

Removal of Sportsmans Creek Bridge

Review of environmental factors Submissions report

March 2017



Executive summary

Purpose of this report

This submissions report summarises and responds to the issues raised through public consultation on the review of environmental factors (REF) for the removal of the Sportsmans Creek Bridge.

The proposal

Roads and Maritime Services proposes to replace the existing Sportsmans Creek Bridge at Lawrence, by building a new bridge and removing the existing bridge due to high and unsustainable maintenance costs.

An REF to build the new bridge and associated road treatments has already been determined and construction of the new bridge is underway. This proposal relates to the removal of the existing Sportsmans Creek Bridge.

Key features of this proposal, as assessed in the REF, include:

- removal of the existing bridge and central piers within the waterway;
- earthworks to remove the existing southern bridge approach, modifying Flo Clark Park and Sportsmans Park and to join both areas;
- retention of the existing northern bridge approach, including the dry stone walls for flood protection and landscaping;
- building a cul-de-sac at the end of Bridge Street, on the existing northern bridge approach.

REF public display

Roads and Maritime placed the REF on public display from 29 July 2016 to 28 August 2016 and invited submissions relating to the REF.

The REF was made available online and printed copies were displayed in four local venues (refer Table 1.1). The public display was advertised on the Roads and Maritime website, by emails to the project mailing list, and letters issued to local residents via all post office boxes in Lawrence.

A staffed community information session was also hosted at the Lawrence Public Hall from 3–7pm on 11 August 2016 and advertised in local newspapers.

Key issues raised in submissions on the REF

Eight local residents attended the community information session and five of them made submissions.

The five individual respondents raised matters including:

- biodiversity and microbat management;
- landscape character and visual impacts;
- safety;
- resource use and waste;
- hydrology and flooding;
- funding.

Two additional submissions were received from a government agency, the Office of Environment and Heritage, and raised matters relating to:

- impacts of active work on biodiversity;
- Aboriginal cultural heritage and consultation;
- soils, contamination and water quality.

The issues raised and Roads and Maritime's response to these issues form the basis of Chapter 2 of this report.

Environmental management measures

After consideration of the issues raised in the public submissions, no changes to the REF or proposal have been made. The management and mitigation measures for the proposal remain the same as those outlined in the REF and, should the proposal proceed, environmental management would be guided by the framework and measures in that document.

Next steps

Roads and Maritime is the determining authority for the REF.

Roads and Maritime will seek the concurrence of the Office of Environment and Heritage (OEH) to the Species Impact Statement for the Large-footed Myotis (microbat) which forms part of the REF.

Roads and Maritime will assess the proposal, including the Submissions Report and the concurrence response from OEH, and then make a determination.

Roads and Maritime will continue to communicate with community members, government agencies and other stakeholders during the bridge removal phase of the proposal.

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1 Introduction and background

1.1 The proposal

Roads and Maritime Services (Roads and Maritime) proposes to replace the existing Sportsmans Creek Bridge at Lawrence, by building a new bridge and removing the existing bridge due to high and unsustainable maintenance costs. The new bridge will cater for future haulage requirements of local surrounding agricultural industries, two-way traffic and pedestrian access.

The 'proposal' as assessed in the review of environmental factors (REF) involves the removal of the existing Sportsmans Creek Bridge.

Roads and Maritime prepared and determined a REF in February 2015 (KBR 2015) to build the Sportsmans Creek new bridge. The REF included associated road upgrades to be built before the removal of the existing bridge.

The separation of the environmental assessments to build a new bridge and to remove the existing bridge allows for an accelerated bridge building program, which would otherwise be delayed by the assessment of the removal of the existing bridge.

Construction of the new bridge commenced in July 2016.

Key features of the proposal include:

- Removal of the existing bridge and central piers within the waterway.
- Earthworks to remove the existing southern bridge approach, modifying Flo Clark Park and Sportsmans Park and to join both areas.
- Retention of the existing northern bridge approach, including the dry stone walls for flood protection and landscaping.
- Building a cul-de-sac at the end of Bridge Street, on the existing northern bridge approach.

1.2 REF display

Roads and Maritime prepared a REF to assess the environmental impacts of the proposed work (KBR 2016). The REF and all of its appendices were displayed between 29 July 2016 and 28 August 2016 at four locations in and around Lawrence, as detailed in Table 1.1.

Table 1.1: Display locations

Location	Address
Lawrence General and Liquor Store	1 Richmond Street, Lawrence
Roads and Maritime Services regional office	76 Victoria Street, Grafton
Clarence Valley Council office	2 Prince Street, Grafton
Clarence Valley Council office	50 River Street, Maclean

The REF and related Species Impact Statement (SIS) (KBR 2016, appendix G) were placed on the Roads and Maritime website (rms.nsw.gov.au/sportsmans) in a web-accessible format and made available for download, with readers invited to request additional appendices as needed.

In addition to the above public display, a letter to residents (Appendix A) was distributed to the community and stakeholders by email and via all post office boxes in Lawrence, inviting submissions and to attend a staffed community information session. The session was held in the Lawrence Public Hall from 3-7pm on Thursday 11 August 2016 and advertised in local newspapers as shown in Table 1.2.

Table 1.2: Advertisements

Publication	Dates
Grafton Daily Examiner	3 and 10 August 2016
Clarence Valley Review	3 and 10 August 2016
Grafton Coastal Views	5 August 2016

The community information session was staffed by project team members with specialties covering construction, environment and project management in relation to the REF.

Officers from Clarence Valley Council attended to answer queries regarding adjacent Council work at Flo Clark Park and the proposed upgrading of pontoon facilities at the existing boat ramp.

Representatives from the Roads and Maritime construction team were present to provide information on construction of the new bridge.

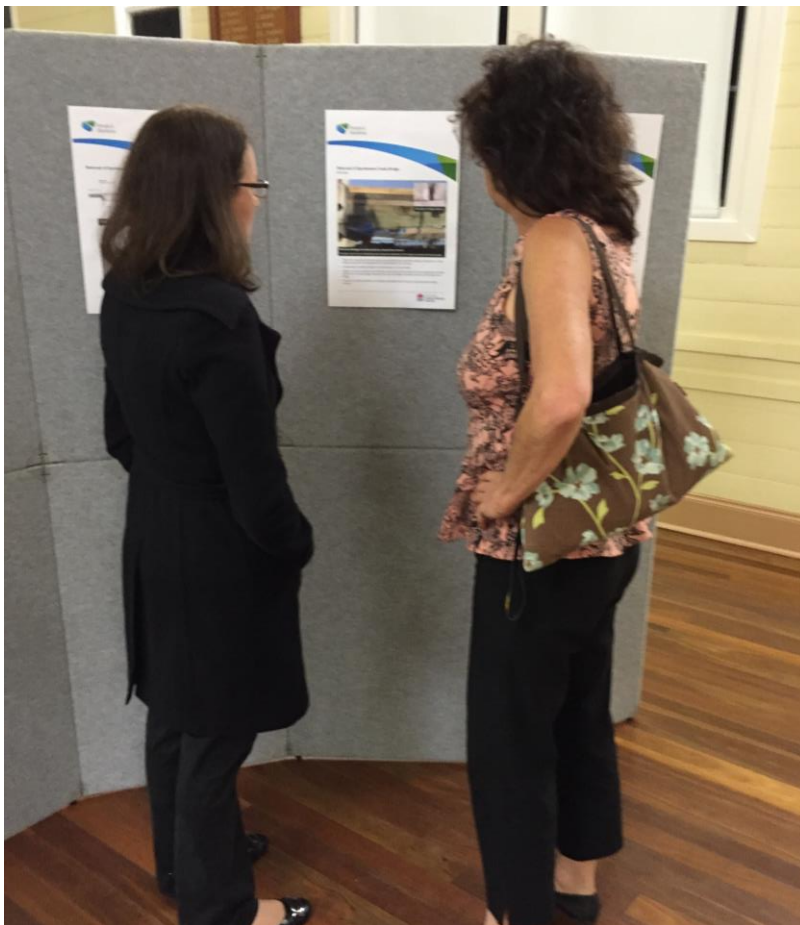


Figure 1.1: Participants at community information session

1.3 Purpose of the report

This submissions report relates to the REF prepared for the removal of the Sportsmans Creek Bridge (KBR 2016) 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 invited by Roads and Maritime. This report summarises the issues raised in submissions and provides responses to each issue (Chapter 2).

2 Response to issues

Roads and Maritime received seven submissions, accepted up until 31 August 2016, shortly after the advertised closing date of 28 August 2016. Table 2.1 lists each respondent's allocated submission number. The table also indicates where the issues from each submission have been addressed in this report.

