Transport
for NSW

Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park

REF Determination Report

June 2025

NSW GOVERNMENT

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Acknowledgement of Country

Transport for NSW acknowledges the traditional custodians of the land on which we work and live.

We pay our respects to Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.

Prepared by Stantec Australia and Transport for NSW

Approval and authorisation

Title	Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park: Determination Report
Accepted on behalf of Transport for NSW by:	Maddy Mukerjee Project Development Manager
Signed	Maddy Mukerjee
Date:	07/08/2025

Executive summary

The proposal

Transport for NSW (Transport) prepared a review of environmental factors (REF) to assess the potential environmental impacts of the Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park (the proposal) in accordance with sections 5.5 and 5.7 of the *Environmental Planning and Assessment 1979* (EP&A Act), and section 171 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation).

A detailed description of the proposal is found in the Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park - Review of Environmental Factors prepared by Transport in November 2024.

Transport proposes to upgrade a 2.2-kilometre section of Richmond Road between the M7 Motorway and Townson Road, Marsden Park. The proposal has the following key features as outlined in the REF:

- upgrade of Richmond Road between the M7 Motorway and Townson Road to six lanes (three lanes in each direction). This would include:
    - road widening between the M7 Motorway and the Alderton Drive / Langford Drive intersection including a new bridge structure over Bells Creek
    - widening into the median from the Alderton Drive / Langford Drive intersection to 250 metres north of the Hollinsworth Road / Townson Road intersection
- building a new flyover bridge from the M7 Motorway Rooty Hill Road North off-ramp landing on Richmond Road around 300 metres prior to Bells Creek. This would include:
    - a single lane bridge structure around 250 metres long and 8.4 metres wide for traffic heading northbound on Richmond Road
    - 170-metre embankment at the southern end of the bridge beginning at the M7 Motorway Rooty Hill Road North off-ramp, roughly five metres above the existing ground level
    - 150-metre long retaining wall located at the northern end of the bridge within the median of Richmond Road. At its highest point the retaining wall would be 8.4 metres high
    - minor resurfacing of the existing M7 Motorway Rooty Hill Road North off-ramp where the ramp ties into the new flyover
    - no changes to existing gantry, exit lanes or lane functions on the M7 Motorway
- upgrades to the intersection of Richmond Road, Hollinsworth Road and Townson Road including:
    - an additional northbound through lane along Richmond Road (providing three through lanes towards Richmond)
    - an additional dedicated right turn lane from Richmond Road southbound onto Hollinsworth Road
    - a new left turn slip lane from Hollinsworth Road onto Richmond Road including a pedestrian island and crossing
    - staged pedestrian crossings across Richmond Road on the north and south sides of the intersection, with a pedestrian refuge in the median
- upgrades to the intersection of Richmond Road, Langford Drive and Alderton Drive including:
    - additional northbound and southbound through lanes along Richmond Road (providing three through lanes in both directions)
    - staged pedestrian crossings across Richmond Road on the north and south sides of the intersection, with a pedestrian refuge in the median

- upgrades to the intersection of Richmond Road, Rooty Hill Road North and the M7 Motorway ramps including:
    - two dedicated lanes on Richmond Road heading onto the M7 Motorway (southbound on-ramp)
    - two dedicated southbound through lanes on Richmond Road (towards Blacktown)
    - an additional right turn lane from Richmond Road southbound onto Rooty Hill Road North (providing two dedicated right turn lanes onto Rooty Hill Road North)
    - extension of 10 metres for the left turn lane from Richmond Road southbound onto M7 Motorway northbound on-ramp
    - relocation of the existing pedestrian crossing on Richmond Road approximately 160 metres south. This would be a new staged pedestrian crossing across Richmond Road, with a pedestrian refuge in the median at the intersection of Richmond Road and the M7 Motorway southbound on-ramp
- active transport provisions throughout the proposal area including:
    - moving the existing shared pedestrian and bike path on the western side of Richmond Road to be further west. This would be a four-metre wide shared pedestrian and bike path on the western side of Richmond Road (between the M7 Motorway to approximately 150 metres south of the Richmond Road / Langford Drive / Alderton Drive intersection) where it would connect to the existing shared path
- building a new concrete bridge structure over Bells Creek for the northbound carriageway located approximately 14 metres west of the existing Bells Creek bridge. This would include:
    - a bridge structure around 29 metres long and 18 metres wide
    - three northbound travel lanes
    - a shared pedestrian and bike path on the western side, which replaces the existing boardwalk bridge next to the northbound Richmond Road carriageway
- retention of the five bus stops on Richmond Road between Yarramundi Drive and the Richmond Road / Hollinsworth Road / Townson Road intersection. The dedicated bus lanes at the intersection of Richmond Road with Langford Drive / Alderton Drive and Hollinsworth Road / Townson Road are also retained
- drainage and water quality structures along the proposal including:
    - adjustments to the pits and pipes of the existing stormwater network
    - two gross pollutant traps to the north and south of Bells Creek
    - open flooding channel on the eastern side of Richmond Road roughly between the M7 Motorway northbound on-ramp and Bells Creek for flood mitigation purposes. The channel would be around 425 metres long and 10 metres wide and would discharge into Bells Creek
- roadside furniture including safety barriers, signage, line marking, lighting and fencing
- earthwork cutting, embankments and retaining walls to accommodate the widened road alignment, flyover bridge and open flooding channel
- modified formal access to four properties along the upgraded sections of Richmond Road
- installation of a formal driveway access to the Blacktown Native Institution property within the Rooty Hill Road North road corridor, and removal of the informal access track to the property from Richmond Road
- property acquisition including full acquisition of one property and partial acquisition of two properties
- rehabilitation of disturbed areas and landscaping
- establishment and use of three temporary ancillary facilities during construction.

Display of the review of environmental factors (REF)

Transport prepared a REF for the Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park. The REF was publicly displayed between Wednesday 27 November 2024 and Friday 20 December 2024. The REF was published on the Transport project website and made available for download.

The website link was advertised through geo-targeted Facebook posts. During this time, Transport invited the public to provide feedback on the proposal.

In addition, several activities were carried out during the public display period to give the community an opportunity to learn more about the project, ask questions and 'have their say'. These activities included:

- emails to the stakeholder database
- community update distributed through letterbox drops
- pop-up community information sessions
- dedicated project webpage
- social media postings.

Summary of issues and responses

Public display of the REF and the supporting consultation resulted in a total of 36 submissions, of which 31 were from the general community, one was from Blacktown City Council, two were from government agencies, and two were from special interest groups.

Of the 36 submissions received, 15 (42%) expressed support for the proposal or specific aspects of it, while 19 (53%) submissions were neutral feedback and two (5%) raised objections to the proposal.

The main issues raised and Transport's responses to those issues are summarised below.

Design / project description

The community feedback highlighted concerns related to construction timing, design and safety aspects of the proposal. There were also requests for additional information on the proposed options and potential alternatives, including improvements to bus services.

Concern was raised regarding timing of construction, noting the urgency created by new nearby developments. Feedback suggested bringing forward the proposed construction timeline. The proposed timeframes for the proposal allow adequate time for design development, environmental assessment and the receipt of approvals, permits and licences. However, the proposal's staging has been designed to enable the accelerated delivery of the northern section (refer section 3.3.2 of the REF). A detailed construction schedule would be developed prior to commencement and opportunities to streamline or shorten the timeline would be explored where feasible.

The community proposed several design improvements for the proposal, including clearer directional signage at the Richmond Road and Rooty Hill Road North intersection, better provisions for merging traffic following the flyover bridge, and enhancements to pedestrian crossings and overall safety. The design of the proposal has been developed in accordance with relevant standards and specifications and addresses the safety concerns for both pedestrians and road users. Supporting road infrastructure such as signage and safety barriers would be confirmed during detailed design development.

The REF details the process of the optioneering undertaken and the options considered for aspects of the proposal including the location of the flyover landing. The preferred option places the flyover bridge in the median of Richmond Road, which would mitigate potential future double-weave movements that could result from the potential realisation of a Castlereagh Connection. The proposal is primarily a road upgrade project aimed at improving travel times, reducing congestion and increasing road capacity to support anticipated growth in freight, buses and general traffic. While dedicated bus lanes and existing bus stops would be retained as part of the proposal, enhancements to bus services were not included in

the scope of this proposal given its focus on road infrastructure. However, Transport continues to plan for and investigate opportunities to improve bus services in the North West Growth Area.

Traffic and transport

The community raised several key concerns regarding the traffic network, including congestion at the Richmond Road, Rooty Hill Road North, M7 Motorway intersection, as well as the intersection of Richmond Road and Alderton Drive. Concerns were also expressed about poor driver behaviour and broader issues affecting the surrounding traffic network. In addition, the community provided a range of suggestions to improve the proposal's effectiveness.

The proposed upgrades at the intersection of Richmond Road, Rooty Hill Road North and the M7 Motorway include an additional right turn lane from Richmond Road southbound onto Rooty Hill Road North, an additional southbound through lane on Richmond Road, and a new flyover connecting the M7 Motorway to northbound Richmond Road. These upgrades would improve intersection performance and increase capacity on Richmond Road, as demonstrated by traffic modelling undertaken for the proposal. Several options were considered for this intersection, with the flyover option providing the greatest benefits in terms of traffic flow, capacity and safety compared to the alternatives.

The proposed works at the Richmond Road, Alderton Drive, Langford Drive intersection aim to improve traffic performance by increasing the capacity on Richmond Road. While the current scope of works does not include works along Alderton Drive, suggestions for improvements to Alderton Drive have been passed onto Blacktown City Council. Transport will continue engaging with Council regarding potential future road network improvements.

As part of the proposal, closed circuit television (CCTV) would be installed at all intersections along Richmond Road within the proposal area. The Transport Management Centre would monitor the CCTV feed and assess the operation of the intersections, identifying opportunities for improvement where necessary. This may include the implementation of enforcement measures. The details of supporting road infrastructure, such as signage and line marking, would be confirmed during design development.

This proposal forms part of Transport's broader North West Growth Centre Road Network Strategy (TfNSW, 2015), designed to support the forecasted population and economic growth in the North West Growth Area (NWGA). Other supporting road projects in the surrounding area are currently at various stages of approval. Additionally, Transport is also developing the Richmond Road Corridor Strategy, which will provide a comprehensive analysis of the corridor and propose a robust road network strategy to support future growth and infrastructure priorities within the NWGA. This includes flood evacuation routes, new bus services and new shared paths. Together, the proposal, other identified road projects in the NGWA, and the outcomes of the Richmond Road Corridor Strategy would provide significant network benefits to the planned residential and commercial developments in the area.

Heritage

Stakeholders raised several key concerns regarding the proposal's potential impacts on the heritage listed Blacktown Native Institution curtilage and the surrounding cultural landscape. These concerns focused on the site's cultural values, particularly those related to water and women's heritage at Bells Creek, as well as issues related to the visual, noise, privacy, and amenity impacts of the proposed flyover bridge. There were also concerns about the lack of safe, permanent access for community use of the adjacent land used for cultural purposes by the Aborginal community, as well as a loss of trust in Transport as a future partner for the site. Additionally, it was noted that the proposal should demonstrate compliance with Conservation Management Plan (CMP) and the Blacktown Development Control Plan 2015 (DCP) and suggested a pro-active approach to archaeological management in accordance with the *Heritage Act 1977*.

In response to these comments, the Statement of Heritage Impact (SOHI) has been updated to better identify the social and cultural values of the heritage listed Blacktown Native Institution site and the broader cultural landscape. This updated assessment takes into account both the historic and contemporary values, ongoing cultural values of place, and future aspirations for the heritage listed Blacktown Native Institution site, ensuring a comprehensive evaluation of the potential impacts to these heritage values.

Transport and the Dharug Strategic Management Group (DSMG) have agreed to form a 'Working Group' (The DSMG Working Group) to collaborate and work through issues raised by the Aboriginal community

and expressed by the DSMG. The Working Group will support detailed design development and explore project opportunities for cultural inclusion. The Working Group will be led by an agreed governance system, with clear terms of reference, accountability and reporting processes, and will be further supported by the engagement of an independent facilitator.

The visual, noise and amenity impacts of the proposed flyover bridge have been assessed as part of the noise and vibration assessment and the landscape character and visual impact assessment undertaken for the REF. It is acknowledged that the proposal would impact the landscape character and setting, long-range views, vistas and noise may impact areas envisioned for a Dharug Culture Centre and for peaceful reflection in the site's future use. The REF includes mitigation measures to address the potential impacts, such as plantings, cultural interpretation considerations for the site, and noise mitigation measures. Transport is committed to collaborating with the DSMG to shape the approach for mitigation and management during the detailed design and construction process.

Permanent safe access and egress to the DSMG owned land would be established and enhanced to ensure continued community accessibility. The exact location of the permanent alternative driveway would be determined through further discussions and consultation with the DSMG to minimise impacts to the heritage listed curtilage as part of detailed design development. These discussions would consider future plans for the DSMG land and in consultation with Blacktown City Council.

The loss of trust in Transport by the DSMG is a significant concern for Transport. To rebuild this trust, Transport is committed to collaborating with the DSMG to resolve these issues. Consultation has been ongoing since display of the REF and will continue throughout detailed design as part of the Working Group.

The purpose of the proposal is to upgrade the existing road corridor, a use which is not fully aligned with the polices within the CMP and DCP. However, the approach to managing this change to accommodate the road upgrade seeks to respect the significance and future aspirations for the place. Through the DSMG Working Group, Transport will continue to work collaboratively through these issues during the development of the detailed design.

Transport proposes a pro-active approach to archaeological management in the updated SOHI. Transport recognises that the DSMG and the Aboriginal community that they represent, should have the opportunity to consider this proposal and inform its approach.

Hydrology, flooding, and water quality

The community and stakeholders raised concerns about flood risk, the availability of evacuation and emergency routes during construction and operation, and the adequacy of the proposed water quality management strategy.

Richmond Road is currently subject to inundation north of the intersection with Rooty Hill Road North during a 1% Annual Exceedance Probability (AEP) flood event. Under the proposal, the section of Richmond Road between Rooty Hill Road North and Townson Road would be constructed above the 0.2% AEP flood level. This level of flood immunity would satisfy the requirements for a designated flood evacuation route along Richmond Road.

Richmond Road would remain open throughout the construction period, with potential lane closures and traffic flow impacts managed under a Traffic Management Plan. Consultation with emergency services would be undertaken during the preparation of construction staging and planning to ensure their operational needs are incorporated in relevant management plans. Flood levels and existing site conditions would be considered as part of construction staging and planning for the proposal to ensure appropriate management of plant, materials and site workers.

The design proposes two additional gross pollutant traps to reduce the pollutant loads before discharge into Bells Creek. While the proposal is expected to result in a minor increase in pollutant loads compared to the existing conditions, this is considered to have a relatively negligible long-term impact on the water quality of Bells Creek given the size of the wider catchment. Water quality treatment measures and maintenance requirements would be further developed during the detailed design stage in consultation with Council.

Changes to the proposal

Following further design development, a number of changes to the REF proposal were identified as outlined in the sections below.

Additional ancillary facilities

Transport identified the need for two additional ancillary facilities to best support construction of the proposal. These facilities would be located at 136 South Street, Marsden Park and 717 Richmond Road, Colebee. The additional facilities are needed to support the delivery of the main works of the road upgrade. Without them, constrained space within the proposal area could lead to increased traffic congestion, safety risks and potential delays to construction.

Open flooding channel

As a result of design refinements, the location and dimensions of the open flooding channel on the eastern side of Richmond Road previously assessed in the REF have been modified. In the updated design, the open flooding channel begins north-east of the intersection of Rooty Hill Road North / Richmond Road / M7 Motorway on/off-ramps and run in a north-westerly direction before discharging into Bells Creek. The revised alignment places the flooding channel closer to Richmond Road.

Although full acquisition of the private property was proposed in the REF, the current proposed design developed after the open flooding channel assessment allows for the flooding channel to be positioned closer Richmond Road. This refinement makes it more feasible to maintain and potentially reuse a portion of the previously impacted land.

Removal of existing footpath

As part of the proposal, the last approximately 100 metres of the existing footpath on the eastern side of Richmond Road, adjacent to the Woolworths shopping centre complex, would be removed. This footpath serves no functional purpose, as it does not connect to any other access paths or points or a designated crossing point of Richmond Road. The existing footpath includes a heritage interpretation plaque that reads 'This marks the boundary of the Colebee Nurragingy Land Grant 1819'. The plaque would also require removal. While neither the footpath nor the plaque is heritage listed, the plaque provides valuable interpretation of the historic land grant boundaries. The heritage plaque would be considered as part of the heritage interpretation strategy for the proposal, in consultation with the DSMG.

As the footpath does not connect to any existing pedestrian or cyclist facilities, and to reduce the risk of the unwarranted crossing of Richmond Road between signalised intersections, the path would be removed.

Boundary amendments

Boundary amendments to those described in the REF are required to account for design refinements and the additional areas required for construction. These amendments are:

- The REF construction boundary was amended to include the new ancillary facility at 136 South Street, Marsden Park. Additionally, the construction boundary was reduced along Townson Road to more accurately represent the proposed extent of works in this area. The boundary, south of Summerland Crescent has also been reduced to provide a buffer between the proposal area and land held under Part 11 of the *National Parks and Wildlife Act 1974*.
- The vegetation clearing boundary was amended to account for the change in location/dimension of the open flooding channel.

Additional studies and assessment

The following additional studies and assessments have been undertaken to assess the potential impacts of the proposed design changes, to respond to feedback received during the public display of the REF, and to address data gaps identified in the REF, including seasonal surveys and additional contamination testing.

Aboriginal heritage

The Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared for the REF has been updated to include additional information on the cultural values of the heritage listed Blacktown Native Institution site, to include assessment of the additional ancillary facility at 136 South Street and to include changes to the REF construction boundary.

The Aboriginal cultural landscape was described within the Conservation Management Plan (CMP) (GML, 2024) for the heritage listed Blacktown Native Institution site as including 'places, archaeology, and natural and cultural features'. It is noted that the ACHAR follows the requirements of the *National Parks and Wildlife Act 1974* to manage disturbance to Aboriginal objects and a full assessment of potential impacts to cultural values is included in the Statement of Heritage Impact (SOHI) as described in the section below.

The new ancillary facility at 136 South Street would be located in an area with no archaeological potential, however, it would be located adjacent to Grange Avenue AFT 4 (AHIMS 45-5-4871). With the implementation of demarcation and boundary fencing during site establishment, impacts to this site are not anticipated.

The safeguards and managements measures in the REF remain applicable, and an existing safeguard has been modified to protect Grange Avenue AFT 4 (AHIMS 45-5-4871).

Non-Aboriginal heritage

The Statement of Heritage Impact (SOHI) has been updated to include additional information on the cultural values of the heritage listed Blacktown Native Institution site, to address concerns raised following display of the REF and to include assessment of the additional ancillary facilities at 136 South Street and 717 Richmond Road.

There was no evidence of environmental heritage items or potential archaeological resources identified during inspection of 136 South Street. Land use phasing relevant to the additional ancillary facilities at 136 South Street and 717 Richmond Road would not change the potential archaeological remains and archaeological potential for each phase of historical land use presented in the REF. Impacts to archaeological resources are not expected with the implementation of Transport's unexpected finds procedure.

Contemporary social and cultural value of the heritage listed Blacktown Native Institution site and the surrounds has been described in the updated SOHI, drawing from existing reports such as the CMP and Connecting with Country (Nguluway, 2025), as well as the social and cultural values expressed by the DSMG to Transport during the REF display and consultation activities. The cultural values of the proposal area, as expressed by the DSMG can be summarised in three themes: Spirit of the place, Ecological restoration and Places.

The significance assessment of the Aboriginal cultural and social values indicates the dynamic and all-pervading nature of the cultural values described: the cultural values of the Blacktown Native Institution site are inseparable in their nature and reach into deep time as well as the future. The interaction of cultural values also reflects the location of the Blacktown Native Institution site within a broader cultural landscape which includes the Colebee and Nurragingy land grant and stretches beyond it.

In consideration of the significant social and cultural values associated with the area, the key impacts of the proposal on the heritage listing for the Blacktown Native Institution site and the broader cultural landscape include:

- Adverse impact (major) on the historical significance, social and cultural values of the Blacktown Native Institution site. The social and cultural values include the cultural landscape in which the proposal area and Blacktown Native Institution heritage listed site are located.
- Potential to impact on unconfirmed burials within the Blacktown Native Institution site in the vicinity of Bells Creek and in the north-eastern portion of the site. Given the sensitivities involved with burials, an approach to managing this potential impact in certain parts of the site is proposed to be developed together with the DSMG and the Aboriginal community.
- Adverse (major) cumulative impact of the proposal on the heritage significance, visual and cultural values of the Blacktown Native Institution heritage listed site.

- Impact on the cultural values (including the First Nation's cultural landscape) of the Blacktown Native Institution site which are inseparable in their nature and reach into deep time as well as the future. The interconnection of cultural values reflects the location of the site within a broader cultural landscape which includes the Colebee and Nurragingy land grant and stretches beyond it.

The safeguards and managements measures in the REF remain applicable, and additional safeguards and measures have been proposed. Additional measures are primarily focussed on the formation of a Working Group with representatives of DSMG and the Transport project team and how the Working Group will inform the development of the detailed design for the proposal.

In addition to the mitigation measures proposed in the REF, through the Working Group agreement, DSMG input would be sought on:

- impacts to culturally significant vegetation within the Blacktown Native Institution heritage curtilage and opportunities for replanting (including species and locations) and/or reuse of removed vegetation
- management of wildlife within the site during construction and potential future wildlife connectivity for operation of the road corridor and the DSMG site
- design impacts and management of Bells Creek within the Blacktown Native Institution site during construction and plans for regeneration of the creekline as part of the works
- management of noise impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use
- management of potential overshadowing and privacy impacts from the proposal during both construction and operation, and opportunities to enable the future use of the Blacktown Native Institution site for cultural use.

Traffic and transport

A traffic and transport addendum was carried out to re-assess the potential traffic and transport impacts of the proposal taking into account the accelerated delivery schedule, with both stages of construction delivered prior to the end of 2028, and signal optimisation. The addendum also includes assessment of construction traffic impacts associated with the additional construction vehicles using the new ancillary facilities at 136 South Street and 717 Richmond Road.

With respect to construction impacts, the inclusion of additional vehicles associated with operation of the ancillary sites results in minor to negligible impacts compared to the assessment in REF.

Traffic modelling for the years 2028 and 2038 was conducted to assess the operational impacts of the proposal in comparison to the 'Do-Minimum' (without proposal) scenario. The modelling results indicate that the proposal would positively impact traffic flow, increasing network throughput and enabling the corridor to accommodate more traffic with reduced delays compared to the 'Do-Minimum' scenario. A decrease in average travel times, a reduction in the number of stops and increase in average speed indicate that the road users would experience less congestion within the proposal area. The proposal would either maintain or improve intersection performance in future years (2028 and 2038).

From an operational perspective, the 2028 scenario demonstrates a notable improvement in performance following the completion of the proposal, compared to the results presented in the REF, due to the accelerated delivery schedule. By 2038, performance outcomes are generally consistent with those in the REF, as both are based on the same infrastructure and traffic demand assumptions. Signal operations were also further optimised in the traffic and transport addendum, resulting in improved traffic flow along Richmond Road.

The safeguards and managements measures in the REF remain applicable, and no additional safeguards or measures have been proposed.

Biodiversity

A biodiversity assessment report (BAR) addendum was prepared to assess the impacts of the additional ancillary facilities and assess the updated vegetation clearing boundary resulting from the proposed design changes. Additional seasonal surveys were also undertaken since the preparation of the REF, addressing gaps in data for eight threatened flora species that were assumed present during preparation

of the REF. The results of these surveys are now incorporated into the overall impact assessment for the proposal.

The additional site facility at 136 South Street was assessed through a rapid site observation. The vegetation consisted of exotic groundcover with two exotic amenity plantings in the centre of the site. No native vegetation was recorded, and vegetation is not considered to be commensurate with any recognised Plant Community Types (PCT).

The additional eight threatened species surveys did not identify threatened flora species within the study area. These species were assumed present in the BAR, however, as the species were not recorded during surveys they have been excluded from further assessment in the BAR addendum, including assessments of significance.

Based on the design changes, the proposal would require the removal of an additional 0.11 hectares of native vegetation that aligns to a PCT, and a reduction in planted tree removal from 66 to 38 trees across when compared to the REF. The design changes resulted in a row of street trees now not requiring removal.

In total, the proposal would require the removal of 2.22 hectares of native vegetation and 38 planted trees. This total includes 0.35 hectares of native vegetation within certified areas, which has previously been offset under the North West Growth Centre Biodiversity Certification process and Cumberland Plain Conservation Planning (CPCP) area. The proposal would directly impact 1.87 hectares of native vegetation and 38 planted trees outside of certified areas. This includes 1.87 hectares of vegetation commensurate with threatened ecological community (TECs) listed under the *Biodiversity Conservation Act 2016* (BC Act), and 1.36 hectares commensurate with TECs listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The safeguards and managements measures in the REF remain applicable, and no additional safeguards or measures have been proposed.

As outlined in the REF, the requirements for the provision of biodiversity offsets, conservation measures and tree and hollow replacement for the proposal would be considered in accordance with the No Net Loss Guidelines (TfNSW, 2024a) and the Tree and Hollow Replacement Guidelines (TfNSW, 2024b).

Hydrology, flooding and water quality

An updated hydraulics and hydrology assessment was prepared to assess the impacts of the proposed design changes, namely the change in the location and dimensions of the open flooding channel on the eastern side of Richmond Road between M7 Motorway and Bells Creek. An assessment of flooding during the construction phase was also presented.

If flooding was to occur during the construction of the proposal, the work areas within the floodplain of Bells Creek may be inundated with water, which may cause damage to plant and equipment and pollute the floodwater and surrounding environment with construction materials, sediment and chemicals. The construction methodology, and design of site compounds would be planned to ensure impacts from flood events are minimised and the floodwater does not cause damage to partially built and temporarily built infrastructure.

During operation, the 1% annual exceedance probability (AEP) flood event, modelling found that for Richmond Road, east of Bells Creek, flood levels would decrease upstream of the Bells Creek bridge crossing. Several other areas showed a reduced extent of flooding. However, downstream of the proposed open flooding channel, there was a slight increase in flood levels. These increases are considered acceptable according to the flooding performance criteria outlined in the REF. Additonally, an increase in flow velocity for a 1% AEP event was noted both upstream and downstream of the Bells Creek bridge crossing and between the existing bridge abutments.

The modelling has indicated that the section of Richmond Road between Rooty Hill Road North and Townson Road would be flood free during the 0.2% AEP storm event, similar to the design presented in the REF. This immunity would meet the Richmond Road flood evacuation route requirements.

The safeguards and managements measures in the REF remain applicable. In addition, further safeguards and measures have been proposed to address flood impacts during construction, along with design measures to mitigate the effects of increased flow velocities.

Noise

A noise and vibration addendum has been carried out to assess the potential construction traffic noise impacts from the additional ancillary facilities at 136 South Street and 717 Richmond Road, including the anticipated increase in traffic on the local road network due to construction vehicles. Further assessment was also undertaken for the Newnham Street site, as originally proposed in the REF, following the availability of more detailed information related to vehicle numbers and proposed operating hours.

The ancillary facilities at 136 South Street and Newnham Street are proposed to operate during standard hours and be used by light vehicles only. Based on the modelling results, the nearest residential receivers at both ancillary facilities may experience 'moderately intrusive' noise impacts during site set-up, and 'noticeable' or potentially 'clearly audible' noise impacts during operation.

The ancillary facility at 717 Richmond Road is proposed to operate during standard hours and non-standard hours. The nearest residential dwellings to the west of the site may experience 'noticeable' and potentially 'clearly audible' noise impacts during site establishment and 'clearly audible' noise impacts during the general operation of the facility during non-standard hours.

Based on the existing traffic volumes on Richmond Road, South Street and Newnham Street the increase in traffic noise levels due to construction vehicles associated with the sites are predicted to be less than 2 dB(A) and therefore no further assessment is required in line with *Construction Noise and Vibration Guideline (Roads)* (CNVG-R) (TfNSW, 2023a).

The safeguards and managements measures in the REF remain applicable, and additional safeguards and measures have been proposed around hours of operation and site layout of the Newnham Street and 136 South Street ancillary facilities.

Soil contamination

Additional intrusive contamination sampling has been undertaken in the Areas of Environmental Concern (AEC) identified in the REF, following its public display. The results are outlined in a Contamination Site Investigation (CSI) and have now been considered as part of the overall impact assessment for the proposal. Based on the additional CSI testing, the following is noted:

- The presence of potential acid sulfate soils (ASS) materials which appears to be associated with alluvial sediments in the vicinity of Bells Creek and its tributaries where a permanent water table remains in shallow soils and sediment.
- Contamination in the form of bonded asbestos was identified in the sub-surface at the former truck repair workshop land, which is located in the triangular area between the M7 Motorway, Richmond Road and Rooty Hill Road North and at ground surface within the south-eastern portion of the site.
- Localised exceedance of zinc was identified at a stockpile sampling location at 717 Richmond Road. This does not reflect the condition of soils encountered throughout the site area, as the stockpile fill material is suspected to be of unknown foreign source/origin and likely to be sourced from outside the site boundary.
- Localised perfluorooctane sulfonic acid (PFOS) exceedances of the applicable criteria. A clear on-site source of per- and poly-fluoroalkyl substance (PFAS) could not be identified, however, the exceedance may be attributed to the potential migration of impacted stormwater within Bells Creek which receives runoff from highly urbanised and industrial/commercial upstream settings.

The safeguards and managements measures in the REF remain applicable, with additional safeguards and measures proposed in response to the sampling results. These additional measures address the disturbance of acid sulfate soils, stockpiles, asbestos, PFAS and other identified areas of environmental concern.

Next steps

Transport as the determining authority will consider the information in the REF and this Determination Report and make a decision whether or not to proceed with the proposal.

Transport will inform the community and stakeholders of this decision and where a decision is made to proceed will continue to consult with the community and stakeholders prior to and during the construction phase.

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1. Introduction and background

1.1 Background

Transport for NSW (Transport) prepared a review of environmental factors (REF) to assess the potential environmental impacts of the Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park (the proposal) in accordance with sections 5.5 and 5.7 of the *Environmental Planning and Assessment 1979* (EP&A Act), and section 171 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation).

A detailed description of the proposal is found in the Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park - Review of Environmental Factors prepared by Transport for NSW in November 2024.

Transport proposes to upgrade a 2.2 kiliometres section of Richmond Road between the M7 Motorway and Townson Road, Marsden Park (refer Figure 1-1) . Key features of the proposal as outlined in the REF would include (refer Figure 1-2):

- upgrade of Richmond Road between the M7 Motorway and Townson Road to six lanes (three lanes in each direction). This would include:
    - road widening between the M7 Motorway and the Alderton Drive / Langford Drive intersection including a new bridge structure over Bells Creek
    - widening into the median from the Alderton Drive / Langford Drive intersection to 250 metres north of the Hollinsworth Road / Townson Road intersection
- building a new flyover bridge from the M7 Motorway Rooty Hill Road North off-ramp landing on Richmond Road around 300 metres prior to Bells Creek. This would include:
    - a single lane bridge structure around 250 metres long and 8.4 metres wide for traffic heading northbound on Richmond Road
    - 170-metre embankment at the southern end of the bridge beginning at the M7 Motorway Rooty Hill Road North off-ramp, roughly five metres above the existing ground level
    - 150-metre long retaining wall located at the northern end of the bridge within the median of Richmond Road. At its highest point the retaining wall would be 8.4 metres high
    - minor resurfacing of the existing M7 Motorway Rooty Hill Road North off-ramp where the ramp ties into the new flyover
    - no changes to existing gantry, exit lanes or lane functions on the M7 Motorway
- upgrades to the intersection of Richmond Road, Hollinsworth Road and Townson Road including:
    - an additional northbound through lane along Richmond Road (providing three through lanes towards Richmond)
    - an additional dedicated right turn lane from Richmond Road southbound onto Hollinsworth Road
    - a new left turn slip lane from Hollinsworth Road onto Richmond Road including a pedestrian island and crossing
    - staged pedestrian crossings across Richmond Road on the north and south sides of the intersection, with a pedestrian refuge in the median.
- upgrades to the intersection of Richmond Road, Langford Drive and Alderton Drive including:
    - additional northbound and southbound through lanes along Richmond Road (providing three through lanes in both directions)
    - staged pedestrian crossings across Richmond Road on the north and south sides of the intersection, with a pedestrian refuge in the median.
- upgrades to the intersection of Richmond Road, Rooty Hill Road North and the M7 Motorway ramps including:
    - two dedicated lanes on Richmond Road heading onto the M7 Motorway (southbound on-ramp)
    - two dedicated southbound through lanes on Richmond Road (towards Blacktown)

  - an additional right turn lane from Richmond Road southbound onto Rooty Hill Road North (providing two dedicated right turn lanes onto Rooty Hill Road North)
  - extension of 10 metres for the left turn lane from Richmond Road southbound onto M7 Motorway northbound on-ramp
  - relocation of the existing pedestrian crossing on Richmond Road approximately 160 metres south. This would be a new staged pedestrian crossing across Richmond Road, with a pedestrian refuge in the median at the intersection of Richmond Road and the M7 Motorway southbound on-ramp
- active transport provisions throughout the proposal area including:
  - moving the existing shared pedestrian and bike path on the western side of Richmond Road to be further west. This would be a four-metre wide shared pedestrian and bike path on the western side of Richmond Road (between the M7 Motorway to approximately 150 metres south of the Richmond Road / Langford Drive / Alderton Drive intersection) where it would connect to the existing shared path.
- building a new concrete bridge structure over Bells Creek for the northbound carriageway located approximately 14 metres west of the existing Bells Creek bridge. This would include:
  - a bridge structure around 29 metres long and 18 metres wide
  - three northbound travel lanes
  - a shared pedestrian and bike path on the western side, which replaces the existing boardwalk bridge next to the northbound Richmond Road carriageway
- retention of the five bus stops on Richmond Road between Yarramundi Drive and the Richmond Road / Hollinsworth Road / Townson Road intersection. The dedicated bus lanes at the intersection of Richmond Road with Langford Drive / Alderton Drive and Hollinsworth Road / Townson Road are also retained
- drainage and water quality structures along the proposal including:
  - adjustments to the pits and pipes of the existing stormwater network
  - two gross pollutant traps to the north and south of Bells Creek
  - open flooding channel on the eastern side of Richmond Road roughly between the M7 Motorway northbound on-ramp and Bells Creek for flood mitigation purposes. The channel would be around 425 metres long and 10 metres wide and would discharge into Bells Creek
- roadside furniture including safety barriers, signage, line marking, lighting and fencing
- earthwork cutting, embankments and retaining walls to accommodate the widened road alignment, flyover bridge and open flooding channel
- modified formal access to four properties along the upgraded sections of Richmond Road
- installation of a formal driveway access to the Blacktown Native Institution property within the Rooty Hill Road North road corridor, and removal of the informal access track to the property from Richmond Road
- property acquisition including full acquisition of one property and partial acquisition of two properties
- rehabilitation of disturbed areas and landscaping
- establishment and use of three temporary ancillary facilities during construction.

Transport is the proponent for the proposal. Refer to section 4.5 for the updated description of the proposal as assessed in this Determination Report and the REF.

