Albion Park Rail Bypass
Division 5.2 and EPBC Act Approval
Consistency assessment report
Yallah Road Underpass

Roads and Maritime Services | May 2019
## Document control

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1. Introduction

1.1 Background

Roads and Maritime Services (Roads and Maritime) completed an environmental impact statement of the Albion Park Rail bypass project (the Project EIS) in October 2015. The Project EIS identified a range of environmental, social and planning issues associated with the construction and operation of the Albion Park Rail bypass and proposed measures to mitigate and manage those potential impacts.

The Project EIS was publicly exhibited in October and November 2015. Following public exhibition, submissions from stakeholders were received and addressed by Roads and Maritime in the Submissions and Preferred Infrastructure Report (SPIR), with the Director-General/Secretary in September 2017. The SPIR also addressed changes to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) in relation to an ecological community known to occur within the area that had been listed as threatened in the legislation since the Project EIS was placed on public display.

The Minister for Planning approved the Albion Park Rail bypass under Part 5.1 (now Division 5.2) of the Environmental Planning and Assessment Act 1979 (EP&A Act) on 30 January 2018. The approval incorporated the Minister’s conditions of approval.

A modification under Section 5.2 of the EP&A Act to change conditions of approval E51 and E71 was subsequently considered and approved on 25 October 2018. The modification allowed the use of heavy vehicles prior to construction commencing but only in the event that works would not create a risk of damage to buildings and structures.

For the purposes of this consistency assessment, the Approval issued by the NSW Minister for Planning for the Albion Park Rail bypass and the approved modification are referred to as the Division 5.2 Approval.

The Albion Park Rail bypass was referred to the Australian Government Minister for the Environment and Energy under sections 130 (1) and 133 of the Commonwealth EPBC Act due to impacts associated with the removal of Illawarra and South Coast Lowlands Forest and Woodland (ILFW), habitat for the Grey-headed Flying Fox (Pteropus poliocephalus) and Large-eared Pied Bat (Chalinolobus dwyeri). The Australian Government Minister’s approval was received on 29 May 2018 subject to a number of conditions being met. For the purposes of this consistency assessment, the approval issued by the Australian Government Minister for the Environment and Energy for the Albion Park Rail bypass is referred to as the EPBC Approval.

Fulton Hogan was awarded the contract for the design and construction of the Albion Park Rail bypass. As part of the contract award, Fulton Hogan was able to undertake design refinements to the Project if they presented tangible benefits such as environmental, community, economic and safety improvements. Fulton Hogan’s subsequent detailed design therefore proposes an underpass beneath the main carriageway at Yallah Road, whilst the design presented in the Project EIS was for a bridge over the main carriageway at Yallah Road.

As the proposed design refinement involves changes to the Approved Project, Roads and Maritime has identified the need for a consistency assessment.
1.2 Purpose of consistency assessment

The purpose of this consistency assessment is to:

- Describe the proposed change relative to the Division 5.2 Approval and the EPBC Approval.
- Assess the environmental impacts associated with the proposed change relative to the Division 5.2 Approval and the EPBC Approval.
- Determine if the proposed change is consistent with the Division 5.2 Approval or whether further approval is required either for a modification application or a new project.
- Determine if the proposed change is consistent with the EPBC Approval. Or whether a variation to the conditions of approval / a conditioned action management plan or a new referral is required.
2. Proposed change

2.1 Description of proposed change

The concept design of Yallah Road bridge (BR05) assessed in the Project EIS and SPIR consisted of Yallah Road crossing over the mainline carriageway. Under this design, the over bridge consisted of a total bridge length of 95.14 m, 4-spans, 14.2 m wide, 5.4 to 9.8 m high and requiring 3 piers. Refer to Figure 1 and Figure 2 for an overview of the proposed bridge design change.

The design refinements propose for Yallah Road to cross under the mainline carriageway via an underpass under a single bridge span rather than a 4-span bridge which was proposed in the Project EIS and SPIR. According to this design, the mainline carriageway would pass over Yallah Road with a total bridge length of 28 m consisting of twin bridges with a single span each. The south bound bridge is 13.2 m wide and the north bound bridge is 15.2 m wide, 5.4 to 7.1 m high and requires no piers. The design refinements require larger fill embankments north and south of the mainline carriageway to provide increased vertical height clearance over Yallah Road and to assist with achieving braking distance compliance in wet weather conditions along downhill sections of the carriageway. Although the proposed design refinements require increased vertical height clearance, this has resulted in the cut depth at “Cut 1” (refer to Appendix B for location) being reduced from 12 m at its deepest for concept design to 8 m at its deepest for detailed design. The horizontal alignment of Yallah Road has also been refined to reduce skew to the mainline carriageway to assist with reducing the bridge span. However, the disturbance area east and west of the underpass along Yallah Road is reduced when compared to the previous design.
Figure 1: Artist’s impression of the twin bridges over Yallah Road from concept design (blue outline) to detailed design (red outline) including viewpoint.
2.2 Need

The Approved Project considered a conceptual design with sufficient flexibility to allow for its refinement during the detailed design stage. Following the publication of the Conditions of Approval (CoA), the concept design was reviewed to identify opportunities in design which would improve the delivery of the Project without increasing predicted environmental impacts.

The design refinements for Yallah Road bridge are proposed as they would:

- More easily cater for the future design capacity of four lanes on Yallah Road and reduce future construction impacts;
- Improve road user safety due to a gentler vertical geometry for Yallah Road and the mainline carriageway, increased sight distance to Yallah Road and the Transgrid access road and reduced slope on approach to the tie-in with the existing Princes Highway;
- Improve safety for flights from Illawarra Airport due to an improved vertical clearance of the Obstacle Limitation Surface (OLS);
- Reduce the disturbance required for construction;
- Reduce noise and vibration during construction by reducing the cutting in hard rock materials; and
- Contribute to a reduction in the duration of construction.
3. Consultation

Roads and Maritime has previously undertaken consultation with the community and government agencies regarding the Albion Park Rail bypass project during the Project EIS and SPIR. An Urban Design and Landscape Character Strategy (UDLCS) was developed for the Albion Park Rail bypass and was publicly exhibited in November and December 2018. The UDLCS describes how the new design elements of the Project will look and provides important information about modifications and design developments undertaken since the exhibition of the Project EIS and preliminary designs. The UDLCS defines key design features such as bridges and associated retaining walls, active transport links, earthworks and landform, and the landscape design. Subsequent community consultation has been undertaken regarding the proposed modification and broader Albion Park Rail bypass project as detailed in Table 3-1.

Table 3-1: Yallah community consultation regarding proposed design refinement

<table>
<thead>
<tr>
<th>Date</th>
<th>Consultation details</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2018</td>
<td>Community update containing information about design changes – letterbox dropped to 3,000 households</td>
</tr>
<tr>
<td>18 November 2018</td>
<td>Public community information session - Illawarra Convoy</td>
</tr>
<tr>
<td>19 November 2018</td>
<td>Website update – home page of the website was updated to include the latest community update, online survey, Urban Design and Landscape Character Strategy, display locations and project drop-in sessions, and how to submit feedback</td>
</tr>
<tr>
<td>29 November 2018</td>
<td>Public community information session – Albion Park Shopping Village</td>
</tr>
<tr>
<td>6 December 2018</td>
<td>Public community information session – Stockland Shellharbour</td>
</tr>
<tr>
<td>12 December 2018</td>
<td>Yallah resident’s community information session – The Woolshed</td>
</tr>
<tr>
<td>29 January 2019</td>
<td>Summary of meeting held on 12 December 2018 – Questions and Answers</td>
</tr>
<tr>
<td>27 March 2019</td>
<td>Yallah resident’s community information session</td>
</tr>
</tbody>
</table>

The Yallah resident’s community information session highlighted some key issues from the residents regarding operational traffic noise and visual amenity from the proposed design refinement and more broadly to the overall project. Following the information session, Roads and Maritime developed a community consultation summary document that included responses to questions raised and issued the document to the community (refer to Appendix A).

A second information session was held on Wednesday 27 March where approximately 18 residents from Larkins Lane and Condon Place, Yallah attended this information session. Previously raised concerns relating to consultation, design refinements, operational noise impacts and environmental impacts were discussed in more detail. Residents were provided with a brief update about construction and were provided an opportunity to speak with members of the project team directly about individual questions or concerns. Representatives from the project’s design, construction, environment and community relations teams were in attendance alongside client representatives from Roads and Maritime and the Project’s Environmental Representative. Representatives from the Department of Planning and Environment were also in attendance.
During the information session, residents were provided with an update about activities that have taken place in response to concerns that were raised at the initial information session in December. These activities include:

- review of the noise assessment at Yallah;
- additional pre-construction noise monitoring undertaken at a number of properties;
- further design refinements to minimise impacts to properties:
  - relocation of a variable messaging sign away from impacted properties;
  - relocation of a stopping bay from the southern side of the cutting;
  - relocation of an emergency ‘U-turn’ bay; and
  - adjustments to landscaping on the cut batters.
- review of fencing designs in response to safety concerns;
- options for a topsoil mound; and
- a sound lab to provide a better understanding of noise impacts.