Table 2.1: Respondents

Respondent	Submission No.	Section number where issues are addressed
Resident	1	2.4.1, 2.4.2, 2.5.1, 2.7
Resident	2	2.6, 2.8
Resident	3	2.5.2
Resident	4	2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.6
Resident	5	2.2.1, 2.2.2, 2.2.3, 2.3, 2.4.2
Office of Environment and Heritage	6	2.2.4, 2.8.1, 2.8.2, 2.9.1, 2.9.2, 2.9.3, 2.9.4
Office of Environment and Heritage	7	No issues raised by Heritage Division

2.1 Overview of issues raised

A total of seven submissions were received in response to the public display of the REF comprising two from a government agency and five from individual residents. Of those five, one formal written response was submitted at the community information session and the remaining four responses were notes taken during discussions with attendees. One of those four responses was expanded to include notes from a follow-up phone conversation with a Roads and Maritime biodiversity specialist.

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

One resident submission called for the bridge to be removed, one asked that it remain and the other remaining submissions did not state a position on the bridge's removal.

One government agency, the Office of Environment and Heritage, provided two responses. In one response they raised matters relating to:

- Impacts of active work on biodiversity
- Aboriginal cultural heritage
- Acid sulfate soils.

The second response was provided by the Office of Environment and Heritage's Heritage Division and stated that they were not in a position to comment on the proposal because the Sportsmans Creek Bridge is not listed on the State Heritage Register.

Resident respondents raised matters including:

- Biodiversity and microbat management
- Landscape character and visual impacts
- Safety
- Resource use and waste
- Hydrology and flooding
- Funding.

2.2 Biodiversity and microbat management

Respondents raised six issues related to biodiversity and microbat management:

- How would the microbats be managed and relocated?
- Will the new habitat be attractive to them?
- What limits the microbat colony's population?
- How would removal of the existing bridge impact the Large-footed Myotis?
- What assurances can Roads and Maritime provide that the relocation would be successful?
- Can I assist with monitoring the bats?

2.2.1 How would the microbats be managed and relocated?

Submission number(s)

4, 5.

Issue description

The respondents asked how the microbats would be relocated and whether bat boxes would be used.

Response

Work associated with the microbats would be overseen by a qualified ecologist. Staged exclusion of microbats would be undertaken and the existing timber truss bridge would be completely free of roosting microbats before bridge removal.

Microbat numbers would be monitored 12 months prior to removal and for three years after the existing bridge's removal, both at the new bridge and, if needed, in surrounding structures such as culverts in accordance with the Microbat Management Plan and Species Impact Statement.

The order of events is listed below:

- Build new bridge
- Compensatory microbat breeding roosting habitat would be incorporated into the new bridge and available for microbat usage at least three months prior to the commencement of exclusion and removal of the existing bridge
- Install temporary bat boxes under the existing timber bridge at least one month prior to staged microbat exclusion
- Undertake staged microbat exclusion in accordance with the Microbat Management Plan
- Transfer occupied temporary bat boxes to the new bridge. This would occur outside the bat's breeding periods
- Remove timber bridge
- Continue monitoring in accordance with Microbat Management Plan.

Staged exclusion of microbats from the timber truss bridge would be carried out outside the microbat breeding period, when juveniles are flightless and dependent. May to September is the optimal time to exclude microbats to minimise impacts.

2.2.2 Will the new bridge provide a habitat that is attractive to the microbats?

Submission number(s)

4, 5.

Issue description

The respondents asked whether the new bridge would provide a habitat that was attractive to the microbats, given that they currently roost in an old timber bridge.

Would the microbats:

- Be able to cling to the concrete?
- Prefer timber bridges in terms of textures or smells?

Response

Yes, the new bridge has been designed to include three types of compensatory roosting and breeding habitat: walkway Super-T join void, walkway void and pre-cast parapet. By making these bat habitats integral to the design, they will be a permanent habitat and require minimal maintenance over time.

The voids in the new bridge are designed to attract and accommodate the microbats. The surfaces are pre-roughened to make it easier for the bats to cling to the concrete surfaces. The design of compensatory microbat roosting and breeding habitat within the new bridge is based on similar characteristics of other known Large-footed Myotis breeding habitat on concrete bridges and culverts in the region.

Successful microbat colonies have been observed in other Roads and Maritime concrete bridges and the new bridge over Sportsmans Creek will have additional features designed specifically for this project to accommodate the bats.

2.2.3 What currently limits the microbat colony's population?

Submission number(s)

4, 5.

Issue description

The respondents asked whether food or habitat currently limited the microbat colony's population and if the population might grow in the new bridge.

Response

In this instance, available habitat is what limits the bat population. It is expected the population would grow in the new bridge due to an increase in the available habitat.

Population size for the Large-footed Myotis is limited by the carrying capacity of the habitat. In this case, the timber truss bridge at Sportsmans Creek is a large structure that provides a range of potential roosting opportunities and supports a large breeding colony.

The design of compensatory microbat roosting and breeding habitat within the new bridge is based on similar characteristics of other known Large-footed Myotis breeding habitat on concrete bridges and culverts in the region.

The proposed roosting habitat features and their replication within the bridge offer good opportunities for Large-footed Myotis usage as breeding sites and it is anticipated the population will grow.

Given that the average foraging range of this species is 6-12 kilometres per night, the microbats are expected to find ample food sources in nearby wetlands, dams and reservoirs to feed a growing population.

2.2.4 How would removal of the existing bridge impact the Large-footed Myotis?

Submission number(s)

6.

Issue description

The respondent asked how the construction of the new bridge and removal of the existing bridge, including vibration, noise, dust and odour may impact on the Large-footed Myotis and whether additional mitigation measures may need to be developed.

Response

The Large-footed Myotis is considered tolerant of noise and vibration. Roads and Maritime has constructed bridges and culverts within 50 metres of existing Myotis populations without any impacts being noted during monitoring on those projects.

Active work for this proposal has been deliberately staged so that the microbats are allowed to roost in the existing bridge during the new bridge's construction and are relocated to the new bridge before removal work commences on the existing bridge. This maintains some separation between the occupied microbat habitat and any dust, noise or vibration associated with active work.

Roads and Maritime commissioned a biodiversity assessment for the building of the new bridge and removal of the existing bridge, and specifically assessed microbat impacts. The assessment concluded there would be no long-term adverse impacts upon biodiversity as a result of the new bridge building work, provided the safeguards and management measures detailed in the REF were implemented. The assessment also identified that building the new bridge was not anticipated to disturb the microbat population in the existing bridge.

Regarding construction of the new bridge, the construction methods currently employed are understood to create less disturbance to microbats than the daily noise, vibration and dust generated by vehicular traffic using the existing bridge in its current condition, where the microbats roost.

The new bridge's Construction Environmental Management Plan is in operation and includes a Construction Noise and Vibration Management Plan, Waste Management Sub Plan and an Ancillary Facilities Plan. A Flora and Fauna Management Plan is also in place which includes procedures to follow when encountering a threatened species, such as immediately ceasing work, notifying an ecologist and developing management options before resuming work. This was addressed at an environmental risk workshop attended by Roads and Maritime project staff and contractor site personnel, and communicated to all site personnel as part of site induction.

Regarding removal of the existing bridge, a Microbat Management Plan has been prepared and designed to contain adaptive procedures that can respond to any unpredicted animal behaviour observed during inspections and monitoring and introduce additional mitigation measures accordingly. This could include, for example, limiting work activity at a time juvenile microbats are observed to further minimise disturbance to the roost site. The Plan mandates that bridge removal work only commence after the microbats have been excluded from the existing bridge.

As detailed in the REF, a Construction Environmental Management Plan would be prepared for the bridge removal proposal which would include the following management plans:

- Acid Sulfate Soil Management Plan
- Soil and Water Management Plan
- Noise and Vibration Management Plan.

In addition to these management plans, Roads and Maritime QA Specifications also require the following management plans to be prepared which would further address dust, noise and vibration:

- Flora and Fauna Management Sub-Plan
- Air Quality Management Sub-Plan
- Waste Management Sub-Plan
- Contaminated Land Management Sub-Plan
- Clearing and Grubbing Sub-Plan.

These management plans would address microbats, and provide mitigation strategies for unexpected encounters and management of microbats.

2.2.5 What assurances can Roads and Maritime provide that the microbat relocation would be successful?

Submission number(s)

4.

Issue description

The respondent asked what assurances Roads and Maritime could provide that the microbat relocation would be successful, especially in light of poor initial uptake on the Old Brunswick Bridge project.

Response

A Species Impact Statement has been developed for this project which offers an extra level of statutory protection and requires review and concurrence by the Office of Environment and Heritage. This means the Office of Environment and Heritage will examine a detailed Microbat Management Plan and associated documents to determine if the recommended measures are suitable.

Roads and Maritime is continually improving its expertise and practices in environmental management by learning from past projects and international best practice and has applied that knowledge to this proposal. The microbat population would be monitored for 12 months prior to bridge removal to further expand knowledge of the colony and its size and movements.

The proposed methods of removing the bridge focus heavily on minimising impacts on the microbats. The method first includes the staging of work to build the new bridge and compensatory habitat, undertaking staged exclusion, and timing work to avoid the breeding season.

Monitoring would continue for three years after the bridge's removal to assess relocation success and employ additional monitoring or contingency measures if needed.

2.2.6 Can I assist with monitoring the bats?

Submission number(s)

4.