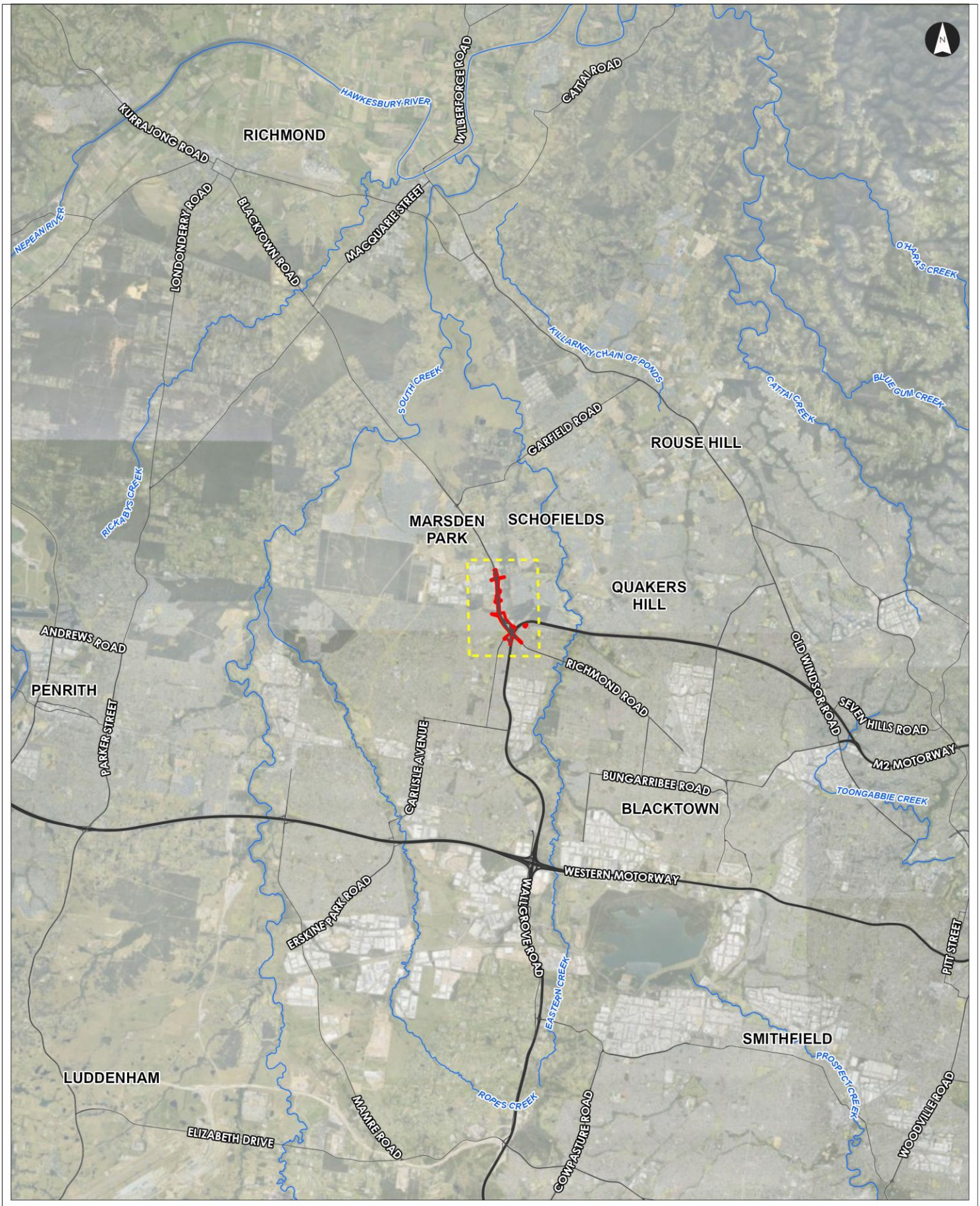

Figure 1-1: Proposal locality

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-005
Drawn By: RA, Checked By: AS
Rev: 01 | Date: 2024-11-07

Legend

- Proposal location
- REF construction boundary
- 80% Design freeze
- Watercourse
- Major road
- Minor road

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (MetroMap, Sep 2024)
2. Road and Watercourse (NSW SS, 2023)

0 1 2 3 4 Kilometres

Scale at A3: 1:110,000

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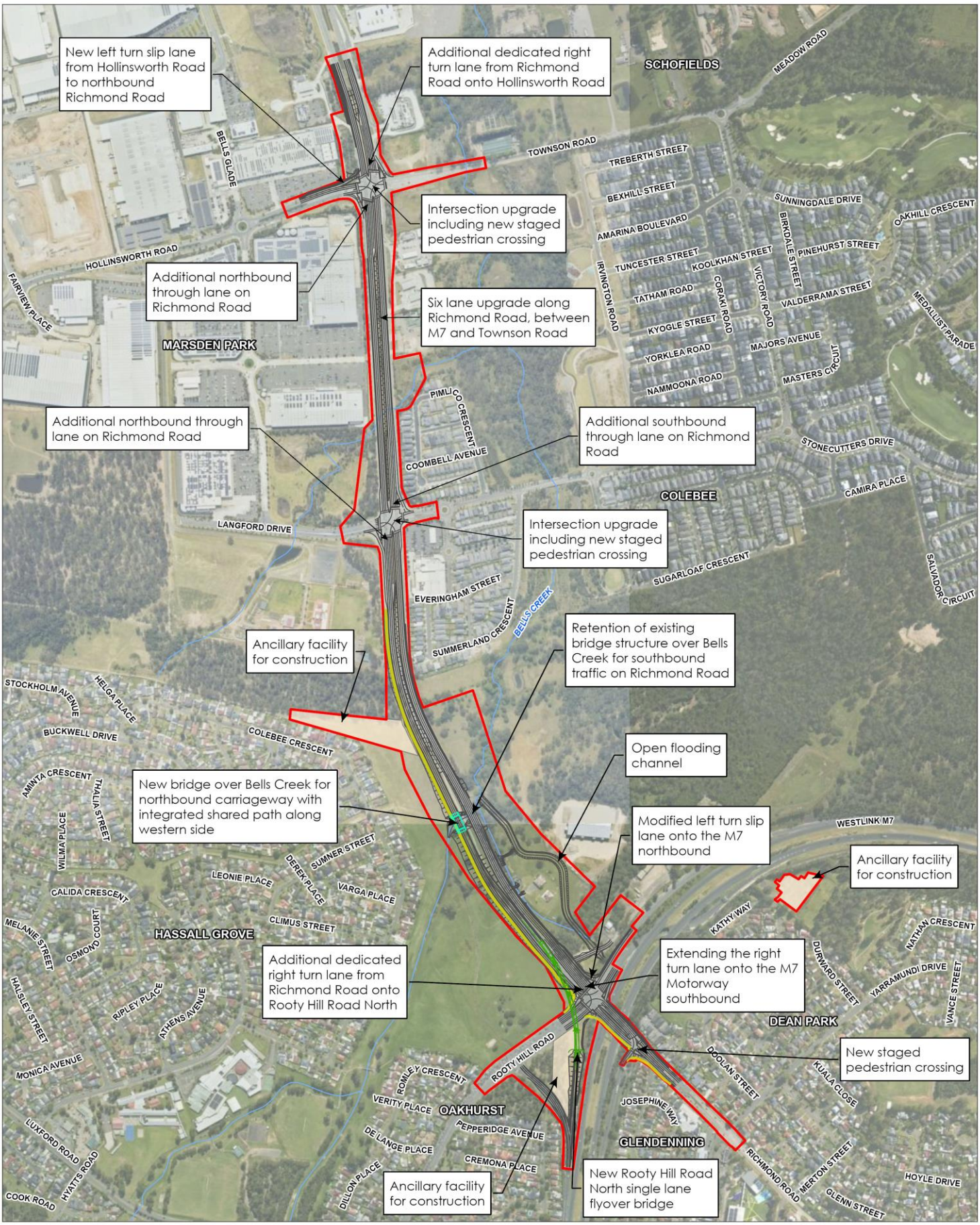


Figure 1-2: Key features of the proposal

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-029
Drawn By: RA, Checked By: ET
Date: 2025-06-11
Revision: 01

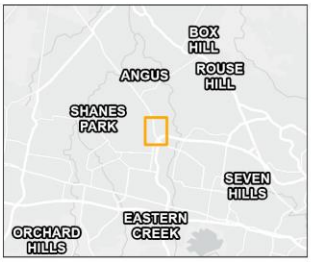
Legend

- Existing REF construction boundary
- 80% Design freeze
- Bells Creek bridge
- Flyover bridge
- Watercourse
- Ancillary facility for construction
- Shared pathway

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Watercourse (NSW SS, 2023)

0 50 100 150 200 250 Metres
Scale at A3: 1:7,500



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1.2 Display of the REF

The REF was publicly displayed for 24 days between Wednesday 27 November 2024 and Friday 20 December 2024. The REF was placed on the Transport project website and NSW Government Have Your Say website. The display locations and website links were advertised through geo-targeted Facebook posts, which had an audience reach of 141,200. This information was also included in the Community Update delivered to 10,922 local residents in the proposal area.

In addition to the above, consultation and notification activities undertaken for the public display included:

- An invitation to comment and copy of the review of environmental factors which was emailed directly to 103 subscribers.
- A pop-up community information stall at two locations as detailed in Table 1-1.
- Creation of a dedicated project webpage on the Transport website.
- A letter outlining the scope of the proposal was sent to Blacktown City Council, State Emergency Service (SES) and National Parks and Wildlife Service (NPWS) as per the consultation requirements under sections 2.10, 2.12, 2.13 and 2.15 of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP)

Consultation collateral is provided in Appendix A.

Table 1-1 Display locations

Location	Address	Date of display
Greenway Village Shopping Centre	799 Richmond Road, Colebee NSW 2761	Thursday 5 December between 4pm and 8pm
Dean Park Neighbourhood Centre	9 Yarramundi Drive, Dean Park 2761	Saturday 14 December between 10am and 4pm

A total of 36 of submissions relating to the proposal and the REF were received by Transport for NSW.

1.3 SEPP (Transport and Infrastructure)

Transport has undertaken stakeholder consultation in accordance with the provisions of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)). The purpose of the consultation was to seek stakeholders' input on the proposal, including any concerns relating to environmental and social impacts associated with the proposal.

Appendix B contains a SEPP (Transport and Infrastructure) consultation checklist that documents how the consultation requirements have been considered in the REF and this Determination Report.

Letters were issued to Blacktown City Council and the State Emergency Services (SES) on 6 November 2024 providing detail on the proposal as per the requirements of the following sections of the SEPP (Transport and Infrastructure):

- Section 2.10 - consultation with Blacktown City Council in relation to the proposal's potential impact on Council-related infrastructure and services.
- Section 2.12 - consultation with Blacktown City Council as the proposal would be undertaken on flood liable land and may impact flood patterns other than to a minor extent. Bells Creek is mapped as a high flood risk precinct area under Blacktown City Council's online mapping system.
- Section 2.13 - consultation with the SES as the proposal would be undertaken on flood liable land.

Blacktown City Council and SES both provided responses to the consultation, with outcomes considered in section 3.

In January 2025, a meeting with National Parks and Wildlife Service (NPWS) identified that a piece of land within the vicinity of the proposal is currently being 'held' under Part 11 of the *National Parks and Wildlife Act 1974* (NPW Act), that had not previously been known. This land is adjacent to the overall project area.

A letter was issued to the NPWS on 25 March 2025 providing detail on the proposal as per the requirements of section 2.15 of the SEPP (Transport and Infrastructure). An initial response was received from NPWS which provided clarity around the boundaries and ownership of the NPWS land and requested additional information. Transport provided a response to this enquiry and no further responses have been received at the time of writing this Determination Report.

1.4 Purpose and structure of this report

This Determination Report relates to the REF prepared for the Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park, and should be read in conjunction with that document.

This Determination Report:

- Summarises the issues raised by submissions received during the public display of the REF and provides Transport's responses to each issue (Section 2).
- Summarises the issues raised as part of the SEPP (Transport and Infrastructure) consultation process and provides Transport's responses to each issue (Section 3).
- Identifies any changes to the proposal since the finalisation of the REF, including changes resulting from submissions from the public (Section 4).
- Describes and assesses the environmental impact of changes to the proposal, including discussion of additional investigations carried out since finalisation of the REF (Section 5).
- Identifies new and/or updated environmental mitigation measures to minimise potential environmental impacts (Section 6).
- Makes a determination in accordance with Division 5.1 of the EP&A Act whether potential environmental impacts are likely to be significant, address whether the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) apply and includes a decision statement to reflect that determination (Section 7).

2. Response to issues raised

During public display of the REF, Transport received 32 submissions, accepted up until the 20 December 2024. An additional four submissions recevied outside of the exhibition period until 28 February 2025 have also been included. These submissions included:

- 2 submissions from government agencies (Heritage NSW and SES)
- 1 submission from a local council (Blacktown City Council)
- 2 submissions from special interest groups (Dharug Strategic Management Group and the Ahmadiyya Muslim Association Australia)
- 31 submissions from the community.

2.1 Overview of issues raised

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

Of the 36 submissions received, 15 (42%) expressed support for the proposal or specific aspects of it. These respondents noted the need for the upgrade, recognising its potential to ease traffic congestion and improve overall flow. Specific support was expressed for key features such as the flyover bridge, active transport elements, and the newly proposed slip lane on Hollingsworth Road. Some of these submissions that supported the proposal, also requested that the proposed upgrades be expanded to further address congestion in the larger regional network.

Of the 36 submissions received 19 (53%) offered no position on whether they supported or objected to the proposal, and two (5%) expressed concerns or objected to the proposal.

The community feedback highlighted concerns regarding the traffic network, particularly around the Richmond Road / Rooty Hill Road North / M7 Motorway intersection and the impact to the surrounding network. They also provided a range of suggestions to improve the proposal's effectiveness.

The main issues raised by the Dharug Strategic Management Group (DSMG) included:

- Impacts on cultural values at the heritage listed Blacktown Native Institution site.
- Visual, amenity, shadow, privacy and noise impacts associated with the proposed flyover bridge.
- Impacts on the water and women's values of Bells Creek.
- Lack of safe, sustainable and permanent access to the DSMG owned portion of the Blacktown Native Institution site for DSMG and community programs, events and ceremonies.
- Loss of trust in Transport as a reliable partner in the future management of the heritage listed Blacktown Native Institution site.
- Impacts on future plans for the site including constraints on delivery of the Landscape Masterplan, Conservation Management Plan and the culturally-led ecological restoration program.

The Ahmadiyya Muslim Association Australia (AMAA) raised concerns regarding access to their site and requested direct access from Richmond Road to their property be considered as part of the proposal.

The main issues raised by Heritage NSW included:

- The Statement of Heritage Impact (SOHI) overlooks assessment of the potential impacts of the proposal on the historical and social values of the heritage listed Blacktown Native Institution site. Additionally, it was noted that the proposal should demonstrate compliance with relevant plans and policies and suggests a pro-active approach to archaeological management in accordance with the *Heritage Act 1977*.

- Raised concerns that they believed that the Aboriginal Cultural Heritage Assessment Report (ACHAR) is not sufficient to support an Aboriginal Heritage Impact Permit (AHIP) application, noting the AHIP must be accompanied by appropriate documentation, consultation and archaeological management.

The main issues raised by Blacktown City Council (Council) included:

- Concerns around the adequacy of the two gross pollutant traps for mitigating the ongoing impact of increased operational stormwater runoff as a result of the proposal. Additionally, Council requested clarification on the proposed water quality management strategy for the northern portion of the proposal.
- Confirmation of the flooding design criteria for the proposal and questioned whether the 0.2% annual exceedance probability (AEP) flood evacuation level has been achieved.
- Concerns that the proposal would encroach upon the Blacktown Native Institution site, impacting the master planning efforts completed to date.

The State Emergency Service (SES) supported the proposed changes to improve the trafficability of evacuation routes. The main issues raised by SES included:

- Parts of the proposal area may be inundated by overland flooding as frequently as a 50% AEP and recommended implementing a range of mitigation measures to reduce flood risk during construction and to maintain flood evacuation routes.
- The proposal may cause disruption to the operation of local roads, and this may impact the ability for emergency services to use these routes.

2.2 Response to submissions

Table 2-1 lists the respondents and each respondent's allocated submission number. The table also indicates where the issues from each submission have been addressed in section 2 and/or section 3 of this report.

Table 2-1 Respondents

Respondent	Submission No.	Section number where issues are addressed	Respondent	Submission No.	Section number where issues are addressed
Individual	1	2.7.1, 2.7.2	Individual	19	2.5.1, 2.5.4, 2.5.5
Individual	2	2.5.1	Individual	20	2.5.6
Individual	3	2.5.2, 2.5.4	Individual	21	2.10
Individual	4	2.5.6	Individual	22	2.3.1
Individual	5	2.4.3	Individual	23	2.5.7
Individual	6	2.6	Individual	24	2.5.6
Individual	7	2.5.1, 2.10	Individual	25	2.4.1
Individual	8	2.10	Individual	26	2.3.2, 2.3.3, 2.5.4
Individual	9	2.5.2	Individual	27	Support
Individual	10	2.5.6	Individual	28	2.3.2, 2.3.3, 2.4.2, 2.5.8, 2.9
Individual	11	Support	Individual	29	2.5.1
Individual	12	2.10	Individual	30	2.5.6
Individual	13	2.5.6, 2.10	Individual	31	2.5.3
Individual	14	2.5.6	Dharug Strategic Management Group	32	2.11

Respondent	Submission No.	Section number where issues are addressed	Respondent	Submission No.	Section number where issues are addressed
Individual	15	2.8	Ahmadiyya Muslim Association Australia	33	2.12
Individual	16	2.5.1, 2.10	Heritage NSW	34	2.13
Individual	17	2.5.1, 2.5.5	Blacktown City Council	35	3
Individual	18	2.5.5	State Emergency Service	36	3

2.3 Issue 1: Design / project description

2.3.1 Construction timing

Submission number(s)

22

Issue description

Concern was raised regarding of the timing of construction, noting the urgency created by new nearby developments. Feedback suggested bringing forward of the proposed construction timeline.

Response

As outlined in section 3.3.2 of the REF, construction of the proposal (pending planning approval and in consultation with the construction partner) would be undertaken in two stages, noting the durations would be dependent on weather and staging requirements:

- Stage 1 Northern section – from the end of 2025 to the end of 2026 (12 months)
- Stage 2 Southern section – from the end of 2026 to the end of 2028 (24 months).

The proposed timeframes allow adequate time for design development, environmental assessment, and the receipt of approvals, permits and licences. The urgency of the proposal is acknowledged and the staging of the proposal as outlined above facilitates accelerated delivery of the northern section.

A detailed construction schedule is expected to be prepared prior to construction and opportunities to streamline or shorten the above timeframes would be explored where feasible by Transport and the successful construction partner.

2.3.2 Design and safety

Submission number(s)

26, 28

Issue description

The community has suggested several design considerations for the proposal, including:

- Additional directional signage on the southbound approach to the Richmond Road / Rooty Hill Road North intersection, to provide clarity around lane arrangement given the close proximity of two intersections and turn lane arrangements. It was acknowledged these details would be considered during detailed design.
- Ensure merging onto Richmond Road is not permitted after exiting the flyover bridge until there has been sufficient distance to see approaching traffic beyond the flyover bridge and associated traffic barriers.

- Consider flexible bollards along the landing of the flyover bridge as a safer alternative to line marking alone, given speeding traffic is common along Richmond Road and drivers can easily disregard traditional line markings.
- Reduce the speed limit to 60 kilometres per hour to enhance safety, reducing required braking distance, which can prevent the main type of crash on this road (rear end collisions). Additionally, improving travel times by enabling smoother traffic flow through complex intersections.
- Improve pedestrian crossing conditions by reducing the number of crossing legs and shortening their length.

Response

The concept design has been developed with consideration of the appropriate standards and specifications, including set design criteria which are detailed in section 3.2.1 of the REF. The suggestion for additional directional signage on the southbound approach to the Richmond Road / Rooty Hill Road North intersection is noted. Supporting road infrastructure such as signage would be confirmed during detailed design development.

The flyover bridge would land in between the proposed northbound and southbound carriageways of Richmond Road. Traffic using the flyover would not be required to merge as the flyover bridge lane would continue and become its own lane on the new widened Richmond Road corridor. It is noted however, that merging may be required for vehicles using the flyover who intend to turn left, and through traffic intending to turn right at the Richmond Road / Alderton Drive / Langford Road intersection. The turning lanes at this intersection begin approximately 500 metres north of where the flyover joins Richmond Road, and extend for around 100 metres. This provides vehicles with approximately 600 metres to complete any necessary merging before reaching the intersection. The road has been designed to meet Austroads standards confirming the appropriate sight lines / merge lengths are provided.

The specifics of the supporting road infrastructure such as safety barriers and signage would be confirmed during detailed design development.

The posted speed design criteria for roads associated with the proposal are provided in Table 2-1 of the REF. The speed limit on Richmond Road between Yarramundi Drive and the Hollinsworth Road / Townson Road intersection is between 70-80 kilometres per hour, with speed limits of between 50-60 km/hr for the flyover bridge, M7 Motorway Rooty Hill Road North off-ramp and cross roads. The road alignments have been designed to accommodate the above posted speeds and were selected to optimise traffic flow and best alleviate congestion, while also meeting safety requirements.

The existing single, long pedestrian crossings at the intersection of Richmond Road with Langford Drive / Alderton Drive (41 metres long), and Hollinsworth Road / Townson Road (43 metres long) would be upgraded to staged pedestrian crossings as part of the proposal. Although this change would necessitate crossing Richmond Road in two stages, the change would improve pedestrian safety at the intersections and would also improve traffic flow and efficiency of the signalised phasing. Additionally, to enahnce safety the staged crossings would be signalised, and fencing would be provided in the median.

2.3.3 Options and alternatives

Submission number(s)

26, 28

Issue description

One respondent requested further detail on the selection of the preferred landing of the flyover bridge in the median, citing weaving caused by the Castlereagh Connection as the justification provided in the REF. Clarification is needed why this is preferabble to landing left of Richmond Road, especially considering potential weaving from flyover vehicles wanting to turn left onto Langford Drive or Hollinsworth Road to access nearby shops.

Another respondent was surprised to see that alternatives to road widening had not been considered in the REF and questioned whether bus improvements were considered as a means of meeting the project's objectives. They suggested increasing bus frequency and investigating service options tailored to the movement needs of the corridor, making buses a viable alternative.

Response

The REF details the process of the optioneering undertaken and the options considered for aspects of the proposal including the location of the flyover landing as outlined in section 2.4 of the REF. Further, section 2.4.4 of the REF outlines the 'preferred strategic design - flyover landing', with Option 2 being the preferred option which proposed to land the flyover

bridge in the median of Richmond Road. Landing the flyover within the median mitigates future double-weave movements generated by the potential realisation of a Castlereagh Connection. In addition, the design provides appropriate and safe merging distances for vehicles turning left onto Langford Drive or Hollinsworth Road to access the shopping precinct.

The Castlereagh Connection remains a key future-proofing requirement of the proposal and remains within Transport's preliminary corridor planning phase. The Castlereagh Connection has received no funding allocation or government commitment to date.

The proposal is primarily a road upgrade project aimed at improving travel times, reducing congestion and increasing road capacity to support anticipated growth in freight, buses and general traffic. The dedicated bus lanes at the intersection of Richmond Road with Langford Drive / Alderton Drive and Townson Road / Hollinsworth Road, and along Richmond Road and Rooty Hill Road North would be retained.

The request to increase bus frequency and improve public transport options are noted but are outside the scope of this proposal. As the proposal is a primarily a road upgrade project, investigation into upgrading the bus services to help facilitate the proposal objectives was not considered. Transport continues to plan for and investigate opportunities to improve bus services in the North West Growth Area.

2.4 Issue 2: Consultation

2.4.1 Construction contractor process

Submission number(s)

25

Issue description

The respondent questioned when the short list for the construction contractor would be issued for the project.

Response

Transport commenced a Registration of Interest process for a main works contractor to deliver the proposal in September 2024. The shortlisted contractors for the proposed works will not be publicly available, however, those identified would be notified as part of Transport's e-tendering process. Once the preferred contractor has been awarded it would be made public as part of the pre-construction notifications.

2.4.2 Consultation with freight partners

Submission number(s)

28

Issue description

The respondent notes that the traffic modelling indicates drivers would save five minutes on their journey as a result of the proposal, and questions whether this would provide actual benefits especially for freight planning. The respondent asks whether any consultation with affected freight partners has been undertaken.

Response

Overall, the proposal would ease congestion and improve travel times for all road users including freight vehicles, through increased capacity and new dedicated movement lanes and providing a northbound off-ramp from the M7 Motorway connecting directly to Richmond Road. The updated traffic assessment provided in Appendix E of this Determination Report outlines the expected travel times for the proposal, including discrete segments along Richmond Road. Targeted consultation with freight partners was not undertaken, and engagement has been covered as part of the general community consultation. As there are no designated freight lanes on Richmond Road in the proposal area, the upgrade would benefit all road users in similar ways as they share the same road space.

2.4.3 Timing of drop-in sessions

Submission number(s)

5

Issue description

One respondent requested confirmation of the timing of the communty drop-in sessions which were planned as part of the REF public display.

Response

The REF was publicly displayed for 24 days between 27 November 2024 and 20 December 2024. During this time, Transport hosted two drop-in sessions to provide the community with an opportunity to ask questions and seek further information on the proposal. The drop-in sessions were undertaken at: Greenway Village Shopping Centre 799 Richmond Road, Colebee NSW 2761 on Thursday 5 December 2024 between 4pm and 8pm, and Dean Park Neighbourhood Centre 9 Yarramundi Drive, Dean Park 2761 on Saturday 14 December 204 between 10am and 4pm. All submissions received as part of this public display have been considered in this Determination Report.

2.5 Issue 3: Traffic and transport

2.5.1 Richmond Road, Rooty Hill Road North and M7 Motorway intersection

Submission number(s)

2, 7, 16, 17, 19, 29

Issue description

A number of respondents were concerned that the proposal would not improve traffic flow at the Richmond Road, Rooty Hill Road North and the M7 Motorway intersection and some suggested several changes to the proposal at this location to reduce traffic congestion and/or improve safety. These include:

- Suggestion that the flyover bridge should allow traffic to flow in both directions to improve traffic flow and reduce congestion and should be relocated to the middle of the M7 Motorway.
- Concern that congestion at the intersection is mainly the result of cars turning right from Richmond Road heading towards Rooty Hill.
- Suggestion that traffic coming off the M7 Motorway heading to Marsden Park and Richmond should flyover and merge on Richmond Road.
- Concern about congestion and safety issues stemming from accessing the M7 Motorway southbound from Richmond Road and suggested that constructing an overpass or underpass would be a more effective solution to improve traffic flow in both directions.
- Concern that the proposal would not make a significant difference to residents and a substantial portion of the road users, as is does not address the impact on southbound Richmond Road traffic turning right onto M7 Motorway southbound or northbound traffic turning left onto Rooty Hill Road North.
- Concern that the proposal fails to address the lack of vehicle storage space between the M7 Motorway entry lights and the Rooty Hill Road North lights. This limited space is regularly occupied by large trucks, blocking traffic attempting to turn right from Rooty Hill Road North onto Richmond Road southbound. Consequently, drivers often experience delays spanning multiple light cycles to complete the turn.
- Concern that traffic at the intersection currently builds up on Rooty Hill Road back to Luxford Road during peak times and believes this has been overlooked in the current proposal. Suggests adding a dedicated lane from Rooty Hill Road North to Richmond Road to address this traffic congestion and buildup.

Response

It is acknowledged a key pinch point of the NWGA is the intersection of Richmond Road, Rooty Hill Road North and M7 Motorway located within the proposal area. Currently, drivers travelling north on the M7 Motorway towards Richmond must exit via the M7 Motorway Rooty Hill Road North off-ramp, proceed through a signalised intersection onto Rooty Hill Road North, and then navigate a second signalised intersection to turn left onto Richmond Road to continue northbound. This intersection also provides for signalised access to the M7 Motorway northbound and southbound on-ramps, and a through connection to Blacktown. Each day over 89,000 vehicles travel through the Richmond Road and Rooty Hill Road North intersection, which currently exceeds capacity and causes significant delays for road users. Traffic queues at the M7 Motorway Rooty Hill Road North off-ramp often extend onto the M7 Motorway.

Several options were considered for the southern portion of the proposal including 'at grade' (ground level) upgrades to the intersections of the Richmond Road / Rooty Hill Road North / M7 Motorway intersection, and a new flyover bridge linking the M7 Motorway Rooty Hill Road North off-ramp to Richmond Road northbound over Rooty Hill Road North. The flyover option offered the greatest benefits in terms of traffic flow, increased capacity, and safety improvements when compared to the other options considered, and was therefore selected as the preferred option. Refer section 2.4 of the REF for further information.

The Richmond Road / Rooty Hill Road North / M7 Motorway on/off ramps intersection is being upgraded to provide the following:

- an additional right turn lane from Richmond Road southbound onto Rooty Hill Road North (providing two dedicated right turn lanes onto Rooty Hill Road North)
- an additional southbound through lane on Richmond Road (increasing from three to four lanes)
- flyover from the M7 Motorway onto northbound Richmond Road
- 10 metre extension of the left turn lane from Richmond Road southbound onto M7 Motorway northbound on-ramp
- optimisation of the traffic signals phasing based on future growth and traffic demands.

These upgrades would improve intersection performance by increasing the capacity along Richmond Road. The new flyover bridge from the M7 Motorway would provide a direct connection to Richmond Road, removing the need to travel through two sets of traffic signals and thereby reducing traffic at the intersection. Additionally, the removal of the northern pedestrian crossing would improve traffic flow and pedestrian safety, with the crossing relocated approximately 160 metres south to the Richmond Road / M7 southbound on-ramp intersection.

A Traffic and Transport Impact Assessment was carried out to assess the potential traffic and transport impacts during construction and operation of the proposal. The expected traffic improvements are outlined in section 6.1 of the REF and updated in section 5.3 of this Determination Report for the changed delivery strategy. In summary, the following is noted for the modelled scenarios at the intersections:

- Richmond Road / Rooty Hill Road North / M7 Motorway ramps – the level of service at the intersection would improve and there would be a reduced delay under the Proposal scenario in 2028 and 2038
- Rooty Hill Road North / M7 Rooty Hill Road North off-ramp - the level of service at the intersection would improve and there would be a reduced delay under the Proposal scenario in 2028 and 2038
- Richmond Road / M7 Motorway on-ramp - the level of service at the intersection would improve and there would be a reduced delay under the Proposal scenario in 2028 and 2038.

Concerns about congestion for southbound traffic on Richmond Road turning right onto the M7 Motorway southbound are acknowledged. Transport notes your feedback and thanks you for your suggestions of a flyover in both directions and an overpass or underpass to access the M7 Motorway southbound. At the Richmond Road / Rooty Hill Road North intersection an additional southbound through lane on Richmond Road would be provided improving traffic flow onto the M7 Motorway southbound. One of the objectives of the proposal is to improve safety for all road users and the relevant road safety standards have been incorporated into the proposed design.

The concern about congestion for local traffic turning left from northbound Richmond Road onto Rooty Hill Road is acknowledged. While no additional capacity for this turn left turn movement are provided, the proposed changes are designed to improve traffic flow at the intersection, improve the level of service and reduce delays.

Concern that traffic currently builds up on Rooty Hill Road back to Luxford Road and that traffic cannot turn right from Rooty Hill Road North onto Richmond Road southbound are noted. The proposal aims to improve the traffic flow along Rooty Hill Road North and Richmond Road by directing northbound traffic directly onto Richmond Road. This would reduce the number

of vehicles at the Rooty Hill Road North / Richmond Road intersection. While no additional capacity is provided for the right turn movement onto Richmond Road, the overall performance of the intersection would be improved. The current scope of works does not include works along Rooty Hill Road North, however, suggestions for improvements have been passed onto Blacktown City Council. Transport will continue liaising with Council regarding potential and future road network improvements.

2.5.2 Congestion on Alderton Drive

Submission number(s)

3, 9

Issue description

One respondent was concerned that the proposal fails to improve traffic along Alderton Drive, which experiences frequent backups during peak hours. They suggested adding an additional lane on Alderton Drive to alleviate the issues.

Another respondent raised concerns about the traffic congestion on Alderton Drive, caused by the current left turning arrangements from Alderton Drive onto Richmond Road. They suggested adding a third dedicated left turning lane as a beneficial solution to ease congestion.

Response

Concerns around traffic congestion at the Richmond Road and Alderton Drive intersection and suggestions to include an additional lane on Alderton Drive are acknowledged. The current scope of this proposal focusses on Richmond Road between the M7 Motorway and Townson Road with the objective of easing congestion and improving travel time along the Richmond Road corridor. The Richmond Road / Langford Drive / Alderton Drive intersection proposed work include:

- additional through lane on Richmond Road in both directions (northbound and southbound)
- new staged pedestrian crossings
- traffic signal optimisation based on future growth and traffic demands.

These upgrades would improve the traffic performance at the Richmond Road / Alderton Drive / Langford Drive intersection by increasing the capacity on Richmond Road. Increasing the capacity on Richmond Road would also reduce the number of vehicles diverting to Alderton Drive and making U-turns at the Clearfield Street roundabout to avoid waiting times at the intersection, which currently contributes to congestion on Alderton Drive.

Information on the performance of the Richmond Road / Langford Drive / Alderton Drive intersection during operation was provided in section 6.1 of the REF and has been updated in section 5.3 of this Determination Report. In summary, the following is noted for the modelled scenarios at this intersection:

- in 2028, the level of service improves and the delay is reduced under the Proposal scenario compared to the Do Minimum scenario for both the morning and afternoon peak
- in 2038, the intersection would operate at reduced delay under the Proposal compared to the Do Minimum scenario for both the morning and afternoon peak, attributed to the additional capacity introduced by the Richmond Road upgrades.

The current scope of works does not include works along Alderton Drive, however, suggestions for improvements to Alderton Drive are acknowledged and have been passed onto Blacktown City Council. Transport will continue engaging with Council regarding potential future road network improvements.

2.5.3 Current / proposed traffic impacts

Submission number(s)

31

Issue description

The respondent expressed concerns about the livability of their home following the redesign of the M7 Motorway ramp. They noted that current traffic conditions have a negative impact on their home, including issues with noise, privacy, visual disturbances and air quality. The respondent fears that the proposed redesign would exacerbate these issues.

Response

Transport acknowledges the concerns regarding the proposed flyover and associated noise, privacy, visual and air quality impacts. The proposed new flyover bridge from the M7 Motorway would provide a direct connection to Richmond Road, removing the need to travel through two sets of traffic signals. The flyover would reduce traffic travelling along the existing Rooty Hill Road North off-ramp, bypassing the signalised intersection and allowing vehicles to directly connect to Richmond Road to continue northbound. The proposed flyover would take traffic further away from the location of the respondent.

A noise and vibration impact assessment was prepared for the proposal as outlined in section 6.7 and Appendix G of the REF. The assessment considered the noise resulting from operation of the proposal and where potential impacts were identified, mitigation measures to minimise these impacts would be implemented as outlined in section 6.7.5 of the REF.

The urban design strategy prepared for the proposal recognises the existing urban and landscape character and seeks to integrate the upgraded road and new bridge structures sensitively into the natural and suburban setting. The strategy includes proposed landscaped areas including buffer zones and plantings which would be confirmed during detailed design. Section 6.9 and Appendix I of the REF assesses the potential impacts on landscape character and visual amenity of the proposal including a viewpoint located at the corner of Romley Crescent and Rooty Hill Road North. The concern relating to privacy has been noted and will be considered further at detailed design.

The cumulative predicted concentration of pollutants during operation of the proposal remains below the assessment criteria, except for the annual average $PM_{2.5}$ (dust) concentration. However, this exceedance is largely due to the elevated existing annual average background concentrations measured at the closest monitoring station at Prospect. These elevated levels are possibly influenced by natural events such as bushfires and dust storms. The assessment of air quality impacts are outlined in section 6.12 and Appendix J of the REF.

2.5.4 Driver behaviour

Submission number(s)

3, 19, 26

Issue description

Two respondents note poor driving behaviour along Richmond Road from Townson Road to Blacktown, including actions such as lane cutting and misuse of bus lanes. They highlighted the lack of enforcement measures, such as police presence or traffic cameras, resulting in road users committing these violations. One respondent suggests installing a bus lane camera on Richmond Road southbound at the Alderton Drive intersection.