In the week prior to the information session, a sound lab was held at the project’s community display centre for the purpose of providing Yallah residents with a better understanding of expected sound levels once the bypass is operational. The sound lab featured audio clips that compared sound levels with and without the bypass along with taking into consideration the proposed design refinements. The sound lab also compared expected sound levels between day and night once operational. Approximately 16 residents participated in this sound lab and were asked to complete feedback forms to rate the convenience of the information session, quality of materials, helpfulness and friendliness of staff and indicate their overall satisfaction with the information provided. The results indicated that residents found the session to be ‘good’ to ‘excellent’ overall with no ‘poor’ rating responses received.
4. Environmental assessment

An assessment has been undertaken to compare the environmental impacts of the proposed change relative to the environmental impacts of the project subject to the Division 5.2 Approval and the EPBC Approval. The assessment focuses only on the environmental issues and impacts relevant to the proposed change. The proposed changes do not relate to land use and property, air quality, socio-economic issues and cumulative impacts so these have been summarised in Table 4-5.

4.1 Biodiversity

The Project EIS and SPIR assessed potential impacts to terrestrial and aquatic flora and fauna during the construction and operation of the Approved Project. In particular, vegetation within the Yallah Road bridge (BR05) area predominantly consists of native vegetation classified as PCT 1326, Woollybutt – White Stringybark – Forest Red Gum grassy woodland on coastal lowlands, Southern Sydney Basin Bioregion and South East Corner Bioregion interspersed with cleared exotic grasslands. The area has historic and ongoing disturbances such as grazing, erosion and weed invasion that have had an impact on existing habitat condition. The Project EIS and SPIR also identified remnant patches of PCT 838, Forest Red Gum-Thin-leaved Stringybark grassy woodland on coastal lowlands, Southern Sydney Basin Bioregion as occurring within the Project footprint.

Both PCT 838 and PCT 1326 are associated with Illawarra Lowlands Grassy Woodland (ILGW) in the Sydney Basin Bioregion Endangered Ecological Community (EEC) listed under the now repealed Threatened Species Conservation Act 1995 (TSC Act) and as a Critically Endangered Ecological Community (CEEC) under the EPBC Act as ILFW. Refer to Figure 1 of Appendix B for locations of proposed design refinement and mapped environmental sensitivities.

The Project EIS and SPIR assessed all vegetation within the Project footprint as being cleared of vegetation with the exception of two environmental protection areas within proximity to the proposed design modification. However, in accordance with revised environmental management measure BR02, a comparison of the overall disturbance area and EEC / CEEC disturbance area from concept design to the proposed design refinement has been provided in Table 4-1.

The potential impacts identified in the Project EIS and SPIR are listed below with a brief discussion in relation to the proposed design refinement.

Table 4-1: Consistency of disturbance area from concept design to detailed design

<table>
<thead>
<tr>
<th>Formation area west of main alignment</th>
<th>Concept design – total disturbance area (m²)</th>
<th>Detailed design – total disturbance area (m²)</th>
<th>Total disturbance area variance (m²)</th>
<th>Concept design – total EEC / CEEC disturbance area (m²)</th>
<th>Detailed design – total EEC / CEEC disturbance area (m²)</th>
<th>EEC / CEEC disturbance area variance (m²)</th>
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<tr>
<td></td>
<td>11,457</td>
<td>9,847</td>
<td>-1,610</td>
<td>5,157</td>
<td>3,741</td>
<td>-1,416</td>
</tr>
<tr>
<td>Formation area east of main alignment</td>
<td>2,870</td>
<td>2,963</td>
<td>93</td>
<td>584</td>
<td>639</td>
<td>55</td>
</tr>
</tbody>
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Vegetation clearance and terrestrial habitat loss, including loss of EEC and CEEC: As outlined in Table 4-1, the proposed design refinement results in:

- increased disturbance area within the formation area north of BR05 (ch17500 - ch17775);
- decreased disturbance area within the formation area south of BR05 (ch17775 – ch18000);
- increased disturbance area within the formation area east of the main alignment (Yallah Road); and
- decreased disturbance area within the formation area west of the main alignment (Yallah Road).

The proposed design refinement would result in a total reduction of disturbance to native vegetation within areas identified as ‘ILGW’ or CEEC identified as ‘ILFW’. The proposed design refinement would therefore not increase native vegetation clearance or the loss of habitat (including EEC identified as ‘ILGW’ or CEEC identified as ‘ILFW’) greater than that which was assessed in the Project EIS and SPIR. Impacts to native vegetation (including EEC and CEEC) would be offset in accordance with the “Albion Park Rail bypass Biodiversity Offsets Strategy” (NGH Environmental, 4 September 2017).

Fragmentation and loss of connectivity: Within the Yallah Road bridge (BR05) area, the ILGW and ILFW currently persists as fragmented patches west of the existing highway with moderate to good condition ILGW and ILFW existing within and adjacent to the TransGrid site. The Albion Park Rail bypass would result in further fragmentation of these patches as assessed in the Project EIS and SPIR. However as outlined in Table 4-1, the proposed design refinements would not result in an additional disturbance area within areas identified as containing EEC / CEEC than that already considered and as such the proposed design refinement is not anticipated to increase fragmentation or loss of connectivity greater than that which was predicted in the Project EIS and SPIR and approved by the Department of Planning and Environment (DP&E).

Loss of threatened species and their habitats: The Project EIS and SPIR identified 180 flora species and 93 fauna species during the surveys. Of all the species recorded, two flora species and seven fauna species, are listed as threatened species, either under NSW or Commonwealth legislation. Of these, only the Eastern Flame Pea (Chorizema parviflorum) which is identified within the area of BR05 was identified as being likely to be adversely impacted by construction of the Albion Park Rail bypass. The Project EIS and SPIR identified up to 115 individuals of the Eastern Flame Pea considered for removal as part of construction of the Albion Park Rail bypass including within the area of BR05. The proposed design refinement would not increase this total.
The ILGW EEC and ILFW CEEC is considered habitat for the Eastern Flame Pea and other threatened species such as the Large-eared Pied Bat and Grey-headed Flying Fox, and as shown in Figure 1 (Appendix B), the proposed design refinement is entirely located within the Project boundary defined in the SPIR which was assessed all vegetation being cleared. Therefore the proposed design refinement is not anticipated to result in the loss of threatened species and their habitats greater than that which was considered in the Project EIS and SPIR.

Loss of habitat for migratory species: The Project EIS and SPIR identified four listed migratory species protected under international agreements of relevance to the project;

- Australian Painted Snipe (*Rostratula australis*);
- Great Egret (*Ardea alba*);
- Cattle Egret (*Ardea ibis*); and
- Latham's Snipe (*Gallinago hardwickii*).

The existing vegetation communities within the area of BR05 is not considered the preferred habitat of these species, which typically occur within permanent and ephemeral watercourses and wetlands. The Project EIS and SPIR concluded that minimal impact on these migratory species is expected and the design refinement does not increase the removal of habitat associated with these species. Therefore, the proposed design refinement is not anticipated to result in the loss of migratory species or their habitats greater than that which was assessed within the Project EIS and SPIR.

Invasion of exotic species: The proposed design refinement would result in a minor net decrease of total disturbance area of 159 m² in clearing of non-native pasture grasses and native vegetation. In addition, the design refinement is entirely located within the Project boundary which assessed all vegetation being cleared. Therefore, the proposed design refinement is not anticipated to increase the invasion of exotic species greater than that which has been predicted in the Project EIS and SPIR.

Reduction of water quality: Potential impacts to water quality are likely to be greatest during construction. The proposed design refinement requires a greater volume of material within the northern and southern embankments of the main carriageway. Potential impacts during construction would be managed in compliance with the Soil and Water Management Sub-plan and CoA E56, which requires the implementation of measures consistent with "Managing Urban Stormwater - Soils and Construction Volumes 1 and 2, 4th Edition" (Landcom, 2004) and "Managing Urban Stormwater - Soils and Construction Volumes 2A and 2D Main Road Construction" (Department of Environment and Climate Change, 2008). As the works would be within the existing construction area and potential water quality impacts can be managed, the proposed design refinement is not anticipated to impact water quality during construction greater than that which has been predicted in the Project EIS and SPIR.

As the proposed design refinement would not result in any significant additional biodiversity impacts as described above, additional site-specific management measures are not required.

### 4.2 Hydrology and flooding

The Project EIS and SPIR characterised the Albion Park Rail bypass as a coastal floodplain rising to a steep escarpment, resulting in generally fast onset of flooding following rainfall in the catchment. For the Yallah Road bridge (BR05), the relevant catchment is an unnamed tributary of Duck Creek. Floods tend to peak and subside relatively quickly, because of the topography and catchment size. Flood durations are in the order of hours rather than days or weeks. The South Coast Rail Line and the Princes Highway currently govern the way flooding occurs within the Duck Creek catchment in that they can impede the flow of water.

The Project EIS and SPIR highlighted for 100 year Annual Recurrence Interval (ARI) flood events, the banks of the unnamed tributary are overtopped and areas of rural and railway land adjacent to the tributary
are inundated. More specifically, water flows along the watercourse under the Yallah Road bridge (BR05) towards the railway culvert. In the 100 year ARI event, water within the watercourse is up to 1 m deep with velocity up to two metres per second. The Project EIS and SPIR therefore concluded that the Approved Project would not substantially change flow velocity or direction or flood duration.

The earthworks from proposed road design will fill one existing dam completely and another one partially. Two new detention basins have been proposed to provide compensatory storage. A flood assessment was conducted as part of detailed design to demonstrate compliance with the requirements for waterway openings in the flood bridges, inform cross drainage sizes, inform alignment levels in floodplain areas and provide evidence of flood impact conformance against the Project environmental requirements. The results of the flood assessment carried out for the proposed design refinement were compared against the concept design for flood immunity as summarised in Table 4-2 below.

Table 4-2: Flood immunity comparison from concept design to detailed design.