Issue description

The respondent asked to assist with monitoring the bats.

Response

A Roads and Maritime representative discussed this with the respondent and recommended that the resident contact the NSW Wildlife Information, Rescue and Education Service Inc. (WIRES) to find out how to apply, and what prerequisites such as vaccination may apply.

2.3 Landscape and visual impacts

Submission number(s)

5.

Issue description

The respondent expressed disappointment that the bridge would be removed and stated that Lawrence would be less distinctive.

Response

The REF concluded there would be a visual impact associated with the removal of the existing Sportsmans Creek Bridge, and the individual identity it provides in the local setting. This impact would be offset by the introduction of new open space with the consolidation of Sportsmans Park and Flo Clark Park on the southern approach to Lawrence. Permanent impacts upon the visual landscape as a result of the removal of the bridge are considered moderate and have little effect on the long-term visual quality of the setting (KBR 2016, Chapter 6.8).

Safeguards and mitigation measures have been identified which would maintain the bridge's legacy for future generations. These include provision for Roads and Maritime to develop on-site interpretation materials such as local signboards that point to the location and historic interest associated with the 1885 and 1909 Lawrence bridges, archival photographic records and a scale model of the bridge to be provided on permanent loan to the Lawrence Historical Society.

2.4 Safety

Respondents raised three issues related to safety:

- If the timber bridge is retained, which authority would be responsible for safety?
- Traffic calming provided by the timber bridge would be lost.
- There may be a danger of bridge collapse if left in situ.

2.4.1 If the timber bridge is retained, which authority would be responsible for safety?

Submission number(s)

1.

Issue description

The respondents asked which authority would be responsible for accidents or damage on or around the bridge if it were to remain, including problems caused by flood debris catching on bridge piers.

Response

The maintenance costs, legal and practical responsibilities for maintaining the bridge would be unsustainable for Roads and Maritime and/or Clarence Valley Council.

2.4.2 Traffic calming provided by the timber bridge would be lost

Submission number(s)

5.

Issue description

The respondent noted that the southern approach to Lawrence with the current road layout and narrow bridge requires drivers to slow down and that this in-built traffic calming would be removed with the new alignment.

Response

The more direct route through Grafton Street could encourage higher speeds, compared with the speed-limiting nature of the double 90-degree intersections on the existing southern approach to Lawrence. This could potentially contribute to higher levels of road safety risk. However, the design has incorporated a 'traffic calming' gateway treatment on the southern approach, to encourage motorists to slow down from 100 km/hr to 50 km/hr.

2.4.3 There may be a danger of bridge collapse if left in situ

Submission number(s)

1.

Issue description

The respondent described flood behaviour and waterway flows in the area and expressed concern that logs and rubbish banking up against the piers during flood events could cause the aging timber bridge to collapse.

Response

Roads and Maritime has assessed that the eventual decay of the structure would result in bridge failure with adverse impacts to the environment including Sportsmans Creek. It would pose an ongoing safety and environmental risk.

Environmental safeguards can be better managed through a planned removal of the bridge.

2.5 Resource use and waste

Respondents raised two issues related to resource use and waste:

- Could the bridge be reused to improve a crossing on a narrow road?
- Could a local non-profit club use the remnant timber for building projects?

2.5.1 Could the bridge be reused to improve a crossing on a narrow road?

Submission number(s)

1.

Issue description

The respondent suggested cutting the bridge in half and using it on a narrow road in need of a crossing as they had seen done in some council projects.

Response

The existing bridge is not suitable for this re-use due to its condition. The ongoing maintenance cost and the cost to remove, restore and relocate the bridge is prohibitive and greater than the construction cost of a new bridge using modern materials and construction methods.

2.5.2 Could a local non-profit club use the remnant timber for building projects?

Submission number(s)

3.

Issue description

The respondent asked if their specific club could request use of the remnant timber for hobby building activities.

Response

The disposal of timber from the bridge is subject to Roads and Maritime policies, including those governing the safe management of any contaminants. Disposal arrangements would be made after the REF is formally determined and the new bridge has been constructed. Roads and Maritime would take the specific club's request into consideration when developing the detailed removal plans for the timber bridge. A follow-up request can also be addressed to the Sportsmans Creek bridge project delivery team in late 2017 at Grafton.Regional.Office@rms.nsw.gov.au

2.6 Hydrology and flooding

Submission number(s)

2.

Issue description

The respondent approved of the northern bridge approach being retained and was glad that flood impacts had been considered.

Response

The existing northern bridge approach, including the dry stone walls would be retained for flood protection and landscaping.

2.7 Funding

Submission number(s)

1.

Issue description

The respondent asked who would pay for ongoing repairs if the timber bridge was retained.

Response

The maintenance cost of the existing timber truss bridge is high, with an estimated annual average maintenance cost of around \$500,000. Further, an additional \$10 million worth of restoration work would be required in the next few years to maintain its load capacity and extend the bridge's operational life.

Once the new bridge is constructed and in use, neither Roads and Maritime nor Clarence Valley Council is in a position to fund ongoing repair of the existing bridge.

2.8 Aboriginal heritage and consultation

Respondents raised two issues related to aboriginal heritage and consultation:

- Has the level of Aboriginal cultural heritage assessment been adequate, or is further assessment required?
- Has the level of consultation on Aboriginal heritage values been adequate?

2.8.1 Has the level of Aboriginal cultural heritage assessment been adequate, or is further assessment required?

Submission number(s)

6.

Issue description

The respondent noted the Aboriginal Cultural Heritage assessments undertaken in 2002 and 2014 and recommended that a risk assessment be undertaken to determine whether any further assessment is required.

Response

The approved Roads and Maritime Procedure for Aboriginal cultural heritage consultation and investigation (PACHCI) has been followed, and has determined that there would be low potential to identify items of aboriginal heritage significance.

This conclusion is based on considerations such as:

- The work being located within a disturbed floodplain
- The proposal being limited to removing the bridge and one approach which is constructed from imported material
- The low likelihood of impacting any undisturbed ground.

Any unexpected finds would be managed in accordance with the Roads and Maritime Unexpected Archaeological Finds Procedure.

2.8.2 Has the level of consultation on Aboriginal heritage values been adequate?

Submission number(s)

6.

Issue description

The respondent noted that a letter had been provided from the Yaegl Local Aboriginal Land Council but recommended that additional consultation be done with the local Aboriginal community.

Response

Roads and Maritime's Aboriginal Cultural Heritage Officer has reviewed and accepted the Archaeological Due Diligence Assessment undertaken by McCardle Cultural Heritage in 2014 as fulfilling the PACHCI requirements without need for further assessment or consultation.

2.9 Soils, contamination and water quality

Respondents raised four issues related to soil:

- Please provide assurances that acid sulfate soils (ASS) will be adequately tested and managed.
- Were samples taken during geotechnical work assessed through field peroxide oxidation testing or laboratory testing?
- All materials below a depth of 0.3m should be assumed to be ASS and treated accordingly.
- Queries regarding detail in a Sportsmans Creek New Bridge Geotechnical Investigation Report by Golder Associates 2014.

2.9.1 Please provide assurances that acid sulfate soils will be adequately tested and managed

Submission number(s)

6.

Issue description

The respondent recommended that acid sulfate soils are adequately tested and managed for the project and provided additional measures to be listed in an Acid Sulfate Soil management plan as an alternative to additional testing. The respondent also recommended that stockpile management should be in accordance with Section 11.1 of the Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines (2014).

Response

The REF commits to preparing an Acid Sulfate Soil Management Plan in accordance with the Roads and Maritime *Guidance for the Management of Acid Sulfate Materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulfic Black Ooze* (RTA 2005), including specific management controls to be implemented. Roads and Maritime would ensure that the recommended measures are incorporated into the removal contractor's relevant documentation. Detailed specific measures for testing and management would be developed by the contractor as part of this Acid Sulfate Soil Management Plan and would be approved by Roads and Maritime prior to implementation.

Furthermore, the Roads and Maritime Services *Guidance for the Management of Acid Sulfate Materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulfic Black Ooze* (RTA 2005) stipulates requirements for testing and management in accordance with the *Queensland Acid Sulfate Soil Manual: Soil Management Guidelines* (2014), the Acid Sulfate Soils Management Advisory Committee (ASSMAC) and best practice.

2.9.2 Were samples taken during geotechnical work assessed through field peroxide oxidation testing or laboratory testing?

Submission number(s)

6.

Issue description

The respondent queried the terminology used in the REF in Section 6.2.1 describing testing and sought clarification as to whether it was field peroxide oxidation testing or laboratory testing.

Response

The testing referred to in Section 6.2.1 is laboratory testing that was conducted following the collection of samples during the geotechnical investigations from boreholes and test pits.

2.9.3 All materials below a depth of 0.3 m should be assumed to be ASS and treated accordingly

Submission number(s)

6.

Issue description

The respondent recommended that all materials below a depth of 0.3m should be assumed to be Acid Sulfate Soils and treated accordingly.