A third respondent requested revising road marking or signage to clearly indicate that vehicles in the left lane on Richmond Road southbound must turn left at Alderton Drive, aiming to prevent improper use of the lane to bypass traffic on Richmond Road.

Response

As part of the proposal, closed circuit television (CCTV) would be installed at all intersections along Richmond Road within the proposal area. The Transport Management Centre would monitor the CCTV feed and assess the operation of the intersections, identifying opportunities for improvement where necessary. This may include the implementation of enforcement measures.

The request for changes to road markings or signage to make it clear traffic in the left lane on Richmond Road southbound must turn left at Alderton Drive is noted. The details of supporting road infrastructure, such as signage and line marking, would be confirmed during design development. These features would be designed in accordance with Australian Standards and relevant Transport guidelines.

Drivers within NSW are required to obey the current and existing road rules, which is expected to be the case for the operational phase of the proposal. The enforcement of traffic laws including motorists disobeying road rules remains a primary responsibility of the NSW Police Force. If you witness illegal or dangerous driving behaviour please contact the NSW Police Force on 131 444, who will determine whether targeted enforcement activities may be appropriate.

2.5.5 Suggested improvements to the proposal

Submission number(s)

17, 18, 19

Issue description

The community proposed several enhancements to the traffic network as part of the proposal, which were:

- introducing a dedicated truck lane to alleviate congestion and address dangerous driver behaviours
- improving light timings at the Richmond Road / Hollingsworth Road / Townson Road Intersection, with a suggestion to adjust light phasing along Richmond Road based on the time of day.

Response

The request for a dedicated truck lane is noted, however, due to the limited space available within the road corridor and the low percentage of heavy vehicles on the road (less than 10%), a dedicated truck lane is not considered feasible. Traffic modelling was undertaken which included light and heavy vehicles as outlined in section 6.1 of the REF and updated in section 5.3 of this Determination Report for the changed delivery strategy. The percentage of heavy vehicles is not considered high enough and an allowance for a dedicated truck lane would reduce the overall capacity on Richmond Road, resulting in increased congestion, which does not support the objectives of the proposal.

As part of the proposal, the traffic signal phasing/timing at the three signalised intersections has been optimised. The phasing / timing of the signals would be controlled remotely and would be based on traffic demands at different times of the day. These enhancements would improve traffic flow through the intersections. At the completion of construction, Transport would be responsible for traffic signals and the phasing/timing would be continually monitored and optimised as required.

2.5.6 Surrounding traffic network

Submission number(s)

4, 10, 13, 14, 20, 24, 30

Issue description

The community raised a number of concerns that the proposed road widening of Richmond Road is insufficient to address current and future traffic congestion, particularly north of the proposal area. Respondents suggested that limiting the upgrade to Townsend Road would merely shift congestion further north along the corridor and would fail to accommodate traffic from new estates in the area such as Elara.

Suggestions include extending the widening of Richmond Road to Garfield Road, Driftway / Bligh Park or all the way to Richmond and Windsor, with some proposing two to three lanes in each direction depending on the segment.

One respondent was concerned that the proposal primarily benefits M7 users and Transurban, offering little benefit to local residents, and suggested expanding the road to four lanes between Knox Road and Alderton Drive.

Response

Concerns around the traffic network surrounding the proposal area are acknowledged. The current scope of this proposal is to upgrade Richmond Road between the M7 Motorway and Townson Road. This proposal forms part of Transport's broader North West Growth Centre Road Network Strategy (TfNSW, 2015), designed to support the forecasted population and economic growth in the North West Growth Area (NWGA). Other supporting road projects in the surrounding area include (refer Figure 2-1):

- Bandon Road corridor connecting Richmond Road, Marsden Park and Windsor Road, Vineyard (project status: concept design and environmental assessment underway).
- Upgrade of Richmond Road from north of Elara Boulevard to Heritage Road, Marsden Park (project status: Submissions report finalised November 2024). The upgrade would provide safer and improved access to fast growing residential developments in the Marsden Park precinct and future developments.

- Townson-Burdekin Road Upgrade would have two stages and together would provide an east-west link of about 3.6 kilometres, between Richmond Road and Walker Street (project status: Stage 2 Submissions report finalised September 2024).

In addition to the above projects, Transport is developing the Richmond Road Corridor Strategy (between the M7 Motorway to The Driftway) which will provide a comprehensive analysis of the corridor, which passes through Blacktown, Hawkesbury and Penrith local government areas. The Strategy will propose a robust road network strategy to support future growth and infrastructure priorities within the NWGA. This includes flood evacuation routes, new bus services and new shared paths. The Strategy is in the early strategic phase, for further information you can visit: https://www.transport.nsw.gov.au/projects/current-projects/north-west-growth-area

Suggestions to increase the capacity of Richmond Road between the northern extent of the proposal and Bligh Park / The Driftway are acknowledged and will be considered holistically as part of the Richmond Road Corridor Strategy. The combination of the proposal, other identified road projects in the NGWA and outcomes from the Richmond Road Corridor Strategy, would provide further network benefits to the planned residential and commercial developments in the area.

Suggestions to increase capacity on Richmond Road all the way to Richmond and Windsor, and south to the intersection of Richmond Road and Knox Road are acknowledged. At this stage, no improvements are proposed at these locations and are outside the scope of this proposal. Transport will continue monitoring the state road network and investigate opportunities for improvement. Where relevant, comments were passed to specific stakeholders for their information.

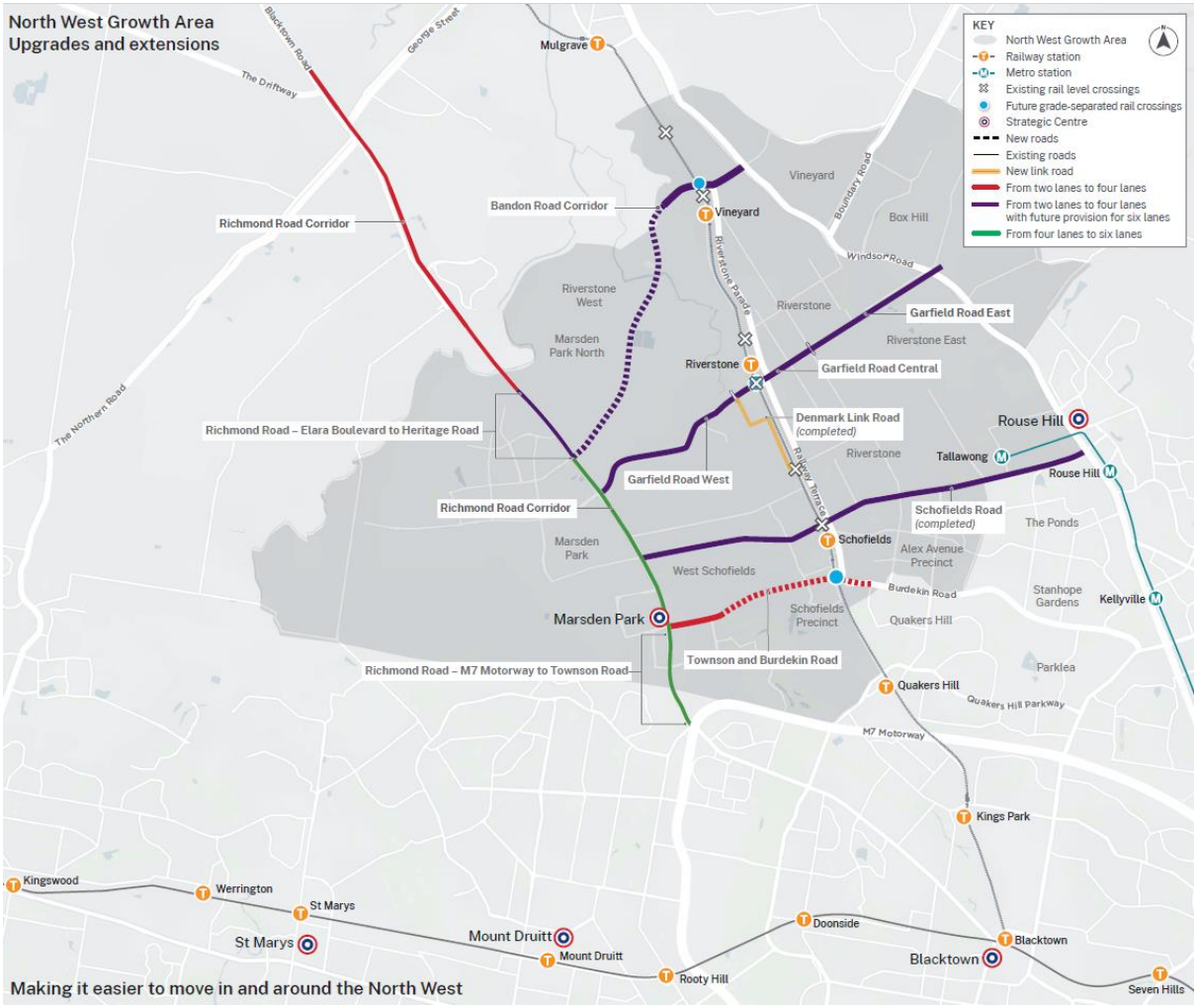

Figure 2-1 North West Growth Area (NWGA) map

2.5.7 Traffic during construction

Submission number(s)

23

Issue description

The respondant is concerned that the existing bottleneck would become significantly worse during construction, and questions whether there is a plan in place to address this issue effectively.

Response

It is acknowledged that construction of the proposal would temporarily impact the traffic network as outlined in section 6.1 of the REF and updated in section 5.3 of this Determination Report.

Construction of the proposal would be staged to minimise impacts on traffic on Richmond Road and surrounding local roads whilst providing a safe environment for construction. The indicative traffic staging is outlined in section 3.3.2 of the REF. Certain work activities, in particular those that would require lane closures or restrictions at intersections, would also likely take place at night to minimise any traffic-related impacts.

The construction traffic assessment includes modelling at the key stages of construction to assess intersection performance as outlined in section 5.3 of this Determination Report. The potential traffic and transport impacts during construction are expected to include:

- minor and temporary increase to travel times for vehicles, buses and on-road cyclists due to changed lane configurations and reduced speed limits. Cyclists may be shifted onto the shared user path for their own safety
- minor increase in heavy vehicles on the network in comparison to the existing traffic volumes on Richmond Road
- altered property access arrangements during construction

During construction, temporary traffic arrangements would be made to ensure impacts to road users along Richmond Road are minimised as much as feasible. A Traffic Management Plan (TMP) would be prepared to minimise impacts and would include measures to address site traffic control, maintain property access and community consultation.

2.5.8 Active transport

Submission number(s)

28

Issue description

The respondent proposed significant tree planting along the shared paths to improve walking and riding amenity.

Response

An urban concept design report was prepared for the proposal and provided as Appendix I to the REF. The report outlines the planting proposed as part of the proposal which includes planting native grasses and native trees on the western side of the shared path where space allows.

2.6 Issue 4: Hydrology, flooding, water quality

Submission number(s)

6

Issue description

The respondent is concerned that Richmond Road is the primary means of evacuation for thousands of local residents, noting that while the Bells Creek bridge is above the probable maximum flood (PMF) of riverine flooding from the Hawkesbury-

Nepean it becomes inundated during a 0.2% average exceedance probabilty (AEP) flood event. They suggested designing and constructing the new northbound bridge around one metre higher than its current level and incorporating a contra-flow operational feature into the design to address the scenario where the southbound carriageway is closed due to flooding at Bells Creek. They acknowledged that the proposed road widening consitutes a significant improvement to the flood evacuation capacity of the road.

Response

A hydraulics and hydrology assessment was prepared during preparation of the REF to inform the design of the proposal. The assessment described the existing flooding conditions and discussed the flood impacts as a result of the proposal, as summarised in section 6.2 of the REF.

Bells Creek has a wide floodplain both upstream and downstream of the proposal and Richmond Road is currently inundated north of the intersection with Rooty Hill Road North during the 1% AEP flood event.

As part of design development the location and dimensions of the flooding channel on the eastern side of Richmond Road presented in the REF have changed (refer section 4.2 of this Determination Report). The updated flooding impacts of the proposal (based on the realigned flooding channel) are outlined in section 5.5 of this Determination Report. The assessemnt shows that the section of Richmond Road between Rooty Hill Road North and Townson Road would be above the 0.2% AEP flood level. This immunity would meet the Richmond Road flood evacuation route requirements.

2.7 Issue 5: Noise and vibration

2.7.1 Existing noise and vibration

Submission number(s)

1

Issue description

The respondent expressed concerns about the existing nighttime noise pollution caused by traffic, including trucks, motorcycles, and cars. They were also concerned about vibration issues from trucks as they decelerate at traffic lights.

Response

A Noise and Vibration Assessment was carried out to understand the existing noise environment along Richmond Road and to assess the potential noise and vibration impacts on sensitive receivers during construction and operation of the proposal. The assessment is provided in section 6.7 and Appendix G of the REF.

The assessment involved carrying out background noise monitoring and simultaneous traffic counts to quantify the background environment. Background monitoring showed that a number of sensitive receivers have pre-existing exposure to high noise levels due to the existing operation of Richmond Road. The concern around existing traffic noise is acknowledged and has been considered when asessing whether receviers qualify for the consideration of mitigation to treat existing traffic noise. Mitigation for high existing traffic noise is incorporated into the cumulative limit and acute noise level triggers as defined in Road Noise Mitigation Guideline (TfNSW, 2025).

Noise mitigation for operational noise will be further considered as the design progresses at properties that may qualify for the consideration of noise mitigation based on the triggers described within the Road Noise Mitigation Guideline (TfNSW, 2025) and would be subject to feasibility and reasonability considerations.

2.7.2 Noise mitigation

Submission number(s)

1

Issue description

The respondent requests a reassessment of noise pollution at their location and suggests extending noise-blocking barriers from the M7 Motorway ramp further down towards Stone Street to mitigate noise impacts on residential properties.

Response

A Noise and Vibration Assessment was carried out to understand the existing noise environment along Richmond Road and to assess the potential noise and vibration impacts on sensitive receivers during construction and operation of the proposal. The assessment is provided in section 6.7 and Appendix G of the REF.

Based on the operational road traffic noise assessment, overall the proposal is not predicted to increase traffic noise levels by more than 2 dBA at the assessed receivers. However, due to existing high traffic noise levels from roads within the study area, up to 109 residential receiver locations and two non-residential receiver locations may qualify for the consideration of operational noise mitigation.

Noise mitigation for operational noise will be further considered as the design progresses at properties that may qualify for the consideration of noise mitigation based on the triggers described within the Road Noise Mitigation Guideline (TfNSW, 2025) and would be subject to feasibility and reasonability considerations.

2.8 Issue 6: Property and land use

Submission number(s)

15

Issue description

The respondent would like confirmation if the identified address is subject to compulsory acquisition as part of the proposal. Based on statutory searches, the repondent believes the address is subject to a compulsory acquisition for road purposes.

Response

There is no proposed property acquisition at the address identified by the respondent associated with this proposal. The respondents concern may refer to the partial acquisition at the front of the address, which has been completed and dedicated as road reserve a number of years ago.

The current design does not include widening of the pavement at the address identified by the respondent, so it is unlikely significant property adjustment works (e.g. tying in driveways to match new levels) would be required.

2.9 Issue 7: Project justification

Submission number(s)

28

Issue description

The respondent is concerned about the justification of the proposal and its alignment with the strategic plans and strategies outlined in section 2.1.1 of the REF, noting:

- The NSW Long Term Transport Masterplan 2012 has been superseded by the Future Transport Strategy 2022 and cannot be used to justify the proposal.
- The project objectives outlined in section 2.3.1 of the REF are not well aligned with the strategic goals in the Future Transport Strategy, the respondent outlined the strategic directions which have not been adequately addressed by the proposal.
- Whether the proposal has demonstrated a Vision and Validate Approach as described in Future Transport Strategy.

Response

It is acknowledged that the NSW Long Term Transport Master Plan (TfNSW, 2012) was replaced by the *Future Transport Strategy 2056* (TfNSW, 2018) which has since been replaced by the Future Transport Strategy (TfNSW, 2022a) (The Strategy). The NSW Long Term Transport Master Plan was incorrectly outlined in the REF.

However, the Future Transport Strategy (The Strategy) was also addressed and discussed in section 2.1.1 of the REF, along with other State and local strategic plans which refer to the need for improving safety and efficiency of roads in the State. The proposal is considered consistent with these strategic plans. Specifically, the proposal's consistentcy with the strategic directions (C1, C2 etc.) of The Strategy is provided as follows:

- 'C1: Connectivity is improved across NSW': Upgrades to Richmond Road would improve the efficiency and reliability of Richmond Road for commuters and freight in north-west of Sydney, making it easier to move in and around the area. The proposal would create a smoother transition between the M7 Motorway and future urban development north towards the Hawkesbury River. This connection would increase capacity, improve reliability and safety on Richmond Road and the M7 Motorway, enhancing the road experience and affording the opportunity to reconsider the conditions for all drivers, cyclists and pedestrians.
- 'C2: Multimodal mobility supports end to-end journeys': Active transport provisions of the proposal include a shared pedestrian and bicycle path on the western side of Richmond Road, where it would connect to the existing shared path. There would also be retention of the five bus stops along Richmond Road within the proposal area. The new staged pedestrian crossings would allow for improvements to pedestrian safety at the intersections. The dedicated bus lanes at the intersection of Richmond Road with Langford Drive / Alderton Drive and Hollinsworth Road / Townson Road would be retained.
- 'P1: Supporting growth through smarter planning': The NSW Government established the NWGA as a location for greenfield urban growth including housing, employment, shops, health and education facilities, parks and bushland. The proposal forms part of Transport's North West Growth Centre Road Network Strategy (TfNSW, 2015) to support development in the fast-growing NWGA.
- 'P2: Transport infrastructure makes a tangible improvement to places': The proposal would ease congestion and improve travel times for all users through increased capacity and new dedicated movement lanes. The proposal includes retention of vegetation along the eastern side of the road corridor and incorporates supplementary new plantings on the western side to mitigate loss of existing trees and provide visual amenity, and new planting within the median. Further to landscaping, the proposal would include opportunities to include cultural interpretations or design into the proposed road infrastructure (i.e. the flyover bridge or abutments).
- 'E1: Freight networks and supply chains are efficient and reliable': Richmond Road is a key north-south state arterial road corridor that forms part of the wider road transport network connecting commercial and industrial land uses in north-west Sydney. The proposal would support economic growth and productivity by providing road capacity for projected freight and general traffic volumes.
- 'E2: Existing infrastructure is optimised': Although the proposal includes the building a new flyover bridge from the M7 Motorway Rooty Hill Road North off-ramp landing on Richmond Road, much of the other features include upgrades to the existing infrastructure. This includes widening of the existing roads and median, upgrades to intersections with additional turning lanes, and retention of the bus stops and bus lanes.

The 'vision and validate' approach starts with a long-term vision and establishes the outcomes needed to deliver that vision for customers and communities. This proposal forms part of Transport's broader North West Growth Centre Road Network Strategy (TfNSW, 2015) to support the forecasted population and economic growth in the NWGA.

Further information on the strategic context of the proposal is provided in section 3 of the Traffic and Transport Assessment (Appendix C of the REF).

2.10 Issue 8: Out of scope

Submission number(s)

7, 8, 12, 13, 16, 21

Issue description

The community suggested a number of solutions to improve traffic flow including:

- Constructing a road to connect Langford Drive to Rooty Hill Road North to reduce traffic at the Rooty Hill Road North and Richmond Road intersection.
- Constructing a road to connect Luxford Road to Richmond Road, along with extending Daniels Road to divert traffic from the Rooty Hill Road North intersection.

- Using Stony Creek Road as an alternative to reduce travel time on Richmond Road and suggested constructing a local connection between Bligh Park and Windsor Downs to reduce traffic congestion on A9/Richmond Road corridor.
- Constructing the M9 Motorway as a solution to ease the heavy traffic burden on Richmond Road. Additionally, they raised questions regarding the absence of plans to widen the M7/M2 between Richmond Road, Windsor Road, and the M2 interchange.
- Reopening the road in Bidwill that was closed when Luxford Road was extended to Rooty Hill Road North during the 1980s-1990s to reduce congestions at the Richmond Road / Rooty Hill Road North intersection.
- Extending Daniels Road through to Hollinsworth Road.

Response

The objective of the Richmond Road Upgrade is to ease congestion and improve travel time along the corridor. The road widening would improve safety for all road users and optimisation of the signal phasing would improve traffic flow through the intersections on Richmond Road. The new flyover bridge from the M7 Motorway would provide a direct connection to Richmond Road and reduce the number of vehicles turning right at the Rooty Hill Road North intersection.

The current scope of this proposal is on Richmond Road between the M7 Motorway and Townson Road. The request for additional upgrades and new link roads/improvements are noted but are outside the scope of this proposal. Transport is continuously monitoring the road network and investigating future projects to support housing and population growth in existing and growing areas.

Local roads such as Stoney Creek Road, Daniels Road and other future local connections are under the care and control of the local council. Related matters raised during consultation have been forwarded to the relevant authority (Council). Community members are encouraged to contact Council regarding local road concerns and Transport will continue liaising with Council regarding overall road network improvements within the area.

2.11 Dharug Strategic Management Group

The Dharug Strategic Management Group (DSMG) raised a number of concerns in relation to the proposal including:

- Impacts on cultural values at the heritage listed Blacktown Native Institution site.
- Visual, amenity, overshadowing, privacy and noise impacts of the proposed flyover bridge.
- Impacts of the proposal on the water and women's values of Bells Creek.
- Lack of safe, sustainable and permanent access to the DSMG owned portion of the Blacktown Native Institution site for community programs, events and ceremonies.
- Loss of trust in Transport as a reliable partner in future management of the Blacktown Native Institution site.
- Impacts on future plans for the site including constraints on delivery of the Landscape Masterplan, Conservation Management Plan and the culturally-led ecological restoration program at the Blacktown Native Institution site.

A detailed summary of the issues raised by the DSMG and a response to each issue is provided in Table 2-2.

Table 2-2 Dharug Strategic Management Group issues

Issue raised / suggested mitigation by DSMG	Response
Dharug cultural values and the heritage listed Blacktown Native Institution site The heritage listed Blacktown Native Institution site includes all land listed on the SHR, not only the land held by DSMG. The cultural landscape holds significance to the Dharug people, particularly around Bells Creek as an area associated with both a Women's Area and Men's Camp. The site also holds historical importance due to its connection to the Colebee and Nurragingy Land Grant. The cultural values of the heritage listed Blacktown Native Institution site are well-documented in the CMP and Dharug	Responding to these comments, the SOHI has been updated to identify the social and cultural values of the heritage listed Blacktown Native Institution site and the broader cultural landscape to inform an updated assessment of the proposed impacts to these heritage values. This includes existing (historic and contemporary) values, ongoing cultural values of place and future aspirations for the heritage listed Blacktown Native Institution site. Information was gathered through ongoing engagement with the DSMG including the REF submission and publicly available information including but not limited to

Issue raised / suggested mitigation by DSMG	Response
oral history. Threatening these cultural values would divide, diminish and devalue the Dharug community. Detail: • Cultural assessment does not include intangible heritage and cultural values. • Blacktown Native Institution site well documented for cultural values in CMP. • Proximity to land grants and camping areas. • Only piece of land owned by Dharug people and commitment from Transport should prioritise outcomes proposed by DSMG and the broader Dharug community. Suggested mitigation measures: • Fund DSMG to commission independent cultural values assessment for this project. • This assessment should take into consideration the CMP undertaken by GML (2024). • Recommendations from this cultural values assessment should inform updates to the project and Transport will report to DSMG to demonstrate how recommendations have been addressed.	commentary from Registered Aboriginal Parties informing the Aboriginal cultural heritage assessment report, and the CMP (GML, 2023). A meeting with DSMG and Transport was held on 15 May 2025 to discuss the DSMG submission to the displayed REF and to outline the updates to the SOHI considering the social and cultural values of the proposal on the heritage listed Blacktown Native Institution site relevant to the study area and seek input if the additional assessment has adequately assessed the impacts of the proposal to these values. Transport and the DSMG have agreed to form a Working Group to work through the design issues and potential impacts of the proposal to the social and cultural values of the heritage listed Blacktown Native Institution site and the broader cultural landscape. The updated SOHI is summarised in section 5.2 and provided in Appendix D. The outcomes of the updated SOHI will further inform the work of the DSMG Working Group in refining and development of the detailed design.
Visual, amenity, shadow, privacy, noise impacts of flyover Concern that the proposed flyover would dominate the visual landscape, create significant overshadowing of the site and introduce a new source of traffic noise. These impacts would have implications for access to solar power and influence amenity and useability of the area long identified as the preferred location for a Dharug Culture Centre. Concerns that increased traffic noise would impact on the Women's area and other areas which are aimed to be restored as more peaceful areas for ceremony. The DSMG also noted the REF does not contain any shadow diagrams showing the impact of the proposal, or assessment of the implications for solar power potential across the site. Summary: • Significant overshadowing of the site • Lack of privacy with elevated bridge • Noise generated from elevated roadway • Landscape character impact has been rated as high for the Blacktown Native Institution site • Lack of overshadowing diagrams to show the impact of the flyover structure. Suggested mitigation measures: • Incorporate further landscape screening to increase privacy and reduce visual impacts • Include appropriate screening facing Blacktown Native Institution site to new access flyover bridge in close negotiation with Dharug • Overshadowing diagrams are required to assess the impact of the proposed flyover on the Blacktown Native Institution site particularly in relation to solar gain issues for future Culture Centre.	Concerns over the visual, overshadowing and noise impacts of the proposed flyover bridge are noted, particularly in relation to areas envisioned for a Dharug Culture Centre and for peaceful reflection and cultural ceremonies in the site's future use. A landscape character and visual impact assessment (LCVIA) was prepared for the proposal as outlined in section 6.9 and Appendix I of the REF. Based on this assessment, it is acknowledged that the proposal would impact on the site's landscape character and setting, long-range views and vistas. The current concept strategy includes proposed landscaped areas and planting along the western side of Richmond Road in the vicinity of the DSMG managed site and consideration of cultural interpretation for the site to reduce the visual impact. A noise and vibration impact assessment was prepared for the proposal as outlined in section 6.7 and Appendix G of the REF. The assessment considered the noise resulting from operation of the proposal and where potential impacts were identified, mitigation measures to minimise these impacts would be implemented as outlined in section 6.7.5 of the REF. Based on this assessment the predicted road traffic noise impact at the DMSG owned portion of the Blacktown Native Institution site as a result of the proposal would not increase the existing noise levels by more than 2dB(A). In accordance with the Road Noise Policy (DECCW, 2011) 'an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person'. The alignment of the proposed flyover is north-south and has the potential to shadow the south-east corner of the DSMG owned portion of the Blacktown Native Institution site, this would be limited to early mornings. The concerns relating to overshadowing and privacy have

Issue raised / suggested mitigation by DSMG	Response
	been noted and mitigation options to minimise impacts would be considered during detailed design. In response to these comments, Transport and the DSMG have agreed to form a 'Working Group' (The DSMG Working Group) to collaborate and work through issues raised by the Aboriginal community and expressed by the DSMG. The Working Group will support detailed design development, explore project opportunities for cultural inclusion. The Working Group will be led by an agreed governance system, with clear terms of reference, accountability and reporting processes, and will be further supported by the engagement of an independent facilitator. The following would be considered as part of the Working Group, with the aim of reducing the identified impacts on the amenity and aspirations for the site: • the opportunity to mitigate visual impacts of the proposal from the Blacktown Native Institution site, including cultural interpretations or design into the proposed road infrastructure (i.e. the flyover bridge or abutments) • the opportunity for culturally sensitive and locally indigenous plantings within the road corridor • management of noise impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use. • management of potential overshadowing and privacy impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use.
Water and woman's area values of Bells Creek Concerns that alterations to Bells Creek would have an impact on the significant values associated with Bells Creek including the ongoing cultural value to Dharug women. The whole area is considered culturally significant including the casuarina and eucalypts trees which are deeply valued. Construction impacts including tree removal, construction of the new duplicated Bells Creek bridge and the open flooding channel (and associated changes in flow and flooding) would be sources of lasting distress to community members and the Blacktown Native Institution site herself. The area is currently central to the internationally funded culturally led ecological restoration program underway. The community expresses trauma over the lack of consultation and the failure of the Aboriginal Cultural Heritage Assessment to acknowledge the site's cultural significance. The assessment is criticized for reducing rich cultural history to a single sentence and focusing narrowly on archaeological relics. Summary: • Significant values associated with Bells Creek • Loss of trees proposed for new bridge	Responding to these comments, the SOHI has been updated to identify the social and cultural values of the heritage listed Blacktown Native Institution site and the broader cultural landscape to inform an updated assessment of the proposed impacts to these heritage values. This includes the values associated with, in and around Bells Creek. The updated SOHI includes additional assessment of how the proposal may affect these values. The updated SOHI is summarised in section 5.2 and provided in Appendix D. The ACHAR has also been updated to provide further information on cultural heritage values as outlined in the CMP (GML, 2024). It is noted that the ACHAR follows the requirements of the *National Parks and Wildlife Act 1974* to manage disturbance to Aboriginal objects. A full assessment of potential impacts to cultural values is included in the SOHI. The updated ACHAR is summarised in section 5.1 and provided in Appendix C. Transport and the DSMG have agreed to form a Working Group to work through the design issues and potential impacts of the proposal to the social and cultural values

Issue raised / suggested mitigation by DSMG	Response
• Impact on ecological and cultural integrity of the area • Concern regarding open channel proposed for area adjacent to Richmond Road and the impact it will have on Bells Creek Suggested mitigation measures: • Fund DSMG to commission independent cultural values assessment for this project • This assessment should take into consideration the CMP undertaken by GML (2024) • Review length, width and location of flyover bridge to reduce impact on creek.	of the heritage listed Blacktown Native Institution site and the broader cultural landscape. The Working Group will discuss opportunities to refine the design to reduce impacts around Bells Creek and to improve the overall quality of the landscape. This process will consider all the proposed elements of change to the Bells Creek area from the construction impacts proposed.
Lack of safe and permanent access The REF acknowledges that access to the DSMG owned portion of the Blacktown Native Institution site from Richmond Road would be removed. In response, a proposal was made by the DSMG to create a permanent access via Rooty Hill Road North at the M7 Motorway off ramp intersection, with support from Blacktown City Council. This proposal also included a safer bus bay to improve pedestrian and traffic safety. However, the initial response from Transport was dismissive, offering a less safe alternative driveway location. While there is now some openness to collaborate with the Dharug community, DSMG and Council there is concern that a temporary, unsafe access solution may become permanent, and that a comprehensive redesign of the intersection may be excluded from the proposals scope. Summary: • Need to find a safe permanent access that considers the increase in traffic and future access to the site • Concern regarding lack of negotiation and commitment regarding alternative access to the site Suggested mitigation measures: • Include safe access off Rooty Hill Road North at the signal-controlled intersection with the permanent M7 Motorway slip road • Commission independent assessment of the proposed signal-controlled access through this intersection	Transport recognises the need to provide safe access and egress to the DSMG owned portion of the Blacktown Native Institution site both temporarily during construction and permanently. As outlined in section 2.4.5 of the REF, a number of temporary options from a traffic and safety perspective were considered during the concept design for provision of temporary access during construction. The preferred option from a safety and constructability perspective was located on Rooty Hill Road North, north of the M7 Motorway off-ramp. Following this concept design process, a Vision for Country (COLA, 2024) report was made available as part of Connecting with Country for the heritage listed Blacktown Native Institution site. The report includes a location of the driveway, which is in a different location to the preferred temporary option identified in the REF. The exact location of the temporary and permanent alternative driveway would be determined through further discussions and consultation with the DSMG to minimise impacts to the Blacktown Native Institution heritage listing and maximise potential future use of the site as part of detailed design development through the Working Group. Discussion would consider future plans for the DSMG owned portion of the Blacktown Native Institution site and in consultation with Blacktown City Council. It would take into account future traffic patterns and safety considerations. Permanent safe access and egress to the DSMG owned portion of the Blacktown Native Institution site would be established and enhanced to ensure continued accessibility of the site by the community. As the final location of the permanent access to the site is yet to be determined, it is not included as part of the REF or Determination Report and additional assessment would be required under relevant sections of the EP&A Act.
Loss of trust in Transport The failure to consult with the DSMG, both as property owners and cultural custodians of the heritage listed Blacktown Native Institution site, was not just a procedural lapse but an offensive and traumatic act that threatened the integrity and future of the most significant Dharug site.	The loss of trust in Transport by the DSMG is a significant concern for Transport. To rebuild this trust, Transport is committed to collaborating with the DSMG to resolve these issues. Consultation has been ongoing since display of the REF and will continue throughout detailed design as part of the Working Group.