<table>
<thead>
<tr>
<th></th>
<th>Existing Case (No Albion Park Rail bypass Project)</th>
<th>Concept Design (Albion Park Rail bypass Project with an overpass at BR05)</th>
<th>Proposed Design Refinement (Albion Park Rail bypass Project with an underpass at BR05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Alignment</td>
<td>-</td>
<td>100 year ARI</td>
<td>100 year ARI</td>
</tr>
<tr>
<td>Yallah Road</td>
<td>Less than 10 year ARI</td>
<td>100 year ARI</td>
<td>20 year ARI</td>
</tr>
</tbody>
</table>

The flood immunity design criteria specified in the Project EIS is as follows:

- main carriageways – 100 year ARI desirable; and
- other roads – maintain or improve trafficability of existing local roads during floods

As outlined in Table 4-2, the flood assessment conducted as part of detailed design indicates that the proposed design refinement meets both sets of criteria and is therefore consistent with the performance criteria specified in the Project EIS.

The flood assessment indicates that filling of existing farm dams will not cause adverse impacts as the proposed design provides compensatory storage. Also, the catchment area at BR05 is small and the proposed design bridge refinement is not constricting a major flow path. The proposed design refinement also meets Roads and Maritime technical criteria for flood extent and afflux outside the Project boundary.

Property 1, as outlined in Figure 3, was assessed in the Project EIS as flood impacted above typically permitted levels. The flood assessment therefore considered potential impacts of the proposed design refinements and identified the flood impacts identified in Project EIS concept design would be reduced from the reported peak level of 13.0 m AHD for the 100 year ARI flood.
Additionally, as outlined in Table 4-1, the disturbance area within the formation area west of the main alignment along Yallah Road has decreased and the drainage design has not been substantially altered from that provided within the concept design. Even with the larger fill embankment north of BR05 (ch17500 -ch17775) and the smaller fill embankment south of BR05 (ch17775 – ch18000), the variance in disturbance area from the concept design to the proposed design modification is negligible (refer Table 4-1). Due to the minor change in disturbance areas, the proposed design refinement is therefore unlikely to result in a substantial change to the hydrology of the unnamed tributary of Duck Creek and the surrounding area as described in the Project EIS and SPIR.

As the proposed design refinement would not result in any substantial changes to previously assessed flooding impacts, additional site-specific management measures are not required.

4.3 Geology and soils

The bridge design refinement would not increase vegetation clearance greater than that which has been previously assessed, however the larger fill embankment north of the mainline carriageway increases the erosion and sediment risk posed to the tributary of Duck Creek. Potential impacts during construction are to be managed in compliance with “Managing Urban Stormwater - Soils and Construction Volumes 1 and 2, 4th Edition” (Landcom, 2004) and “Managing Urban Stormwater - Soils and Construction Volumes 2A and 2D Main Road Construction” (Department of Environment and Climate Change, 2008). During operations, the proposed design refinement does not increase the volume of surface water runoff from impervious surfaces nor does it increase the frequency or velocity of runoff.

As the proposed design refinement would not result in any additional soil and water quality impacts, additional site-specific management measures are not required.
4.4 Airspace protection

The existing Princes Highway passes next to the northern boundary of Illawarra Regional Airport. The roundabout intersection with the Illawarra Highway is some 260 m north of the Runway 16 obstacle limitation surface threshold. The terrain surrounding the airport is undulating, with substantial hills about 3 km south-south-east and 4 km south-south-west. The Illawarra Escarpment is about 10 km west of the Illawarra Airport. As a result of these terrain features, the Runway 34 approach is offset five degrees to the west. The approach gradients for both Runway 16 and Runway 34 are raised from the standard three degrees to avoid the surrounding terrain. Council has prepared ‘aspirational’ OLS that meet code 3 standards.

During construction, the Project EIS and SPIR noted that works in some areas would require closer examination during planning to ensure construction equipment such as piling rigs, cranes, concrete pumps and similar equipment does not intrude into the operational airspace. This included construction of the motorway between the point where Yallah Road crosses the motorway. It was concluded that the construction of the Bridge BR05 over the motorway at Yallah Road would likely intrude into the OLS and therefore require substantial planning and management to avoid unacceptable impacts on airport operations. The construction methodology associated with the proposed design refinement would not substantially change from that considered in the Project EIS and SPIR and therefore plant and equipment would need to be subject to assessment on a case-by-case basis.

Operationally for the concept design, the Project EIS and SPIR noted that clearance is not possible on Yallah Road around 120 m to the east of the Larkins Lane intersection where the new road alignment for Yallah Road joins the existing road level which is only 3 m below the aspirational obstacle limitation surface. It was concluded that the concept design does not produce a greater intrusion than the existing situation.

The proposed Yallah Road bridge design refinement improves the vertical clearance to the OLS and shall provide a minimum vehicle envelope of 4.6 m. The design refinement achieves this minimum clearance requirement with the exception of locations where the design ties into existing levels at the extents of works and the existing clearance does not meet this requirement, however this is consistent with the concept design assessed in the Project EIS and SPIR.

As the proposed design refinement would not result in any additional aviation impacts, additional site-specific management measures are not required.

4.5 Noise and vibration

The nearest residential receivers range from about 40-500 m from the western side of the project boundary on Larkins Road and highlighted as Noise Catchment Area 13 (NCA13) within the Project EIS and SPIR. The nearest commercial buildings are situated about 10 m from the eastern side of the project boundary along the Princes Highway and are assigned as Noise Catchment Area 12 (NCA12) within the Project EIS and SPIR (refer to Figure 1 in Appendix B). Operational traffic noise criteria are assigned to sensitive receivers using the Roads and Maritime Noise Criteria Guideline, 2015 (NCG). The Roads and Maritime NCG provides guidance on how to apply the NSW Road Noise Policy, 2011 (RNP).

The proposed bridge design refinement does not require an adjustment to the construction methodology. On the basis that there is no change in construction methodology, the shorter bridge length would require less time to construct and the construction activities described in the Project EIS and SPIR would occur within the same area used to determine potential construction noise and vibration impacts.

The Project EIS and SPIR assessed and determined the safe working distances for vibration intensive plant that would be used during each phase of the Project. It was identified that the primary form of vibration mitigation is to minimise vibration intensive works within assessed safe working distances. The most
conservative safe working distance to avoid structural damage (i.e. greatest buffer that should be applied during construction) is 25 m. The nearest residential receivers are about 40 m from closest point to the nearest road works activities and are approximately 1.5 times the safe working distance. The nearest commercial premises are within the 25 m area and run a medium risk of structural damage and high risk human of disturbance when occupied. The Project EIS and SPIR recommended preparation of a Construction Noise and Vibration Management Plan that outlines dilapidation survey and vibration monitoring requirements. Additionally, the cut ratios have been reduced potentially lessening the need for vibration intensive activities such as blasting and rock breaking within the locality. This would result in a net benefit to surrounding sensitive receivers. The proposed bridge design refinement would not substantially alter the distances to sensitive receivers and would reduce the need for blasting and rock breaking within the locality. Consequently, the proposed bridge design refinement is not anticipated to alter predicted construction noise and vibration impacts greater than those already documented.

Operational noise impacts were calculated in the Project EIS and SPIR using SoundPLAN software to predict likely noise emission levels. This software utilises an algorithm and multiple inputs to predict noise emission levels according to the scenarios required for the assessment. Accordingly, key inputs which drive the outcomes of this software include traffic volumes, geographic and topographic features, ground absorption rates and assumed correction factors to calibrate the model. The Project EIS and SPIR highlighted that a total of 15 properties in NCA12 and 21 properties in NCA 13 are to be considered for at-house property treatment. Subsequent to the Project EIS and SPIR and in accordance with conditions E46 and E47, an Operational Noise Mitigation Report was prepared by Resonate in March 2019 (ONMR).

The proposed design refinement has reduced the vertical cut depth by approximately 4 m (i.e. from 12 m at its deepest for concept design to 8 m at its deepest for detailed design). As outlined within the ONMR, this has resulted in localised increases in noise levels of approximately 2 dB to 3 dB relative to the Project EIS and SPIR. This however does not result in further sleep disturbance events or trigger the requirement for a noise barrier or any additional at-residence treatments being required in NCA13 in comparison to those identified in the SPIR (ONMR, 2019). Notwithstanding, a noise barrier assessment was completed by Resonate for NCA13 to further inform this consistency assessment. A noise barrier was investigated in the south of NCA13, extending from the southern end of Cut 1 to the northern end of Bridge 6 over Macquarie Rivulet (BR06). Two barrier locations were reviewed, one terminating at the top of Cut 1 (barrier height 6.5 m) and the other terminating at the base of Cut 1 (barrier height 7.5m). A noise barrier was also considered in the north of NCA 13 between BR05 and the northern extent of Cut 1 located on the western edge of the bypass (barrier height 8 m). The noise barriers assessed were not considered feasible in accordance with the requirements of the Roads and Maritime Noise Mitigation Guideline (NMG) as they did not achieve the required noise insertion losses (i.e. noise reductions). This result is consistent with the EIS and SPIR.

As outlined in the SPIR, reduction of the likelihood of sleep disturbance events is typically provided by programs to reduce truck exhaust brake noise through management of driver behaviour and appropriate design of new vehicles. Additionally, the design includes a low noise stone mastic asphalt road surface for the main carriageway Yallah Road and Princes Highway at Oaks Flat which may be considered a low noise road surface with a correction factor of -2 dB. Consequently, the proposed bridge design refinement is not anticipated to substantially alter predicted operational noise impacts or requirements for noise barriers or property noise treatments as determined in the Project EIS and SPIR.