Response

Refer to response 2.9.2 above. An Acid Sulfate Soil management plan would be prepared to manage all areas marked as Potential ASS. These areas are shown on Figure 6.3 of the REF.

2.9.4 Queries regarding detail in a Sportsmans Creek New Bridge Geotechnical Investigation Report by Golder Associates 2014

Submission number(s)

6.

Issue description

The respondent queried some detailed points within the report regarding the Sportsmans Creek new bridge.

Response

These comments will be considered separately, but do not relate to the scope of this report on the removal of the existing bridge.

2.10 Other issues

Respondents raised two other issues:

- What will happen to the old water pipe running under the existing Sportsmans Creek Bridge?
- What would the new bridge be called?

2.10.1 What will happen to the old water pipe running under the existing Sportsmans Creek Bridge?

Submission number(s)

2.

Issue description

The respondent had observed a water pipe under the existing Sportsmans Creek Bridge and asked what would happen to it as part of the project.

Response

The pipe is already disconnected and its removal would not present any issues. It has not been in service for at least 15 years.

2.10.2 What would the new bridge be called?

Submission number(s)

2.

Issue description

The respondent asked what the new bridge would be called.

Response

The name of the new bridge is a matter for Clarence Valley Council. The bridge will be part of the local road network and will be under the care, control and management of Clarence Valley Council.

3 Environmental management

The REF for the Removal of the Sportsmans Creek Bridge identified the framework for environmental management, including management and mitigation measures that would be adopted to avoid or reduce environmental impacts (KBR 2016, Chapter 7).

After consideration of the issues raised in the public submissions, no changes to the REF or proposal have been made at this stage. Therefore, the management and mitigation measures for the proposal remain the same as those outlined in the REF and, should the proposal proceed, environmental management would be guided by the framework and measures in that document. The proposal remains subject to additional guidance provided by OEH as part of the concurrence process.

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 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, Northern Region, prior to the commencement of any on-site work. 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.

3.2 Summary of safeguards and management measures

The REF for the Removal of the Sportsmans Creek Bridge 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, no changes to the REF or proposal have been made. Therefore, the management and mitigation measures for the proposal remain the same as those outlined in the REF and, should the proposal proceed, environmental management would be guided by the framework and measures in that document.

Table 3.1: Summary of environmental safeguards and management measures

No.	Impact	Environmental safeguards	Responsibility	Timing
1	General	<p>All environmental safeguards must be incorporated within the following:</p> <ul style="list-style-type: none"> • Project Environmental Management Plan (if required) • Detailed design stage • Contract specifications for the proposal • Contractor's Environmental Management Plan 	Project manager	Pre-removal
2	General	<ul style="list-style-type: none"> • A risk assessment must be carried out on the proposal in accordance with the Roads and Maritime Project Pack and PMS risk assessment procedures to determine an audit and inspection program for the work. The recommendations of the risk assessment are to be implemented. • A review of the risk assessment must be carried out after the initial audit or inspection to evaluate if the level of risk chosen for the project is appropriate. • Any work resulting from the proposal and as covered by the REF may be subject to environmental audit(s) and/or inspection(s) at any time during their duration. 	Project manager and regional environmental staff	<p>Pre-removal</p> <p>After first audit</p>
3	General	<ul style="list-style-type: none"> • The environmental contract specification must be forwarded to the Roads and Maritime Environmental Officer for review at least 10 working days before the tender stage. • A contractual hold point must be maintained until the CEMP is reviewed by the Roads and Maritime Environment Officer. 	Project manager	Pre-removal
4	General	<ul style="list-style-type: none"> • The Roads and Maritime Project Manager must notify the Roads and Maritime Environmental Officer at least five working days before work commences. 	Project manager	Pre-removal
5	General	<ul style="list-style-type: none"> • All businesses and residences likely to be affected by the proposed work must be notified at least five working days before the start of the proposed activities. 	Project manager	Pre-removal

No.	Impact	Environmental safeguards	Responsibility	Timing
6	General	<ul style="list-style-type: none"> Environmental awareness training must be provided by the contractor, to all field personnel and subcontractors. 	Contractor	Pre-removal and during removal as required
7	Disturbance to biodiversity values within the investigation area	<ul style="list-style-type: none"> Tree protection zones will be implemented around trees to be retained in proximity to the proposed work in accordance with the <i>Australian Standard 4970-2009 Protection of trees</i> on development sites to prevent machinery impacts to trees. If unexpected threatened fauna or flora species are discovered, work will cease immediately and the <i>Roads and Maritime Unexpected Threatened Species Find Procedure in the Roads and Maritime Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process)</i> is to be followed. Should injured fauna be found on the site, local wildlife care groups and/ or local veterinarians are to be contacted immediately and arrangements made for the immediate welfare of the animal. The phone number of the local WIRES group (ph: 1800 094 737) or Northern Rivers Wildlife Carers (ph: 6643 4055) is to be provided to the site personnel. Environmental safeguards will be communicated to all personnel as part of an environmental site induction, and repeated where appropriate at Toolbox Sessions before starting relevant work components. To minimise sedimentation and water quality impacts to waterways and wetlands, the safeguards listed in Section 6.2.5 of this REF will be implemented. 	Contractor	Pre-removal and during work
8	Aquatic biodiversity/ protection of fish habitat	<ul style="list-style-type: none"> Direct disturbance of aquatic fauna, habitat and riparian zones will be minimised in accordance with <i>Roads and Maritime Biodiversity Guidelines - Guide 10 Aquatic habitat and riparian zones (2011)</i>. Riparian vegetation (such as near the Clarence River within Sportsmans Park) in areas other than in the vicinity of the work area, are to be designated as 'no-go zones'. To minimise in-stream work impacting aquatic fauna movement, the safeguards listed in Section 6.3.6 of this REF will be implemented. 	Contractor	Pre-removal and during work

No.	Impact	Environmental safeguards	Responsibility	Timing
9	Spread of weeds	<ul style="list-style-type: none"> Weed and pathogen hygiene protocols will be implemented in accordance with <i>Guide 6 (Weed Management)</i> and <i>Guide 7 (Pathogen)</i> of the <i>Roads and Maritime Biodiversity Guidelines 2011</i> to avoid introduction and spread of weeds and pathogens to and from the site. The Noxious weeds identified will be managed in accordance with the Council control requirements and for noxious weed classes as follows: <ul style="list-style-type: none"> N4 (Camphor Laurel, Lantana): The growth and spread of these plants must be controlled according to the measures specified in a management plan published by the local control authority, titled Class 4 Weed Control Management Plan (Clarence Valley Council 2012). 	Contractor	During removal work
10	Microbat habitat removal/Reduction in habitat connectivity	<ul style="list-style-type: none"> Staged exclusion of the microbat species from the timber truss bridge in accordance with the safeguards proposed in this REF and the Microbat Management Plan in Appendix J of Appendix G. Compensatory breeding roosting habitat is to be provided on new bridge based on known Large-footed Myotis breeding habitat structures in the region. Three different types of compensatory breeding roosting habitat will be provided on the new bridge as described in Appendix F and Appendix G. Monitoring as per Table 5.1 of Appendix F. 	Contractor / Roads and Maritime	Pre-removal work, monitoring in accordance with the timing specified in Table 5.1 of Appendix F
11	Disruption to microbat breeding (mating or birthing) cycle/ Mortality or injury during bridge removal:	<ul style="list-style-type: none"> Compensatory breeding habitat in the new bridge is to be provided. Staged microbat exclusion from the timber truss bridge will be carried out after completion of the concrete structure for the new bridge containing the new bat habitat and before removal of the timber truss bridge. The aim is to have the timber truss bridge completely free of roosting microbats before bridge removal. Additional safeguards apply as follows: <ul style="list-style-type: none"> Bridge removal is to start at least three months after completion of the concrete structure for the new bridge containing the new bat habitat to allow microbats to become accustomed to new available habitat. 	Contractor / Roads and Maritime	Pre-removal work, monitoring in accordance with the timing specified in Table 5.1 of Appendix F

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> ○ Carry out staged exclusion of microbats from the timber truss bridge before bridge removal and outside the Large-footed Myotis breeding period, when juveniles are flightless and dependent. ○ May to September is the optimal time to exclude microbats to avoid impacts on the Myotis breeding population. ○ The scheduling of the exclusion installation shall allow for flexibility to avoid torpor periods (during significant cold and/or wet weather). ○ Where greater than 20 microbats are present at the time of exclusion installation, install exclusion at nights after fly-out. ○ Check exclusion devices to avoid microbat entrapment or breaches. ○ Ecologist to be present during exclusion installation to ensure the welfare of animals is maintained; and available for call-outs during bridge removal. ● Monitoring as per Table 5.1 of Appendix F. ● All personnel involved with bridge exclusion of microbats and removal are to be trained in their responsibilities, signs of and how to search for microbats, what to do if microbats are encountered, personal safety practices and the requirements of the Microbat Management Plan (Appendix J of Appendix G). 		
12	Microbat foraging habitat degradation	<ul style="list-style-type: none"> ● To minimise sedimentation and water quality impacts to waterways and wetlands, the safeguards listed in Section 6.2.5 of this REF will be implemented. 	Contractor	During removal work
13	Monitor Large-footed Myotis numbers	<ul style="list-style-type: none"> ● Direct inspection of the new bridge (targeting compensatory roosting habitat). Methodology as for Pre-exclusion Monitoring as per Table 5.1 of Appendix F. 	Roads and Maritime	Post-removal work, monitoring in accordance with the timing specified in Table 5.1 of Appendix F