Issue raised / suggested mitigation by DSMG	Response
This loss of trust in Transport's processes has made it harder to gain Dharug community support for any future mitigation or co-design efforts related to the proposal's impact on the heritage listed Blacktown Native Institution site. DSMG welcome the very recent shift in Transport's approach to addressing concerns, but still feel there is a deep and distressing lack of understanding of the nature of Nura, the significance of the heritage listed Blacktown Native Institution site and the impacts of the proposal. Summary: • Expectation that DSMG run community engagement • Lack of transparency • REF made public before issues resolved • Concern regarding engagement expected to take place over the holiday period. Suggested mitigation measures: • Commission independent Aboriginal engagement consultant to undertake broader engagement with the community. • Develop formal partnership with DSMG to engage with subcommittee on a regular basis to negotiate mutually agreed outcomes. • Clear reporting and accountability processes to be agreed and delivered, secured by MOU or similar.	Consultation with the DSMG as a key stakeholder for the proposal has been undertaken during development of the concept design as outlined in section 5.3.3 of the REF. Following display of the REF further consultation has been undertaken with the DSMG as follows: • 1 November 2024 – Walk on Country with DSMG, Nguluway Design Inc and Transport as part of the Connecting with Country engagement process. • 14 November 2024 - Meeting with DSMG and Transport to discuss the REF prior to public display and seek feedback. • 28 November 2024 – Walk on Country with DSMG, Transport and Stantec to discuss the proposal. • 15 May 2025 – Meeting with DSMG and Transport to discuss the DSMG submission to the displayed REF and to outline the updates to the SOHI considering the social and cultural values of the proposal on heritage listed the Blacktown Native Institution site relevant to the study area and seek input if the additional assessment has adequately assessed the impacts of the proposal to these values. DSMG and Transport have come to an agreement, comprising the formation of a Working Group to collaborate and work through issues raised by the Aboriginal community and expressed by the DSMG in their REF submission to support detailed design development, explore project opportunities and guide project delivery. The Working Group will be led by an agreed governance system, with clear terms of reference, accountability and reporting processes, and further supported by the engagement of an independent facilitator.
Future management of the Blacktown Native Institution site DSMG has played a key role in shaping a Conservation Management Plan (CMP) and Landscape Masterplan for the Blacktown Native Institution site. However, fragmented land ownership currently hinders the full realization of the community's vision for the site as a place of truth-telling and healing. There is hope that once the proposal is complete, Transport would transfer land within the SHR curtilage to Dharug ownership, enabling long-term care and management of the site. The Blacktown Native Institution site remain as rich place for wildlife and landscape connectivity, hosting a diverse birdlife, kangaroos, reptiles, amphibians and insects. Concern that the ancillary site at the northern edge of the site would have an impact on connectivity. Loss of future use and enjoyment of the Blacktown Native Institution site, including constraints on delivery of the CMP and Landscape Masterplan. DSMG has invested substantial funds and effort into pursuing the Dharug community vision of the Blacktown Native Institution site as a Dharug place of truth-telling and healing. It introduces a Dharug Culture Centre	Transport recognises the fragmented land title and that management of the Blacktown Native Institution site may affect the DSMG's capacity to achieve its vision for the Aboriginal community for the place. Transport will discuss options on how to manage this issue with the DSMG as the project progresses. Transferring of land ownership of the road corridor (or part of) to DSMG at the completion of the construction is not feasible due to the need to maintain road safety standards and maintenance access as part of the ongoing operation of Richmond Road. Consideration will be given throughout detailed design to compliment landscaping along the edge of the road corridor with the future plans for the design and use of the DSMG owned property. Wildlife connectivity would be considered during detailed design including configuration of the ancillary site to ensure it would allow for connectivity where required. As part of the concept design development and preparation of the REF, a Connection to Country process was commenced to better understand Aboriginal stakeholders' primary concerns and aspirations for the

Issue raised / suggested mitigation by DSMG	Response
that would foster arts, culture, enterprise and education as well as providing a keeping place for Dharug materials. The Urban Design Concept and Landscape Character and Visual Impact Assessment Report (REF Appendix I) overlooks the existing CMP, Landscape Masterplan and community vision for the environmental restoration and cultural use of the site. Summary: • Ecological restoration program • Wildlife safety and movement • Landscape connectivity • Cultural centre site impacted by overshadowing • Impact of overshadowing on future solar power • Visual impact assessment has not considered future development plans and identifies Blacktown Native Institution site as open rural grassland. Suggested mitigation measures: • Review visual and landscape character impact assessment to include proposed plans for Blacktown Native Institution site.	area surrounding the proposal. This process continued following REF display and considered the Vision for Country (COLA, 2024) report. Detailed design would take into consideration the findings and recommendations of the Conservation Management Plan (CMP) (GML, 2024) and Connecting with Country (Nguluway, 2025) reports. Transport is committed to working with the DSMG through the Working Group to support the proposed development and aspirations of the Blacktown Native Institution site. An important element to consider is that a broader delivery of DSMG's aspirations for the Blacktown Native Institution site are beyond the boundaries of the proposal. The Working Group will discuss how the proposal can support the aspirations of the Blacktown Native Institution site including: • the location and design of the interim and potential permanent driveway relocation • the opportunity to mitigate visual impacts of the proposal from the Blacktown Native Institution site, including cultural interpretations or design into the proposed road infrastructure (i.e. the flyover bridge or abutments) • the opportunity for culturally sensitive and locally indigenous plantings within the road corridor • the opportunity for the proposal to support the proposed development of the Blacktown Native Institution site in accordance with the Vision for Country (COLA, 2024) • the ongoing development of the Connecting with Country assessment • impacts to culturally significant vegetation within the Blacktown Native Institution heritage curtilage and opportunities for replanting (including species and locations) and/or reuse of removed vegetation • management of wildlife within the site during construction and potential future wildlife connectivity for operation of the road corridor and the DSMG site. • design impacts and management of Bells Creek within the Blacktown Native Institution site during construction and plans for regeneration of the creekline as part of the works. • management of noise impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use. • management of potential overshadowing and privacy impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use.

2.12 Ahmadiyya Muslim Association Australia

The Ahmadiyya Muslim Association Australia (AMMA) raised concerns regarding the existing access to their site and is advocating for the inclusion of direct access from Richmond Road to be considered as part of the proposal.

A detailed summary of the issues raised by the AMAA and a response to each issue is provided in Table 2-3.

Table 2-3 Ahmadiyya Muslim Association Australia issues

Issue raised	Response
The current access points to the site via Langford Drive and Hollinsworth Road are no longer adequate to meet the needs of the growing community. To improve safety, efficiency and traffic flow, the AMAA are advocating for the inclusion of direct access from Richmond Road to their site as part of the upcoming infrastructure plans. The AMAA seek to collaborate with relevant parties to find effective solutions to meet the growing needs of the community.	Providing access via Richmond Road to the Masjid Bait-ul-Huda Mosque (the mosque) would increase safety risks for road users. The proposed access is in a "traffic conflict location". The access is too close to the existing signalised intersection where competing traffic movements (left, through and right) exist. Adding another merge lane causes unsafe lane changes and introduces multiple left turn where driver needs to slow down to turn left within a short section of Richmond Road. As a result, the change cannot be supported for road operation and safety reasons. The mosque has existing safe alternate access via local roads including Hollinsworth Road and Langford Drive. Requests to change the existing access should be discussed with Blacktown City Council as the appropriate approval authority who would advise on the relevant approval process. On Friday, 5 July 2024, Transport met representatives from the AMAA who manage the mosque. Transport provided a comprehensive overview of the proposal and discussed the road safety and access difficulties resulting from the AMAA proposal. The advice above was provided to the AMAA at this meeting.

2.13 Heritage NSW

Heritage NSW provided a response to the Statement of Heritage Impact (SOHI) and the Aboriginal Cultural Heritage Assessment (ACHA) reports prepared in support of the REF. Key concerns with each assessment are as follows:

- SOHI: The SOHI assessment of the heritage listed Blacktown Native Institution site is limited to the tangible physical, visual aesthetic and archaeological impacts of the proposal. The SOHI needs to include an assessment against the historical and social values of the site with an understanding of the site as an Aboriginal cultural landscape interlined with historic and contemporary uses. The proposal should address and demonstrate compliance with Conservation Management Plan (GML, 2023) policies, and alignment with the Blacktown Development Control Plan 2015. A more pro-active approach to archaeological management is also required in accordance with the *Heritage Act 1977*.
- ACHA: Believes the ACHA report is not sufficient to support an Aboriginal Heritage Impact Permit (AHIP) application. The AHIP must be accompanied by appropriate documentation, consultation and archaeological management. It is also noted that the proposal cannot proceed under existing AHIP permits, as the proposed works differ from those identified in the permits

A detailed summary of the issues raised by the Heritage NSW and a response to each issue is provided in Table 2-4.

Table 2-4 Heritage NSW issues

Issue raised	Response
Aboriginal Cultural Heritage Assessment Report (ACHAR)	
ACHAR Raised concerns that they believed the ACHAR is not sufficient to support an Aboriginal Heritage Impact	The additional requirements are noted and the requirements, including the full consultation log would be included within the AHIP submission.

Issue raised	Response
Permit (AHIP) application, noting the AHIP must be accompanied by appropriate consultation, mapping, archaeological management and must comply with guidelines and legislative requirements.	
Advice An AHIP for the proposed works must be sought and granted prior to the commencement of works.	As identified in the REF, an AHIP would be sought for the proposed works prior to the commencement of works in the southern section.
The AHIP application must be accompanied by appropriate documentation and mapping outlined in Applying for an Aboriginal Heritage Impact Permit: Guide for applicants (OEH, 2011a).	The advice is noted, and the requirements would be addressed within the AHIP submission.
Consultation with the Aboriginal community undertaken as part of the AHIP application must be in accordance with the Aboriginal cultural heritage consultation requirements for proponents (DECCW, 2010a).	The ACHAR for the proposal has been prepared in accordance with Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010a). A full consultation log would be included within the AHIP submission.
The AHIP application must be completed with reference to the requirements of the Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011b).	The ACHAR for the proposal has been prepared in accordance with the Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011b).
The AHIP application must include complete records satisfying the requirements of the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b).	The test excavation program was carried out in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b). The archaeological (scientific) significance of the portions of the identified Aboriginal sites within the proposed works area was assessed using the significance assessment criteria outlined in the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b).
Long term management of Aboriginal objects must be considered as part of the AHIP application.	The long-term management of collected Aboriginal objects would be determined in consultation with the project's registered Aboriginal stakeholders and in accordance with the conditions of the AHIP, if approved.
Updated Aboriginal Heritage Information Site Management System (AHIMS) site recording forms, or Aboriginal Site Impact Recording Forms (ASIRFs) will need to be completed.	This advice is noted and would be completed following salvage excavation and surface collection.
Aboriginal community consultation must be maintained Consultation with registered Aboriginal parties must be maintained, and project updates provided to the registered Aboriginal parties every six months to ensure the consultation is continuous.	Transport recognises the consultation requirements to the registered Aboriginal parties (RAPS) and will continue this throughout the project.
Overlapping Aboriginal Heritage Impact Permits (AHIP) The REF states that any works within existing AHIP 5224 and AHIP 5276 must comply with current permit conditions of AHIP. However, Heritage NSW has advised that the proposed works cannot proceed under the existing AHIPs, as they differ in nature from those currently authorised. To proceed,	There is an overlap between the impact area (ACHAR study area) and existing AHIP 5276. As such, an application for an AHIP would be made for the land and associated objects within the boundaries of the impact area (ACHAR study area), excluding the area within the boundary of AHIP 5276. There would be no overlap between the AHIP 5276 and the proposed AHIP application area for the proposal.

Issue raised	Response
Heritage NSW recommends that either the permits be amended to include the new works or the AHIP boundaries be adjusted to eliminate any overlap with the proposal.	The updated ACHAR has assessed the proposed activities and harm as consistent with the permit conditions and authorised harm from AHIP 5276. AHIP 5224 is adjacent to the impact area (ACHAR study area) and would not be impacted.
Statement of Heritage Impact (SOHI)	
The SOHI assessment is limited to the tangible physical, visual aesthetic and archaeological impacts of the proposal and omits assessment of the potential impacts on the full range of the site's heritage values, which also includes historical and social values. The SOHI needs to include an assessment of impacts on historical and social values of the site to the contemporary Aboriginal community. Parts of the community have a strong, meaningful and ongoing relationship with the site and the impacts of the proposal to these social values requires assessment.	The SOHI has been updated to identify the social and cultural values of the heritage listed Blacktown Native Institution site and the broader cultural landscape to inform an updated assessment of the proposed impacts to these heritage values. This includes existing (historic and contemporary) values, ongoing cultural values of place and future aspirations for the Blacktown Native Institution site. The updated SOHI is provided in Appendix D, and a summary is provided in section 5.2 of this Determination Report. Following display of the REF further consultation has been undertaken with the DSMG as follows: • 1 November 2024 – Walk on Country with DSMG, Nguluway Design Inc and Transport as part of the Connecting with Country engagement process. • 14 November 2024 - Meeting with DSMG and Transport to discuss the REF prior to public display and seek feedback. • 28 November 2024 - Walk on Country with DSMG, Transport and Stantec to discuss the proposal. • 15 May 2025 – Meeting with DSMG and Transport to discuss the DSMG submission to the displayed REF and to outline the updates to the SOHI considering the social and cultural values of the proposal on heritage listed the Blacktown Native Institution site relevant to the study area and seek input if the additional assessment has adequately assessed the impacts of the proposal to these values. Any formal comments received from the DSMG on the updated SOHI would be incorporated into the updated SOHI to be attached to the section 60 application. The DSMG and Transport have come to an agreement, comprising the formation of a 'Working Group' (The DSMG Working Group), purposed to collaborate through issues raised by the Aboriginal community and expressed by the DSMG in their REF submission to support detailed design development, explore project opportunities and guide project delivery. The Working Group will be led by an agreed governance system, with clear terms of reference, accountability and reporting processes, and further supported by the engagement of an independent facilitator. It is intended that the process of issue resolution and design refinement will link back to the section 60 application ensuring a clear connection between managing heritage impacts to significant values as part of this process.
Given the intangible nature of the social values, the site must be assessed as a whole, as the impacts cannot be contained within the physical division of land between the study area and the wider Blacktown Native Institution site.	
The Blacktown Native Institution site represents a significant cultural landscape to the contemporary Aboriginal community. The SOHI should include an understanding of the site as an Aboriginal cultural landscape interlined with historic and contemporary uses.	
The Colebee and Nurragingy Land Grant is listed for its social values and the assessment should be reviewed to include assessment of impacts to those values.	Although the area of the Colebee and Nurragingy Land Grant is excluded from the proposal area, the updated SOHI includes additional assessment of potential impacts to historical and social values associated with the broader cultural landscape of the area which may be affected by the proposal, including ongoing

Issue raised	Response
	connections and potential impact to future aspirations, which includes the land grant site. The updated SOHI is provided in Appendix D, and a summary is provided in section 5.2 of this Determination Report.
Following an updated impact assessment in consideration of the above, robust mitigation measures are to be included to address the potential impacts.	Additional mitigation measures have been included in the updated SOHI, primarily focussed around formation of a Working Group with representatives of DSMG and the Transport project team, and how the outcomes of the Working Group would inform the development of the detailed design for the proposal. The additional mitigation measures are outlined in 5.2.4 of this Determination Report.
The proposal should address and demonstrate compliance with the following Conservation Management Plan (CMP) (GML, 2023) Policy (8.2.6/38): "Any new development should ensure uses are compatible with the significance of the Blacktown Native Institution and support cultural, social, and economic life in the community. New development should enhance visitor experience and amenity and be compatible with the conservation, commemoration, and celebration of the place's values."	An assessment of the proposal against the relevant heritage policies in the CMP (GML ,2023) was undertaken for the REF. Following public display of the REF, an updated assessment has been undertaken as outlined in section 9.2.1 of the updated SOHI (refer Appendix D). The purpose of the proposal is to upgrade the existing road corridor, a use which is not fully aligned with this CMP policy. However, the approach to managing this change to accommodate the road upgrade seeks to respect the significance and future aspirations for the place. Through the DSMG Working Group, Transport will continue to work collaboratively through these issues during the development of the detailed design. This process for managing the change should align with the CMP policy's intent and aims.
The SOHI Overview of Findings needs to adequately represents the archaeological value of the site.	Transport recognises Heritage Council of NSW's concerns and proposes a pro-active approach to archaeological management in the updated SOHI. Transport recognises that the DSMG and the Aboriginal community that they represent, should have the opportunity to consider this proposal and inform its approach. Transport commits to working with the DSMG to develop a methodology to investigate the potential for un-marked Aboriginal burials and for this information to inform the development of the detailed design together with the DSMG Working Group. To support this, Transport is preparing an Archaeological Methodology and Research Design (AMRD) for the proposed work which would be discussed with DSMG, to seek their support. Further archaeological assessment is proposed during detailed design which includes the potentially significant archaeological resource on the eastern side of Richmond Road, south of the Colebee and Nurragingy Land Grant and within the Sylvanus Williams Land Grant. This land is outside the SHR curtilages of the Blacktown Native Institution site or Colebee and Nurragingy Land Grant. If the assessment determines that archaeological resources of local or State significance may be present and cannot be avoided through development of the detailed design in this area, an application for a section 140 excavation permit would be sought by the project prior to any disturbance to significant archaeological resources in this area to manage them appropriately. Detail on the archaeological value within the proposal area including the potential for un-marked burials and archaeological resources on the eastern side of Richmond Road is presented in the updated SOHI Overview of Findings.
Given the SOHI findings, which indicate there is potential for State significant archaeology, a more proactive approach to archaeological management is required in accordance with the *Heritage Act 1997.* This includes the potential for unmarked Aboriginal graves and the potential for State significant archaeological resources on the eastern side of Richmond Road (timber hut associated with Nurragingy).	

Issue raised	Response
The SOHI's recommendation to seek section 60 approval for the project is supported, including provisions for archaeological management. A future section 60 application would be required to address all the matters raised above in its supporting documentation.	The section 60 application under the *Heritage Act 1977* would be supported by the updated SOHI which addresses the comments received from Heritage Council of NSW. Transport is preparing an Archaeological Methodology and Research Design (AMRD) for the proposed work which would be included in the section 60 application.
It is noted that the SOHI assesses the proposal as inconsistent with a number of the policies of the Blacktown Development Control Plan 2015 related to design. The detailed design phase should attempt to bring the proposal into alignment with those policies.	An assessment of the proposal against the relevant heritage policies in the Blacktown Development Control Plan 2015 (DCP) was undertaken for the REF. Following public display of the REF, an updated assessment has been undertaken as outlined in section 9.2.2 of the updated SOHI (refer Appendix D). The inconsistencies of the proposal against the DCP polices relate to the proposed flyover bridge which would have an adverse impact on the heritage significance, social and cultural values of the heritage listed Blacktown Native Institution site. However, the proposal's approach to managing change to accommodate the road upgrade would respond to the aspirations and significance of the place through the work of the DSMG Working Group which would work through these issues in the development of the detailed design. This process for managing the change should align with the DCP policy's intent and aims. While Transport has attempted to align with provisions of the DCP, they specifically apply to development under Part 4 of the EP&A Act. Transport is a determining authority under Part 5 (Division 5.1) of the EP&A Act.

3. SEPP (Transport and Infrastructure) consultation

Blacktown City Council, State Emergency Service (SES) and the National Park and Wildlife Service (NPWS) have been consulted about the proposal as per the requirements of sections 2.10, 2.12, 2.13 and 2.15 of SEPP (Transport and Infrastructure).

Appendix B contains a SEPP (Transport and Infrastructure) consultation checklist that documents how SEPP (Transport and Infrastructure) consultation requirements have been considered.

Issues raised from this consultation with Blacktown City Council and SES are outlined in Table 3-1, along with a response to each of the issues raised.

An initial response was received from NPWS which provided clarity around the boundaries and ownership of the NPWS land and requested additional information. Transport provided a response to this enquiry and no further responses have been received at the time of writing this Determination Report.

Table 3-1 Issues raised through SEPP (Transport and Infrastructure) consultation

Group	Issue raised	Response / where addressed in Determination Report
Blacktown City Council	**Bells Creek** Council notes the importance of Bells Creek to the First Nations community and its part in the broader and high priority Eastern Creek Catchment. Considers the installation of two gross pollutant traps as inadequate for mitigating the ongoing impact of increased stormwater runoff from the site. Given the site constraints (such as limited space and topography) that restrict the feasibility of water quality basins, Council suggests meeting with Transport to explore alternative solutions or offsets that address the increased impact of the proposal on Bells Creek and its catchment.	The importance of Bells Creek to the First Nations community and the broader catchment is acknowledged. Refer section 5.2 for further information. The potential water quality impacts of construction and operation of the proposal are outlined in section 6.2 of the REF. The design proposes two additional gross pollutant traps to reduce the pollutant loads before discharge into Bells Creek. While the proposal is expected to result in a minor increase in pollutant loads compared to the existing scenario, this is considered to have a relatively negligible long-term impact on the water quality of Bells Creek given the size of the wider catchment. Water quality treatment measures and maintenance requirements would be further developed during the detailed design stage in consultation with Council. Ongoing consultation has been undertaken with Council during concept design to ensure the design solution ensures appropriate water quality management as outlined in section 5.5 of the REF. Following exhibition of the REF, Transport met with Council to discuss this aspect, and a copy of the hydraulic and hydrology assessment (including water quality assessment) has been provided. This proposed approach to water quality treatment was accepted by Council subject to it being further investigated during detailed design.
	Blacktown Native Institution site Council notes the proposal would encroach upon the Blacktown Native Institution site, impacting the master planning efforts completed to date. Additionally, the site has been identified as a key area where Council will collaborate with the DSMG to restore Bells Creek, taking into account its high cultural values.	It is acknowledged that the proposal would impact on the curtilage and social values associated with the Blacktown Native Institution site. In addition to the assessment provided in section 6.5 and Appendix F of the REF, further information on the impacts of the proposal on the values of the Blacktown Native Institution site is provided in section 5.1 and section 5.2 of this Determination Report. Consultation with the DSMG as a key stakeholder for the proposal was undertaken during development of the concept design as outlined in section 5.3.3 of the REF. Consultation will continue with the DSMG as part of an agreed Working Group informing the development of the detailed design to minimise impacts to the social and

Group	Issue raised	Response / where addressed in Determination Report
		cultural values of the Blacktown Native Institution site and the broader cultural landscape. DSMG input will be sought on a number of matters including the opportunity to reduce impacts around Bells Creek and to improve the overall quality of the landscape, and the opportunity for the proposal to support the proposed development of the Blacktown Native Institution site in accordance with the Vision for Country (COLA, 2024).
	Flooding Council seeks confirmation why the flood levels upstream of the bridge at Bells Creek decrease when the existing bridge is not being enlarged in terms of waterway area and there is fill within the existing flood extents. Council seeks confirmation that the flooding design criteria for the proposal has been met and whether the 0.2% Annual Exceedance Probability (AEP) flood evacuation level is achieved as a result of the proposal.	Modelling was undertaken to determine flood levels for the proposal. The flood levels upstream of Bells Creek decrease due to the removal of a modelled constriction in the creek bed immediately downstream of the Bells Creek bridge crossing. This removal results in reduced afflux upstream of the bridge. Modelling will continue to be refined as part of detailed design. Bells Creek has a wide floodplain both upstream and downstream of the proposal and Richmond Road is currently subject to inundation north of the intersection with Rooty Hill Road North during the 1% AEP flood event as shown on Figure 5-6. Richmond Road is a nominated flood evacuation route which is currently inundated during a 1% AEP flood event. As part of design development, the location and dimensions of the flooding channel presented in the REF have changed (refer section 4.2). The updated flooding impacts of the proposal (based on the realigned flooding channel) are outlined in section 5.5 of the Determination Report. Under the proposal, the section of Richmond Road between Rooty Hill Road North and Townson Road would be constructed above the 0.2% AEP flood level for riverine flooding. This level of flood immunity would satisfy the requirements for a designated flood evacuation route along Richmond Road flood. The hydraulics and hydrology assessment report has now been provided to Council and a meeting was held on 13 February 2025 to discuss flooding. The flooding design criteria in Table 3-1 of the REF have been achieved by the proposed design.
	Water management in northern section The northern part of the proposal drains towards Townson Road and does not drain into any if the existing section 7.11 (EP&A Act, infrastructure works or services funded through developer contributions) treatment measures. Further clarification on the proposed water quality management strategy for this portion of the proposal is required.	The water quality strategy considered for the northern section of the proposal consists of the existing treatments considered as part of the previous widening of Richmond Road from two to four lanes and development of the Marsden Park Industrial Precinct (MPIP). There is no immediate section 7.11 treatment asset for the Townson Road section, however, it has been considered as part of the overall section 7.11 Contribution Scheme for the MPIP. The existing drainage network in the northern section of the proposal remains unchanged. The hydraulic assessment indicates that the proposed runoff would continue to be adequately conveyed and treated by the existing system, ensuring no significant impacts are anticipated.
SES	Support the proposed changes to improve trafficability of evacuation routes.	Noted

Group	Issue raised	Response / where addressed in Determination Report
	Concern about evacuation routes and recommends they remain accessible to evacuation traffic during the construction phase in the event of flood warning.	Richmond Road would remain open throughout the construction period with potential lane closures and impacts to traffic flows managed under a Traffic Management Plan. Consultation with emergency services (including the SES) would be undertaken during the preparation of construction staging and planning to ensure their operational needs are incorporated in relevant management plans. This requirement is outlined in mitigation measure SE10 in Table 6-2.
	Concerned about flood impacts and risks during construction and recommends: • any plant and materials are removed and secured above the Probable Maximum Flood (PMF) level in the event of flood warnings for the area to reduce the risk of being washed into waterways. • checking the Bureau of Meteorology website prior to the start of the workday for any warnings and consider closing the worksite prior to the start of the working day if there is a risk of flooding.	The potential impacts of flooding during construction of the proposal are outlined in section 6.1 of the REF and updated in section 5.5 of this Determination Report. Flood levels and existing site conditions would be considered as part of construction staging and planning for the proposal. An additional mitigation measure has been included to ensure the recommendations are incorporated in the relevant management plans (refer mitigation measure H8 in Table 6-2).
	Recommends ensuring workers and people using the site during and after the upgrades are aware of the flood risk, for example by using signage and briefings.	The potential impacts of flooding during construction and operation of the proposal are outlined in section 6.1 of the REF and updated in section 5.5 of the Determination Report. Flood risks would be considered as part of safety plans and daily toolbox talks as per mitigation measure GEN3 in Table 6-2. The specifics of the supporting road infrastructure including signage and barriers would be confirmed during design development. These features would be designed in accordance with Australian Standards and relevant Transport guidelines.
	If the construction phase of the upgrades causes disruption to the operation of local roads, this may impact the ability for emergency vehicles to use these routes. Requests that notification be provided where there are likely to be significant delays in the operation of the roads affected by the upgrades.	Richmond Road would remain open throughout the construction period with potential lane closures and traffic flow impacts managed under a Traffic Management Plan. Emergency services (including the SES) would be notified of significant delays in the operation of the roads affected by the upgrades during construction. The SES has been included in mitigation measure TT4 in Table 6-2 to ensure this request is incorporated in relevant management plans.

4. Changes to the proposal

4.1 Change 1: Additional ancillary facilities

4.1.1 Description

Transport has identified the need for two additional ancillary facilities during construction. The additional facilities are as follows (refer Figure 4-1 and):

- Site 4: 136 South Street, Marsden Park (Lot 4, DP 1205982) (Change 1a)
- Site 5: a portion of 717 Richmond Road, Colebee (Lot 49, DP1104950) (Change 1b).

The land associated with Site 4 (136 South Street) is owned by Transport and is located around one kilometre north of proposal area outside the REF construction boundary assessed in the REF. The land is cleared and has been disturbed by historical land uses. The land is flat and covered with exotic groundcover with two exotic planted trees in the centre of the lot. The land contains boundary fencing, internal fencing and two small sheds.

(a) Site 4, looking west including exotic groundcover

(b) Site 5, looking north-east

Figure 4-1 Additional ancillary facilities photographs

The land associated with Site 5 (717 Richmond Road) is currently located on private property although full acquisition of the property is proposed as part of the proposal due to design impacts to the property. Acquisition would be undertaken following project determination (should determination proceed to be granted) and prior to the start of construction works. The site is located adjacent to the proposed works, inside the REF construction boundary assessed in the REF. The land is a rural lot containing a residential house, shed and cleared lands in the southern half. There would be no vegetation clearing associated with construction and operation of this facility.

A summary of the ancillary facilities details is provided in Table 4-1.

Table 4-1 Ancillary facility details

Ancillary facility	Location	Potential uses	Potential access	Hours of operation	Approximate size (m²)
Site 4	136 South Street approximately 1 km north of the northern end of the proposed design.	The site would be used for site offices only and could accommodate: • site offices and sheds • employee parking areas. The facility would not be used for activities such as stockpiling,	Via Richmond Road and South Street. Entrance to site at the Fermoy Road cul-de-sac (right-in / left-out).	Standard hours*	6200

Ancillary facility	Location	Potential uses	Potential access	Hours of operation	Approximate size (m²)
		storage of material and plant laydown.			
Site 5	717 Richmond Road, adjacent to the construction site	The site would facilitate construction including utility works and would accommodate: • plant laydown and storage area • materials laydown and storage including precast material • stockpiling of spoil / mulch • heavy vehicle access and turn around areas • construction employee parking • temporary water quality controls. The existing brick dwelling on the land may be used as a temporary site office.	Via existing driveway to 717 Richmond Road (left-in/ left-out). The existing driveway would be realigned to match the widening of Richmond Road.	Standard hours* and non-standard hours	12,000

**Standard construction hours as defined in the Interim Construction Noise Guidelines (ICNG)(DECC, 2009) are: Monday to Friday (7am to 6pm), (Saturday 8am to 1pm), no work on Sundays or public holidays.*

Activities undertaken to establish the facility would include clearing of exotic groundcover, importing gravel, crushed rock and/or asphalt to create access roads, storage and parking areas. Site offices and sheds would also be positioned at Site 4. The facilities would be securely fenced with temporary fencing where required, and signs would be erected advising the general public of access restrictions and contact details in the event of emergency or incident.

Following construction, the ancillary facility offices, sheds and parking areas would be removed, and the sites would be cleared of all rubbish and materials and areas not associated with the design would be rehabilitated to their existing condition.

4.1.2 Justification

The REF provides for three ancillary facilities: Site 1: Richmond Road, Site 2: M7 Motorway (adjacent to Rooty Hill Road North) and Site 3: Adjacent to Newnham Street. These facilities include plant laydown and storage areas, materials laydown, stockpiling and construction employee parking and contractor's site offices and facilities. Transport has identified the need for additional areas to support construction of the proposal.

Following a review of project constructability, especially the limited space within the road corridor in the proposal area, the need for additional temporary ancillary facilities has been identified. The two additional facilities were selected for the following reasons:

- Site 4 was selected as it is on relatively flat ground, has good access (via Fermoy Road cul-de-sac), is located an acceptable distance from the main works site and has adequate space for site offices, sheds and parking. As Transport owns the site, its use would not require any temporary leasing agreements.
- Site 5 was selected due to its proximity to the construction site. As full acquisition of property is proposed, due to design impacts to the property, there is an opportunity to use this site during construction for plant and material storage. The existing dwelling could be used as a site office removing the need for additional building structures.

Sites 1, Site 2 and Site 5 would primarily be used for laydown and storage of materials as they are closer to the proposed works, while the new facility on South Street (Site 4) would include site offices and sheds in the satellite location.

The additional facilities are needed to support the main works of the road upgrade. Without the additional temporary ancillary facilities, the lack of space could lead to increased traffic congestion at the entrances to Site 1 and Site 2, increased material stockpile heights which are more challenging to implement effective dust and sediment controls, potential safety issues due to constrained working environment, and delays to the construction schedule due to inefficient storage of construction materials.

Figure 4-2 (a): Additional ancillary facilities

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-032
Drawn By: RA, Checked By: ET
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Watercourse
- Additional ancillary facility for construction
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

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Metres
Scale at A4: 1:10,000

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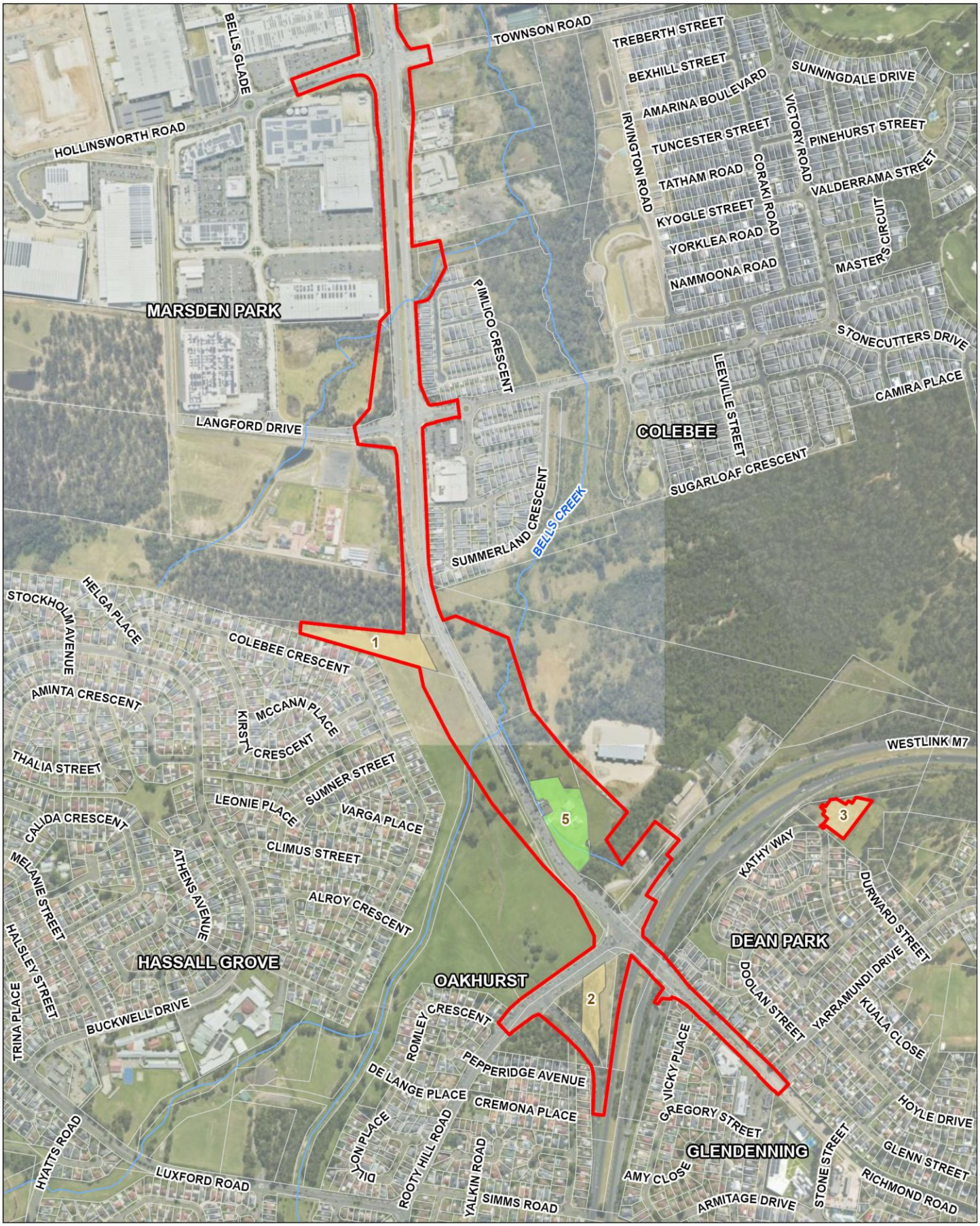

Figure 4-2 (b): Additional ancillary facilities

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173_EN_GS_032
Drawn By: RA, Checked By: ET
Date: 2025-07-10
Revision: 03

Stantec

Legend

- Proposed amended REF construction boundary
- Watercourse
- Additional ancillary facility for construction
- Ancillary facility for construction
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

0 50 100 150 200 250 Metres

Scale at A4: 1:10,000

4.2 Change 2: Open flooding channel

4.2.1 Description

As a result of design refinement, the location and dimensions of the open flooding channel on the eastern side of Richmond Road assessed in the REF have changed. In the proposed design the flooding channel has moved closer to Richmond Road as shown on Figure 4-3.

The proposed open flooding channel would start north-east of the intersection of Rooty Hill Road North / Richmond Road / M7 Motorway on/off-ramps and run in a north-westerly direction before discharging into Bells Creek. The channel would be vegetated and would be around 425 metres long, with a 10 to 20 metre base width and 2:1 slopes, and 2.5 metres wide slopes. The depth of the channel would be approximately 1.2 metres.

The flooding channel's purpose is to intercept overland flow to keep the widened Richmond Road flood free during storm events. The design of the flooding channel would ensure that Richmond Road is not inundated during the 0.2% average exceedance probability (AEP) flood event.

The proposed changes are within the REF construction boundary assessed in the REF.

4.2.2 Justification

The open flooding channel assessed in the REF was located further east than the proposed location to avoid impacts to the existing dwelling on the private property at 717 Richmond Road, Colbee (Lot 49 / DP1104950).

Although full acquisition of the private property was proposed in the REF, the current design was developed after the open flooding channel design assessed in the REF was completed. It is now feasible to position the open flooding channel closer to Richmond Road, enabling reuse of impacted land. The proposed flooding channel is wider than originally proposed in the REF due to the existing topography at the new location and required grade to match the outlet at Bells Creek.

