https://rms.work/testershollow).

The report is also available at **Maitland City Council at 285-287 High Street, Maitland** or **Cessnock City Council at 62-78 Vincent Street, Cessnock**.

Submissions must be received by **5pm** on **17 September 2019**.

## The process so far



\*Pending funding approval



Improving  
safety



Connecting  
communities

### For information or to make a submission



1800 595 220



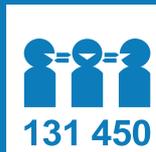
TestersHollow@rms.nsw.gov.au



[rms.work/testershollow](https://rms.work/testershollow)



Roads and Maritime  
Testers Hollow Project Team  
Locked Bag 2030  
Newcastle NSW 2300



131 450

If you need help understanding this information, please contact the Translating and Interpreting Service on 131 450 and ask them to call us on 1800 595 220.



July 2019  
RMS.19.1343

Privacy Roads and Maritime Services ("RMS") is subject to the Privacy and Personal Information Protection Act 1998 ("PPIP Act") which requires that we comply with the Information Privacy Principles set out in the PPIP Act. All information in correspondence is collected for the sole purpose of delivering this project. The information received, including names and addresses of respondents, may be published in subsequent documents unless a clear indication is given in the correspondence that all or part of that information is not to be published. Otherwise RMS will only disclose your personal information, without your consent, if authorised by the law. Your personal information will be held by RMS at Level 8, 266 King Street, Newcastle NSW 2300. You have the right to access and correct the information if you believe that it is incorrect.



[rms.nsw.gov.au/](https://rms.nsw.gov.au/)



13 22 13



Customer feedback  
Roads and Maritime  
Locked Bag 928,  
North Sydney NSW 2059

**November 2019**

RMS 19.1470

ISBN: 978-1-922338-16-7