No.	Impact	Environmental safeguards	Responsibility	Timing
14	Water quality and surface water run-off	<ul style="list-style-type: none"> Where practicable, stockpiles will be located away from areas subject to concentrated overland flow. Stockpiles located on a floodplain would be managed so as to minimise loss of material in flood or rainfall events. All stockpiles shall be stabilised at the end of each work day, during wet weather and covered with geotextile or vegetative cover and managed in accordance with the Roads and Maritime procedure for <i>Stockpile Site Management Guideline</i> (RMS 2015). Topsoil, earthwork and other excess spoil material will be stockpiled in accordance with the principles outlined in <i>Stockpile Site Management Guideline</i> (RMS 2015). Stockpiles containing PASS will be managed in accordance with the ASS Management Plan. All wastewater shall be treated to prevent the release of dirty water into the river or any waterways. Vehicle wash down and/or cement truck washout if required will be carried out off-site or in a designated bunded area lined with an impervious surface. No work would be permitted if flooding is predicted and all excavations should be filled in and stockpiles removed or secured before enacting evacuation protocols. 	Contractor	During removal work
15	Water quality and the storage of chemicals	<ul style="list-style-type: none"> All fuels, chemicals and liquids will be stored in an impervious bunded area (preferably at least 50 metres) away from any waterways or drainage lines. For storage within 50 metres, these will be, double-bunded or stored as approved by the Roads and Maritime Environment Officer. A Safety Data Sheet (SDS) for each item stored will be kept. Refuelling of plant and equipment is to occur in impervious bunded areas located a minimum of 50 metres from drainage lines or waterways. Refuelling of plant and equipment on barges is to occur within a double-bunded area. Daily checks of machinery and equipment for liquid leaks of any substance will be carried out. 	Contractor	During removal planning and removal

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> All staff will be trained in incident and emergency response procedures. Emergency dry and wet weather spill kits are to be kept on site at all times and staff made aware of their location and trained in their use. The Roads and Maritime Environmental Incident Classification and Management Procedure are to be followed in the event of an incident and the Roads and Maritime Contract Manager notified as soon as practicable. The EPA shall be notified in the event of a significant spill in accordance with Part 5.7 of the <i>Protection of the Environment Operations Act 1997</i>. 		
16	Water quality – Work in Sportsmans Creek	<ul style="list-style-type: none"> No equipment cleaning will be carried out within the waterway. All workers will remain vigilant to monitor for any signs of impacts to water quality (such as hydrocarbons spills, turbidity, discoloured water or unusual smells) on a daily basis. 	Contractor	<p>Removal planning</p> <p>During removal work</p>
17	Erosion and sedimentation	<ul style="list-style-type: none"> An Erosion and Sedimentation Control Plan (ESCP) will be prepared in accordance with the Roads and Maritime Specification <i>G38 - Soil and Water Management (Soil and Water Management Plan)</i> for inclusion in the SWMP. The ESCP will include: <ul style="list-style-type: none"> Management measures for erosion and sedimentation controls in accordance with the 'blue book', <i>Managing Urban Stormwater - Soils and Construction Volumes 1 and 2 (Landcom 2004, DECC 2008)</i>. Specific details of controls required for excavation activities, in-stream work (such as piling, temporary waterway access, pier removal and earthwork for the removal of the southern approach). The plan will include measures to: <ul style="list-style-type: none"> 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. 	Contractor	Before, during and post removal

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> ○ Divert clean water around the site. ○ Erosion and sedimentation controls will be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request. • Water from site will be used for building purposes, such as dust suppression, where feasible and reasonable. • The CEMP will include specific measures to minimise tracking of material onto sealed areas and offsite and potential reuse of material on site or disposal in accordance with the mitigation measures in Section 6.12.5. • All erosion and sediment controls are to be installed before the start of work which is likely to disturb soil and will be maintained until the work has been completed and areas are stabilised. • Topsoil will be stored separately for possible reuse. • The CEMP will include specific measures for restoration of the site including: <ul style="list-style-type: none"> ○ Removal of environmental controls. ○ Progressive stabilisation and restoration in accordance with the restoration plan for the proposal (refer to Section 6.8). 		
18	PASS/ASS Excavation/ disturbance	<ul style="list-style-type: none"> • For areas identified as PASS where excavation is required (including for piling), an ASS management plan shall be prepared in accordance with the Roads and Maritime's <i>Guidance for the Management of Acid Sulfate Materials: Acid sulfate Soils, Acid Sulfate Rock and Monosulfidic Black Ooze</i> (RTA 2005) and the soils and water management plan (acid sulfate soils section). The ASS management plan should be accepted by Roads and Maritime before the start of any earthwork and at a minimum, the plan shall include: <ul style="list-style-type: none"> ○ Management measures for the safe excavation, isolation and disposal and neutralisation of soils. ○ Requirements for additional testing to determine predicted liming rates of excavated spoil once quantities are determined. 	Contractor	<p>Removal planning</p> <p>During removal work</p>

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> Specific controls to be implemented include: <ul style="list-style-type: none"> Capping exposed surfaces with clean fill to prevent oxidation. Placing excavated ASS separately in a lined, bunded and covered area. Neutralising ASS for reuse (where appropriate) by using additives such as lime. 		
19	Contaminated soil	<ul style="list-style-type: none"> A contingency plan for the management of contaminated soils shall be developed. Visual/olfactory assessment of excavated materials shall be carried out immediately after exposure. 	Contractor	Removal planning During removal work
20	Trafficability	<ul style="list-style-type: none"> Access tracks will be stabilised from gravel sourced locally, which is certified as pathogen-free. 	Contractor	During removal work
21	Slope failure	<ul style="list-style-type: none"> A risk assessment will be carried out before work with heavy machinery to determine the risk potential of slope failure near Sportsmans Creek. <ul style="list-style-type: none"> The risk assessment will identify a safe working distance for the operation of machinery near the banks of Sportsmans Creek. Heavy machinery will only operate within the safe working distance as determined by risk assessment. 	Contractor	Pre-removal and during work
22	Flooding during removal work	<ul style="list-style-type: none"> A Flood Management Plan will be prepared as part of the CEMP and implemented during removal work. At minimum this plan shall include: <ul style="list-style-type: none"> Consideration of evacuation protocols from the <i>Clarence Valley Local Flood Plan</i> (SES 2012) for the Lawrence Sector. Project-specific emergency response and evacuation controls during flooding. Measures to ensure that equipment, site-offices, ablution facilities, vehicles, materials, buoyant items (including barges) and machinery are secured against flood or able to be removed off-site when a flood warning is issued. 	Contractor	During removal planning During removal work

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> ○ Reporting requirements. ○ A regular weather monitoring regime. • The installation of temporary pontoon and barge access will include measures to ensure they can be secured during a flood event. • The State Emergency Service (SES) will be informed of the work, if it is occurring during flood season (November to March). • The SES will also be informed of any partial or full road closures during removal work. • No work would be carried out during or immediately after periods of flood unless it is deemed safe to return to the area by the SES and the Roads and Maritime Project Manager. 		
23	Hydrological impacts	<ul style="list-style-type: none"> • Any temporary structures such as silt curtains placed in-stream shall be installed such that they will not impact flows and cause erosion. 	Contractor	During removal work
24	Hydrological changes impacting Sportsmans Creek during the temporary removal work and for waterway access	<ul style="list-style-type: none"> • As per the correspondence in Appendix J, the proposal design shall consider the <i>NSW DPI (Fisheries) guidelines Policy and guidelines for fish habitat conservation and management</i> (DPI 2013) and mitigation measures to minimise potential impacts upon Sportsmans Creek. 	Roads and Maritime	Removal planning

No.	Impact	Environmental safeguards	Responsibility	Timing
25	Noise and vibration disturbance during work	<ul style="list-style-type: none"> During the removal planning stage, when more specific information is available in relation to the proposed work, a Site Specific Construction Noise and Vibration Management Plan (CNVMP) as part of the CEMP documents shall be prepared, consistent with the requirements of the ICNG. <p>The objectives of the CNVMP are as follows:</p> <ul style="list-style-type: none"> Minimise exceedances of the Noise Management Levels and goals nominated in Section 6.4.3 and 6.4.4. Determine noise and vibration monitoring, reporting and response procedures. Describe specific mitigation treatments, management methods and procedures to be implemented to control noise and vibration during the proposed work. Describe work timetabling to minimise noise impacts including time and duration restrictions, respite periods and frequency. Describe procedures for notifying residents of noise and vibration generating work activities likely to affect their amenity. Define contingency plans to be implemented in the event of non-compliances and/or noise complaints. Ensure the management measures detailed in this REF are documented. Specify the removal work is to be carried out during normal work hours (i.e. 7.00am to 6.00pm Monday to Friday; 8.00am to 1.00pm Saturdays). Any emergency or microbat exclusion work that is performed outside normal work hours or on Sundays or public holidays is to minimise noise impacts. 	Contractor	Removal planning and during work