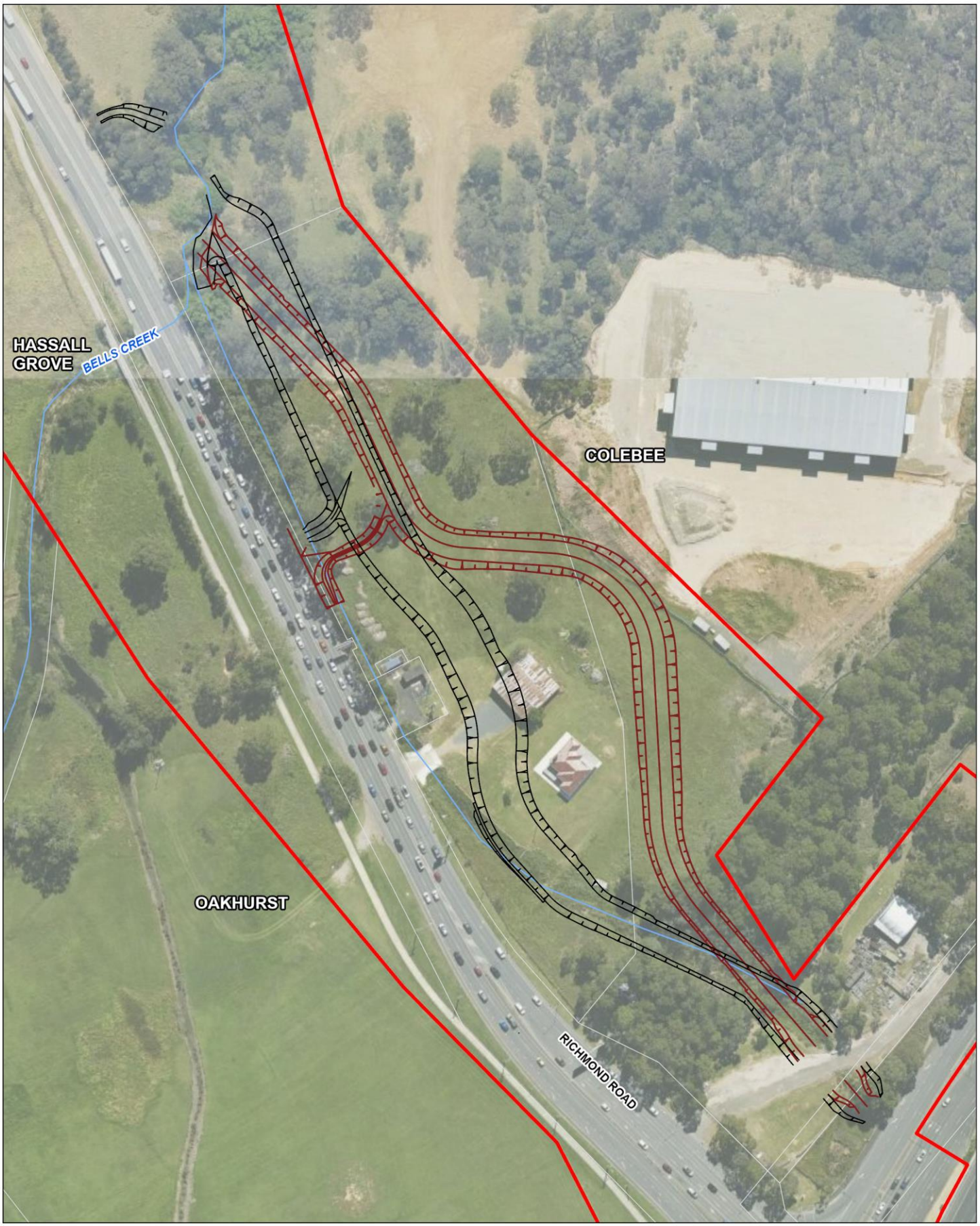

Figure 4-3: Open flooding channel

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-034
Drawn By: RA, Checked By: ET
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Proposed amended design
- Existing design
- Watercourse
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

0 10 20 30 40 50 Metres

Scale at A4: 1:2,000

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4.3 Change 3: Removal of existing footpath

4.3.1 Description

The existing footpath on the eastern side of Richmond Road adjacent to the Woolworths shopping centre complex would be removed as part of the proposal. The length of footpath to be removed extends for approximately 100 metres from the side entrance of the Woolworths shopping centre complex to the footpath's southern extent, as shown on Figure 4-4. The footpath is located within the REF construction boundary assessed in the REF.

The existing footpath contains a heritage interpretation plaque that reads 'this marks the boundary of the Colebee Nurragingy Land Grant 1819'. The approximate location and images of the plaque is shown on Figure 4-4 and Figure 4-5. Removal of the footpath means that the plaque would also require removal. Neither the footpath nor the plaque are heritage listed, however, the plaque provides important interpretation of the historic land grant boundaries. The Colebee Nurragingy Land Grant is state heritage listed and has significant Aboriginal cultural value.

Following removal of the footpath, the area would be grassed, and the heritage plaque would be considered as part of the heritage interpretation strategy for the proposal, in consultation with the DSMG.

4.3.2 Justification

The footpath would be removed as it currently serves no purpose. In its current state, the footpath falsely directs pedestrians south along Richmond Road until the footpath abruptly ends and joins onto the grassed roadside. It does not connect to any formalised crossing point of Richmond Road at its southern extent. This could lead to unsafe crossing of Richmond Road posing a risk to both pedestrians and road users.

As the footpath does not connect to any existing pedestrian or cyclist facilities, and to reduce the risk of the unwarranted crossing of Richmond Road between signalised intersections, it is proposed for the path to be removed.

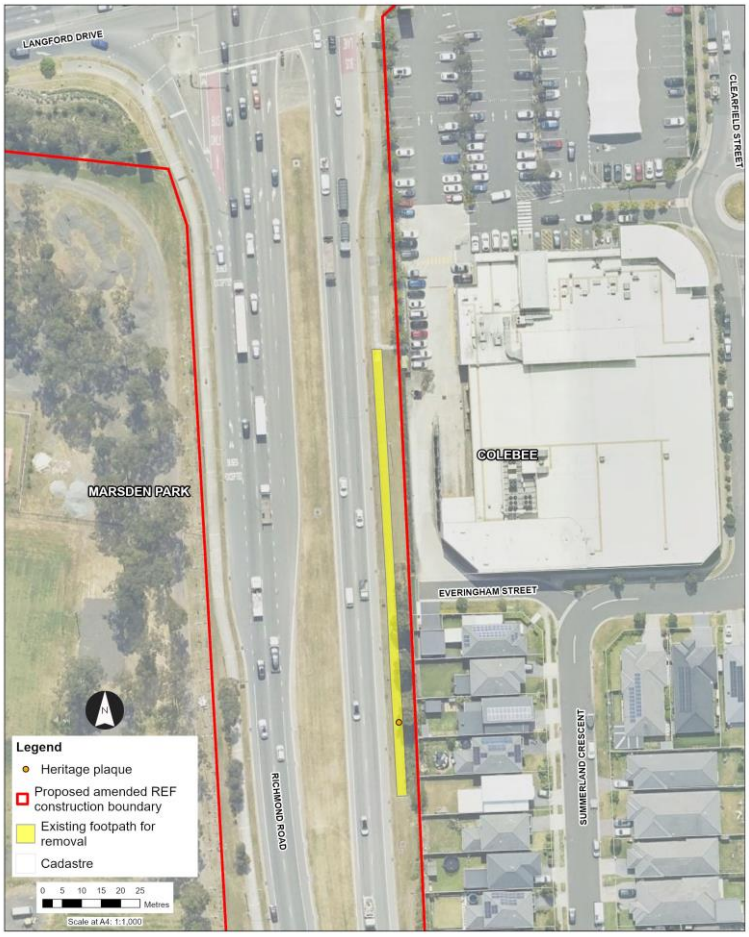

Figure 4-4 Location of existing footpath to be removed

Length of footpath to be removed

Heritage interpretation plaque in footpath

Heritage interpretation plaque

Figure 4-5 Existing footpath and heritage plaque to be removed

4.4 Change 4: Boundary amendments

4.4.1 Description

The following outlines the design amendments to the proposal boundaries compared to what was included in the REF:

- REF construction boundary (refer Figure 4-6):
    - The extent of the REF construction boundary has been expanded to include the new ancillary facility as 136 South Street, Marsden Park (Lot 4, DP 1205982).
    - The extent of the REF construction boundary along Townson Road has been reduced to more clearly represent the proposed extent of works in this area. No works are proposed on Townson Road as part of the proposal.
    - The extent of the REF construction boundary south of Summerland Crescent has been reduced so the boundary provides a buffer between the proposal area and Lot 41, DP1100854, which is land held under Part 11 of the *National Parks and Wildlife Act 1974* (NPW Act).
- Vegetation clearing boundary (refer Figure 4-7):
    - The boundary has been altered to account for the change in location/dimension of the open flooding channel, and the additional area required for the operation of ancillary facility (Site 2) located on the triangular piece of land between M7, Rooty Hill Road North and Richmond Road.

4.4.2 Justification

Changes to the proposal boundaries are required to account for design refinements and the additional areas required for construction. The individual design changes are justified in the above sections.

Figure 4-6: Proposed REF construction boundary amendments

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173_EN_GS_030
Drawn By: RA, Checked By: ET
Date: 2025-07-10
Revision: 02

Legend

- Existing REF construction boundary
- Proposed amended REF construction boundary
- Watercourse

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Watercourse (NSW SS, 2023)

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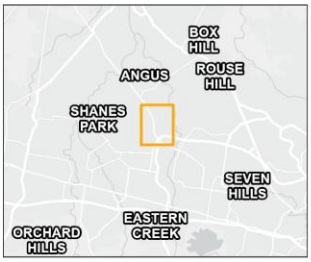
Scale at A3: 1:11,000



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\\Au2028-pyfss01\workgroup\3040\miscellaneous_gis_working_\305001173 - Richmond Rd Widening (RRM7)\GIS\305001173_EN_GS_028-035_KeyFeaturesProposal.aprx | 305001173_EN_GS_030_PropREFConstBndryAmndts.02 | Last updated 2025-07-10 By: rapura

Figure 4-7: Proposed REF clearing boundary amendments

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173_EN_GS_031
Drawn By: RA, Checked By: ET
Date: 2025-07-10
Revision: 02

Legend

- Existing REF clearing boundary
- Proposed REF amended clearing boundary
- Watercourse

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Watercourse (NSW SS, 2023)

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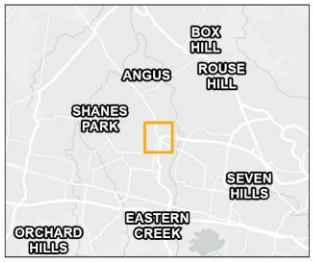
Scale at A3: 1:3,000



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4.5 Amended proposal description

This section provides a complete description of the proposal with the proposed amendments since display of the REF underlined.

Transport proposes to upgrade a 2.2-kiliometre section of Richmond Road between the M7 Motorway and Townson Road, Marsden Park. Key features of the proposal as assessed in this Determination Report would include (refer Figure 4-8):

- upgrade of Richmond Road between the M7 Motorway and Townson Road to six lanes (three lanes in each direction). This would include:
    - road widening between the M7 Motorway and the Alderton Drive / Langford Drive intersection including a new bridge structure over Bells Creek
    - widening into the median from the Alderton Drive / Langford Drive intersection to 250 metres north of the Hollinsworth Road / Townson Road intersection
- building a new flyover bridge from the M7 Motorway Rooty Hill Road North off-ramp landing on Richmond Road around 300 metres prior to Bells Creek. This would include:
    - a single lane bridge structure around 250 metres long and 8.4 metres wide for traffic heading northbound on Richmond Road
    - 170-metre embankment at the southern end of the bridge beginning at the M7 Motorway Rooty Hill Road North off-ramp, roughly five metres above the existing ground level
    - 150-metre long retaining wall located at the northern end of the bridge within the median of Richmond Road. At its highest point the retaining wall would be 8.4 metres high
    - minor re-surfacing of the existing M7 Motorway Rooty Hill Road North off-ramp where the ramp ties into the new flyover
    - no changes to existing gantry, exit lanes or lane functions on the M7 Motorway
- upgrades to the intersection of Richmond Road, Hollinsworth Road and Townson Road including:
    - an additional northbound through lane along Richmond Road (providing three through lanes towards Richmond)
    - an additional dedicated right turn lane from Richmond Road southbound onto Hollinsworth Road
    - a new left turn slip lane from Hollinsworth Road onto Richmond Road including a pedestrian island and crossing
    - staged pedestrian crossings across Richmond Road on the north and south sides of the intersection, with a pedestrian refuge in the median
- upgrades to the intersection of Richmond Road, Langford Drive and Alderton Drive including:
    - additional northbound and southbound through lanes along Richmond Road (providing three through lanes in both directions)
    - staged pedestrian crossings across Richmond Road on the north and south sides of the intersection, with a pedestrian refuge in the median
- upgrades to the intersection of Richmond Road, Rooty Hill Road North and the M7 Motorway ramps including:
    - two dedicated lanes on Richmond Road heading onto the M7 Motorway (southbound on-ramp)
    - two dedicated southbound through lanes on Richmond Road (towards Blacktown)
    - an additional right turn lane from Richmond Road southbound onto Rooty Hill Road North (providing two dedicated right turn lanes onto Rooty Hill Road North)
    - extension of 10 metres for the left turn lane from Richmond Road southbound onto M7 Motorway northbound on-ramp
    - relocation of the existing pedestrian crossing on Richmond Road approximately 160 metres south. This would be a new staged pedestrian crossing across Richmond Road, with a pedestrian refuge in the median at the intersection of Richmond Road and the M7 Motorway southbound on-ramp

- active transport provisions throughout the proposal area including:
    - moving the existing shared pedestrian and bike path on the western side of Richmond Road to be further west. This would be a four-metre wide shared pedestrian and bike path on the western side of Richmond Road (between the M7 Motorway to approximately 150 metres south of the Richmond Road / Langford Drive / Alderton Drive intersection) where it would connect to the existing shared path
- building a new concrete bridge structure over Bells Creek for the northbound carriageway located approximately 14 metres west of the existing Bells Creek bridge. This would include:
    - a bridge structure around 29 metres long and 18 metres wide
    - three northbound travel lanes
    - a shared pedestrian and bike path on the western side, which replaces the existing boardwalk bridge next to the northbound Richmond Road carriageway
- retention of the five bus stops on Richmond Road between Yarramundi Drive and the Richmond Road / Hollinsworth Road / Townson Road intersection. The dedicated bus lanes at the intersection of Richmond Road with Langford Drive / Alderton Drive and Hollinsworth Road / Townson Road are also retained
- drainage and water quality structures along the proposal including:
    - adjustments to the pits and pipes of the existing stormwater network
    - two gross pollutant traps to the north and south of Bells Creek
    - open flooding channel on the eastern side of Richmond Road roughly between the M7 Motorway northbound on-ramp and Bells Creek for flood mitigation purposes. The channel would be around 425 metres long and 10-20 metres wide and would discharge into Bells Creek
- roadside furniture including safety barriers, signage, line marking, lighting and fencing
- earthwork cutting, embankments and retaining walls to accommodate the widened road alignment, flyover bridge and open flooding channel
- modified formal access to four properties along the upgraded sections of Richmond Road
- installation of a formal driveway access to the Blacktown Native Institution property within the Rooty Hill Road North road corridor, and removal of the informal access track to the property from Richmond Road
- property acquisition including full acquisition of one property and partial acquisition of two properties
- rehabilitation of disturbed areas and landscaping
- establishment and use of five temporary ancillary facilities during construction.

Figure 4-8 (a): Key features of the modified proposal

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-027
Drawn By: RA, Checked By: EB
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Watercourse
- Ancillary facility for construction
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

0 20 40 60 80 100 Metres

Scale at A3: 1:1,900

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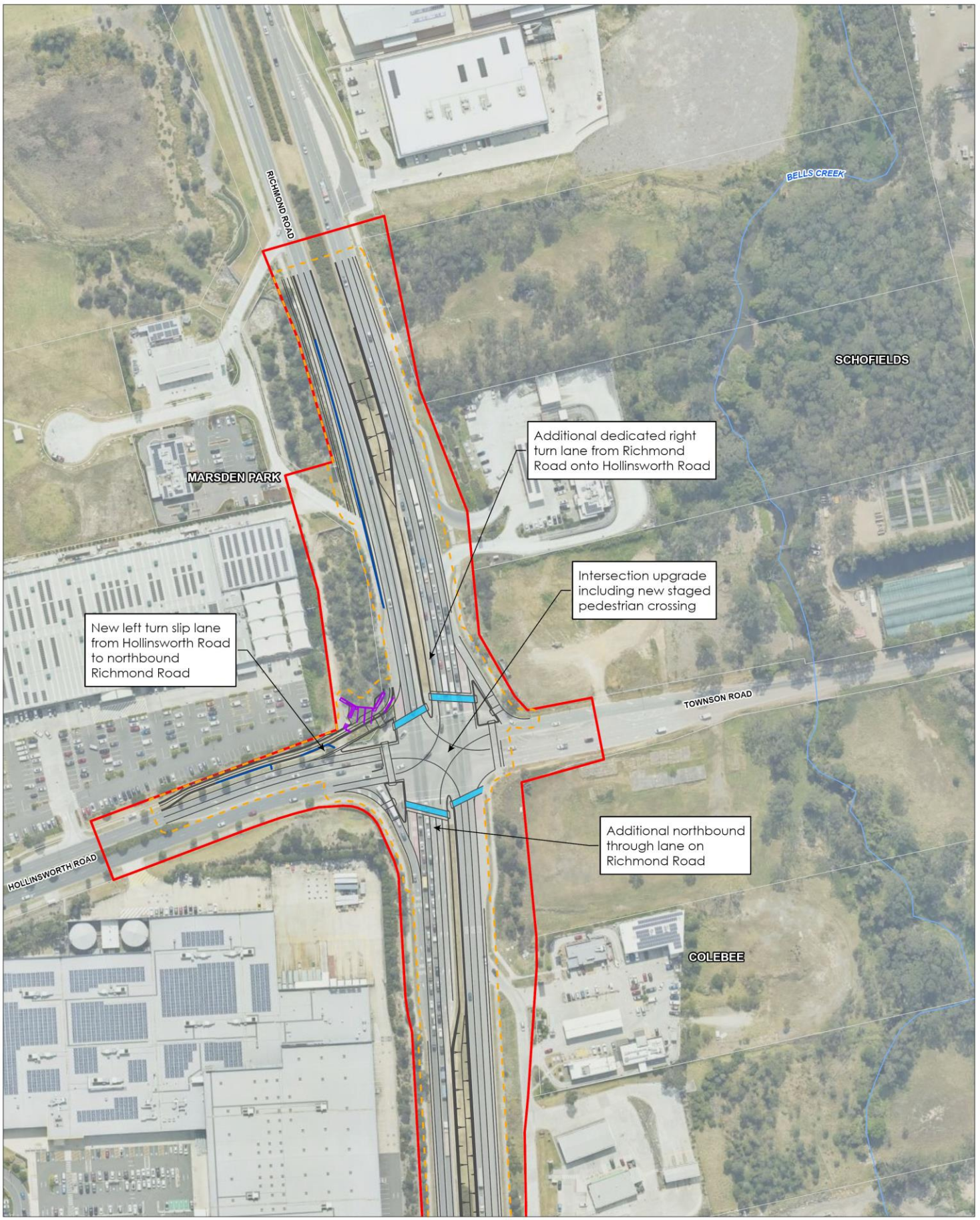

Figure 4-8 (b): Key features of the modified proposal

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-027
Drawn By: RA, Checked By: EB
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Proposed amended design
- Drainage culvert
- Stormwater design
- Watercourse
- Staged pedestrian crossings
- Proposed amended clearing boundary
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

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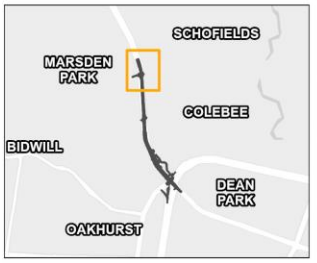
Scale at A3: 1:1,900



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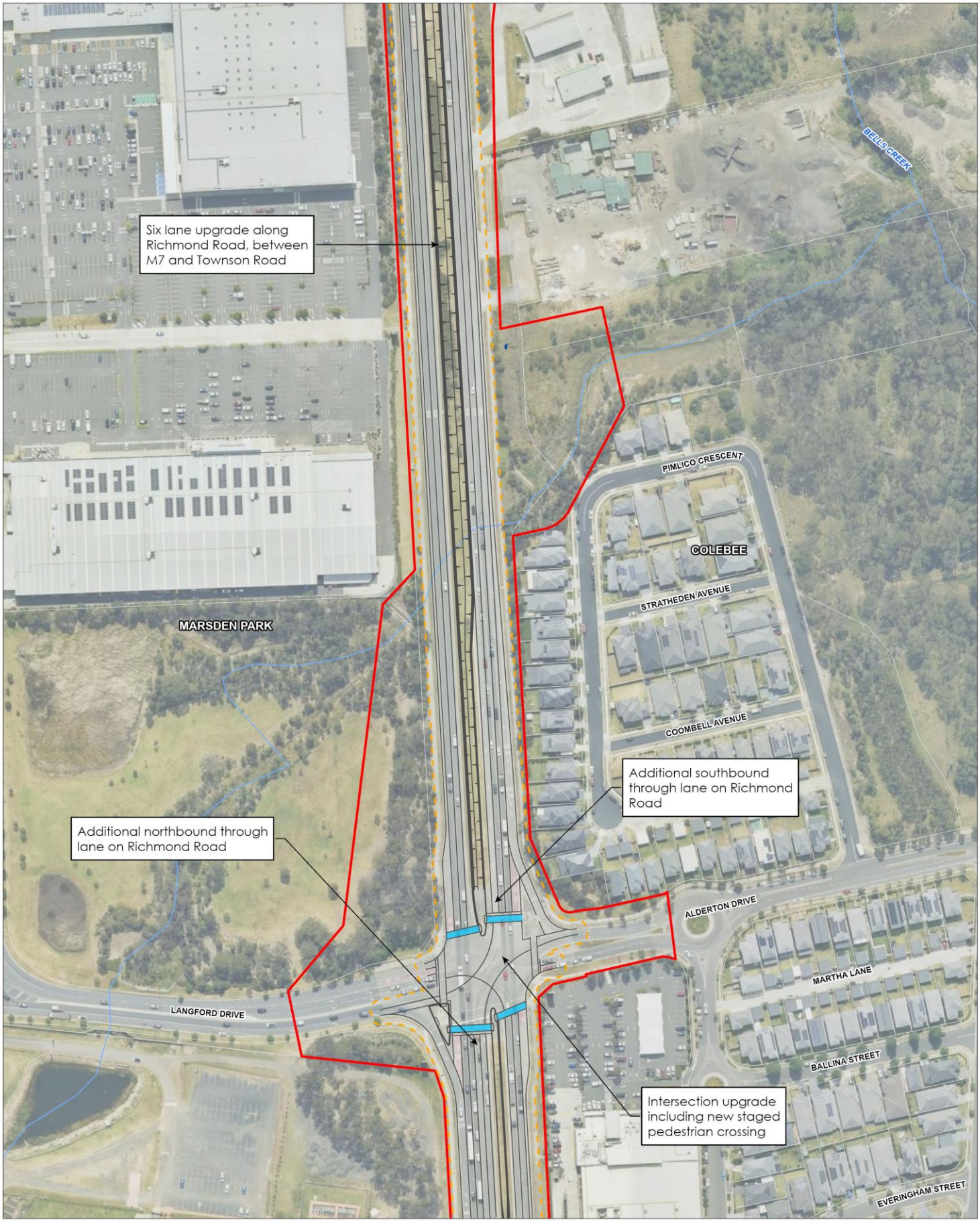

Figure 4-8 (c): Key features of the modified proposal

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-027
Drawn By: RA, Checked By: EB
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Proposed amended design
- Stormwater design
- Watercourse
- Staged pedestrian crossings
- Proposed amended clearing boundary
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

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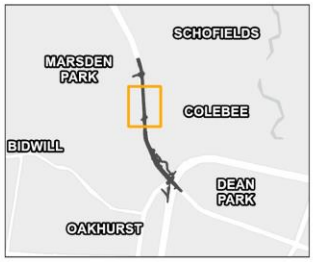
Scale at A3: 1:1,900



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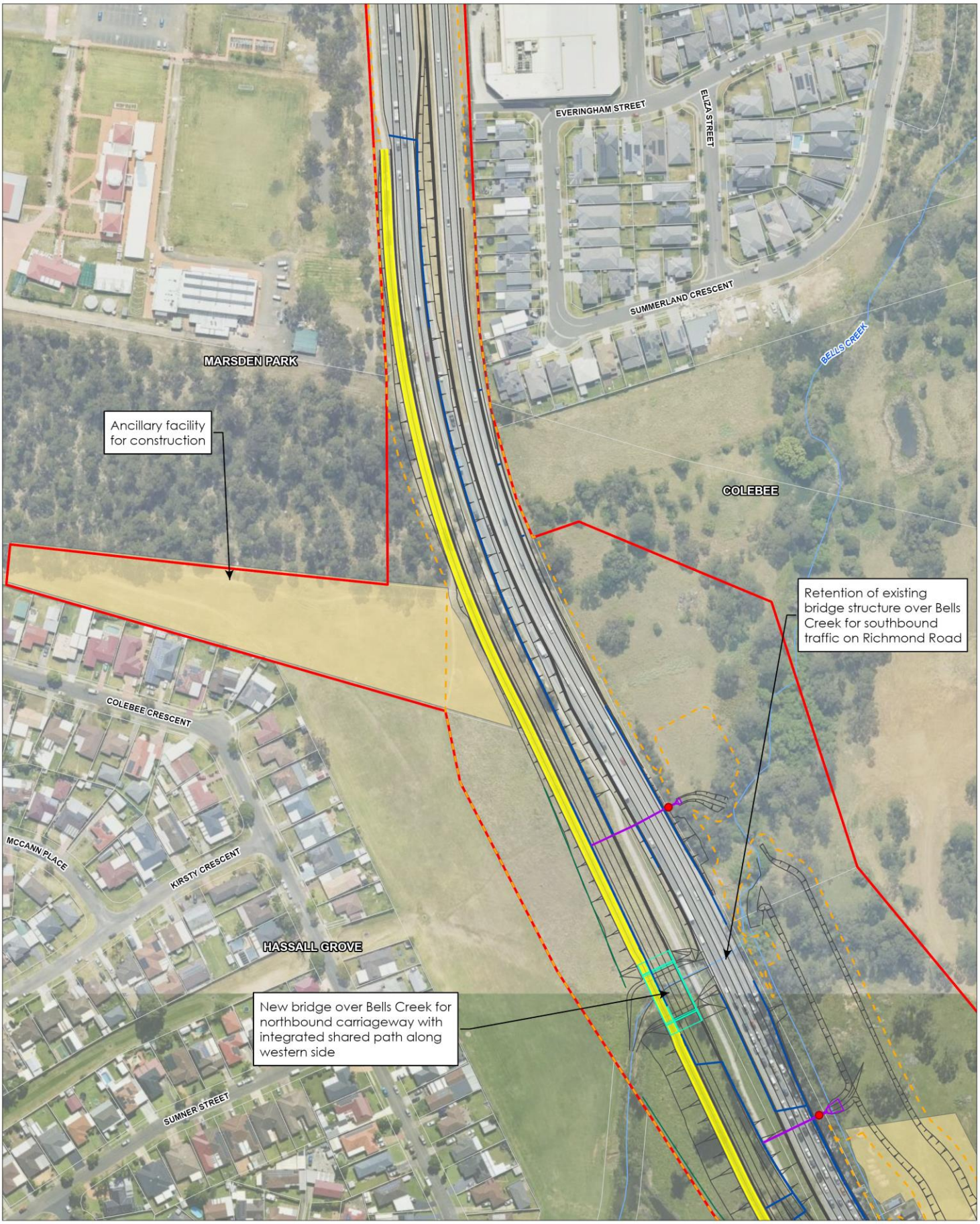

Figure 4-8 (d): Key features of the modified proposal

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-027
Drawn By: RA, Checked By: EB
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Gross pollutant trap
- Proposed amended design
- Drainage channel (grass)
- Drainage culvert
- Stormwater design
- Bells Creek bridge
- Watercourse
- Shared pathway
- Proposed amended clearing boundary
- Ancillary facility for construction
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

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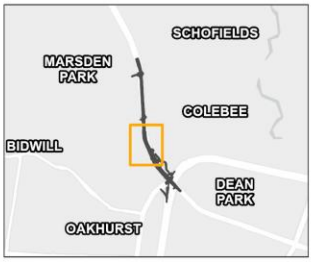
Scale at A3: 1:1,900



Stantec | NSW Government | Transport for NSW

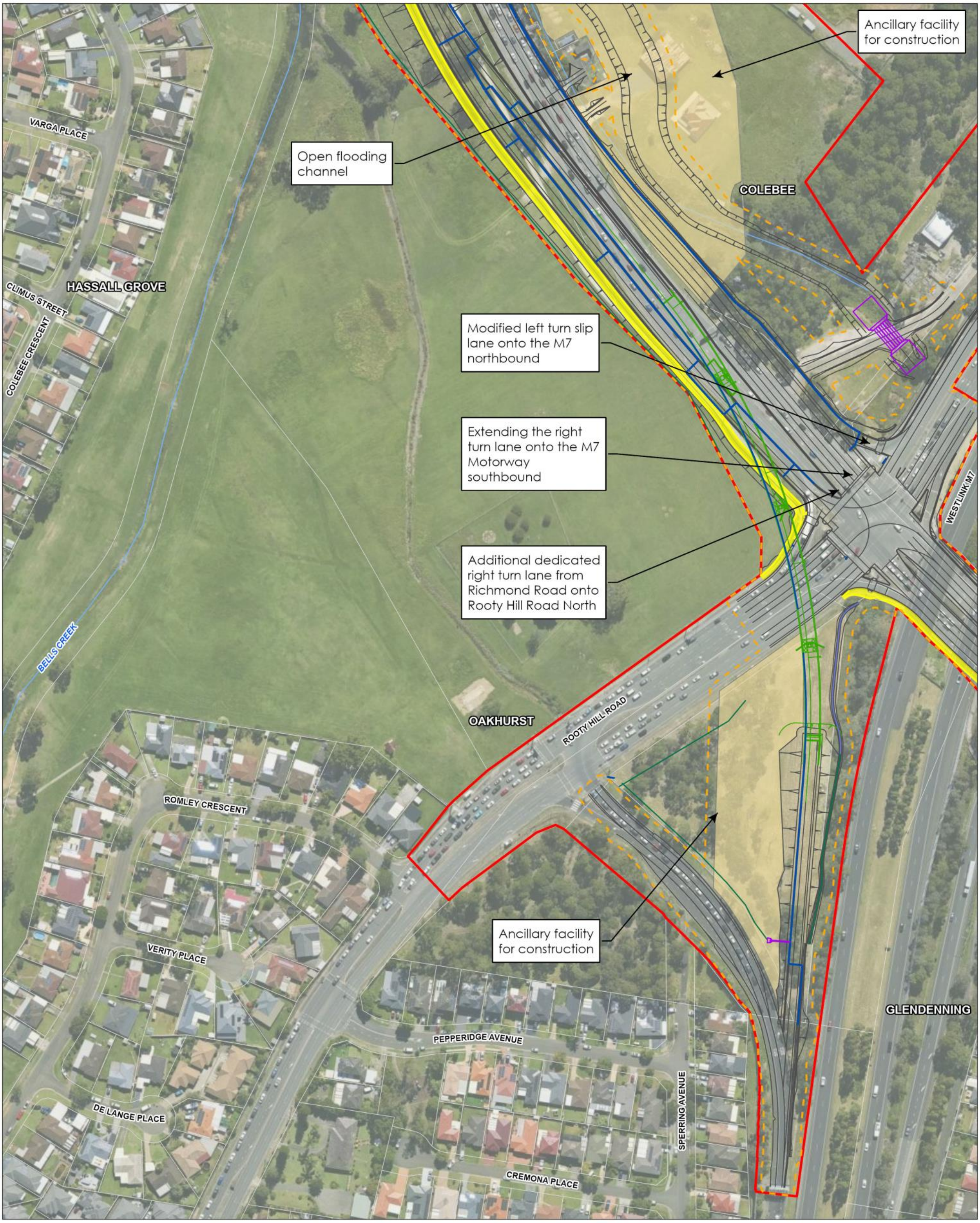


Figure 4-8 (e): Key features of the modified proposal

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173_EN_GS_027
Drawn By: RA, Checked By: EB
Date: 2025-07-10
Revision: 03

Stantec | NSW Government | Transport for NSW

Legend

- Proposed amended REF construction boundary
- Proposed amended design
- Drainage channel
- Drainage channel (grass)
- Drainage culvert
- Stormwater design
- Watercourse
- Shared pathway
- Proposed amended clearing boundary
- Ancillary facility for construction
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

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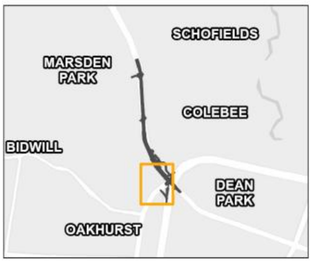
Scale at A3: 1:1,900



\\Au2028-ppfss01\workgroup\3040\miscellaneous_gis_working_\305001173 - Richmond Rd Widening (RRM7)\GIS\305001173_EN_GS_027_KeyFeaturesModifiedProp.aprx | 305001173_EN_GS_027_KeyFeaturesModProp P5.03 | Last updated 2025-07-10 By: rapura

Figure 4-8 (f): Key features of the modified proposal

Richmond Road Upgrade between M7 Motorway to Townson Road

Project Code: 305001173-EN-GS-027
Drawn By: RA, Checked By: EB
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Proposed amended design
- Stormwater design
- Shared pathway
- Staged pedestrian crossings
- Proposed amended clearing boundary
- Ancillary facility for construction
- Cadastre

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre and Watercourse (NSW SS, 2023)

0 20 40 60 80 100 Metres

Scale at A3: 1:1,900

Stantec | NSW | Transport for NSW

5. Environmental assessment

This chapter documents the outcomes of the additional environmental assessments undertaken for the proposed design changes and to address feedback received during the public display period. All the design changes have been considered collectively, not each design change individually and relative to the REF.

This chapter also takes into account the additional studies that have taken place following public display of the REF, including additional threatened species surveys and contamination / acid sulfate soil testing.

5.1 Aboriginal heritage

An Aboriginal Cultural Heritage Assessment Report (ACHAR) was prepared as part of the REF to assess the potential Aboriginal heritage impacts during construction and operation the proposal. This assessment is outlined in section 6.4 and Appendix E of the REF.

The ACHAR has been updated as part of this Determination Report to include additional information on the cultural values of the heritage listed Blacktown Native Institution site, to include assessment of the additional ancillary facility at 136 South Street (Change 1a) and to include changes to the REF construction boundary (Change 4). The updated ACHAR is provided in Appendix C.

A summary of the additional assessment, since preparation of the ACHAR for the REF, is presented in the sections below.

5.1.1 Methodology

The following provides a summary of the methodology used in updating the ACHAR:

- Consideration of the information presented within the Conservation Management Plan (GML, 2024) for the Blacktown Native Institution site relating to cultural values relevant to the proposal area. Further information regarding the cultural values is provided in section 5.2.
- Review of information associated with the test excavation and salvage for the Colebee Warehouse Facility development.
- Review of the proposed activities and authorised harm under Aboriginal Heritage Impact Permit (AHIP) 5224 and AHIP 5276 to confirm that the current proposal aligns with the conditions and permitted impacts outlined in both permits.
- Assessment of potential impacts associated with the new ancillary facility at 136 South Street and changes in the REF construction boundary.

The following areas have been re-defined for the updated ACHAR to accommodate the changes to the REF construction boundary (refer Figure 5-1):

- ACHAR study area - area to be potentially impacted by the proposal
- ACHAR assessment area – the area of archaeological assessment that encompasses the current ACHAR study area and previous proposed impact boundaries.