As the proposed design refinement would not result in any additional construction or operational noise and vibration impacts, additional site-specific management measures are not recommended.

4.6 Traffic, transport and access

The Project EIS and SPIR acknowledged that construction activities could impact highway, regional and local traffic resulting in travel time delays and a temporary decrease in the road network performance. The proposed design refinement reduces the cut volumes at “Cut 1” therefore requiring less truck movements to remove the fill previously created, however there would be increased fill requirements immediately north of
the Yallah Bridge (BR05). In totality, the proposed design refinement is not anticipated to substantially increase construction traffic volumes, nor would it require new construction routes or alter predicted impacts on the road network performance greater than those already documented in the Project EIS and SPIR. The proposal would also provide positive safety benefits due to a reduced vertical downgrade on approach to the tie-in with the existing Princes Highway, improved accessibility and sight distance to Yallah Road and the Transgrid access road, future upgrade paths for the Yallah Road intersection and overall gentler vertical geometry.

The proposed design refinement would result in a shorter bridge length which would not compromise traffic safety guidelines. The proposal would not change existing external access to local properties greater than those already documented in the Project EIS and SPIR. Therefore, the proposed design refinement does not introduce new or increase previously assessed impacts to external access.

As the proposed design refinement would not result in any additional traffic, transportation and access impacts, additional site-specific management measures are not recommended.

### 4.7 Aboriginal cultural heritage

The Project EIS and SPIR identified 21 Aboriginal cultural heritage sites within the Approved Project area. Of these, four are located in the vicinity of Yallah Road Bridge (BR05) and were determined to contain subsurface artefacts.

The location of these relevant Aboriginal heritage recordings are shown in Figure 1 (Appendix B).

The Project EIS and SPIR assessed all areas within the Project boundary as being disturbed and therefore impacts to Aboriginal heritage recordings within this area as also being impacted. Table 4-3 provides a summary of the anticipated construction related impacts to these recorded Aboriginal heritage recordings as a result of the Approved Project, while also capturing any greater or lesser impacts as a result of the proposed design refinements.

**Table 4-3: Anticipated construction related impacts to relevant Aboriginal heritage recordings as a result of the Approved Project and proposed bridge design refinements.**

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Recording type</th>
<th>Overall significance assessment</th>
<th>Direct impact - Approved Project</th>
<th>Degree of impact – Approved Project</th>
<th>Impact from design refinements</th>
</tr>
</thead>
<tbody>
<tr>
<td>52-5-0484 / 52-2-0512</td>
<td>Archaeological deposit</td>
<td>Low</td>
<td>Yes</td>
<td>Partial</td>
<td>No change</td>
</tr>
<tr>
<td>52-5-0473</td>
<td>Archaeological deposit</td>
<td>Low (potentially destroyed)</td>
<td>No</td>
<td>Nil</td>
<td>No change</td>
</tr>
<tr>
<td>YTOF AS 2</td>
<td>Archaeological deposit</td>
<td>Low</td>
<td>Yes</td>
<td>Partial</td>
<td>No change</td>
</tr>
<tr>
<td>YTOF AS 7</td>
<td>Archaeological deposit</td>
<td>Low</td>
<td>Yes</td>
<td>Total</td>
<td>No change</td>
</tr>
</tbody>
</table>

As outlined in Table 4-3, the proposed bridge design refinement would result in no change to the impacts already considered during the Project EIS and SPIR. Consequently, as the proposed bridge design refinement would not result in any significant additional impact on Aboriginal heritage recordings, additional site-specific management measures are not required.
4.8 Non-Aboriginal heritage

The Project EIS and SPIR identified six non-Aboriginal heritage recordings and three areas of archaeological potential within the Approved Project area that were found to have heritage significance and are classed as non-Aboriginal heritage items. Of these, the potential remains of the former Yallah Platform (no listing) and 6437-House, Princes Highway, Yallah listed under the Wollongong Local Environmental Plan 2009 (local listing) were identified as occurring within proximity to the Yallah Road Bridge (BR05).

The location of the former Yallah Platform is shown in Figure 1 (Appendix B).

The Project EIS and SPIR assessed all areas within the Project boundary as being disturbed and therefore impacts to non-Aboriginal heritage sites within this area as also being impacted. Table 4-4 provides a summary of the anticipated construction related impacts to the non-Aboriginal heritage recording as a result of the Approved Project, while also capturing any greater or lesser impacts as a result of the proposed bridge design refinements.

Table 4-4: Anticipated construction related impacts to relevant non-Aboriginal heritage recordings as a result of the Approved Project and proposed bridge design refinement.

<table>
<thead>
<tr>
<th>ID</th>
<th>Name / Location</th>
<th>Description</th>
<th>Significance</th>
<th>Direct impact - Approved Project</th>
<th>Degree of impact – Approved Project</th>
<th>Impact from design refinements</th>
</tr>
</thead>
<tbody>
<tr>
<td>6437</td>
<td>House, Princes Highway, Yallah</td>
<td>Late 19th century to early twentieth century homestead.</td>
<td>Local</td>
<td>No</td>
<td>Visual (moderate)</td>
<td>No change</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The works would take place directly outside of the item’s property boundary (west of the item). Therefore, views from the property would be impacted.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yallah Platform (former)</td>
<td>The Yallah Railway platform was completed in 1887 under the name ‘Albion Park’. The platform was associated with the Kiama railway extensions and renamed ‘Yallah’ in 1888</td>
<td>Not listed</td>
<td>Yes – item has been previously salvaged and remaining items are not considered to have local or state significance as they are classified as works under the Heritage Act 1977</td>
<td>Potential to uncover post holes, sleepers or rails.</td>
<td>No change</td>
</tr>
</tbody>
</table>

As outlined in Table 4-4, the proposed bridge design refinement would result in no change to the impacts already considered during the Project EIS and SPIR. Consequently, as the proposed bridge design
refinement would not result in any significant additional impact on non-Aboriginal heritage items or archaeological remains, additional site-specific management measures are not required.

4.9 Landscape and visual impacts

The Project EIS and SPIR explain that during construction, the greatest visual impact would occur following the removal of existing vegetation and prior to landscaping works. Construction works and new road infrastructure would be clearly visible during this stage of the project. It is also explained that during operations, the Approved Project would introduce new road infrastructure into the landscape of rolling green pastures. The scale of the project would be substantial and located close to residential dwellings thereby receiving a moderate impact potential following a viewpoint analysis.

During construction, the proposed bridge design refinement would not significantly increase the loss of visual amenity and landscape character on the basis that there would be no additional native vegetation clearance greater than previously assessed. Therefore, visual impacts from construction are not anticipated to be greater than those previously assessed.

The Yallah Road bridge (BR05) is viewed by residential receivers between 40-500 m from the western side of the project boundary. Consequently, significant effort has been spent in design to minimise its visual impact. Refer to Figure 4 and Figure 5 which highlight the elevation and design element variance from the concept design and proposed design refinement. Following public exhibition of the UDLCS and community consultation undertaken to date (refer to Section 3), visual amenity impact remains an ongoing concern. The UDLSC contained the proposed design refinement as a change from the EIS and summarised that the planned revegetation along the embankments of the mainline carriageway would reinforce the existing vegetation within the landscape and reduce the visual mass of the bridge and road formation during operations. This is proposed to be achieved by using vegetation to help conceal or frame views along the route as it traverses through the different landscape settings and would reflect the spatial experience of forested lands with views framed by vegetation contrasting with the open floodplain landscape where views are expansive and panoramic once operational (refer to Figure 2).

The east-west embankments along Yallah Road have been substantially reduced whilst the northern and southern embankments have been enlarged to cater for the mainline carriageway bridge. Cut 1 depths have also been reduced to a minor extent to cater for the additional height of the mainline carriageway (refer to Appendix B for Cut 1 extent changes) which would not result in substantial additional visual impacts to that previously considered in the Project EIS and SPIR. As detailed within the UDLCS, the proposed design refinement of an underpass under the motorway would connect communities in Yallah on either side of the motorway. With the planned future development of the area west of the bypass, the population of Yallah and Haywards Bay is expected to expand greatly. This underpass will therefore provide important local connectivity in the future and also relates more to the local context and setting.

![Figure 4: Artist’s EIS Concept Design elevation of Bridge over M1 at Yallah Road (not to scale)](image-url)
The proposed design refinement as outlined in Figure 1 and Figure 2, would result in potentially increased visibility of the mainline carriageway for some properties on Larkins Lane, however this is mitigated by the reduction in visibility of the east-west alignment of Yallah Road and the associated overpass bridge assessed in the Project EIS and SPIR. In addition, the road corridor planting would screen sections of the mainline carriageway resulting in partial views only.

On the basis that the bridge design refinement results in a minor alteration in the visual perception of the Yallah Road Bridge (BR05), residential receivers are not anticipated to experience substantial additional visual amenity impacts greater than that considered in the Project EIS and SPIR. As the proposed bridge design refinement would not result in any significant landscape and visual impacts, additional site-specific management measures are not required.

### 4.10 Other impacts

**Table 4-5 Environmental assessment of the proposed change**

<table>
<thead>
<tr>
<th>Environmental issue</th>
<th>Consideration of the relative environmental impacts of the proposed modification compared to the Division 5.2 Approval and EPBC Approval</th>
</tr>
</thead>
</table>
| Air quality         | Construction: during operation of plant and equipment vehicle emissions would be generated during construction. Additionally, ground disturbance activities could result in generation of dust emissions to the surrounding environment. These potential impacts are consistent with those considered within Section 18 of the Project EIS and Section 5.5.10 of the SPIR. The safeguards and management measures in Table 5.30 of the SPIR will be adequate to manage these impacts.  
  