No.	Impact	Environmental safeguards	Responsibility	Timing
26	Noise disturbance during work	<ul style="list-style-type: none"> Noise impact will be minimised in accordance with Practice Note 7 in the <i>Roads and Maritime Environmental Noise Management Manual (RTA 2011b)</i>. <p>As a minimum, the following mitigation measures shall be included in the CNVMP and all feasible and reasonable mitigation considered:</p> <ul style="list-style-type: none"> Use of localised acoustic hoarding around particularly intensive noise generating items of plant (e.g. rock breakers, chainsaws, hammer drills and piling rigs), where practicable: <ul style="list-style-type: none"> Air gaps shall be minimised far as practicable and hoarding placed as close as possible to the work. Implementation of work equipment and tools with lower noise emission levels. Planning of the higher NML exceedance activities/locations to be carried out predominantly during less noise-sensitive periods, where available and possible. Nearby residents shall be consulted to help identify less noise sensitive time periods. Utilising respite periods where noise intensive plant items are required: <ul style="list-style-type: none"> This may include limiting work to non-consecutive nights. Briefing of the work team in order to create awareness of the location of sensitive receivers and the importance of minimising noise emissions. Spoil, off-cuts and rubbish shall be placed and not dropped into awaiting trucks to minimise noise. Locating noisy items of plant away from receivers, where possible. Turning off noisy plant when not in use. Ensuring plant is regularly maintained and equipment repaired / replaced when it becomes noisier. 	Contractor	Removal planning and during work

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> Establishing load points as far as practicable from sensitive receivers. Utilising silenced or less noise-intensive equipment, where reasonable and feasible. Reversing of equipment shall be minimised so as to prevent nuisance caused by reversing alarms (ie a unidirectional flow of work vehicles should be established through the work site). Non-tonal reversing alarms shall be fitted to minimise nuisance caused by reversing alarms. 		
27	Vibration disturbance during work	<ul style="list-style-type: none"> Potential vibration impacts shall be addressed in the CNVMP as part of the CEMP documents. Before and after building condition surveys will be conducted before and after the work for all potentially affected properties. 	Contractor	During removal planning
28	Vibration disturbance during work	<ul style="list-style-type: none"> Attended vibration monitoring should be carried out in the event vibration intensive work is required within the cosmetic damage safe working distances, for example if rock breaking is required within 7 metres of a receiver (medium rock breaker), or if impact piling is required within 15 metres of a receiver. Vibration levels will remain below the criteria for cosmetic damage at all receivers (heritage or otherwise) as listed in Section 6.4.3 and Table 6.9. Measures for vibration management to be included in the CNVMP as part of the CEMP documents include: <ul style="list-style-type: none"> Utilising dampened rock breakers and/or 'city' rock breakers to minimise the impact associated with rock breaking work; and the use of smaller capacity rock breakers where feasible. Utilising bored or rotary piling in lieu of impact piling, where feasible. Utilising non-vibratory rolling equipment. 	Contractor	During removal work

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> ○ Minimising consecutive work in the same locality. This may potentially be implemented by rotating work between areas within the site on a daily basis. ○ Sequencing of rock breaking operations so vibration intensive operations do not occur concurrently. ○ Scheduling of rock breaking work during the less sensitive times of the day. The most noise and vibration sensitive times of day shall be determined through consultation with the affected community. ○ Providing respite periods. Daytime noise and vibration respite periods are typically provided during lunch-time periods and the most appropriate periods shall be determined through consultation with the affected community. ○ Utilising a hydraulic rock splitter or saw rather than a rock breaker (if applicable). 		
29	Vibration impacts to heritage buildings during work	<ul style="list-style-type: none"> ● Building surveys of all nearby heritage structures as defined in Table 6.10 of this REF shall be carried out in order to assess the potential for increased susceptibility to building damage from vibration. ● In the event that these buildings are considered more susceptible to vibration than regular buildings, reduced vibration criteria levels may be applicable and subsequently adopted for the assessment process. These reduced criteria may influence the selection of appropriate processes and equipment to be used in the vicinity of these buildings. 	Roads and Maritime	Before removal work
30	Dust generation	<ul style="list-style-type: none"> ● All vehicles will adhere to speed limits, particularly on unsealed surfaces. ● Vehicles transporting waste or other materials that may produce odours or dust shall be covered during transportation. ● Areas that may generate dust shall be managed to suppress dust emissions in accordance with the Roads and Maritime's <i>Stockpile Site Management Guideline</i> (RMS 2015). 	Contractor	Removal planning During removal work

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> Visual monitoring of air quality will be carried out on a daily basis to verify the effectiveness of dust controls. Measures (including watering or covering exposed areas) shall be used if required to minimise or prevent air pollution and dust. Work (including the spraying of paint and other materials) shall not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely. 		
31	Emissions to air	<ul style="list-style-type: none"> Vegetation or other materials are not to be burnt on site. Plant and vehicles must not be left idling when not in use for extended periods. Regular maintenance of vehicles, plant and equipment should be carried out and vehicles fitted with emission control devices in accordance with Australian Design Standards. Visual monitoring of air quality would be carried out on a daily basis to verify the effectiveness of emissions controls. 	Contractor	During removal
32	Removal bridge components (contaminated materials)	<ul style="list-style-type: none"> A full inspection should be carried out on the bridge to determine the presence of any hazardous components. The removal of the bridge and lead contaminated material would be carried out in accordance with AS 4361.1. 	Contractor	Before and during removal
33	Removal of an item listed on the Roads and Maritime s.170 register and Clarence Valley LEP 2011	<ul style="list-style-type: none"> Roads and Maritime shall update its s.170 Register to reflect the removal of the Sportsmans Creek Bridge. As per Section 14 of the SEPP (Infrastructure) Roads and Maritime will provide written notice of the intention to carry out the proposed work to Council. 	Roads and Maritime	Before the start of work

No.	Impact	Environmental safeguards	Responsibility	Timing
34	Removal of the Sportsmans Creek Bridge	<ul style="list-style-type: none"> Urban and landscape design shall acknowledge the missing bridge as a central feature in the historic urban form of Lawrence. Redevelopment shall make reference to the original road corridor (e.g. in considering the design of viewing points, plantings, parkland, the siting of waterside amenities) in order to preserve the historical linkage across the creek at this location that began with the ferry and was continued in the 1885 and 1909 Lawrence bridges. 	Council	Removal planning work
35		<ul style="list-style-type: none"> A design-based approach to restoration of the creek banks after the removal of the bridge will be carried out in accordance with the safeguards proposed in Section 6.8.6. The content, scope and interpretive value of local signboards, markers and other on-site interpretation materials will be determined at an early stage for incorporation into forthcoming design briefs and consultation with Council, community stakeholders and other public agencies. 	Roads and Maritime	
36		<ul style="list-style-type: none"> All useful parts of the bridge shall be salvaged and stockpiled for future re-use in line with the Roads and Maritime (2016a, 2016b) guidelines: <i>Technical Guide: Sustainability in Infrastructure Design and Construction</i> and <i>Technical Guide: Management of Road Construction and Maintenance Wastes</i>. 	Contractor	During removal work
37	Protection of the Dry Stone Wall northern abutment	<ul style="list-style-type: none"> Consolidation work to stabilise the loose masonry of the dry stone northern abutment, if required, will be carried out in a manner that safeguards the values and integrity of this element as a surviving remnant of the historical landscape. Specific measures will be included in the CEMP to minimise impact on the stone abutment during removal work. Should accidental damage to the stone wall occur, any required restoration of the abutment shall be carried out to ensure the retention of historical values. 	Contractor	During removal work

No.	Impact	Environmental safeguards	Responsibility	Timing
38	Damage to items of non-Aboriginal heritage significance to be retained	<ul style="list-style-type: none"> The dismantling process in terms of heavy plant, access, excavation, etc shall consider any potential impact on the structural soundness and historical value of the stonework or other retained elements, and appropriate measures will be implemented to ensure the remains are protected. Any accidental damage to items of non-Aboriginal heritage significance to be retained will be reported to the Roads and Maritime Environmental Officer and restored to ensure the retention of historical values. 	Contractor	Removal planning During removal work
39	Damage to items of Non-Aboriginal heritage significance	<ul style="list-style-type: none"> All staff, contractors and others involved in building and maintenance related activities will be made aware of statutory legislation protecting sites and places of significance. Of particular importance are the <i>Heritage Act 1977</i>, the Clarence Valley LEP 2011 and items shown on Figure 6.6. If unexpected archaeological remains are uncovered during the work, all work must cease in the vicinity of the material/find and the steps in the Roads and Maritime (2012c) <i>Standard Management Procedure: Unexpected Archaeological Finds</i> must be followed. Roads and Maritime Environmental Officer must be contacted immediately. If any items defined as relics under the NSW <i>Heritage Act 1977</i> are uncovered during the work, all work must cease in the vicinity of the find and the Roads and Maritime Environmental Officer contacted immediately. 	Contractor	During removal work
40	Work in proximity to the Lawrence Conservation Area	<ul style="list-style-type: none"> A notification shall be issued to Council about the work. Consultation will be carried out with the Council Heritage Officer before the start of work which will involve disturbance to any heritage structures located within the Lawrence heritage conservation area. In addition the following applies: <ul style="list-style-type: none"> In the event alternative access to Sportsmans Creek is unavailable, the boat ramp and wharf could be utilised subject to the approval of the Roads and Maritime Project Manager and Environment Officer in consultation with Council. 	Contractor	During removal work