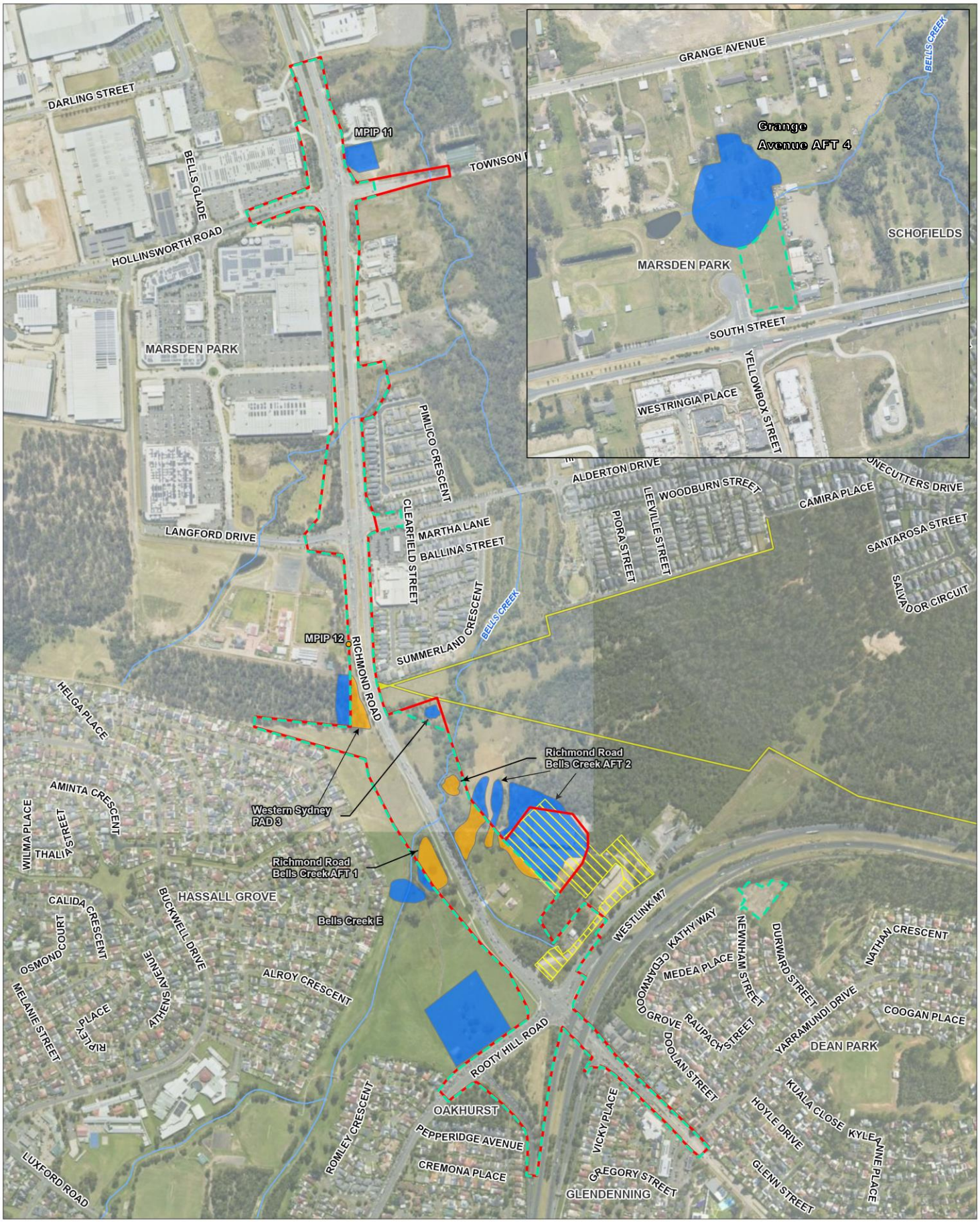


Figure 5-1: Archaeological sites - proposed impact area

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173-EN-GS-041
Drawn By: RA, Checked By: SM
Date: 2025-06-13
Revision: 01

Legend

- ACHAR assessment area
- ACHAR study area
- Impacted archaeological site location
- Watercourse
- AHIP 5224
- AHIP 5276

Archaeological site area

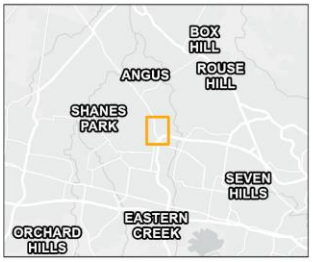
- Impacted
- Not Impacted

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Watercourse (NSW SS, 2023)
3. Archaeological site locations and areas (Kelleher Nightingale, Jan 2024)

0 100 200 300 400 Metres

Scale at A3: 1:7,500



Stantec

5.1.2 Description of existing environment

Archaeological context

Richmond Road Bells Creek AFT 2 (AHIMS 45-5-5826)

The updated ACHAR provides information on the test excavation and Aboriginal cultural heritage assessment undertaken as part of the planning for the Colebee Warehouse facility (KNC, 2023) which is adjacent to the proposal area. The archaeological assessment area for the warehouse project overlapped the mapped site extent of Richmond Road Bells Creek AFT 2 and encompassed a portion of the current ACHAR study area in the vicinity of Bells Creek on the eastern side of Richmond Road (refer Figure 5-2). The results of the test excavation and Aboriginal cultural assessment undertaken for the warehouse project are summarised as follows:

- **Test excavation** - A test excavation program was carried out between 25 and 29 September 2023 to determine the nature and extent of any archaeological deposits present and the potential impact from works associated with the construction of the Colebee Warehouse facility. In Test Excavation Area 1, located on a low-rise near the Bells Creek floodplain, 32 squares yielded 21 silcrete artefacts with a mean density of 2.8 artefacts per square metre. Test Excavation Area 2, on elevated floodplain landforms, included seven squares and also yielded 21 silcrete artefacts, but with a higher mean density of 12 artefacts per square metre.
- **Aboriginal heritage assessment** - An Aboriginal Cultural Heritage Assessment (KNC, 2024) was completed which identified the site as having moderate archaeological significance due to its potential to enhance understanding of Aboriginal landscape use in the region. The assessment concluded that construction of the warehouse would impact the Richmond Road Bells Creek AFT 2 area and recommended archaeological salvage mitigation. AHIP 5276 was issued for the Colebee Warehouse facility on the 22 May 2024 and included salvage excavation and community collection at site Richmond Road Bells Creek AFT 2 within the AHIP area (refer Figure 5-2).
- **Archaeological salvage** – An archaeological salvage excavation and surface artefact collection were completed at Richmond Road Bells Creek AFT 2 within the area of AHIP 5276 prior to the construction of the Colebee Warehouse facility (KNC, in prep). The salvage excavation revealed a moderate density of subsurface artefacts and a low-density surface scatter. The predominance of silcrete artefacts across the excavation area suggests repeated site visits and the use of locally sourced materials.

As archaeological salvage excavation and surface artefact collection were undertaken within the area of AHIP 5276. The areas of Richmond Road Bells Creek AFT 2 not covered by the AHIP 5275 but within the ACHAR study area, remain as having a moderate archaeological significance, as outlined in the REF.

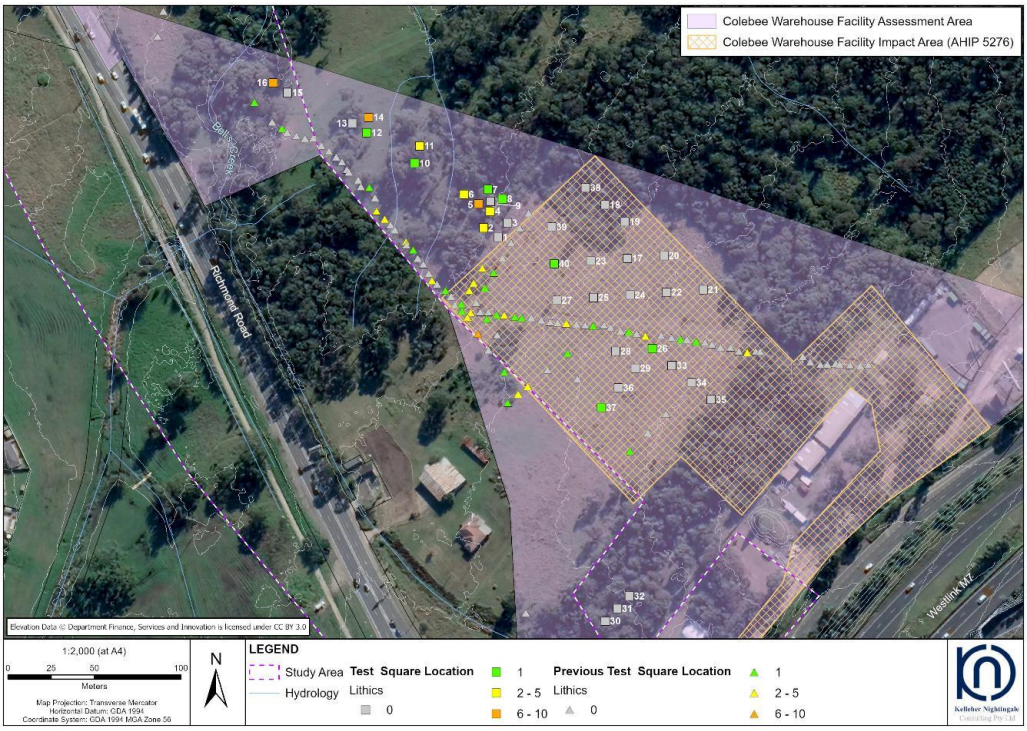


Figure 5-2 Test excavation squares and artefact density from Colebee Warehouse facility and previous programs

Grange Avenue AFT 4 (AHIMS 45-5-4871)

The new ancillary site at 136 South Street, is located in proximity to a registered Aboriginal Heritage Information Management System (AHIMS) site: Grange Avenue AFT 4 (AHIMS 45-5-4871) as shown on Figure 5-1. This site was a low-density surface artefact scatter, located immediately north of the study area situated on a small rise adjacent to the southern bank of an east flowing tributary of Bells Creek and approximately 100 metres west of Bells Creek as shown on Figure 5-1.

The artefact scatter comprised six silcrete flakes and one hammerstone of igneous material that were identified within surface exposures adjacent to a goat enclosure. The site exhibited evidence of disturbance from past land use, however, was assessed as having moderate archaeological potential.

Aboriginal cultural heritage values

The Aboriginal cultural landscape was described within the Conservation Management Plan (CMP) (GML, 2024) for the Blacktown Native Institution site as including 'places, archaeology, and natural and cultural features'. Significant elements of the broader Aboriginal cultural landscape included:

- Plumpton Ridge/Iron Bark ridge, a significant source of silcrete in the Cumberland Plain
- the connection of Colebee and Nurragingy who selected their land grant backing onto Plumpton Ridge and close to the Blacktown Native Institution site
- Bells Creek where Aboriginal families camped close to but separate from the Blacktown Native Institution site
- a known burial ground northwest of the Blacktown Native Institution site on Eastern Creek
- additional broader connections include to places like Prospect, the St Bartholomew's Church and Cemetery, and Prospect Primary School.

In terms of social values, the Blacktown Native Institution site is 'both a living entity and living memorial [which] represents a place and being which holds entangled social and spiritual values that nourish and connect Dharug Traditional Custodians to Nura through a reciprocal relationship' (GML, 2024). The CMP also states that the DSMG 'supports and maintains many significant cultural and spiritual values, and historical associations with the [Blacktown Native Institution]' (GML, 2024).

The CMP identified areas exhibiting cultural significance within the Blacktown Native Institution site and surrounds; however, not all were described as the document is public facing. The CMP stated that:

> *Dharug community members have stated over many years a belief that burials of Aboriginal children occurred in and around the* [Blacktown Native Institution] *in unmarked graves. There are no formal records of such burials, and to date none have been identified. Suggested potential locations for unmarked graves have previously included along Bells Creek, on landforms north of the Bells Creek, within the Colebee and Nurragingy Land grant area, and near the former* [Blacktown Native Institution] *buildings* (GML 2024: 146).

The heritage values of the Blacktown Native Institution site which are listed on the NSW State Heritage Register (SHR) do not capture the social values associated with the ongoing cultural values and aspirations attributed to the site since transfer to Dharug custodianship. These include ongoing activation, use and access by Dharug people including wider Aboriginal communities for social, environmental, cultural and educational activities (GML, 2024).

In addition to the information provided in the updated ACHAR, which follows the requirements set out under the *National Parks and Wildlife Act 1974* to manage disturbance to Aboriginal objects, an additional assessment has been undertaken to consider the impact of the proposal on the heritage listed Blacktown Native Institution site as outlined in section 5.2. Section 5.2 considers the broader historical associative and social values of the Blacktown Native Institution site to the Aboriginal community and how the proposal may affect these values as they are listed and protected under the NSW State Heritage Register.

5.1.3 Potential impacts

The portion of the Aboriginal archaeological sites Richmond Road Bells Creek AFT 1 that would be directly impacted by construction work remains unchanged from the ACHAR presented in the REF. However, due to the revised REF construction boundary (Change 4), the area of Richmond Road Bells Creek AFT2 and Western Sydney PAD 3 potentially impacted by the proposal has been reduced (refer Figure 5-1). However, it is important to note that the portion of Richmond Road Bells Creek AFT2 now excluded from impact by the proposal has already been disturbed by the construction of the Colebee Warehouse Facility.

The new ancillary facility at 136 South Street (Change 1a) would be located in an area with no archaeological potential, however, it would be located adjacent to Grange Avenue AFT 4 (AHIMS 45-5-4871). The site would not be impacted by the proposal.

The proposed impact area in the ACHAR (ACHAR study area) overlaps sections of existing AHIP 5276 as shown on Figure 5-1. The updated ACHAR has assessed the proposed activities and harm from the proposal as consistent with the permit conditions and authorised harm from AHIP 5276.

An AHIP would be sought for the proposed impact area (ACHAR study area) excluding the area within the boundary of AHIP 5276. There would be no overlap between the AHIP application area for the proposal and the existing AHIP 5275. The proposed AHIP application area is shown on Figure 12 of the ACHAR in Appendix C.

5.1.4 Revised safeguards and management measures

Additional proposed safeguards are provided in Table 5-1. Additional and/or modified environmental safeguards and management measures to those presented in the REF have been underlined.

Table 5-1 Aboriginal heritage safeguards and management measures

ID	Impact	Environmental safeguard	Responsibility	Timing
AH6	Site protection	The boundary of the AHIP area adjacent to the non impacted portion of sites Richmond Road Bells Creek AFT 2 (AHIMS 45-5-5826), Western Sydney PAD 3 (AHIMS 45-5-3322) and Grange Avenue AFT 4 (AHIMS 45-5-4871) would be demarcated with protective fencing and listed in the CEMP. These areas would be identified as 'no-go zones' on the CEMP maps and workers inducted as to appropriate protection measures and requirements to comply with conditions in the adjacent AHIP.	Contractor	Construction
AH11*	Surface Collection	The AHIP should include provision for impact mitigation through surface collection at the impacted Aboriginal archaeological sites. Surface collection would be undertaken in accordance with the following methodology below: • Surface artefact collection within the sites would be restricted to the approved AHIP area. • The collection of surface artefacts would be undertaken with Aboriginal site officers. • Photographs and the details of each artefact collected, including attributes and location/context would be recorded during the surface collection. • The AHIMS site records would be updated to include the details of the collected surface artefacts.	Contractor	Pre-construction

** AH11 was provided for in the original ACHAR but was inadvertently omitted from the REF. This oversight has now been rectified and the measure has been included.*

5.2 Non-Aboriginal heritage

A Statement of Heritage Impact (SOHI) has been prepared as part of the REF to assess the potential non-Aboriginal heritage impacts during construction and operation of the proposal. This assessment is outlined in section 6.5 and Appendix F of the REF.

The SOHI has been updated as part of this Determination Report to include additional information on the cultural values of the heritage listed Blacktown Native Institution site to address concerns raised following display of the REF and to include

assessment of the additional ancillary facilities at 136 South Street (Change 1a) and 717 Richmond Road (Change 1b). The updated SOHI is provided in Appendix D.

A summary of the additional assessment, since preparation of the REF, is presented in the sections below.

5.2.1 Methodology

The following provides a summary of the methodology used in updating the SOHI:

- Consideration of the social and cultural values drawn from existing reports.
- Summarisation of the social and cultural values expressed by DSMG to Transport.
- Assessment of the proposal's impact to Aboriginal cultural and social values informed by UNESCO's domains for intangible heritage criteria. The terminology used to classify impacts to cultural values is provided in Table 5-2, and it considers comments made by DSMG.
- Cumulative heritage assessment for the heritage listed Blacktown Native Institution site.
- Assessment of potential impacts associated with the new ancillary facilities.

Table 5-2 Terminology for impacts on cultural values

Impact on cultural values	Definition
Not known	The impact on the cultural values of the place is undeterminable at the time of assessment.
Disrupts	The impact would interrupt the ability to understand and appreciate the cultural values of the place.
Diminishes	The impact has the ability to reduce the significance and ability to understand and appreciate the cultural values of the place.
Harms	The impact would alter or cause detrimental impacts to the significance of the place and the ability to understand and appreciate the cultural values of the place.
Destroys	The impact would be so severe that they would demolish or devastate the significance of the place and the ability to understand and appreciate the cultural values of the place.
Disregards	The impact neglects and disrespects the cultural values of the place and impacts the ability to provide opportunities to understand and appreciate them.
Threatens	The impact endangers the cultural values of the place, and has the ability to alter and impact the significance of the place.

5.2.2 Description of existing environment

Design changes - site inspection findings

As outlined in section 6.5.2 of the REF the study area was broken up into geographic areas known as inspection units (IU). The proposed ancillary facility at 717 Richmond Road is located within IU5 which is described in the REF.

An additional IU (IU9) was investigated for the new ancillary site at 136 South Street (Lot 4, DP 1205982) as it is located outside the original study area for the SOHI. The results of the site inspection of IU9 are summarised in Table 5-3.

Table 5-3 Summary of field inspection results IU9

Inspection unit ID	Description/results	Images
IU9	IU9 is the proposed ancillary site on South Street, located to the north of the main road widening works on Richmond Road. IU9 consists of the single lot which is a level residential block that no longer has the house, but only a few ancillary sheds and garages remain. A recent road widening and construction of a cul de sac on the adjacent block have altered the frontage of the property to South Street. No evidence of environmental heritage items or potential archaeological resources were identified during inspection of IU9.	

Additional information - historical background

The cultural landscape of Nura - Country

Nura means Country in Dharug language. The Dharug people are connected to, and have responsibility for, the land that lies beneath the structures that have been built upon it and which in turn have impacted the Dharug Nura.

The area between Bells Creek and Eastern Creek, where the Blacktown Native Institution site and the Colebee and Nurragingy land grant are located, was an environment which would have provided food, sustenance and material for everyday life. The area continues to hold archaeological significance, with multiple sites demonstrating occupation of the area along Bells Creek.

Dharug people have cared for their land since Gunyalungalun (the Creation) and continue to be connected to the land, sky and seas. Dharug people maintain strong ties to Nura through knowledge of movement corridors, burial and resource areas, and ongoing cultural practices.

The important cultural places in and around the Blacktown Native Institution site are provided in Table 5-4.

Table 5-4 Important cultural places in and around the Blacktown Native Institution site

Important place	Detail / Description
Nurrangingy's connection to Nurra and the Colebee and Nurragingy land grant	While the grant of land to Colebee and Nurrangingy has been noted as important because it represents the first land grant to Aboriginal people in Australia, Dharug people have also recounted that it was Nurragingy who selected the grant because his clan were the traditional owners of the area. Jospeh Pye, a colonial settler who held neighbouring land, supported Aboriginal access to Nura, naming his property with a Dharug name and allowing Aboriginal people to cross and use his land. This fostered a cooperative relationship where Aboriginal people shared knowledge and worked on Pye's estate. However, this gesture of gifting grants to Colebee and Nurrangingy occurred against the backdrop of widespread dispossession, as Governor Macquarie had already alienated over 239,000 acres of Dharug land and earmarked another 340,999 acres for grants.
Connection to Nurra through Bungarribee	The area in which Black Town came to be established was already known by the Dharug as Bungarribee, a Dharug word. The CMP suggests that this name may have referred to the tribal name of those living there prior to settler activity.
The silcrete quarry at Iron Bark Range	Iron Bark Range, now known as Plumpton Ridge (located to the east of Richmond Road) is the location of a significant silcrete quarry site and a winter camp and lay in close proximity to Colebee and Nurragingy's land grant.

Important place	Detail / Description
Burials	A number of references to burials have been recorded including: • Burials at the ridge • Burials north of Richmond Road • Burials within the Blacktown Native Institution site • Burials along Bells Creek.
The grandmother tree	While the significance of the grandmother tree has not been made explicit in the CMP (GML, 2023), it is a feature that is repeatedly referred to as important. It is located on the south-western side of the Blacktown Native Institution site.

Contemporary social and cultural value of the Blacktown Native Institution site and the surrounds

This section considers the social and cultural values of the Blacktown Native Institution site and surrounds drawn from existing reports, including the CMP (GML, 2023) and Connecting with Country (Nguluway, 2025), together with the social and cultural values expressed by DSMG to Transport as part of the REF display and consultation activities. This included values expressed through the statutory consultation process that accompanied the archaeological survey and investigations undertaken in the proposal area.

The DSMG website has a clear statement of its mission and four themes which guide its activities. The following four themes articulate their fundamental cultural and social values, and forms the structure of the CMP:

- Caring for country
- Caring for culture
- Caring for community
- Leadership and governance.

The cultural values of the proposal area as expressed by the DSMG can be summarised in three themes as follows:

- Spirit of the place
- Ecological restoration
- Places.

A summary of these cultural values and feared impacts expressed by the DSMG is provided in Table 5-5, and further information is provided in section 4 of the updated SOHI provided in Appendix D.

Table 5-5 Summary of cultural values and feared impacts expressed by the DSMG

Cultural theme	Cultural value / impact
Spirit of the Place	• DSMG's plan for Blacktown Native Institution site is for a Dharug truth-telling and healing place. • The Blacktown Native Institution site is a place for reflection, healing and connection to Dharug culture beyond its association with practices in the colonial period. • The proposal threatens and diminishes cultural values and the community. • The flyover may jeopardize plans to utilize solar energy at the Dharug Culture Center if it affects future access to solar power. • Noise pollution would affect spiritual connection to Nura and be detrimental to the experience of the place, particularly the Women's Area at Bells Creek. • Road widening might affect the ability to carry out cultural burns because the movement of smoke is not controllable. • Water has uses in cultural practices, and waterways should be naturalised to remove hard edges.

Cultural theme	Cultural value / impact
Ecological restoration	• Trees should not be removed- casuarina and eucalypts especially should be maintained. But not just trees, the whole area would be impacted through all the construction impacts. • Transport impacts disrupt efforts to regenerate and monitor ecological restoration projects within the Blacktown Native Institution site. Water/dust/disruption of wildlife, removal of seed bank resources. • Endangered vegetation should be maintained, as well as animal corridors. • Waterways should be restored; quality and quantity of water is important and should not be impacted. • Connectivity: should be movement corridors for animals (ie woodland pathway between Blacktown Native Institution site and Shanes Park (Yiraaldiya National Park) – noting the kangaroo, bird, reptile and amphibian families should be maintained.
Places	• Women's Area - Bells Creek on both sides of the Richmond Road. This is a Women's Area - women camped here and watched children. Noise pollution would disrupt this area. Deep concern about damage to the area through proposed alterations to Bells Creek and its surrounds. Failure to protect would result in lasting distress. • Men's Camp - Marsden Park (area north of Bells Creek). The area was a Men's Camp during the Blacktown Native Institution period. From this vantage point the children residing in the Blacktown Native Institution could be watched. The DMSG anticipated this area would be incorporated into the cultural heritage centre. DSMG said that this value had not been adequately addressed in the PACHCI. • Richmond Road – Aboriginal people were hanged in places along the Richmond Road (the exact location of these is not known) – These acts of violence were the result of colonial conflict – DSMG said that by disregarding the cultural values of the area Transport are reproducing violent acts of colonial power. • Colebee and Nurragingy Land Grant (SHR01877). The proposal may threaten values of the broader cultural landscape in which the Blacktown Native Institution site sits, and the historical connection between the two. • Grandmother tree – need to maintain access to it and protect it. It is an important part of Blacktown Native Institution site commemoration and events. • Child burial area – Northeastern corner of Blacktown Native Institution site. Further consultation required to ensure appropriate mitigation measures are in place.

Historical archaeological assessment

As outlined in section 6.5.2 of the REF, four phases of historical land use were established for the study area as follows:

- Phase 1: Informal land use and establishment of Richmond Road (1788-1816)
- Phase 2: Formal land grants and 19th Century residences (1816-1899)
- Phase 3: Market gardening and semi-rural use (1899-1980)
- Phase 4: Suburbanisation (1980-present).

Land use phasing relevant to the additional ancillary facilities are discussed in Table 5-6. The potential archaeological remains and archaeological potential for each phase of historical land use listed in Table 5-6 remains unchanged to that presented in the REF.

Table 5-6 Land use phasing of the study area relevant to additional ancillary facilities

Phase	Discussion
Phase 2: Formal land grants and	• The site of the ancillary facility at 136 South Street was originally part of John Liddiard Nicholas''s 1815 700-acre land grant. The grant was later acquired by the Reverend Samuel

Phase	Discussion
19th Century residences (1816-1899)	Marsden who gifted the land to Josiah A. Betts. During this period it was primarily used for agricultural purposes. • Aerial photographs from 1947, 1955, and 1961 show the continued absence of substantial development in the location of the proposed ancillary site at 717 Richmond Road. By 1978, however, it appears substantial land clearing has taken place. The first buildings on the property had been constructed by this time, including the extant farmhouse and two other structures, possibly sheds. These structures have since been demolished, and the extant shed north of the house had been built.
Phase 3: Market gardening and semi-rural use (1899-1980)	• The ancillary facility at 136 South Street continued to be used for agricultural purposes. • The proposed ancillary facility at 717 Richmond Road remains undeveloped throughout most of the 20th century. Substantial land clearing and construction of the first built structures appear on 1975 aerial imagery.
Phase 4: Suburbanisation (1980-present)	• A residential dwelling and garage were constructed in the 1980s on the site of the ancillary facility at 136 South Street, which was then demolished in 2025 with the sheds and garages remaining. • The proposed ancillary facility at 717 Richmond Road remains undeveloped throughout most of the 20th century. Substantial land clearing and construction of the first built structures appear on 1975 aerial imagery.

Significance assessment

Aboriginal cultural and social values

The State Heritage listing for the Blacktown Native Institution site has established several themes and items for the site which are viewed as historically important. However, these elements, while of significance in historical terms, do not address the living, contemporary and evolving nature of social and cultural life for Dharug people today.

To address this, the themes from the CMP (GML, 2023) and the DSMG summary themes (refer Table 5-5) have been viewed through the lens of the UNESCO domains. These domains represent the broad categories through which communities express their living heritage. Refer Appendix D for further information.

For the purposes of this assessment, the definitions of cultural (or social) values in Table 5-7 have been adopted. These social and cultural values may overlap and are based on domains identified by UNESCO. While specifically listed by UNESCO as intangible knowledge, these categories can accommodate tangible heritage because they include the know-how and knowledge of the creation of objects and things.

Table 5-7 UNESCO domains of intangible heritage

Item no.	UNESCO domains
1	Oral traditions and expressions, including language
2	Performing arts
3	Cultural performance (action(s) that make something visible or audible)
4	Social practices, rituals and festive events
5	Knowledge and practices concerning nature and the universe (past, present or future)
6	Knowledge and skills (intangible heritage) without which objects cannot be made, actions performed, or social practices enacted (past, present or future)

Combining the DSMG summary themes (refer Table 5-5), the CMP themes and the UNESCO domains it can be seen that the cultural values of the Blacktown Native Institution site cut across the UNSECO domains and the summary themes as shown in Table 5-8). This indicates the dynamic and all-pervading nature of the cultural values described: the cultural values of the Blacktown Native Institution site are inseparable in their nature and reach into deep time as well as the future.

The interaction of cultural values also reflects the location of the Blacktown Native Institution site within a broader cultural landscape which includes the Colebee and Nurragingy land grant and stretches beyond it. The interconnected nature of the cultural values at the Blacktown Native Institution site defies the act of segregation required by cultural heritage practice.

Table 5-8 Significant Aboriginal cultural values and their significance

UNESCO domain		DSMG summary themes (refer Table 5-5)	Theme of CMP for the Blacktown Native Institution site
2	Preforming arts	Places	Caring for Culture
		Spirit of Place	Caring for Culture
3	Cultural performance (action(s) that make something visible or audible)	Ecological restoration	Caring for Culture
		Places	Caring for Culture
		Spirit of Place	Caring for Community
		Spirit of Place	Caring for Culture
4	Social practices, rituals and festive/ceremonial events	Places	Caring for Culture
		Spirit of Place	Caring for Culture
5	Knowledge and practices concerning nature and the universe (past, present or future)	Ecological restoration	Caring for Country
		Places	Caring for Country
		Spirit of Place	Caring for Community
		Spirit of Place	Caring for Country
		Spirit of Place	Leadership and Governance
6	Knowledge and skills (intangible heritage) without which objects cannot be made, actions performed, or social practices enacted (past, present or future)	Ecological restoration	Leadership and Governance
		Spirit of Place	Caring for Culture
		Spirit of Place	Leadership and Governance

Summary of significance

The updated SOHI provides the following updated summary of significance, taking into consideration the information above.

The study area sits partially within the curtilage of the heritage listed Blacktown Native Institution site, a highly significant historical and cultural site. The SOHI acknowledges the State significant values held in this place, demonstrated through physical remains and ongoing physical and spiritual connections to land.

Any Aboriginal burials would hold exceptional heritage significance under multiple criteria. Their protection and documentation are vital for acknowledging Aboriginal history, preserving cultural identity, and advancing archaeological and historical understanding. Collaborative research with Aboriginal communities is essential to ensure respectful and ethical engagement with these sites.

Whilst Transport is the current custodian of the part of the study area which sits within the curtilage of the heritage listed Blacktown Native Institution site, the area has social and cultural values to Aboriginal people, particularly the DSMG who are the custodians of the Blacktown Native Institution site.

The Aboriginal community recognizes this area and the larger study area as part of a broader cultural landscape which has significant social and cultural values to the history, memory and spiritual connection of the Aboriginal community in this area.

These sites have the potential to provide irreplaceable knowledge about Indigenous burial practices, the effects of colonisation, and the cultural persistence of Aboriginal communities. Given their rarity and potential for further study, they warrant careful protection, respectful management, and collaborative research with Aboriginal stakeholders.

5.2.3 Potential impacts

Terminology for assessing the magnitude of heritage impact is outlined in section 6.5.1 of the REF. A terminology has now been provided to classify impacts to cultural values, and it draws upon comments made by DSMG (refer Table 5-2).

Blacktown Native Institution

The Blacktown Native Institution is a site of State Heritage significance for its landscape and archaeological remains, as well as its historical, aesthetic, associative, social and cultural heritage values. Whilst the proposed works have been developed to minimise and mitigate impacts to the heritage item where possible, the proposed works have the potential to have negative heritage impacts on the cultural and social values of the heritage listed Blacktown Native Institution site.

The Blacktown Native Institution site is significant to the Dharug people for its ability to connect and evidence the processes of colonisation, dispossession, assimilation, integration, and reconciliation of the Dharug people. It is a site valued for its ability to truth tell, provide a sense of belonging and activism, whilst also regeneration of culture, connection to Nura and healing of trauma.

Road widening works and the construction of the new bridge over Bells Creek within the Blacktown Native Institution site curtilage would be undertaken on land owned and managed by Transport.

Archaeological impacts

The proposed works are limited to parts of the Blacktown Native Institution site with low historical archaeological potential. Historical archaeological potential in these areas is limited to identification of evidence of contemporary Aboriginal encampments, such as artefact scatters or unmarked burials, particularly near Bells Creek and the site's northeast corner. However, due to limited documentary evidence and prior disturbances, significant archaeological impact within the Blacktown Native Institution site from the proposal is considered unlikely.

Visual and landscape impacts

The proposed flyover and retaining wall at the southern end of the Blacktown Native Institution site would add to an already visually disrupted area due to existing infrastructure like the M7 Motorway and other streetscape elements. These new structures would be highly visible within the cultural landscape, affecting long-range views and diminishing the site's visual amenity and landscape character. Although not identified as part of the values which meet the threshold for State significance criteria, these visual qualities are acknowledged in the CMP (GML, 2023) as contributing to the Blacktown Native Institution site's social and cultural significance.

The proposed flyover would require placing at least one pier footing within the Blacktown Native Institution site, near the intersection of Rooty Hill Road North and Richmond Road. This construction would disturb the ground surface of the site. Although the area is considered to have low archaeological potential and is away from known historical activity zones (GML, 2023) it has been identified by DSMG as potentially containing unmarked child burials.

The proposed works are located in or near culturally significant areas of the Blacktown Native Institution site, specifically the 'Women's Place' and the 'Men's Camp'. The 'Women's Place' is also an area that may contain unmarked baby burials, though exact locations are unknown and require further consultation with DSMG. Construction in these areas risks further impact on the social and cultural values of the Blacktown Native Institution site. The road widening and bridge construction works proposed on land managed and owned by Transport would result in substantial unsympathetic changes to the landscape, impacting the ability to understand the Women's Place at Bells Creek in association with the overall cultural and physical landscape.

The northern part of the site, near Bells Creek, contains ecological communities, flora and fauna, which are significant to the natural and cultural landscape of the Blacktown Native Institution site and to the Dharug people's connection with Nura.

Vegetation clearing around Bells Creek at the north of the Blacktown Native Institution site would be required to facilitate construction works. This clearing would further disrupt regeneration efforts of the Blacktown Native Institution site, however, planting at the end of construction may have the potential to mitigate some of these impacts.

Works along Richmond Road are within the greater cultural landscape of the area, which holds specific history, memories and significance to the Aboriginal community. Works within this area by agencies other than DMSG disregard the cultural significance and value of this part of the Blacktown Native Institution boundary and reproduce aspects of colonial control over this land. Proposed works would further alter the cultural landscape and create greater separation of the Blacktown Native Institution site from this broader cultural landscape. The works also threaten community aspirations for the site, and their continued connection with the wider cultural landscape.

Access

The proposed widening of the northbound lanes of Richmond Road would impact the existing informal vehicle access along Richmond Road to the DSMG owned portion of the Blacktown Native Institution site.

Temporary access would be provided during construction and would be indicatively relocated to Rooty Hill Road North north of the M7 Motorway Rooty Hill Road North off-ramp. This access would allow safe entry and egress to and from the site, and would be limited to the existing road corridor with no proposed work occurring within the DSMG owned portions of the Blacktown Native Institution site. The final design and location of this temporary access would be further developed in consultation with the DSMG.

The exact location of the permanent driveway would be determined through further discussions and consultation with DSMG to minimise impacts to the Blacktown Native Institution site and maximise potential future use of the site as part of detailed design development through the Working Group. As the final location of the permanent access to the site is yet to be determined, it is not included as part of the REF or Determination Report and additional assessment would be required under relevant sections of the EP&A Act.

Overall assessment

Considering the significant social and cultural values associated with the Blacktown Native Institution site which have the potential to be impacted, the design development and possible mitigation measures, it has been assessed that the proposed works would have an adverse impact (major) on the heritage significance, social and cultural values of the Blacktown Native Institution site and the wider cultural landscape.

Further discussion and design iterations in consultation with stakeholders including the DSMG through the Working Group may have the potential to mitigate some of the impacts, however overall, due to the substantial change in the Blacktown Native Institution site and wider cultural landscape and the consequential loss and change to social and cultural values, it is expected, despite mitigation measures, that the proposed works would still amount to an adverse impact (major).

While the proposed works have been assessed as having the potential to result in an adverse impact (major) on the heritage significance of the Blacktown Native Institution site it is important to clarify that this level of impact does not constitute a total loss of significance, nor is it considered to reach a threshold that would justify reconsideration of the site's listing on the State Heritage Register (SHR).

While the proposed works would reduce the site's landscape integrity and visual legibility, its historical, associative, social, and research values would remain largely intact. The areas impacted do not represent the primary locations of significance or the highest concentration of tangible or intangible values, and the site would continue to hold State-level significance due to its enduring associations with the history of child removal, institutionalisation, and Aboriginal community identity. These values remain embedded not only in the physical remnants and cultural landscape but also in the collective memory and ongoing cultural practices of the Aboriginal community, particularly the Dharug community and descendants of former residents.