Operation: There would be minor air quality impacts associated with operating the proposed design modification however this does not substantially vary from that considered in the Project EIS and SPIR. The safeguards and management measures in Table 5.30 of the SPIR will be adequate to manage potential operational impacts. |
<table>
<thead>
<tr>
<th>Environmental issue</th>
<th>Consideration of the relative environmental impacts of the proposed modification compared to the Division 5.2 Approval and EPBC Approval</th>
</tr>
</thead>
</table>
| Socio-economic      | Construction: there would be minor socio-economic issues associated with constructing the proposed design modification however this does not substantially vary from that considered in the Project EIS and SPIR such as from temporarily limiting access to properties or interrupting utility services during construction which may interrupt business operations. The potential impacts are consistent with those considered within Section 13 of the Project EIS and Section 5.5.7 of the SPIR. The safeguards and management measures in Table 5.30 of the SPIR will be adequate to manage these impacts.  
Operation: there would be minor socio-economic issues associated with operating the proposed design modification however this does not substantially vary from that considered in the Project EIS and SPIR. The safeguards and management measures in Table 5.30 of the SPIR will be adequate to manage potential operational impacts. |
| Cumulative impacts  | Construction: the detailed design takes into consideration future projects being planned in the locality so that any potential cumulative impacts are avoided or minimised. The potential impacts of the proposed design modification is consistent with those assessed within Section 21 of the Project EIS and 5.5.10 of the SPIR. The safeguards and management measures in Table 5.30 of the SPIR will be adequate to manage cumulative impacts.  
Operation: There would be minor additional cumulative impacts associated with operating the proposed design modification however this does not substantially vary from that considered in the Project EIS and SPIR. |
### 5. Consistency assessment – the Division 5.2 Approval

#### 5.1 Minister’s Conditions of Approval

The proposed change has been assessed in Table 5-1 in relation to the relevant conditions of approval.

**Table 5-1: Consistency against relevant Minister’s conditions of approval for the project**

<table>
<thead>
<tr>
<th>No.</th>
<th>Condition of Approval</th>
<th>Discussion</th>
<th>Consistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>The SSI must be carried out in accordance with; (a) the description of the SSI in the EIS as amended by the SPIR; and (b) the terms of this approval.</td>
<td>All works associated with the proposed bridge design refinement are consistent with the description and potential impacts with those considered in the Project EIS and SPIR as outlined in Section 4. The Conditions of Approval (CoA) for the project relate to administrative conditions, specific environmental conditions, environmental monitoring and auditing, compliance monitoring and tracking, community information, consultation and involvement, and environmental management. The proposed bridge design refinement is consistent with the individual CoA. These conditions can be complied with and none require modification to allow the proposed design refinements to be adopted.</td>
<td>Yes</td>
</tr>
<tr>
<td>A2</td>
<td>The SSI must be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the EIS as amended by the SPIR unless otherwise specified in, or required under, this approval.</td>
<td>The proposed bridge design refinement is consistent with the individual environmental management measures. These measures can be complied with and none require modification to allow the proposed design refinements to be adopted. The proposed bridge design refinement is consistent with the approved environmental management plans and no major revisions are proposed.</td>
<td>Yes</td>
</tr>
<tr>
<td>E1</td>
<td>In addition to the performance outcomes, commitments and mitigation measures specified in the EIS as amended by the SPIR, all feasibly and reasonably practicable measures must be implemented to</td>
<td>The proposed bridge design refinement would not result in substantial additional impacts already considered during the Project EIS and SPIR. The existing mitigation measures are therefore suitable to</td>
<td>Yes</td>
</tr>
<tr>
<td>No.</td>
<td>Condition of Approval</td>
<td>Discussion</td>
<td>Consistent</td>
</tr>
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</tr>
<tr>
<td>E2</td>
<td>minimise the emission of dust and other air pollutants during works and operation of the SSI.</td>
<td>appropriately manage potential impacts.</td>
<td>Yes</td>
</tr>
<tr>
<td>E11</td>
<td>The SSI must be delivered and operated to comply with the Code 2 (Runway 08/26) and Code 3 (Runway 16/34) OLS for the Illawarra Regional Airport, except as provided for under Condition E3 and Condition E7.</td>
<td>The proposed Yallah Road bridge design refinement improves the vertical clearance to the OLS and shall provide a minimum vehicle envelope of 4.6 m. The design refinement achieves this minimum clearance requirement with the exception of locations where the design ties into existing levels at the extents of works and the existing clearance does not meet this requirement, however this is consistent with the concept design assessed in the Project EIS and SPIR.</td>
<td>Yes</td>
</tr>
<tr>
<td>E17</td>
<td>The design of the motorway must achieve a 100 year ARI flood immunity (minimum) for the extent of the SSI, except for the low point south of the existing Duck Creek bridge which must achieve a 50 year ARI flood immunity.</td>
<td>As summarised in Table 4-2, the proposed Yallah Road bridge design refinement meets the 100 year ARI flood immunity for the mainline carriageway as required by E17 and therefore no change to that considered during the Project EIS and SPIR.</td>
<td>Yes</td>
</tr>
<tr>
<td>E26</td>
<td>Impacts to heritage, unless approved, must be avoided and minimised. Where impacts are unavoidable, works must be undertaken in accordance with the Construction Heritage Management Sub Plan required by Condition C4(e), except those within the Croom Regional Sporting Complex.</td>
<td>The proposed bridge design refinement would not result in a change to the impacts already considered during the Project EIS and SPIR.</td>
<td>Yes</td>
</tr>
<tr>
<td>E28</td>
<td>The Proponent must implement the mitigation measures described in: (a) Tables 11 and 12 of the Albion</td>
<td>The proposed bridge design refinement is wholly located within the Project boundary that considered the</td>
<td>Yes</td>
</tr>
<tr>
<td>No.</td>
<td>Condition of Approval</td>
<td>Discussion</td>
<td>Consistent</td>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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<tr>
<td></td>
<td><em>Park Rail Bypass SPIR, Appendix G Addendum Statement of Heritage Impact, September 2017; and (b) Table 6 and section 7.0 of the Albion Park Rail Bypass Project PACHCI Stage 3, Aboriginal Cultural Heritage Assessment Report, Report to HCJV, October 2015.</em> except as required by this approval.</td>
<td>entire area as requiring disturbance. Therefore there would be no change to that considered in the Project EIS and SPIR.</td>
<td></td>
</tr>
<tr>
<td>E41</td>
<td>The SSI must be delivered with the aim of achieving the following vibration goals: (a) for structural damage to heritage structures, the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration – Part 3 Effects of vibration on structures; (b) for damage to other buildings and/or structures, the vibration limits set out in the British Standard BS 7385-1:1990 – Evaluation and measurement of vibration in buildings—Guide for measurement of vibration and evaluation of their effects on buildings (and referenced in Australian Standard 2187.2 – 2006 Explosives – Storage and use – Use of explosives); and (c) for human exposure, the acceptable vibration values set out in Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006).</td>
<td>The most conservative safe working distance to avoid structural damage (i.e. greatest buffer that should be applied during construction) is 25 m. The nearest residential receivers are about 40 m from closest point to the nearest road works activities and are approximately 1.5 times the safe working distance. The nearest commercial premises are within the 25 m area and run a medium risk of structural damage and high risk human of disturbance when occupied. The Project EIS and SPIR recommended preparation of a Construction Noise and Vibration Management Plan that outlines dilapidation survey and vibration monitoring requirements. The proposed bridge design refinement would not substantially alter the distances to sensitive receivers or the proposed construction methodology. Consequently, the proposed bridge design refinement is not anticipated to alter predicted construction noise and vibration impacts greater than those already documented.</td>
<td>Yes</td>
</tr>
<tr>
<td>E49</td>
<td>Unencumbered access to private property must be maintained during construction, unless otherwise agreed with the landowner in advance. A landowner’s access that is physically affected by the SSI must be reinstated to at least an equivalent standard, in consultation with the landowner.</td>
<td>The proposal would not change existing external access to local properties greater than those already documented in the Project EIS and SPIR. Therefore, the proposed design refinement does not introduce new or increase previously assessed impacts to external access.</td>
<td>Yes</td>
</tr>
<tr>
<td>E56</td>
<td>Erosion and sediment controls must be installed and appropriately maintained to minimise water pollution. When implementing such controls, any relevant guidance in the <em>Managing...</em> is to be followed.</td>
<td>The proposal would not substantially alter the overall disturbance area or vegetation clearance to that already documented in the Project EIS and SPIR. Therefore, the proposed design...</td>
<td>Yes</td>
</tr>
</tbody>
</table>
The proposed change can be accommodated within the conditions of approval.

5.2 Statement of Commitments / environmental management measures

The proposed change has been assessed in Table 5-2 in relation to the relevant environmental management measures in the context of the Division 5.2 Approval.