No.	Impact	Environmental safeguards	Responsibility	Timing
41	Damage to items of Aboriginal heritage significance	<ul style="list-style-type: none"> The following measures should be included within the CEMP for the Proposal and implemented during removal work: <ul style="list-style-type: none"> All staff, contractors and others involved in removal activities should be made aware of statutory legislation protecting sites and places of significance. Of particular importance is the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010, under the <i>National Parks and Wildlife Act 1974</i>. If Aboriginal heritage items are uncovered during the work, all work in the vicinity of the find must cease and Roads and Maritime's Aboriginal cultural heritage advisor and the environmental officer contacted immediately. Steps in the Roads and Maritime (2012c) <i>Standard Management Procedure: Unexpected Archaeological Finds</i> must be followed. 	Contractor	Pre-Removal During removal work
42	Minimise long-term impacts upon the landscape character	<ul style="list-style-type: none"> The following opportunities to minimise impacts upon the landscape character will be considered during detailed design in consultation with Council: <ul style="list-style-type: none"> The recommendations in the Landscape Character and Visual Assessment (Appendix N) in consultation with Council. 	Roads and Maritime / Council	During removal planning
43	Minimise short-term impacts upon the landscape character and visual amenity	<ul style="list-style-type: none"> The location of the compound and general site layout shall be placed to minimise the visual impact on surrounding residences, including the siting of stockpiles, buildings, plant and equipment. Work to be carried out in accordance with <i>EIA-N04 Guidelines for visual impact assessment and landscape character assessment</i>. 	Contractor	During removal planning During removal work

No.	Impact	Environmental safeguards	Responsibility	Timing
44	Traffic and access	<ul style="list-style-type: none"> A detailed Traffic Management Plan would be prepared in accordance with the RTA (2010) <i>Traffic Control and Work sites Manual</i> and Roads and Maritime Specification G10-Control of Traffic. The plan must be accepted by Roads and Maritime and reviewed by Council before implementation. Where possible, current traffic movements and property accesses are to be maintained during the work. Any disturbance is to be minimised to prevent unnecessary traffic delays. The Traffic Management Plan will include such measures to provide safe access points to work areas from the road network, safety barriers where necessary, temporary speed restrictions when necessary, adequate sight distances and prominent warning signage. Consultation will be carried out with local residents and the Lawrence Tavern on Bridge Street about any temporary access requirements to the property to ensure access is maintained at all times. Residents, businesses and Council shall be notified of the proposed work and any changes in traffic arrangements in accordance with Roads and Maritime procedures before the work starts. Work areas will be bounded by fencing or barriers to prevent pedestrian access. Safe, alternative access should be provided for pedestrians where required. 	Contractor	Removal planning
45		<ul style="list-style-type: none"> Removal traffic will access the site via designated access points to be defined in the Traffic Management Plan. 	Contractor	During removal work
46	Waterway access	<ul style="list-style-type: none"> Removal vehicles will be parked off-road as far as practicable or in a manner that minimises disruption to other road users, businesses and the public. 	Contractor	During removal work
47		<ul style="list-style-type: none"> Signage shall be placed at Flo Clark Park and Sportsmans Park to indicate the temporary closure of the boat ramp and the park if required, and the location of alternative ramp and facilities on the Clarence River near Lawrence Memorial Park. 	Contractor	Before the removal work

No.	Impact	Environmental safeguards	Responsibility	Timing
48	On-water traffic and access	<ul style="list-style-type: none"> • NSW Maritime will be consulted with as required in regard to the closure of the boat ramp, relocation of moorings and obstructions to the Sportsmans Creek channel during removal work and before the start of work. • Consultation with NSW Maritime shall be carried out throughout the duration of the work to develop forward plans for the on-water traffic management while the work is carried out and as plant and structures are deployed in different locations. • Appropriate navigational marks and signage will be implemented. A Navigational Aids plan is to be prepared and approved by NSW Maritime. • Exclusion zones around critical areas of removal activities and floating removal equipment shall be clearly marked in accordance with Roads and Maritime advice and requirements. 	Contractor	<p>Before removal work</p> <p>During removal work</p>
49	Utility relocation	<ul style="list-style-type: none"> • Consultation will be continued with Essential Energy about the isolation or protection of services impacted. 	Roads and Maritime	During removal planning
50	Disturbance to available open space	<ul style="list-style-type: none"> • Council will be consulted about the use of Flo Clark Park and Sportsmans Park. • Restoration and landscaping shall ensure that Flo Clark Park and Sportsmans Park are restored to as previous or better condition. 	Roads and Maritime	Pre-removal
51	Disturbance to recreational users of Flo Clark Park / Sportsmans Park	<ul style="list-style-type: none"> • Fencing and signage will be placed at the site compound location at Flo Clark Park. Signage will be placed to inform boat ramp users of the temporary closure of the boat ramp and the alternate waterway access in Lawrence Memorial Park. 	Contractor	<p>Pre-removal</p> <p>During removal work</p>

No.	Impact	Environmental safeguards	Responsibility	Timing
52	Accessibility to Sportsmans Creek	<ul style="list-style-type: none"> Notices will be placed in the local press and NSW Maritime website as per NSW Maritime requirements and further consultation should be carried out with NSW Maritime with regards to timing of removal work. The Lawrence Fishing club will also be consulted about the boat ramp closure. Residents with moorings on Sportsmans Creek will be consulted before building in the waterway, with regards to any obstructions of the waterway which may impact upon their access to the waterway downstream of the proposal. 	Roads and Maritime / Contractor	Pre-removal
53	Local amenity disturbances	<ul style="list-style-type: none"> Residents and businesses within the locality must be contacted at least five days before the start of work, in accordance with the Roads and Maritime (2012b) <i>Community Engagement and Communications Manual</i>. Community consultation shall be carried out in accordance with the Roads and Maritime (2012b) <i>Community Engagement and Communications Manual</i>. Complaints received shall be recorded and attended to promptly in accordance with the Roads and Maritime (2012b) <i>Community Engagement and Communications Manual</i>. Residents within the locality who are shift workers will be identified and consulted about noise and vibration-generating work which may result in sleep disturbance. 	Roads and Maritime/ Contractor	Pre-removal

No.	Impact	Environmental safeguards	Responsibility	Timing
54	Waste Management	<ul style="list-style-type: none"> Resource management hierarchy principles will be followed: <ul style="list-style-type: none"> Avoid unnecessary resource consumption as a priority. Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery). Disposal is carried out as a last resort (in accordance with the <i>Waste Avoidance & Resource Recovery Act 2001</i>). All waste will be managed in accordance with the Roads and Maritime (2016a, 2016b) guidelines: <i>Technical Guide: Sustainability in Infrastructure Design and Construction</i> and <i>Technical Guide: Management of Road Construction and Maintenance Wastes</i>. Waste materials should be removed off-site by a licenced contractor in accordance with the PA's Waste Classification guidelines and Roads and Maritime (2016a, 2016b) guidelines to a facility authorised to take such waste. <ul style="list-style-type: none"> There is to be no disposal or re-use of building waste on to other land. Waste is not to be burnt on site. Waste material, other than vegetation and tree mulch, is not to be left on site once the work has been completed. Appropriate receptacles for the collection of waste with separated bins for waste streams will be provided to encourage the recycling of materials. Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day. 	Contractor	During removal work
55	Wastewater disposal	<ul style="list-style-type: none"> All liquid waste should be disposed off-site by tanker using a licenced contractor, and disposed at a facility authorised to take such waste. 	Contractor	During removal work
56	Noxious weeds disposal	<ul style="list-style-type: none"> All noxious weeds cleared should be disposed of in accordance with the requirements of Council as stipulated in Section 6.1.6 of this REF. 	Contractor	During removal work