Design optioneering and engagement with community stakeholders, including the DSMG, have sought to minimise impacts through alignment, interpretation, and landscape response. Further collaboration would continue to play a role in mitigating impacts and enhancing the cultural legibility of the site.

Additional ancillary sites

The proposed ancillary facility at 717 Richmond Road is unlikely to impact significant historical archaeological remains, as the site saw no development prior to the 1970s. If present, potential archaeological remains would likely be related to livestock raising or land clearing and would unlikely be considered locally significant. While further archaeological assessment is not required, the implementation of Transport's unexpected finds procedure would be implemented as a precaution. The facility may temporarily affect the Dharug cultural landscape during its use, but this impact would be mitigated once activities cease.

As the proposed ancillary facility at 136 South Street, Marsden Park is not a heritage item and is over 500 metres from the nearest heritage site (St Andrew's Presbyterian Church), the proposal would have no impacts on the significance of the site. The area has been assessed as having nil to low archaeological potential for the identification of archaeologically significant works or relics. The immediate surrounds, consisting of areas previously subject to disturbance from road widening activities and agricultural use, also have limited archaeological potential.

Impact criteria for cultural values based on UNESCO's domains of intangible heritage criteria

Drawing upon UNESCO's domains of intangible heritage criteria established in Table 5-7 impacts on these elements are assessed as either having a detrimental (or diminishing) effect or not as outlined in Table 5-2. There is no measure to assess the degree of impact.

The comments raised by DSMG and listed in Table 5-9 reflect their concerns that the cultural values of the Blacktown Native Institution site would be threatened, diminished, harmed, disrupted or disregarded. The impacts on two of the UNESCO domains is unknown.

Table 5-9 Concerns raised by DSMG and the impacts on the cultural values of the Blacktown Native Institution site viewed though the UNESCO domains

UNESCO domain		Concern raised by DSMG	Impact on cultural values
1	Oral traditions and expressions, including language	Not known	Not known
2	Preforming arts	Not known	Not known
3	Cultural performance (action(s) that make something visible or audible)	Noise pollution will disrupt plan for women's area as peaceful ceremonial area	Disrupts
5	Knowledge and practices concerning nature and the universe (past, present or future)	Cultural values are threatened, diminished - divide community	Diminishes
		Failure to protect social and cultural values will cause severe and lasting distress	Harms
		Women's area around Bells Creek will be overwhelmingly impacted by works in the curtilage. Men's camp also located in proximity and potential to celebrate and commemorate familial commitment in the future may be destroyed.	Destroys
		DSMG considers Transport to be enacting power over Dharug by disregarding their cultural perspective	Disregards
		Cultural values are threatened because Land Grant is part of the broader cultural landscape of the Dharug and a connection to deep history and recent history	Threatens
		Removal of Casuarina and eucalypts would be distressing, as would the excavation of the site to construct the road	Harms
		Interference to regeneration and ecological restoration program	Disrupts
		Disruption of woodland pathway (landscape connection) between BNI and Shanes Park	Disrupts
		Potential for damage to the Grandmother tree by interim access driveway	Threatens
6	Knowledge and skills (intangible heritage) without which objects cannot be made, actions performed, or social practices enacted (past, present or future)	Proposed fly over overshadows site, and has implications for access to solar power as well as having an adverse visual affect	Diminishes

Cumulative heritage impact assessment for the Blacktown Native Institution site

The Blacktown Native Institution site has been subject to substantial change and erosion of the site's physical boundaries and its cultural and social values over time, beginning with colonial-era treatment of ancestors and continuing through modern infrastructure projects such as the Richmond Road upgrade in the mid-2010s (before the land being returned to the Dharug people in 2018 and before its SHR listing).

The heritage listed Blacktown Native Institution site holds deep significance as a place for truth-telling, regeneration of cultural practices and language and healing, and its conservation is important for maintaining a tangible connection to the Dharug people's history and identity.

The proposed works have the potential to cause further adverse impacts and deterioration of the setting, and the social and cultural values of the site. Although there is a commitment by Transport to undertake community consultation with the DSMG and work iteratively to achieve acceptable design choices for both parties, the continued erosion of the cultural and social values caused by previous and current proposal, and the likelihood of future proposals in this area is considered to have the potential for cumulative impacts (major) on the heritage listed Blacktown Native Institution site and the broader cultural landscape in this area.

Impacts to heritage items in the vicinity

The potential impacts of the proposed works on heritage items in proximity to the study area itself are outlined in Table 5-10.

Table 5-10 Assessment of heritage impact

Item name	Listing	Impacts
Colebee and Nurragingy Land Grant	SHR No. 01877 Blacktown LEP No. A120 RNE Place ID. 18986 Transport s170 ID (#4311607)	The works would not be located within the Colebee and Nurragingy Land Grant and would not impact the overall setting of item. The works would create further alteration to a substantially altered vista, and therefore are considered to have an overall **little to no** impacts to the item.

Assessment against relevant polices

An updated assessment of the proposal against the relevant policies with the following management plans has been undertaken to account for the additional social and cultural values described above:

- Dharug Nura: Blacktown Native Institution Conservation Management Plan (GML, 2023)
- Blacktown Council Development Control Plan (Blacktown City Council, 2015).

Results of the assessment are provided in Appendix D.

5.2.4 Revised safeguards and management measures

The safeguards and managements measures in section 6.5.4 of the REF remain applicable. Additional proposed safeguards are provided in Table 5-11. Additional and/or modified environmental safeguards and management measures to those presented in the REF have been underlined.

A Working Group with representatives from the DSMG and Transport has been formed to work through the issues raised by the DSMG to inform the detailed design for the project. The outcomes of the Working Group would be used to inform and influence the design development, and governance would be critical in supporting delivery of these outcomes.

Table 5-11 Non-Aboriginal heritage safeguards and management measures

ID	Impact	Environmental safeguard	Responsibility	Timing
NAH4	Non-Aboriginal heritage	Consultation would continue with DSMG throughout detailed design and construction, under the Working Group agreement. DSMG input would be sought on: • the location and design of the interim and potential permanent driveway relocation • the opportunity to mitigate visual impacts of the proposal from the Blacktown Native Institution site, including cultural interpretations or design into the proposed road infrastructure (i.e. the flyover bridge or abutments) • the opportunity for culturally sensitive and locally indigenous plantings within the road corridor	Transport	Detailed design

ID	Impact	Environmental safeguard	Responsibility	Timing
		• the opportunity for the proposal to support the proposed development of the Blacktown Native Institution site in accordance with the Vision for Country (COLA, 2024) • the ongoing development of the Connecting with Country assessment • impacts to culturally significant vegetation within the Blacktown Native Institution heritage curtilage and opportunities for replanting (including species and locations) and/or reuse of removed vegetation • management of wildlife within the site during construction and potential future wildlife connectivity for operation of the road corridor and the DSMG site. • design impacts and management of Bells Creek within the Blacktown Native Institution site during construction and plans for regeneration of the creekline as part of the works. • management of noise impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use. • management of potential overshadowing and privacy impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use.		
NAH9	Non-Aboriginal heritage	Detailed design would take into consideration the findings and recommendations of the Conservation Management Plan (CMP, 2024), Connecting with Country (Nguluway, 2025) and Urban Design Concept (DesignInc, 2024) reports.	Transport	Detailed design
NAH10	Non-Aboriginal heritage	Any changes to the proposal during detail design would be reviewed to determine if additional assessment is required under the EP&A Act and/or the SOHI.	Transport	Detailed design
NAH11	Non-Aboriginal heritage	An Archaeological Methodology and Research Design (AMRD) would be prepared to identify the archaeological testing methodology for investigation of the unconfirmed burials within the Blacktown Native Institution site. The methodology will be developed in consultation with the DSMG stakeholders/Working Group and the outcomes of the testing would inform the detailed design.	Transport	Detailed design

5.3 Traffic and transport

A Traffic and Transport Impact Assessment (TTIA) was prepared as part of the REF to evaluate the proposal's potential impacts on the traffic and transport network for all road users (refer section 6.1 and Appendix C of the REF). In this initial assessment, it was assumed that Stage 1 (northern section) and Stage 2 (southern section) would be implemented and opened to traffic in 2028 and 2038, respectively.

Since this assessment was completed, funding has been granted for both stages of the proposal to be completed consecutively by the end of 2028. To accommodate this accelerated timeline, an additional ancillary site has been designated at 136 South Street, Marsden Park (Change 1a) which would cater for light construction vehicles.

A traffic and transport addendum (Addendum) (refer Appendix E) has been carried out to re-assess the potential traffic and transport impacts of the proposal taking into account the accelerated delivery schedule, with both stages of the proposal

delivered prior to the end of 2028. The addendum also incorporates additional construction traffic volumes associated with the new ancillary facility at 136 South Street and incorporates signal optimisation within the model to enhance traffic flow along Richmond Road. The signal optimisation was part of design development and in response to vehicles queuing along the ramps exiting the M7 Motorway.

This section should be read in conjunction with the TTIA assessment prepared for the REF to ensure a comprehensive understanding of the revised scope and its potential impacts on the traffic and transport network.

An additional ancillary facility is proposed at 717 Richmond Road, Colebee (Change 1b). Following a review of the existing traffic volumes on Richmond Road, the expected additional construction traffic volumes and the location of the proposed ancillary site, the potential impact on the results provided in this section are considered to be minor to negligible. As such, the current assessment is considered adequate, and the site has not been included in the Addendum.

5.3.1 Methodology

Identification of the study area, and an assessment of the existing network and intersection performance are provided in the section 6.1 and Appendix C of the REF.

Construction assessment

The construction assessment in the Addendum re-modelled the construction scenarios presented in the TTIA to account for the additional 48 light vehicles associated with the operation of the 136 South Street site and changes to the signal optimisation at the intersections to enhance traffic flow.

Construction staging

Section 7.2 of the TTIA and section 3.3.3 of the REF provides details on the construction staging for the proposal. The staging of the proposal has not changed in the Addendum, and the following assumptions have not changed:

- Stage 1 (northern section) construction works are primarily taking place at night or outside the time periods considered for traffic modelling. As a result, these works are expected to have minimal to no impact on traffic. Additionally, since Stage 1 does not involve changes to the existing traffic lane arrangements, it has not been included in the modelling.
- Traffic modelling has been conducted to assess the impacts of Stage 2 (southern section) construction works. Stage 2 works have been divided into four sub-stages: 2A, 2B, 2C, and 2D.
    - Stages 2A, 2B, and 2C involve modifications to lane configurations to facilitate construction, including adjustments to the Rooty Hill Road North / Richmond Road intersection for temporary traffic alignments.
    - Stage 2D works, however, would take place at night and are not expected to impact traffic operation. This stage has not been included in the modelling.

Ancillary sites

Section 7.4 of the TTIA prepared for the REF outlines that the expected traffic generation for the proposed construction activities is 192 vehicles per day. The expected traffic volumes have been increased to 240 vehicles per day to account for the additional 48 light vehicles associated with the 136 South Street site. The updated traffic volumes are provided in section 2.3.2 of the addendum.

Construction scenarios

The traffic modelling presented in TTIA prepared for the REF has been updated in the Aimsun microsimulation model to determine the relative impacts of construction traffic at key intersections.

Based on the staging assumptions above, the following construction scenarios were developed:

- 2028 Stage 1: This scenario was modelled with the Stage 1 (northern section) of the proposal complete and includes other infrastructure upgrades as outlined in section 1.2 of the Addendum. This scenario represents the traffic conditions of the Richmond Road corridor without the improvements associated with Stage 2 (southern section) of the proposal and serves as the baseline for comparison with the two construction scenarios. To ensure a robust and equitable assessment of the construction impacts associated with Stage 2, it is necessary to incorporate Stage 1 into the baseline scenario, as it is anticipated to be operational prior to the commencement of Stage 2 works.

- Construction Scenario 1 (Stage 2A): This scenario involves modifications to the existing Richmond Road southbound lane configurations to facilitate the construction of future southbound lanes. The northbound lane configuration remains unaltered. The rest of the corridor is unchanged from the 2028 Stage 1 layout.
- Construction Scenario 2 (Stage 2B and 2C): This scenario involves shifting the northbound and southbound lane configurations to the southbound lanes of the proposed Richmond Road as part of a temporary traffic alignment. It also includes adjustments to the Rooty Hill Road North / Richmond Road intersection for temporary contraflow. The rest of the corridor is unchanged from the 2028 Stage 1 layout.

The construction scenarios use the same traffic data as the 2028 Stage 1 scenario plus the additional construction vehicles associated with the 136 South Street site.

Operational assessment

The operational assessment in the Addendum re-modelled the operational scenarios presented in the TTIA to account for the changed delivery strategy and changes to the signal optimisation at the intersections to enhance traffic flow.

In the changed delivery strategy Stage 1 and Stage 2 of construction would be delivered prior to the end of 2028. The TTIA staggered the construction with only Stage 1 being completed by the end of 2028, and Stage 2 being completed in 2038.

Traffic modelling was used to investigate potential operational impacts associated with the proposal at a network and intersection level with the proposal (The Proposal scenario) and without the proposal (Do-Minimum scenario) as follows:

- Do-Minimum 2028
- Do-Minimum 2038
- The Proposal 2028
- The Proposal 2038.

5.3.2 Description of existing environment

The existing traffic environment including the existing traffic volumes, existing network and intersection performance, travel times and the public and active transport networks are described in section 6.1 and Appendix C of the REF.

It is noted that due to the accelerated construction program, the existing traffic conditions during the Stage 2 works would be different as they would be completed in 2028. This would result in a reduction in existing traffic levels during construction as result of less forecast growth in adjacent developments.

5.3.3 Potential impacts

Construction impacts

Traffic volume impacts

The REF identified that up to 192 vehicles per day would be added to the road network during the construction phase. A further 48 light vehicles would be added to the road network from the operation of 136 South Street, this is an increase of 25%. Therefore, in total construction traffic would result in up to 240 additional vehicles per day added to the road network. Heavy vehicles make up the majority of the additional vehicles at around 55%.

Heavy vehicle movements would be generated from the delivery of construction materials, spoil removal, import of fill material for earthworks and delivery and removal of construction equipment and machinery. Light vehicles make up the remainder of the construction traffic. Light vehicle movements would be generated by workers travelling to, from and within the proposal's construction boundary.

Overall, the above identified impacts of construction traffic on Richmond Road are expected to be low as the road already handles a significant amount of traffic and an increase of 240 vehicles per day is not considered to be detrimental to the operation or safety of the road. The addition of 240 vehicles is at maximum a 0.58% increase in overall traffic volumes on Richmond Road during the construction phase as shown in Table 5-12.

Access to 136 South Street is expected to be via the northern approach of the existing traffic signals at the South Street / Fermoy Road intersection. It is assumed that vehicles would travel via Richmond Road south of Yarramundi Drive from the

southern boundary of the study area (this route is shown on Figure 2-2 of Appendix E). This access has been considered in the construction modelling scenarios presented.

Intersection performance

Traffic scenarios were re-modelled to determine the relative impacts of construction traffic at key intersections when compared to conditions with only construction of Stage 1.

The intersection performance results for the construction scenarios (Construction Stage 2A and Construction 2B and 2C) compared to the 2028 The Proposal scenario (Stage 1) are shown on Figure 5-3 and summarised in Table 5-12.

Table 5-12 Construction impacts summary

Item	Intersection	Summary of impact
Volume	Richmond Road (between Townson Road and Alderton Drive)	Volume increases only by 0.35% with the addition of construction traffic, which is expected to have a low impact
	Richmond Road (south of Alderton Drive)	Volume increases only by 0.27% with the addition of construction traffic, which is expected to have a low impact
	Richmond Road (North of Yarramundi Drive)	Volume increases only by 0.58% with the addition of construction traffic, which is expected to have a low impact
	Rooty Hill Road North (South of Richmond Road)	Volume increases only by 0.34% with the addition of construction traffic, which is expected to have a low impact
Level of service	Richmond Road / Hollinsworth Road / Townson Road	Average delay and LOS remain similar with the Proposal scenario in the AM peaks. The PM peak shows worsening from LOS D to LOS E and F in Construction stage 2A and 2B and 2C, respectively.
	Richmond Road / Langford Drive / Alderton Drive	LOS remains similar between peaks and scenarios, except during the first hour of Construction Stage 2A with an increase in delay from LOS E to F, associated with the construction traffic.
	Richmond Road / Rooty Hill Road North / M7 Motorway on/off ramps	Construction Stage 2A: LOS remains comparable in the AM peak while improves from LOS F to LOS E in the PM peak. Construction Stage 2B and 2C: LOS improves from LOS F to D in the AM peak and from LOS F to LOS C in the PM peak due to upstream congestion as a result of construction traffic.
	Rooty Hill Road North / M7 Motorway Rooty Hill Road North off-ramp	LOS remains comparable with the Proposal scenario in the PM peak and worsens from LOS D to LOS E in the AM peak as a result of construction traffic.
	Richmond Road / M7 Motorway southbound on-ramp	LOS remains comparable with the Proposal scenario in the AM and PM peaks, indicating that construction traffic has not worsened the performance except in the PM peak of Construction Stage 2A, which worsens from LOS C to D.
	Richmond Road / South Street	Given that the proposed ancillary site is expected to generate only 48 vehicles per day, the impact on intersection performance is anticipated to be minimal.

Other impacts

The potential impacts on construction worker parking, on-street parking, the public and active transport network and property access would remain unchanged to that assessed in section 6.1.3 and Appendix C of the REF.

Change in impact compared to TTIA in REF

With respect to construction impacts, the inclusion of additional vehicles associated with the ancillary site at 136 South Street results in a minor to negligible impacts compared to the assessment in REF. However, overall performance remains broadly consistent with the outcomes presented in the TTA prepared for the REF.

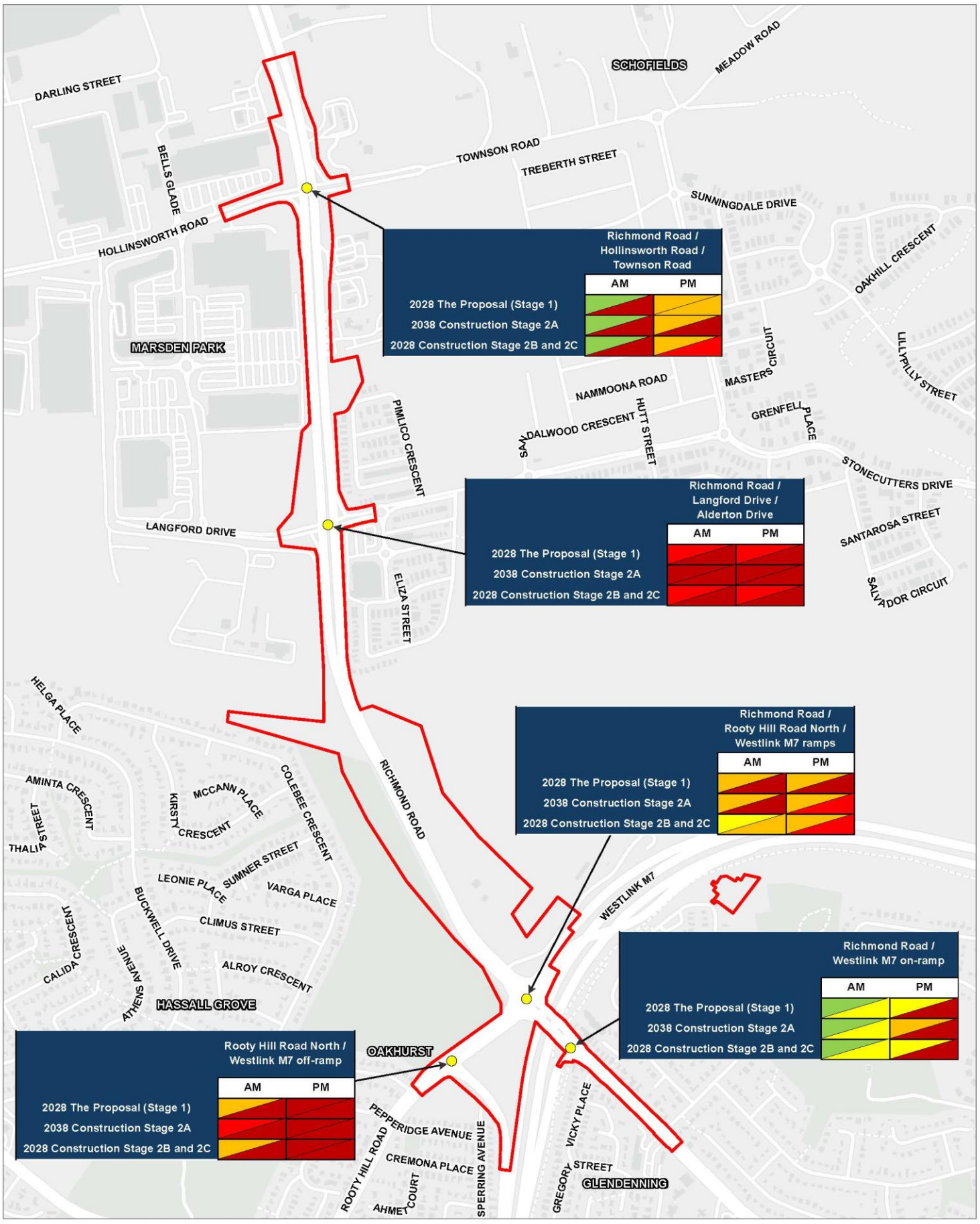


Figure 5-3: Construction intersection performance summary

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173-EN-GS-037
Drawn By: RA, Checked By: AS
Date: 2025-06-11
Revision: 01

Legend

- Proposed amended REF construction boundary
- Intersection

LOS

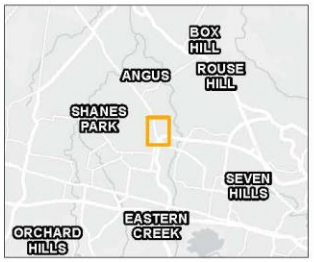
A B C D E F Hour 1 Hour 2

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Light Gray Base provided by ESRI.

0 100 200 300 400 Metres

Scale at A3: 1:7,500



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Operation

The operational assessment in the traffic and transport addendum re-modelled the operational scenarios presented in the TTIA to account for the changed delivery strategy and changes to the signal optimisation at the intersections to enhance traffic flow. A summary of the updated modelling results is provided below.

Future traffic demand through the study area and to and from the major roads for the future years 2028 and 2038 were estimated for the AM peak and PM peak. These estimated traffic volumes were used to determine the operational impacts for the proposal. The modelled scenarios are outlined in section 5.3.1.

Network performance

The existing conditions and the AM Peak and PM Peak road network performance of the 'Do-Minimum' scenario and The Proposal for future years 2028 and 2038 are shown in Table 5-13. The road network performance metrics used to compare the scenarios are described in section 6.1.1 of the REF.

The network performance results indicate that:

- In the Proposal scenarios, total demand increases when compared to the Do-Minimum scenarios as the proposal allows more traffic to enter the model boundary in the AM and PM peaks.
- Vehicle kilometres travelled (VKT) increases and vehicle hours travelled (VHT) decreases in both peaks in the Proposal scenarios compared to Do-Minimum scenarios, indicating that road users experience a reduction in congestion in the network.
- Average travel times and the average number of stops decrease, and average speeds increase in the Proposal scenarios indicating a reduction in congestion. In the 2028 Proposal scenario average travel times and the average number of stops decrease by up to 34%, and average speeds increase by over 52%.
- In both peak periods, the 2028 Proposal scenario shows no unreleased vehicles at the M7 Motorway ramps near Richmond Road.
- Unreleased demand increases by 109 vehicles in the AM peak in the 2028 Proposal scenario, when compared to the Do-Minimum scenario. In the PM peak, unreleased demand decreases by 60% in the 2028 Proposal scenario, when compared to the Do-Minimum scenario.
- Unreleased demand decreases by 34% in the AM peak and 63% in the PM peak in the 2038 Proposal scenario, as the proposal increases network capacity.

Table 5-13 Road network performance

Network performance metric	Existing		2028 Do-Minimum		2028 The Proposal		2038 Do-Minimum		2038 The Proposal		2028 The Proposal compared to Do-Minimum		2038 The Proposal compared to Do-Minimum	
	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak
All vehicles														
Total demand (veh)	25,586	26,158	27,395	28,838	27,880	29,573	31,419	33,000	33,564	34,490	+485 (+1.8%)	+735 (+2.5%)	+2145 (+6.8%)	+1490 (+4.5%)
Vehicle kilometres travelled (VKT) (km)	108,818	112,425	111,249	116,852	117,182	121,563	108,261	112,516	125,272	129,854	+5,933 (+5.3%)	+4,711 (+4%)	+17,011 (+15.7%)	+17,338 (+15.4%)
Vehicle hours travelled (VHT) (hr)	4055	3291	4542	4614	3,804	3,676	6410	7355	5778	5676	-738 (-16.2%)	-938 (-20.3%)	-632 (-9.9%)	-1,679 (-22.8%)
Total number of stops (stops)	108,498	94,508	114,406	111,737	92,905	89,496	152,003	151,578	150,530	148,345	-21,501 (-18.8%)	-22,241 (-19.9%)	-1,473 (-1%)	-3,233 (-2.1%)
Averages per vehicle														
Average travel time in network (sec)	600	462	655	627	521	470	911	1,016	718.9	670.0	-134 (-20.4%)	-157 (-25.1%)	-192 (-21.1%)	-346 (-34.1%)
Average number of stops (stops)	4.46	3.68	4.6	4.2	3.5	3.2	6	5.8	5.2	4.9	-1.1 (-22.9%)	-1.0 (-24.8%)	-0.8 (-13.3%)	-0.94 (-16.1%)
Average speed (km/h)	26.84	34.16	24	25	31	33	17	15	21.7	22.9	+7 (+28.4%)	+8 (+32.3%)	+5 (+27.5%)	+8 (+52.5%)
Unreleased demand														
Unreleased demand (veh)	0	0	430	953	539	360	3270	3497	2,145	1,299	+109 (+25.3%)	-593 (-62.2%)	-1,125 (-34.4%)	-2,198 (-62.9%)
Proportion of total demand (%)	0%	0%	1.6%	3.3%	1.9%	1.2%	10.4%	10.6%	6.4%	3.8%				

Intersection performance

Traffic modelling has been undertaken to determine the relative impacts of operational traffic at key intersections when compared to conditions without construction of the proposal. The intersection performance results for the Do-Minimum and The Proposal scenarios are shown on Figure 5-4 and summarised in Table 5-14.

Table 5-14 Operational impacts summary

Item	Intersection	Summary of impact
Volume	Richmond Road (between Townson Road and Alderton Drive)	Traffic volume increases in the Proposal scenario compared to Do-Minimum
	Richmond Road (south of Alderton Drive)	Traffic volume increases in the Proposal scenario compared to Do-Minimum
	Richmond Road (North of Yarramundi Drive)	Traffic volume increases in the Proposal scenario compared to Do-Minimum
	Rooty Hill Road North (South of Richmond Road)	Traffic volume decreases in the Proposal scenario compared to Do-Minimum due to the introduction of M7 flyover exit ramp alleviating some traffic on the Rooty Hill Road
Intersection performance	Richmond Road / Hollinsworth Road / Townson Road	In both years, LOS improves under the Proposal.
	Richmond Road / Langford Drive / Alderton Drive	In 2028, LOS improves under the Proposal. In 2038, delays are improved in all modelled hours.
	Richmond Road / Rooty Hill Road North / M7 Motorway on/off ramps	In both years, LOS improves under the Proposal.
	Rooty Hill Road North / M7 Motorway Rooty Hill Road North off-ramp	In both years, LOS improves under the Proposal.
	Richmond Road / M7 Motorway southbound on-ramp	In both years, LOS improves under the Proposal.

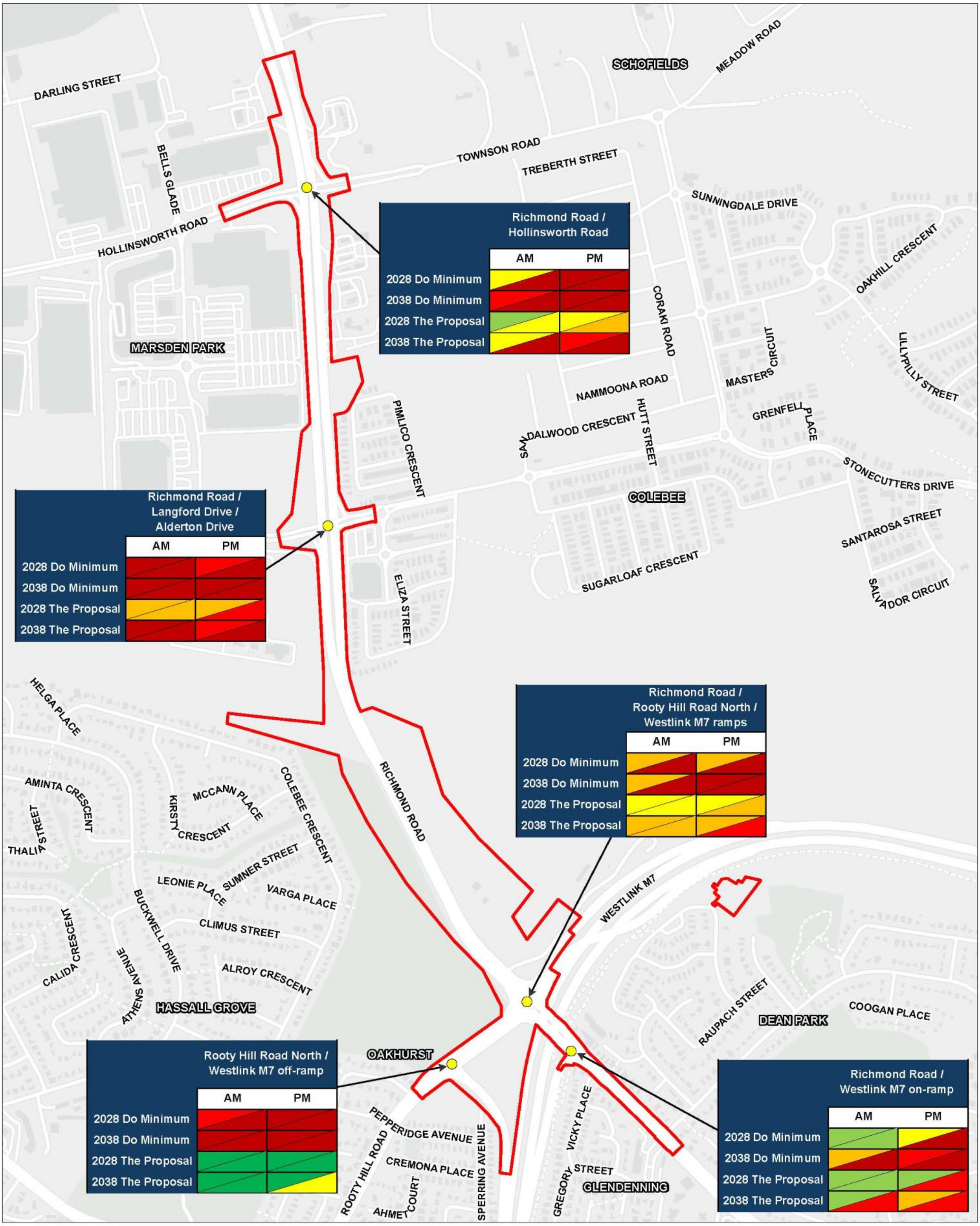

Figure 5-4: Operational intersection performance summary

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173-EN-GS-038
Drawn By: RA, Checked By: AS
Date: 2025-06-11
Revision: 01

Stantec | NSW | Transport for NSW

Legend

Proposed amended REF construction boundary

Intersection

LOS

A B C
D E F
Hour 1 / Hour 2

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Light Gray Base provided by ESRI.

0 100 200 300 400 Metres

Scale at A3: 1:7,500

BOX HILL
ANGUS
ROUSE HILL
SHANES PARK
SEVEN HILLS
ORCHARD HILLS
EASTERN CREEK

Travel times

Results for the 2028 Do-Minimum and 2028 The Proposal scenarios for Richmond Road between Rooty Hill Road North and The Driftway indicate that:

- Under the Proposal scenario, travel times on Richmond Road northbound reduce by over two minutes when compared to the Do-Minimum scenario.
- The travel time in the AM peak for Richmond Road southbound under the Proposal scenario decreases by over seven minutes when compared to the Do-Minimum scenario. The reduction is a result of the additional lanes provided as part of the proposal and signal optimisation.
- The travel time during the PM peak for Richmond Road southbound under the Proposal scenario decreases by over three minutes when compared to the Do-Minimum scenario.

Results for the 2038 Do-Minimum and 2038 The Proposal scenarios for Richmond Road between Rooty Hill Road North and The Driftway indicate that:

- Under the Proposal scenario in the AM peak, travel times on Richmond Road northbound increase by three minutes when compared to the Do-Minimum scenario. The introduction of the M7 flyover exit ramp and the Richmond Road / Rooty Hill Road North intersection reconfiguration in the Proposal scenario allows more vehicles to enter Richmond Road northbound leading to increased travel times along the route. Previously, a large number of vehicles were unable to enter Richmond Road northbound
- Under the Do-Minimum scenario in the PM peak, travel times on Richmond Road northbound reduce by over one minute when compared to the Proposal scenario.
- Under the Proposal scenario in the AM peak, travel times on Richmond Road southbound decrease by over 16 minutes when compared to the Do-Minimum scenario.
- Under the Proposal scenario in the PM peak, travel times on Richmond Road southbound decrease by over nine minutes when compared to the Do-Minimum scenario.

Predicted travel times for various sections of Richmond Road between Rooty Hill Road North and The Driftway are provided in Appendix E.

Other impacts

The potential impacts on the public and active transport network and property access would remain unchanged to that assessed in section 6.1.3 and Appendix C of the REF.

Change in impacts compared to TTIA in REF

From an operational perspective, the 2028 scenario demonstrates a notable improvement in performance following the completion of the project, when compared to the TTIA results, which include conditions up to Stage 2A. By 2038, performance outcomes are generally comparable between the TTIA and the Addendum, as both are based on the same infrastructure and traffic demand assumptions. Nevertheless, signal operations were further optimised in the Addendum submission, resulting in improved traffic flow along Richmond Road.

5.3.4 Revised safeguards and management measures

The safeguards and managements measures in section 6.1.4 of the REF remain applicable.

5.4 Biodiversity

A biodiversity assessment report (BAR) was prepared as part of the REF to assess the potential biodiversity impacts during construction and operation of the proposal. This assessment is outlined in section 6.8 and Appendix H for the REF.

A biodiversity assessment report (BAR) addendum (Appendix F) was prepared to assess the existing environment at 136 South Street, Marsden Park (Change 1a) and to assess the impacts of the updated vegetation clearing boundary resulting from the proposed design changes (Change 4).

Due to seasonal survey requirements, eight threatened flora species were assumed present and assessed accordingly within the BAR prepared for the REF. These additional seasonal surveys have been completed since the REF and the results are now being considered below as part of the overall impact assessment of the proposal.

This section should be read in conjunction with the BAR prepared for the REF to ensure a comprehensive understanding of the revised scope and its potential impacts on biodiversity.

5.4.1 Methodology

Assessment areas

The following areas have been defined for the biodiversity assessment:

- Proposal footprint (clearing limit) – area to be impacted as part of the proposal which includes certified, non-certified and uncertified lands.
- Subject land – the non-certified and uncertified areas of the proposal footprint (clearing limit) used to calculate the direct impacts of the proposal (refer Figure 5-5).
- Study area – the land on which field surveys were undertaken as part of the project BAR (refer Figure 5-5) and BAR addendum.
- Study locality – land within 10 kilometres of the study area used for desktop analysis of potential biodiversity values.