Table 5-2: Consistency against relevant environmental management measures

<table>
<thead>
<tr>
<th>No.</th>
<th>Mitigation measure</th>
<th>Discussion</th>
<th>Consistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT04</td>
<td>The detailed design of the project will comply with the airspace operational requirements of the Shellharbour City Council for the Illawarra Regional Airport.</td>
<td>The proposed Yallah Road bridge design refinement improves the vertical clearance to the OLS and shall provide a minimum vehicle envelope of 4.6 m. The design refinement achieves this minimum clearance requirement with the exception of locations where the design ties into existing levels at the extents of works and the existing clearance does not meet this</td>
<td>Yes</td>
</tr>
<tr>
<td>No.</td>
<td>Mitigation measure</td>
<td>Discussion</td>
<td>Consistent</td>
</tr>
<tr>
<td>-----</td>
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<td>------------</td>
</tr>
<tr>
<td>BD02</td>
<td>The detailed design and construction planning will demonstrate that it has sought to minimise the extent of vegetation clearing within the project boundary. The detailed design will demonstrate it has minimised the amount of clearing of the Eastern Flame Pea and endangered ecological communities in particular.</td>
<td>requirement, however this is consistent with the concept design assessed in the Project EIS and SPIR. As noted in Section 4.1, the Project EIS and SPIR assessed all vegetation within the Project boundary as being cleared of vegetation and the proposed bridge design refinement would not alter this outcome. Also, as identified in Table 4-1, the proposed bridge refinement would improve the ability to minimise the extent of vegetation to that already documented in the Project EIS and SPIR.</td>
<td>Yes</td>
</tr>
<tr>
<td>LC02</td>
<td>The detailed design will minimise visual impacts and demonstrate integration of urban design principles and objectives adopted for the project. Detailed design of structural elements, including noise barriers, bridges, retaining walls and retaining walls finishes, will be in accordance with Beyond the Pavement, urban design policy, procedure and design principles (Roads and Maritime, 2014b) and the associated design guidelines. The proposed bridge design refinement as outlined in Figure 1, Figure 2 and further provided in Appendix B, would result in increased visibility of the mainline carriageway for some properties on Larkins Lane however this is mitigated by the reduction in visibility of the east-west alignment of Yallah Road and the associated overpass bridge assessed in the Project EIS and SPIR. In addition, the road corridor planting would screen sections of the mainline carriageway resulting in partial views only. On the basis that the bridge design refinement results in a minor shift in the visual perception of the Yallah Road Bridge (BR05), residential receivers are not anticipated to experience a change in visual amenity greater than that reported in the Project EIS and SPIR</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>SW01</td>
<td>Industry standard erosion and sediment controls will be designed and implemented in accordance with the following specifications and guidelines: - Managing Urban Stormwater: Soils and Construction (Landcom, 2004) - Roads and Maritime’s Erosion and Sedimentation Management Procedure (PN143) - Roads and Maritime’s Soil and Water Management Specification (G38) - The NSW Office of Water’s The proposal would not substantially alter the overall disturbance area or vegetation clearance to that already documented in the Project EIS and SPIR. Therefore, the proposed design refinement does not introduce new or increase previously assessed impacts to soil and water quality. Controls to be implemented as outlined in the Soil and Water Management Sub-plan.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Mitigation measure</td>
<td>Discussion</td>
<td>Consistent</td>
</tr>
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</tr>
<tr>
<td>GW02</td>
<td>guidelines for Controlled Activities. These controls will be established before the start of construction and maintained in effective working order for the duration of the construction period until the site is restored.</td>
<td>The proposal would not substantially alter the amount of groundwater intercepted or the ability to explore options to reintroduce intercepted groundwater as required by this condition.</td>
<td>Yes</td>
</tr>
<tr>
<td>GW02</td>
<td>The design will investigate options to reintroduce intercepted groundwater to the groundwater system.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The proposed change is consistent with the environmental management measures incorporated as part of the Division 5.2 Approval.
5.3 Project objectives

The principle objectives of the Albion Park Rail bypass are detailed within Section 3.3 of the Project EIS and include:

- **Provide a motorway standard bypass of Albion Park Rail;**
  - Motorway standard refers to dual carriageway with a design speed of at least 100 km per hour and access / egress only provided at grade-separated interchanges.

- **Provide a minimum 20 year average recurrence interval flood immunity;**
  - To ensure that the motorway can remain open in a flood event that occurs on average once every 20 years.

- **Provide access for A-double vehicles;**
  - A-double vehicles incorporate two trailers that can each carry a full-length shipping container. While these vehicles are not commonly used, the project is designed to accommodate them to provide maximum flexibility into the future.

- **Provide east-west connectivity for current and future land use;**
  - To maintain efficient motor vehicle, cycle and pedestrian movements across the project.

The proposed change supports the project objectives. As such the proposed change is consistent with the project objectives.

5.4 Consistency questions – the Division 5.2 Approval

Table 5-3 presents a set of questions that assist Roads and Maritime to determine whether the proposed change can be considered consistent with the Division 5.2 Approval.

<table>
<thead>
<tr>
<th>Consistency question</th>
<th>Discussion</th>
<th>Consistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is the proposed change likely to result in changes to the scope and impacts of the project to an extent that would be considered a radical transformation of the project as a whole, as to be, in reality, an entirely new project?</td>
<td>The proposed design refinement involves an alternative design of Yallah Road bridge (BR05) as outlined in Section 2 of this document with negligible additional environmental impacts anticipated. The proposed bridge design refinement does not alter the key elements of this section of the Approved Project but does provide significant cost, safety, environment and time benefits without introducing significant new or additional environmental impacts. Consequently, the proposed bridge design refinement is not a radical transformation of the project as a whole.</td>
</tr>
<tr>
<td>Consistency question</td>
<td>Discussion</td>
<td>Consistent</td>
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</tr>
<tr>
<td>2  Would any conditions of approval need to be amended in light of the change?</td>
<td>The CoA for the project relate to administrative conditions, specific environmental conditions, environmental monitoring and auditing, compliance monitoring and tracking, community information, consultation and involvement, and environmental management. As considered and assessed in Section 5.1 of this document, the proposed bridge design refinement is consistent with the individual Conditions of Approval. These conditions can be complied with and none require modification to allow the proposed design refinements to be adopted.</td>
<td>Yes</td>
</tr>
<tr>
<td>3  Would the statement of commitments or environmental management measures need to change?</td>
<td>As considered and assessed in Section 4 and 5.2 of this document, all works associated with the proposed bridge design can be carried out without need to refine, alter or substantially change environmental management measures.</td>
<td>Yes</td>
</tr>
<tr>
<td>4  Would the proposed change be ‘generally in accordance with’ the documents incorporated in Standard Condition A1 (or A2)?</td>
<td>As outlined in Standard Condition A1, the Approved Project must be carried out in accordance with the EIS as amended by the SPIR and the terms of the Division 5.2 Approval. The CoA for the project relate to administrative conditions, specific environmental conditions, environmental monitoring and auditing, compliance monitoring and tracking, community information, consultation and involvement, and environmental management. The proposed bridge design refinement is consistent with the individual Conditions of Approval. These conditions can be complied with and none require modification to allow the proposed design refinements to be adopted. All works associated with the proposed bridge design refinement are consistent with the description and potential impacts with those considered in the Project EIS and SPIR as outlined in Section 4.</td>
<td>Yes</td>
</tr>
<tr>
<td>5  Would the environmental impacts of the project as a whole be altered by the proposed change to the extent that the proposed change would not be consistent with the Approval?</td>
<td>An assessment has been undertaken (refer to Section 4) to compare the environmental impacts of the proposed bridge design refinement relative to the environmental impacts of the Approved Project. The proposed bridge design refinements were determined to have no significant new or additional environmental impacts when compared to the Approved Project, on all environmental matters that were considered.</td>
<td>Yes</td>
</tr>
<tr>
<td>Consistency question</td>
<td>Discussion</td>
<td>Consistent</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
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</tbody>
</table>
| 6 Considering the project as a whole, would the magnitude of the change be viewed as consistent with the project? | All works associated with the proposed bridge design refinement are:  
  - Being carried out as part of the approved Albion Park Rail Bypass Project;  
  - Located within the Approved Project boundary, the subject of the Project EIS and SPIR; and  
  - Generally in accordance with Schedule 2 of the Division 5.2 Approval  
  Additionally, the proposed design refinement is consistent with the objectives of the Project EIS as outlined in Section 5.3 of this document and the potential environmental impacts considered in the Project EIS and SPIR as outlined in Section 4 of this document.  
  Consequently, the proposed bridge design refinement is consistent with the project as a whole. | Yes         |
## 6. Consistency assessment – EPBC Approval

### 6.1 Commonwealth Minister’s Conditions of Approval

Table 6-1 below addresses those conditions of approval relevant to the proposed change in the context of the Commonwealth Approved Project.

Table 6-1: Consistency against relevant Commonwealth Minister’s conditions of approval for the project

<table>
<thead>
<tr>
<th>No.</th>
<th>Condition of Approval</th>
<th>Discussion</th>
<th>Consistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The approval holder must: a. Implement condition E11 of Schedule 2 of the NSW Infrastructure Approval as it relates to impacts to protected matters.</td>
<td>The proposed bridge refinement would not increase ILFW CEEC vegetation clearance greater than that which was assessed in the Project EIS and SPIR. Impacts to ILFW would be offset in accordance with the <em>Albion Park Rail bypass Biodiversity Offsets Strategy</em> (NGH Environmental, 4 September 2017).</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>The approval holder must not clear more than 4.85 hectares (ha) of ILFW (refer to Annexure B).</td>
<td>The proposed bridge refinement would not increase ILFW CEEC vegetation clearance greater than 4.85 hectares as detailed in Section 4.1.</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>To minimise the impacts of the action on protected matters, the approval holder must implement the final Environmental Management Plan (EMP) dated 30 October 2017, or as revised under condition 14, prior to the commencement of the action and must continue implementation until the end of the approval.</td>
<td>The ILGW EEC and ILFW CEEC is considered habitat for threatened species such as the Large-eared Pied Bat and Grey-headed Flying Fox, and as outlined in Table 4-1 and Figure 1 (Appendix B), the disturbance area for the proposed design refinement is less than that for concept design. Therefore, the proposed design refinement is not anticipated to result in the loss of threatened species and their habitats greater than that which was assessed in the Project EIS and SPIR. As such, there would be no requirement to re-submit the Environmental Management Plan (EMP) dated 30 October 2017 for approval under section 143A of the EPBC Act.</td>
<td>Yes</td>
</tr>
<tr>
<td>14</td>
<td>The approval holder may choose to revise the EMP, approved by the Minister under condition 3 without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised plan would not be likely to have a new or increased impact. If the person taking the action makes this choice they must: a. notify the Department in writing that the approved plan has been revised and provide the Department with an electronic copy of the revised plan; b. implement the revised plan from the date that the plan is submitted to the Department; and c. for the life of this approval, maintain</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>
The proposed change is consistent with the EPBC conditions of approval.