No.	Impact	Environmental safeguards	Responsibility	Timing
57	Removal bridge components (Contaminated materials)	<ul style="list-style-type: none"> Lead paint materials are to be managed in accordance with the <i>Australian Standard AS4361.1 'Guide to Lead Paint Management – Part 1 Industrial Applications 1995'</i>. Licensed landfill operators would be notified of the presence of lead paint on any timbers/metals before delivery. Any hazardous waste material stockpiles are to be fenced and signed for public safety. Redundant materials from the removal of the bridge must be disposed as follows: <ul style="list-style-type: none"> All bridge timbers are to be assessed in accordance with the Roads and Maritime (2016a, 2016b) guidelines: <i>Technical Guide: Sustainability in Infrastructure Design and Construction and Technical Guide: Management of Road Construction and Maintenance Wastes</i>. As otherwise provided for by the relevant waste legislation and Roads and Maritime (2016a, 2016b) guidelines. 	Roads and Maritime/ Contractor	Pre-removal During removal
58	Vulnerability to effects of climate change	<ul style="list-style-type: none"> Further opportunities will be considered for reducing greenhouse gas emission during the removal work. 	Roads and Maritime	Before bridge removal
59	Greenhouse gas emissions	<ul style="list-style-type: none"> Alternative fuels and power sources for equipment will be considered, such as biodiesel generators. 	Contractor	During removal work

3.3 Licensing and approvals

Table 3.2: Summary of licensing and approval required

Instrument	Requirement	Timing
	A late draft copy of the REF is required to be issued to DPI (Fishing and Aquaculture) for review and consideration.	After review of a late Draft of the REF and a minimum of 28 days before the start of dredging or reclamation work. Outcomes of this consultation must be addressed in the CEMP and relevant Environmental Work method Statement (EWMS).
Fisheries Management Act 1994, Section 199	A commence work notification form as per the notification requirements under Section 199 of the <i>Fisheries Management Act 1994</i> is required.	A minimum of three days before the start of work.
Fisheries Management Act 1994, Section 219	A permit to block fish passages is required under Section 219 of the Fisheries Management Act 1994. This applies to any temporary or permanent blockages that occur as a result of bridge or side track work.	Before the start of removal work.
	Council are to be notified of any road closures if required.	A Traffic Management Plan and notification is to be issued to Council about the closure.
	Documented approval about access from the landholders of properties that would be obstructed or impacted by the proposal.	Consultation before removal commences and then notification at least five days before the obstruction.
	A notification is to be issued to Clarence Valley Council about any work which would impact the Lawrence Memorial Park or the Lawrence Conservation Area, as the bridge is listed on the Clarence Valley LEP 2011 and the northern part of the work on Bridge Street is located within the Lawrence Conservation Area.	Consultation with the Council Heritage Officer before removal.

Instrument	Requirement	Timing
	According to Maritime requirements, Marine Notices are to be placed in the local press and on the NSW Maritime website.	During work and updated throughout the different removal phases.
	An 'authority to occupy crown land' is required in the form of a lease from the Crown Lands division for the Sportsmans Creek waterway.	Before the start of work.
EP&A Act, Section 112C Threatened Species Conservation Act 1995, Section 110	A concurrence approval from OEH under Section 112C of the <i>EP&A Act</i> . A SIS has been prepared in accordance with Section 110 of the <i>Threatened Species Conservation Act 1995</i> due to the potential significant impact upon the Large-footed Myotis.	Before the determination of the REF by Roads and Maritime, a concurrence approval must be obtained from OEH. Feedback from OEH on the SIS mitigation measures must be addressed in the CEMP and relevant EWMS.
Heritage Act 1977, Section 170A	A notice of removal as per Section 170A of the <i>Heritage Act 1977</i> to the NSW Heritage Office is required to remove the existing Sportsmans Creek Bridge.	A notification is required at least 14 days before the removal of the bridge.

4 Next steps

Roads and Maritime is the determining authority for the REF.

Roads and Maritime will seek the concurrence of the Office of Environment and Heritage to the Species Impact Statement for the Large-footed Myotis (microbat) which forms part of the REF.

Roads and Maritime will assess the proposal, including the Submissions Report and the concurrence response from OEH and then make a determination.

Roads and Maritime will continue to communicate with community members, government agencies and other stakeholders during the bridge removal phase of the proposal.

5 References

KBR 2015, Sportsmans Creek new bridge: Review of environmental factors, Sydney.

KBR 2016, Removal of Sportsmans Creek Bridge: Review of environmental factors, Sydney.

Appendix A

Community update letter

Sportsmans Creek new bridge

July 2016

The NSW Government is funding the Sportsmans Creek new bridge to improve traffic efficiency and road safety. Roads and Maritime Services invites you to provide feedback on the Review of Environmental Factors for the removal of the existing bridge.

Review of Environmental Factors for bridge removal

Roads and Maritime has completed a Review of Environmental Factors (REF) for the removal of the existing bridge and it is now on display for your information and comment.

Once the new bridge is complete and open to traffic, the existing bridge will be removed to reduce significant ongoing maintenance costs.

The Bridge Street approach to the existing bridge would become a cul-de-sac, and Flo Clark Park and Sportsmans Park would be joined on the south side of the creek.

The REF explains the proposed method of removing the bridge and the other options considered. It also addresses how the work will be managed and environmental methods used to minimise environmental impacts on:

- the local community, through road and creek access, noise and vibration

- flora and fauna, including a colony of microbats
- soils and water quality
- flooding.

In March 2015, we completed the REF to build the new bridge.

We are now displaying the REF for the removal of the existing bridge. You are invited to provide feedback on the REF by 28 August 2016.

Display locations

The REF is on display at these locations:

- Lawrence General and Liquor Store, 1 Richmond Street, Lawrence
- Roads and Maritime regional office, 76 Victoria Street, Grafton
- Clarence Valley Council offices, 2 Prince Street, Grafton and 50 River Street, Maclean.

The report is also available for viewing online at

www.rms.nsw.gov.au/sportsmans

Community information session

Members of the project team will be available to answer your questions about the REF and receive your feedback about the bridge's removal at:

- Lawrence Public Hall, Bridge Street, Lawrence,
Thursday 11 August 2016, 3pm-7pm

There will be no formal presentation, so you can visit at any time during the session.

Have your say

Please provide feedback on the REF by 28 August 2016, by sending your comments to:

Email: SportsmansCreekNewBridge@kbr.com

Mail: Sportsmans Creek bridge removal
Reply Paid 633, Brisbane QLD 4001

Phone: (02) 6640 1300
(between 8.30am and 4.30pm)

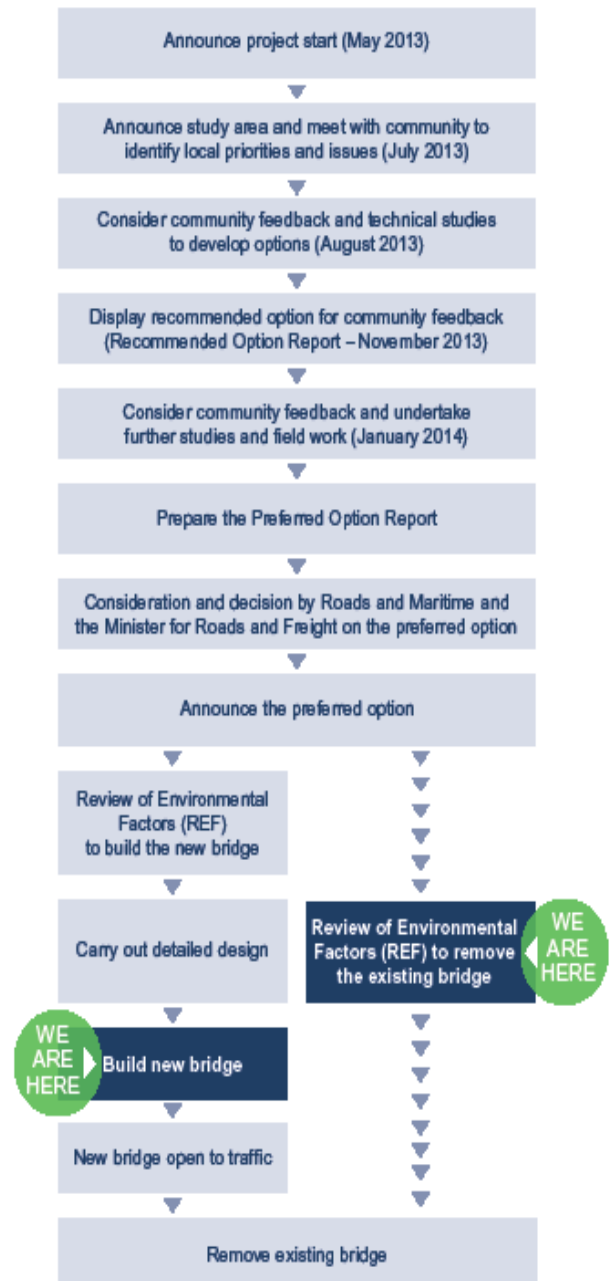
Feedback can also be submitted at the community information session.

What happens next?

All comments received will be considered before the bridge is removed.

A submissions report summarising the comments made during consultation and a response to each issue will be available later this year.

We will continue to keep the community updated as the project progresses.



For more information

For more information about the REF please contact Roads and Maritime Services Project Development Manager, David Andrews on:

Phone: 02 6640 1073

Email: David.K.Andrews@rms.nsw.gov.au

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rms.nsw.gov.au/sportsmans



1800 798 538 (toll free)



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