### 6.2 EPBC Approval consistency questions

Table 6-2 presents a set of questions that assist Roads and Maritime to determine whether the proposed change can be considered consistent with an EPBC Approval.

**Table 6-2: EPBC Approval consistency questions**

<table>
<thead>
<tr>
<th>Consistency question</th>
<th>Discussion</th>
<th>Consistent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Would any conditions of the EPBC Approval need to be varied in light of the change?</strong></td>
<td>The EPBC approval for the project relate to administrative conditions, specific environmental conditions, environmental monitoring and auditing, compliance monitoring and tracking, and environmental management. As considered and assessed in Section 6.1 of this document, the proposed bridge design refinement is consistent with the EPBC approval conditions. These conditions can be complied with and none require modification to allow the proposed design refinements to be adopted.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>2. Would an approved action management plan required by a condition of approval need to be varied as a result of the proposed change?</strong></td>
<td>The proposed design refinement is wholly located within the Project boundary that was assessed as being cleared of vegetation. Also, as considered and assessed within Section 4.1 of this document, the disturbance area within the ILFW CEEC for the proposed design refinement is less than that for concept design. Therefore, the proposed design refinement is not anticipated to result in the loss of threatened species and their habitats greater than that which was assessed in the Project SPIR and require a subsequent variation to the approved action management plan.</td>
<td>Yes</td>
</tr>
<tr>
<td>Consistency question</td>
<td>Discussion</td>
<td>Consistent</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>3  Would the proposed change constitute a ‘new project’ under the EPBC Act?</td>
<td>An assessment has been undertaken (refer to Section 4) to compare the environmental impacts of the proposed bridge design refinement relative to the environmental impacts of the Approved Project including the EPBC Act approval. The proposed design refinement is wholly located within the Project boundary that was assessed as being cleared of vegetation. Also, the proposed design refinement disturbance area in areas containing ILWF CEEC, which is habitat for the for the Large-eared Pied Bat and Grey-headed Flying Fox, is less than that for concept design. Therefore, the proposed design refinement is not anticipated to result in the loss of threatened species and their habitats greater than that which was assessed in the Project SPIR and approved by the Australian Government Minister for the Environment and Energy. The proposed bridge design refinements were determined to have no significant new or additional environmental impacts when compared to the Approved Project, on all environmental matters that were considered. Consequently, the proposed bridge design refinement is consistent with the EPBC Act referral and would not constitute a new project under the EPBC Act.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
7. Conclusion

Based on the consistency assessment in this report, the proposed change is considered:

- Consistent with the Division 5.2 Approval
- Not consistent with the Division 5.2 Approval. A modification to the project approval must be prepared and submitted for approval by the Minister.
- Consistent with the EPBC Approval
- Not consistent with the EPBC Approval. A written request to vary the condition/s of approval / approved action management plan must be prepared and submitted for approval by the Minister for the Environment / A new EPBC referral is required.
- A radical transformation of the project and as such a new project should be developed with new and separate planning approvals obtained as necessary.
8. Other considerations

There are no additional approval requirements or changes to any permits, licenses or other approvals as a result of the proposed change.
9. Certification

Author

This consistency assessment provides a true and fair review of the proposed change for the Albion Park Rail bypass project.

Name: Brendon Hooton
Position: Senior Environmental Professional
Organisation: Element Environment Pty Ltd

Signature: __________________________
Date: 03/05/2019

Environmental Representative

I have reviewed the information contained within this consistency assessment and based on the information provided I agree that the proposed change is consistent with the Division 5.2 Approval and EPBC Approval.

Name: Toby Hobbs
Position: Environmental Representative

Signature: __________________________
Date: 03/05/2019

Roads and Maritime

The proposed change, subject to the implementation of all the environmental requirements of the project, is consistent with the Division 5.2 Approval.

The proposed change, subject to the implementation of all the environmental requirements of the project, is consistent with the EPBC Approval.

Name: Cassy Baxter
Signature: __________________________
Position: Environment Officer
Date: 03/05/19

Name: Peter Hawkins
Signature: __________________________
Position: Project Development Manager
Date: 03/05/19

I have examined the proposed changes by reference to the Division 5.2 Approval in accordance with Section 5.25(2) of the EP&A Act and I have examined the proposed changes by reference to the EPBC Approval. I consider that the proposal is consistent / is not consistent with the Division 5.2 Approval and EPBC Approval.

I agree with the recommendations of the Roads and Maritime Environment Officer and approve the carrying out the proposed change in accordance with those recommendations.
I agree with the recommendations of the Roads and Maritime Environment Officer and approve the carrying out the proposed change in accordance with those recommendations.

Name: David Ledlin
Signature: 
Position: Roads and Maritime Environment Manager Northern Projects
Date: 06/05/2019

Name: Sam Knight
Signature: 
Position: Roads and Maritime Director Southern Region
Date: 13/05/2019

Name: Pamela Henderson
Signature: 
Position: Roads and Maritime Director Southern and Western Project Office
Date: 15/5/19
Appendix A
Proposed Yallah Bridge (BR05) Design Refinement Community Consultation Summary
Albion Park Rail bypass - Yallah community information session

Summary of meeting held Wednesday 12 December 2018.

Purpose

The purpose of the meeting was to provide a project update (including design changes made between the concept design presented in the Environmental Impact Statement and detailed design) and to seek feedback on the Urban Design and Landscape Character Strategy (UDLCS), which describes how parts of the design will look once the bypass is complete.

Project update

The project team provided a presentation (slides attached) including the below key points:

- the UDLCS was on display until Friday 21 December 2018
- early construction work started in November 2018 and will continue in January 2019, including:
  o geotechnical, survey and utility service investigations
  o installing temporary site compounds and storage areas
  o installing property boundary fencing
  o relocating utility services
  o installing safety and environmental controls
  o major construction on the bypass will commence in early 2019.

The presentation focused on the area closest to Yallah and featured information about key design changes since the exhibition of the Environmental Impact Statement (EIS), including:

- changes in cutting depth between Yallah Road and Macquarie Rivulet
- minor changes to the twin bridges over Macquarie Rivulet
- changes to the bridge crossing at Yallah Road (bridge 5)
- information about traffic noise mitigation measures.

Questions and answers

The project team opened the information session to questions from attendees. A range of questions across design, noise, environmental impacts and communication during construction were raised. A summary of these questions is provided below.
What is the distance from property boundaries to the road?

The distance from property boundaries to the bypass varies, depending on the specific location. You can contact the community relations team for specific information about accurate distances from your property.

A satellite image with an overlay of the bypass is included below for reference:

Do you have any pictures of what it would look like if Yallah Road went over the highway as proposed in the concept (previous) design?

An artist’s impression of the concept design showing Yallah Road over the new bypass was included in the presentation used at the community information session. Note: this image is not to scale and vegetation has been removed for illustrative purposes in order to highlight the bridge.

Above: concept (previous) design showing Yallah Road over the bypass
Above: detailed (current) design showing Yallah Road under the bypass

**Why was the change at the Yallah overbridge made?**

The need to widen Yallah Road has been identified by Wollongong City Council to accommodate access to future residential land releases. Under the concept design, any future widening would involve duplication of the Yallah Road bridge over motorway traffic. The revised (detailed) design mitigates the need to duplicate the bridge as the design includes provision for future widening beneath the bypass.

In addition, changes made to the overall design of the bypass are a result of the need to balance a range of factors, including:

- environmental and local community impacts
- traffic use, taking into consideration existing and future traffic needs (including planned future land use changes)
- provision for active transport links (pedestrians and cyclists)
- road safety for all road users.

**How deep will you dig to get rock?**

This depends on the results of geotechnical investigations in progress as part of the early work in preparation for major construction to start in 2019.

Based on preliminary investigative work carried out by Roads and Maritime Services, rock is generally two to three metres below the existing ground level. Rock hardness varies with depth, getting stronger the lower you get. Blasting (the controlled use of explosives to break hard rock for excavation) would typically be required for hard rock excavation at the depths proposed in the concept design, however the design changes and construction methods proposed in the final design, including the use of a surface miner, means blasting in this area is unlikely.
Does the cutting allow for six lanes?
Yes, there is provision made for future widening of the bypass within the median.

It doesn’t say that you changed the cut depth in the community update. Why?
The community update is intended to provide high level, project wide information about construction progress, milestones and relevant project information. The community update sent out in November 2018 included a summary of design improvements including the changes at Yallah Road and an invitation to review and comment on the Urban Design and Landscape Character Strategy (UDLCS).

The UDLCS contains more specific details about the project’s strategy for development of design and finishes including design intent for the cutting between Yallah Road and Macquarie Rivulet bridges, one of five cuttings across the project.

Who did the original concept design? Why wasn’t it done right in the first place instead of wasting money?
Roads and Maritime Services engaged a contractor in 2014 to develop concept designs for the project.

Changes made between concept design and detailed design stages are a normal part of the process when designing road infrastructure. The design process is a highly iterative process involving a methodical series of steps which includes:

- feasibility studies, research, alternatives and options
- concept/preliminary design
- detailed design
- construction/delivery.

Do you have to get approval for the design changes you are showing us now? Is any of this negotiable?
Roads and Maritime will assess the design changes proposed as part of the detailed design phase, considering factors such as impacts to the community, environment and future traffic levels. This assessment will determine any additional requirements to be carried out before approval of design changes.

The Department of Planning and Environment will then consider comments made by Roads and Maritime and determine whether the proposed changes are consistent with the project approval.

The purpose of the UDLCS consultation period is to seek community and stakeholder feedback on the urban design and landscaping aspects of the bypass. This is separate to the detailed design approval process and is specific to visual, environmental and landscaping features of the project, including materials and finishes used on major elements such as bridges and retaining walls, and revegetation and landscaping.

The project team will consider all feedback and comments on the UDLCS before the strategy is finalised and provided to Roads and Maritime Services for approval.
What is “at-property” noise treatment?

At-property noise treatments are acoustic (audio) treatments made to buildings exposed to road traffic noise as part of the Albion Park Rail bypass project. House treatments are intended to reduce the impacts of noise to highly impacted properties, but will not completely remove impacts.

At house property noise treatments are typically limited to:

- upgrading window and door seals
- sealing wall vents
- sealing the floor below the bearers
- sealing of eaves
- upgrading windows including glazing, or installing solid core doors on the exposed facades of substantial structures
- fresh air ventilation systems or air conditioning that includes fresh air intake.

At property treatments are based on noise thresholds for various room types and consider the unmitigated road traffic noise against the current background noise.

Noise modelling has been carried out for the project and will be used to determine which properties will require an assessment for possible architectural treatments. The potential acoustic treatments are limited to the liveable areas of a property and focus on the living and sleeping areas to minimise noise impacts.

An independent noise consultant will assess properties that have been identified as potentially requiring noise mitigation measures and provide recommendations for suitable at-property treatments.

Treatments will be limited to the recommendations made during assessment.

The project team will be in contact with all property owners identified in the traffic noise report to discuss and agree on proposed architectural treatments as appropriate, including timeframe for implementation.

We may get noise treatment inside our homes but what are you doing for our outdoor areas?

At property treatments are limited to treating habitable indoor areas such as bedrooms and living rooms. Outdoor areas are not considered as part of noise minimisation treatments.

One of the most effective forms of traffic noise mitigation is the use of design choices that naturally reduce noise at the source. Design choices in the detailed design stage such as using quiet asphalt road surfaces, careful consideration of cutting depths and grades, distance of the road from buildings and the road’s gradient, all play an active role in mitigating road traffic noise.

What about the noise from vehicle air brakes? They are different from engine and wheel noise. Changing the road level (at the cutting) will affect the truck noise and make noise worse.

The noise modelling carried out considers noise from air brakes along with all noise sources such as engine and tyres. A minor change in road level does not result in any change to the predicted noise level.

Why can’t a noise barrier be built north past the Yallah business park? What about the houses not used to large volumes of traffic?

Roadside noise barriers are not practicable in all situations, particularly in rural areas where properties are typically more isolated and further from the road.

Roads and Maritime has carried out noise modelling during concept design and as part of the Submissions and Preferred Infrastructure Report (SPIR), including assessing the suitability of including a noise barrier along the new road. At this particular section of the bypass, a noise barrier would not provide effective noise mitigation, and would instead detract from the natural aesthetic of the area, including unnecessarily blocking views with no noise attenuation benefits.

The noise attenuation benefits of barriers diminish with distance from the barrier as the sound waves bend back to the ground. The overall attenuation effect depends on the interrelationship of three main factors:
the height of the barrier, the distance between the noise source and the barrier, and the distance between the barrier and the noise receiver (property).

As outlined in Roads and Maritime Services _Construction Noise and Vibration Guideline_, at property treatments are typically used in place of noise barriers where a noise barrier cannot achieve the level of noise mitigation required, subject to a reasonable and feasible assessment.

Fulton Hogan has engaged an independent noise specialist to assess properties that qualify for at property treatment to provide operational noise mitigation in place of a noise barrier.

More room for landscaping at the top of the hill also means that there is more room for an earth mound or vegetation barrier. Why won’t you do it?

An earth mound is a type of noise barrier that provides the same reduction as a noise wall and therefore would not provide effective noise mitigation in this area for the same reasons listed above.

Landscaping, such as tree planting and revegetation along the project alignment and in some cases on private property is an option to improve visual aspects that can be considered in consultation with the community.

**What are the guidelines for at-house noise treatment?**


**How many noise test points were put in between Macquarie Rivulet and Yallah? How many monitors were used to establish the background noise?**

Noise monitoring was carried out in February 2015, with supplementary noise monitoring in July 2015. As part of the detailed design, additional noise monitoring was conducted in September 2018.

Three noise monitoring locations were carried out between Macquarie Rivulet and Yallah. A total of 20 locations were tested across the entire project site.

**How will the residents know that Roads and Maritime has done the noise monitoring after construction to ensure operational design is per the design and Environmental Impact Statement (EIS) and Submissions and Preferred Infrastructure Report (SPIR)?**

After construction is completed, further noise monitoring will take place which will be communicated to affected residents and the broader community, including when and where monitoring is planned.

**I don’t agree with those that believe a noise wall is a good thing. Has a rip rap or erosion control interlocking barriers been considered?**

Erosion controls including rip raps (a type of erosion control barrier made from loose rock) are not considered an appropriate noise mitigation measure.

**We need someone who is going to explain noise modelling to talk to us. Can we get a noise consultant to explain the modelling and reasoning for the lack of a noise mound?**
Yes. You can contact the community relations team if you would like to arrange a one-on-one meeting with a noise consultant who can explain the noise modelling that has been carried out and how the findings were determined.

**Will the wetland stay?**

The aquatic habitat of the existing dam on the north side of Macquarie Rivulet will be retained as much as possible. Fulton Hogan has employed aquatic ecologists to provide advice on minimising the impact to fauna within the dam.

About 7.22 hectares of coastal freshwater wetlands endangered ecological community, listed under the NSW Threatened Species Conservation Act 1995, would be removed for the project. Additional biodiversity offsets have been included in the Biodiversity Offset Strategy.

The biodiversity assessment report (available on the Department of Planning website) outlines the measures taken to avoid and minimise the direct impacts of the project on biodiversity, and describes the rigorous selection process used for the project. The following are examples of where the project has sought to avoid impacts on biodiversity values:

- the project footprint through the Macquarie Rivulet floodplain was adjusted during preparation of the concept design to minimise the direct impacts on high value vegetation. This footprint was later reduced further during the design refinement process to minimise direct impacts on biodiversity

- the road corridor route through the Croom Regional Sporting Complex was selected in order to limit clearing of the Illawarra Lowlands Grassy Woodland endangered ecological community to the greatest extent possible, avoid increased impact on the Freshwater Wetlands on Coastal Floodplains endangered ecological community, to minimise impacts on the Croom Voluntary Conservation Area, to allow sufficient space for the recreational facilities within the sporting complex (including those to be relocated) and to provide space for the internal road to fit around existing constraints to optimise safety

- design refinements were made to the Yallah Road intersection to minimise impacts on the Eastern Flame Pea, which is listed as an endangered species under the Threatened Species Conservation Act 1995

- the project boundary was adjusted to avoid two areas where the Eastern Flame Pea occurs (identified as environmental protection areas)

- the ancillary sites were selected to minimise vegetation removal and disturbance. The project footprint largely encompasses previously cleared and sparsely vegetated areas.

**Why can’t we put the trees in now and give them a few years to grow?**

This is an option and will be considered in consultation with residents following consultation on the Urban Design and Landscape Character Strategy. An assessment will also be required to ensure that within this confined road corridor the planted trees do not restrict or impact on construction activities.

**The scale on the video and images is wrong and misleading.**

The images contained in the presentation are for illustrative purposes only and were not intended to mislead.
As detailed design is finished, final drawings will be available to view by request or at the Community Information Centre. In the meantime, if you have specific questions about the bypass such as distance to your property or would like to view detailed design drawings showing accurate measurements please contact the community relations team.

Are we going to have another one of these meetings?
The community relations team will be in touch soon to discuss future methods of communication.

Can we have another meeting to discuss noise findings?
Yes. We are happy to meet with you one-on-one to discuss the noise modelling results specific to your property.

You can't expect us to use Survey Monkey. This is not a trusted way to provide feedback.
Survey Monkey is an effective tool used to collect and record responses from the community. However, if you would prefer not to use it, we are happy to receive feedback in whatever format you prefer - including phone, email, in person or regular post.

Why is the Yallah (northern) interchange no longer being included as part of this project?
Roads and Maritime Services has carried out traffic modelling which includes future growth around planned residential developments at Yallah and West Dapto. Modelling has indicated the northern interchange is not required until there is a substantial increase in traffic.
Appendix B
Proposed Yallah Bridge (BR05) Design Refinement Figures
Figure 1: Comparison of concept design vs the proposed bridge refinement at Yallah Road bridge (BR05) including environmental sensitivities
Figure 2: Long section view of changed levels of Yallah Road to Macquarie Rivulet including location of Cut 1.

Figure 3: Long section view of changed levels for ‘Cut 1’.