Assessment

The BAR addendum was carried out in accordance with Biodiversity Assessment Method (BAM) (DPIE, 2020). The following provides a summary of the methodology used in the BAR addendum:

- A rapid site observation of the additional ancillary facility on 12 December 2024 to assess the existing environment within the lot at 136 South Street, Marsden Park (Lot 4 DP 1205982).
- Additional targeted surveys for threatened flora species not surveyed in the BAR due to seasonal requirements. Two survey campaigns in October 2024 and December 2024, conducted in accordance with the parallel transect method outlined in the Surveying Threatened Plants and Their Habitats: NSW Survey Guide for the Biodiversity Assessment Method (DPIE, 2020). The timing of surveys adhered to the survey season requirements, as detailed in the Threatened Biodiversity Database Collection (TBDC).
- Assessment of the entire subject land resulting from the design changes and subsequent clearing limit, including:
    - updates to the overall impact area of each vegetation zone and Threatened Ecological Community (TEC)
    - updates to the area of threatened species habitat impacted
    - updates to the species polygons and BAM Calculator (BAM-C) to determine species credits required to be offset
    - updates to the Assessments of significance (AoS) for species, populations and ecological communities listed under the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

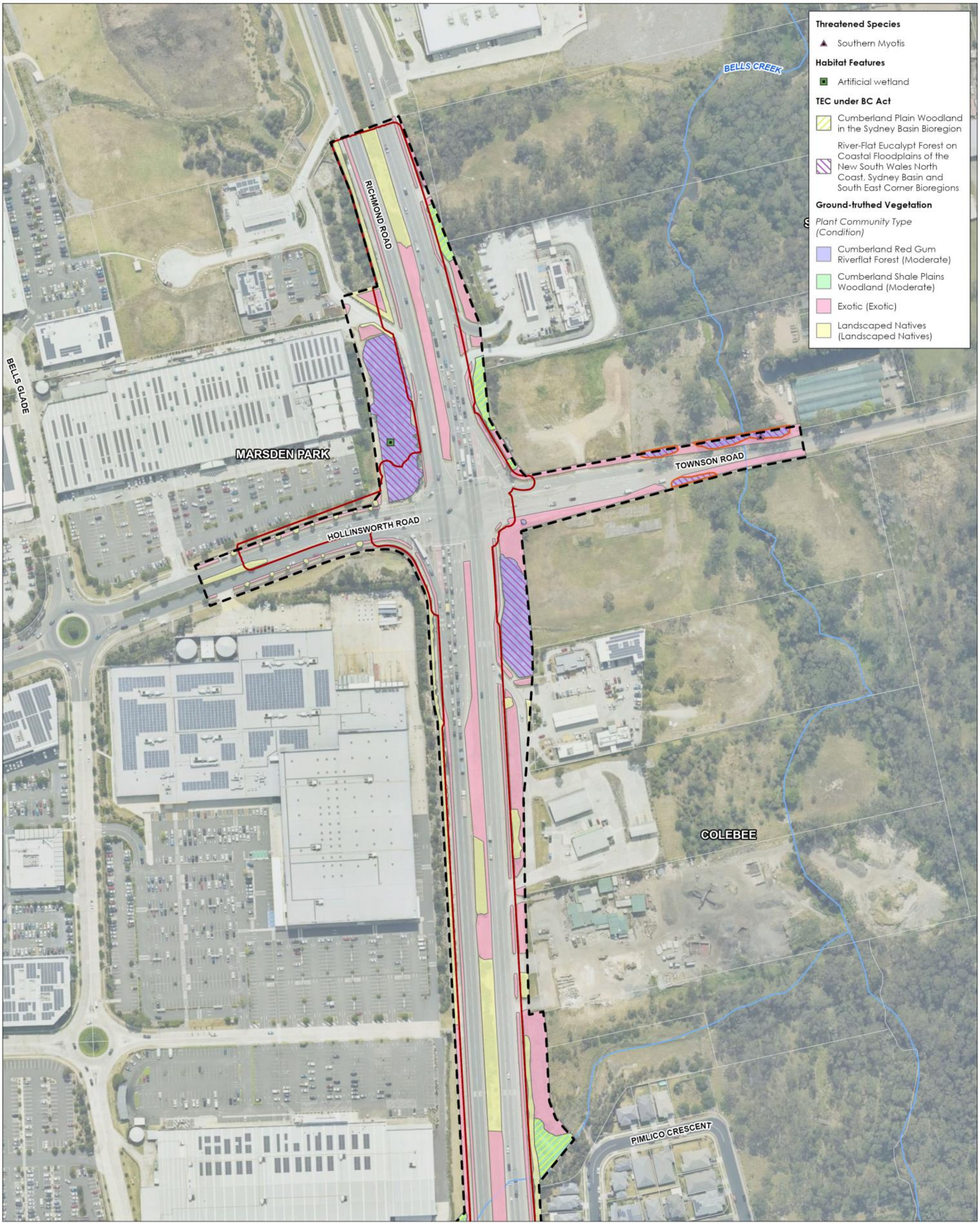

Figure 5-5 (a): Vegetation types and threatened species

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173_EN_GS_039
Drawn By: RA, Checked By: AS
Date: 2025-07-15
Revision: 02

Legend

- Biodiversity study area
- Watercourse
- Cadastre
- Clearing boundary (5m)

EPBC Act TECs

- River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Ground-truthed vegetation (Stantec, May 2024)
3. EPBC Act TECs, Habitat Features, TEC under BC Act, and Threatened Species (Stantec, June 2024)
4. Watercourse and Cadastre (NSW SS, 2023)

0 20 40 60 80 100 Metres
Scale at A3: 1:2,500

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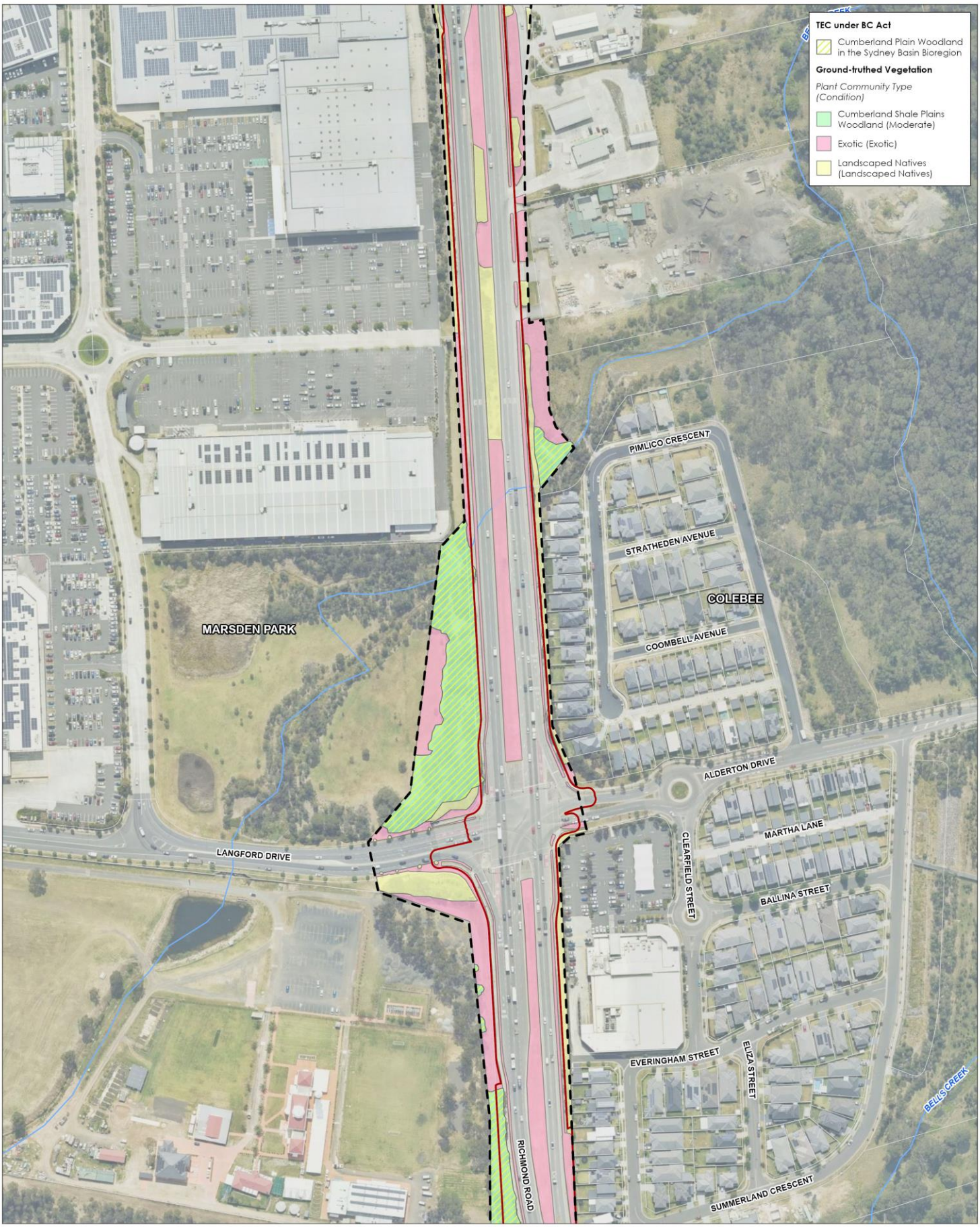

Figure 5-5 (b): Vegetation types and threatened species

Richmond Road Upgrade between M7 Motorway and Townson Road

Legend

- Biodiversity study area
- Watercourse
- Cadastre
- Clearing boundary (5m)

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Ground-truthed vegetation (Stantec, May 2024)
3. EPBC Act TECs, Habitat Features, TEC under BC Act, and Threatened Species (Stantec, June 2024)
4. Watercourse and Cadastre (NSW SS, 2023)

0 20 40 60 80 100 Metres

Scale at A3: 1:2,500

Project Code: 305001173_EN_GS_039
Drawn By: RA, Checked By: AS
Date: 2025-07-15
Revision: 02

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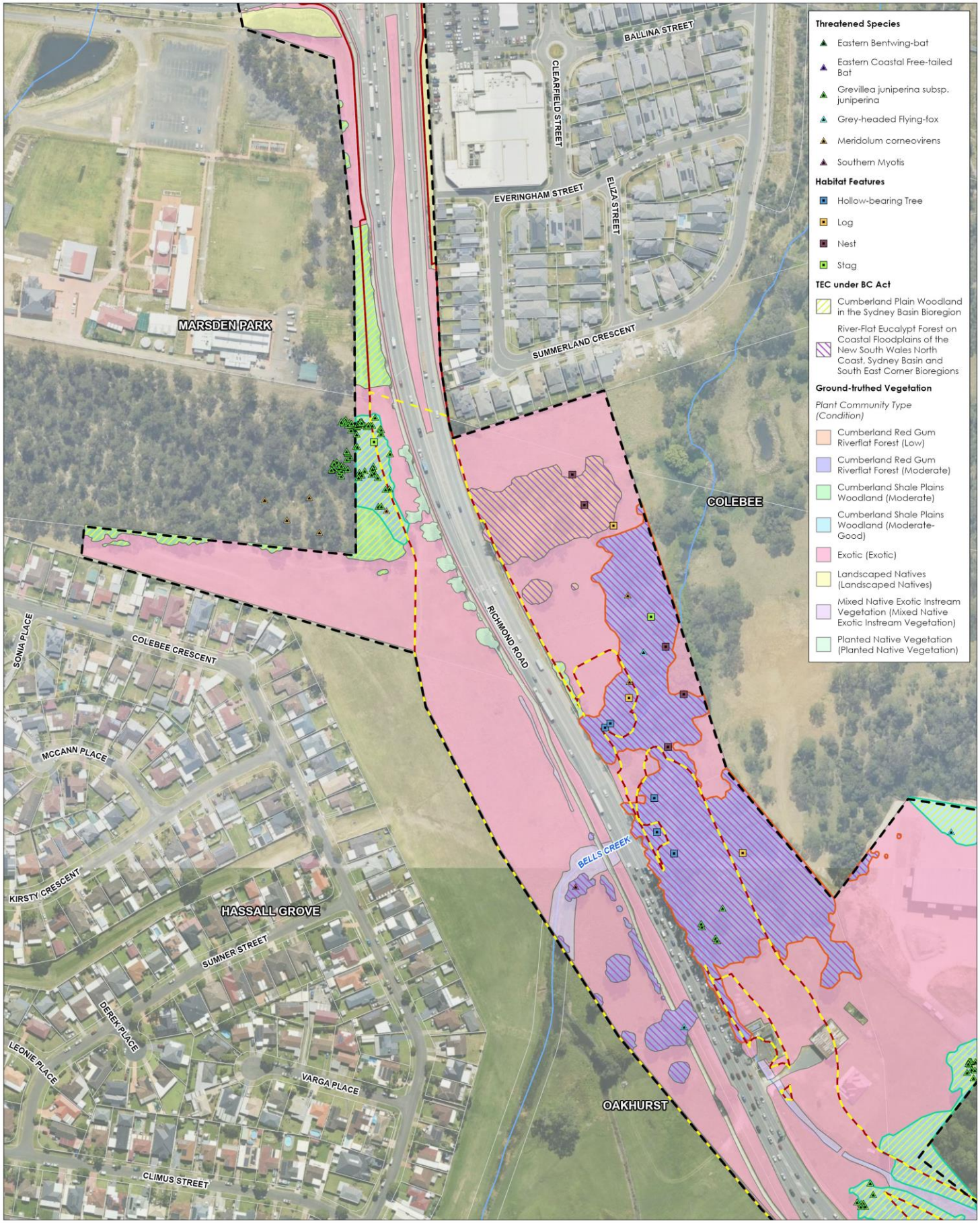

Figure 5-5 (c): Vegetation types and threatened species

Richmond Road Upgrade between M7 Motorway and Townson Road

Legend

- Biodiversity study area
- Subject land
- Watercourse
- Cadastre
- Clearing boundary (5m)

EPBC Act TECs

- Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest
- River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Ground-truthed vegetation (Stantec, May 2024)
3. EPBC Act TECs, Habitat Features, TEC under BC Act, and Threatened Species (Stantec, June 2024)
4. Watercourse and Cadastre (NSW SS, 2023)

0 20 40 60 80 100 Metres

Scale at A3: 1:2,500

Project Code: 305001173_EN_GS_039
Drawn By: RA, Checked By: AS
Date: 2025-07-15
Revision: 02

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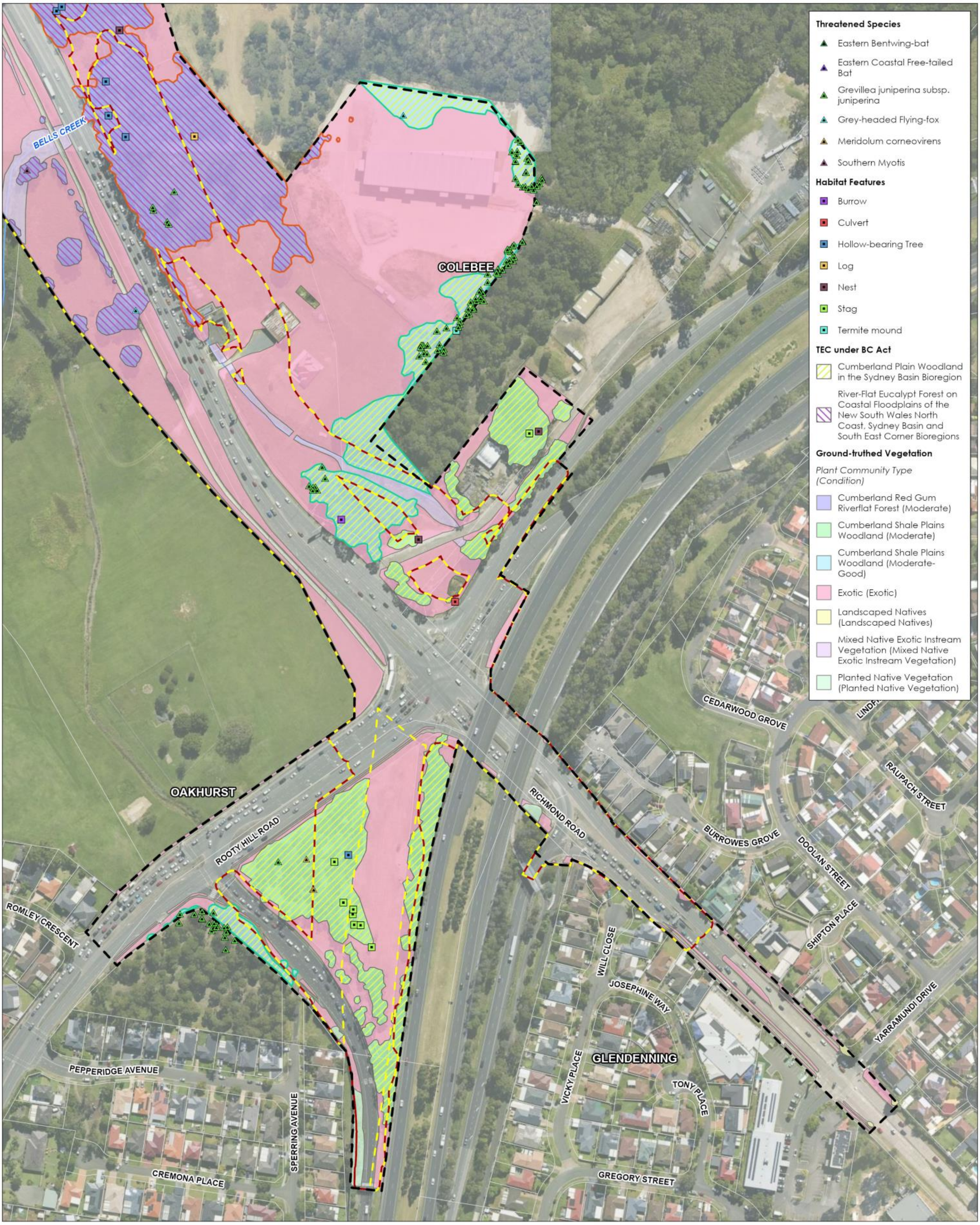


Figure 5-5 (d): Vegetation types and threatened species

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173_EN_GS_039
Drawn By: RA, Checked By: AS
Date: 2025-07-15
Revision: 02

Legend

- Biodiversity study area
- Subject land
- Watercourse
- Cadastre
- Clearing boundary (5m)

EPBC Act TECs

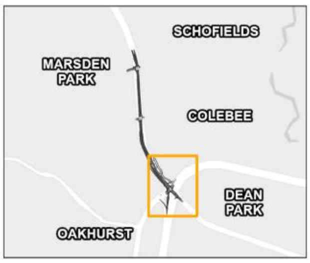
- Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest
- River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Ground-truthed vegetation (Stantec, May 2024)
3. EPBC Act TECs, Habitat Features, TEC under BC Act, and Threatened Species (Stantec, June 2024)
4. Watercourse and Cadastre (NSW SS, 2023)

0 20 40 60 80 100 Metres

Scale at A3: 1:2,500



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\\Au2028-ppfss01\workgroup\3040\miscellaneous_gis_working_\305001173 - Richmond Rd Widening (RRM7)\GIS\305001173-EN-GS-039-REFVegTypesThreatSpcs_PropAmndBndry.aprx | 305001173_EN_GS_039_REFVegTypesThreatSpcs_PropAmndBndry 02 | Last updated 2025-07-15 By: rapura

5.4.2 Description of existing environment

Design changes

The additional site facility at 136 South Street, Marsden Park (Change 1a) was not previously assessed within the BAR as it was outside the biodiversity study area. The study area has been increased to include this lot. A rapid site observation was undertaken on 12 December 2024 to assess the existing environment within the lot, and the following was noted:

- vegetation consisted of exotic groundcover with two exotic amenity plantings in the centre
- no native vegetation was recorded, and vegetation is not considered to be commensurate with any recognised Plant Community Types (PCTs)
- no suitable threatened fauna habitat is present.

The remainder of the proposed design changes are within the biodiversity study area and the existing environment is consistent with the description in section 3 of the BAR, and section 6.8.2 of the REF.

Additional threatened species surveys

Additional seasonal surveys have been completed since the REF and the results are now being considered below as part of the overall impact assessment of the proposal. The following species were surveyed as part of the additional threatened species survey campaigns:

- *Deyeuxia appressa* – listed as endangered under the BC Act and EPBC Act
- *Dillwynia tenuifolia* - listed as vulnerable under the BC Act
- *Hibbertia puberula* - listed as endangered under the BC Act
- *Hibbertia sp. Bankstown* – listed as critically endangered under the BC Act and EPBC Act
- *Pomaderris brunnea* – listed as endangered under the BC Act and vulnerable under the EPBC Act
- *Pterostylis saxicola* – listed as endangered under the BC Act and EPBC Act
- *Pultenaea parviflora* – listed as endangered under the BC Act and vulnerable under the EPBC Act
- *Pultenaea pedunculata* - listed as endangered under the BC Act.

As none of the above threatened flora species were recorded within the study area during the additional survey campaigns, no further assessment of these species is required.

Microbats

As outlined in the BAR prepared for the REF, microbat surveys were conducted in accordance with 'Species Credit' Threatened Bats and their Habitats NSW Survey Guide for the Biodiversity Assessment Method (DPIE, 2021). Ultrasonic echolocation detectors (ANABATs) were deployed in areas of appropriate habitat and flyways to help capture the calls of microbat species.

Roost searches were conducted and involved looking for bats or signs of bats (urine stains, droppings, remains, and bat fly casings) in suitable roost habitat during the daytime. This included all bridge and culvert structures over Bells Creek within uncertified land visually inspecting suitable cracks/crevices with hand-held torches within the structures.

A Southern Myotis (*Myotis Macropus*) roost was detected within the three culverts of the Bells Creek Bridge on Townson Road. The species was also detected on ANABAT recordings west of Richmond Road, however no roosting individuals were observed within the overbridge structure on Richmond Road during field surveys. Suitable habitat for the species within the subject land includes all areas of PCT 3320 and PCT 4025 within 200 metres of the banks of Bells Creek.

Assessments of significance were completed for threatened microbat species (Southern Myotis (*Myotis Macropus*), cave dwelling microbats, hollow-dependent microbats). The assessments concluded the proposal is unlikely to result in a significant impacts to any microbats.

5.4.3 Potential impacts

Removal of native vegetation

Based on the design changes, the proposal would require the removal of an additional 0.11 hectares of native vegetation that aligns to a PCT, and a reduction in planted tree removal from 66 to 38 trees across the subject land when compared to the BAR prepared for the REF.

In total the proposal would require the removal of 2.22 hectares of native vegetation and 38 planted trees. This total includes 0.35 hectares of native vegetation within certified areas, which has previously been offset under the North West Growth Centre Biodiversity Certification process and Cumberland Plain Conservation Planning (CPCP) area. The area of clearing in certified areas does not change as a result of the design changes. No further assessment of these areas is required, provided that the development occurs in accordance with the relevant biocertification order.

The proposal would directly impact 1.87 hectares of native vegetation and 38 planted trees outside of certified areas. This includes 1.87 hectares of vegetation commensurate with TECs listed under the BC Act, and 1.36 hectares commensurate with TECs listed under the EPBC Act. The design changes would require an additional clearing of 0.11 hectares as shown in Table 5-15.

Table 5-15 Summary of direct impacts on native vegetation within the subject land

Plant community type (PCT)	Broad condition class	TEC	Area to be impacted (ha)	
			BAR	BAR addendum
PCT 3320: Cumberland Shale Plains Woodland	Moderate	Critically Endangered (BC Act)	0.49	0.50
PCT 3320: Cumberland Shale Plains Woodland	Moderate-Good	Critically Endangered (BC Act) Critically Endangered (EPBC Act) *	0.31	0.31
PCT 4025: Cumberland Red Gum Riverflat Forest	Moderate	Endangered (BC Act) Critically Endangered (EPBC Act) *	0.95	1.05
PCT 4025: Cumberland Red Gum Riverflat Forest	Low	Endangered (BC Act)	0.01	0.01
Sub-total			**1.76**	**1.87**

** Where the patch is greater than 0.5 ha in size.*

Removal of threatened fauna habitat

Based on the BAR, 24 fauna species were either recorded or considered to have a moderate likelihood of occurring within the subject land based on the presence of potential habitat. Impacts to these species would be limited to foraging habitat and potential breeding habitat.

Direct impact on threatened fauna habitat based on the proposal inclusive of design changes (and associated clearing) is identified as 1.87 hectares (previously 1.76 hectares in the BAR) for all but two species. This habitat is associated with foraging habitat within PCT 3320 and PCT 4025. The exceptions are:

- Myotis Macropus (*Southern Myotis*) which had an impact area of 1.43 hectares (previously 1.33 hectares) as associated habitat for this species was limited to PCT 3320 and PCT 4025 within 200 metres of Bell's Creek and tributaries.
- Cumberland Plain Land Snail (*Meridolum corneovirens*) which had an impact area of 1.15 hectares (previously 1.57 hectares) as associated habitat for this species was limited to PCT 3320 and PCT 4025 contiguous with records of the species.

Removal of threatened flora

Based on the BAR, one threatened species *Grevillea juniperina subsp. Juniperina* was recorded within the subject land. In addition, eight threatened flora species could not be surveyed due to seasonal requirements.

The proposal inclusive of design changes (and associated clearing) would result in the removal of 0.51 hectares (previously 0.44 hectares in the BAR) of habitat for *Grevillea juniperina subsp. juniperina.* Direct impacts have been quantified in accordance with the BAM (i.e. as per the unit of measurement identified in the TBDC).

The additional seasonal surveys have been completed since preparation of the BAR. As the species were not detected during these surveys, the species have been excluded from further assessment.

Assessments of significance

Assessments of significance (AoS) previously completed for the proposal and provided in the BAR have been updated to include consideration of the design changes (and associated clearing).

As the eight species previously assumed present were not recorded within the study area during the additional survey campaigns they have been excluded from further assessment including the requirement for an AoS.

The updated AoS did not result in an increased significance level as a result of the design changes.

5.4.4 Revised safeguards and management measures

The safeguards and managements measures in section 6.8.4 of the REF remain applicable.

5.4.5 Biodiversity offsets

The Biodiversity Offset Scheme (BOS) has not been triggered by the proposal. As such, the requirements for the provision of biodiversity offsets, conservation measures and tree and hollow replacement have been considered in accordance with the following Transport guidelines:

- No Net Loss Guidelines (TfNSW, 2024a) and supporting resources
- Tree and Hollow Replacement Guidelines (TfNSW, 2024b) and supporting resources.

Direct impacts to native vegetation as a result of the proposal inclusive of design changes, exceed the offset thresholds and preliminary offsetting estimates indicate 59 ecosystem credits would be required to offset the proposed impacts on native vegetation. This is an additional eight ecosystem credits compared to the BAR (i.e. previously 51 ecosystem credits).

Three species credit species have been recorded within the subject land, however, do not require offsetting as per the No Net Loss Guidelines (TfNSW, 2024a) thresholds. This conclusion is consistent with the BAR.

The remaining vegetation zone and planted native vegetation do not trigger the offset thresholds and have been considered against the requirements of the Tree and Hollow Replacement Guidelines (TfNSW, 2024b). Preliminary estimates of tree and hollow replacement indicate that approximately 112 trees would be required to meet the obligations of the guidelines. This is a reduction of 52 trees compared to the BAR (i.e. previously 164 trees).

Full details of credit calculations are provided in Appendix F.

5.5 Hydrology, flooding and water quality

A hydraulics and flooding assessment (Stantec, 2024a) was prepared as part of the REF to assess the potential surface water and flooding impacts during construction and operation of the proposal. This assessment is outlined in section 6.2 for the REF.

An updated hydraulics and hydrology assessment was prepared to assess the impacts of the proposed design changes, namely the change in the location and dimensions of the open flooding channel on the eastern side of Richmond Road between M7 Motorway and Bells Creek. The updated modelling is now being considered below as part of the overall impact assessment of the proposal. An assessment of flooding during the construction phase is also presented.

5.5.1 Methodology

As part of the REF, hydraulic modelling was conducted to determine the immunity of the proposed alignment, assess the impact of the proposed works on flooding behaviour in the vicinity of the works and propose measures required to mitigate the impacts. The existing Blacktown City Council Eastern Creek hydraulic model was modified to cover the Bells Creek catchment from Woodstock Avenue in Rooty Hill in the south to Grange Avenue Schofields in the north. The model extends approximately 3.5 kilometres on either side of Richmond Road.

The hydraulic model was updated to capture the proposed design changes to the open flooding channel on the eastern side of Richmond Road draining the Deans Park and Glendenning subcatchments (Change 2). The proposed scenario was modelled for the 1% and 0.2% AEP. Afflux maps were also generated to understand the differences between the existing and proposed scenarios.

5.5.2 Description of existing environment

Bells Creek flows in a northerly direction, draining into Eastern Creek, South Creek and then eventually into the Hawkesbury River around 15 kilometres north of the proposal. There are three tributaries of Bells Creek within the proposal area: the main channel, an un-named creek and eastern drain (open flooding channel on the eastern side of Richmond Road).

The existing surface water, water quality and groundwater characteristics of the proposal area are described in section 6.2.2 of the REF.

Flood behaviour

The existing flood characteristics of the area are presented in section 6.2.2 of the REF. The existing flooding environment as outlined in the REF is provided below to help understand the impacts of the proposed design changes from the existing situation.

The results of the flood modelling are shown in Figure 5-6 which indicate:

- Bells Creek has a wide floodplain both upstream and downstream of the proposal
- Townson Road is currently inundated during the 1% average exceedance probability (AEP)
- Richmond Road is inundated north of the intersection with Rooty Hill Road North during the 1% AEP flood event.

Richmond Road is a nominated flood evacuation route and is part of the broader flood evacuation planning for the Hawkesbury-Nepean Valley in NSW. It serves as a critical pathway for residents to safely evacuate during flood events. The route connects areas at risk of flooding to higher ground and safer locations. Richmond Road is currently inundated during the 1% AEP in the vicinity of Bells Creek (refer Figure 5-6) and does not meet the flood evacuation route requirements (0.2% AEP).

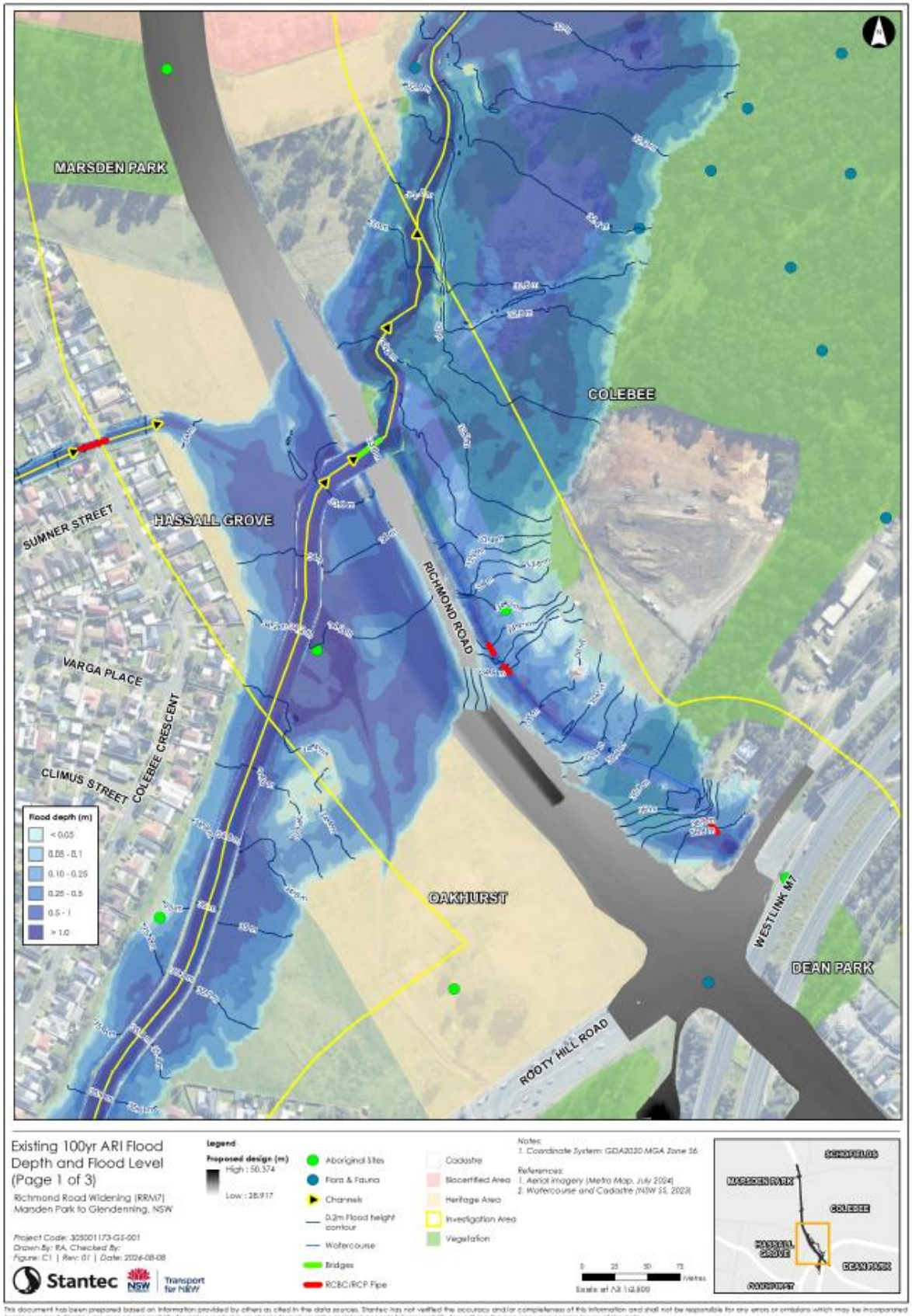


Figure 5-6 Existing 1% AEP flood depth and flood level

5.5.3 Potential impacts

Construction

There would be no additional construction impacts to surface water, water quality and groundwater compared to those presented in section 6.2.3 of the REF.

Flooding

If flooding was to occur during the construction of the proposal, the work areas within the floodplain of Bells Creek may be inundated with water, which may cause damage to plant and equipment and pollute the floodwater and surrounding environment with construction materials, sediment and chemicals.

Based on Blacktown City Council's flood precinct mapping the following is noted regarding the proposal and design changes:

- Areas around Bells Creek and its tributaries are classified as having a low, medium or high riverine flood risk.
- The open flooding channel (Change 2) is classified as an area of 'riverine - medium flood risk precinct' with an area of high risk at the northern end.
- The additional ancillary site at 136 South Street, Marsden Park (Site 4, Change 1a) is classified as an area of 'riverine - low flood risk precinct' with areas of medium risk in the south-eastern corner.
- The additional ancillary facility at 717 Richmond Road, Colbee (Site 5, Change 1b) is classified as an area of 'riverine - medium flood risk precinct' with an area of high risk north of the access driveway.
- The location associated with the removal of the footpath (Change 3) and other ancillary sites are located outside of the riverine flood planning areas.

The construction methodology, and design of the site compound would be planned to ensure impacts from flood events are minimised and so the floodwater does not cause damage to partially built and temporarily built infrastructure.

Operation

There would be no additional operational impacts to surface water, water quality and groundwater compared to those presented in section 6.2.3 the REF.

Flood behaviour

An updated hydraulics and hydrology assessment was prepared to assess the impacts of the proposed design changes, namely the change in the location and dimensions of the open flooding channel on the eastern side of Richmond Road between M7 Motorway and Bells Creek. A description of the realigned open flooding channel (Change 2) is provided in section 4.2.

The results from the updated modelling for the post proposal scenario (with realigned open flooding channel) for the 1% AEP are desribed in the following sections. The flood depth and flood level in the vicinity of Bells Creek is shown on Figure 5-7.

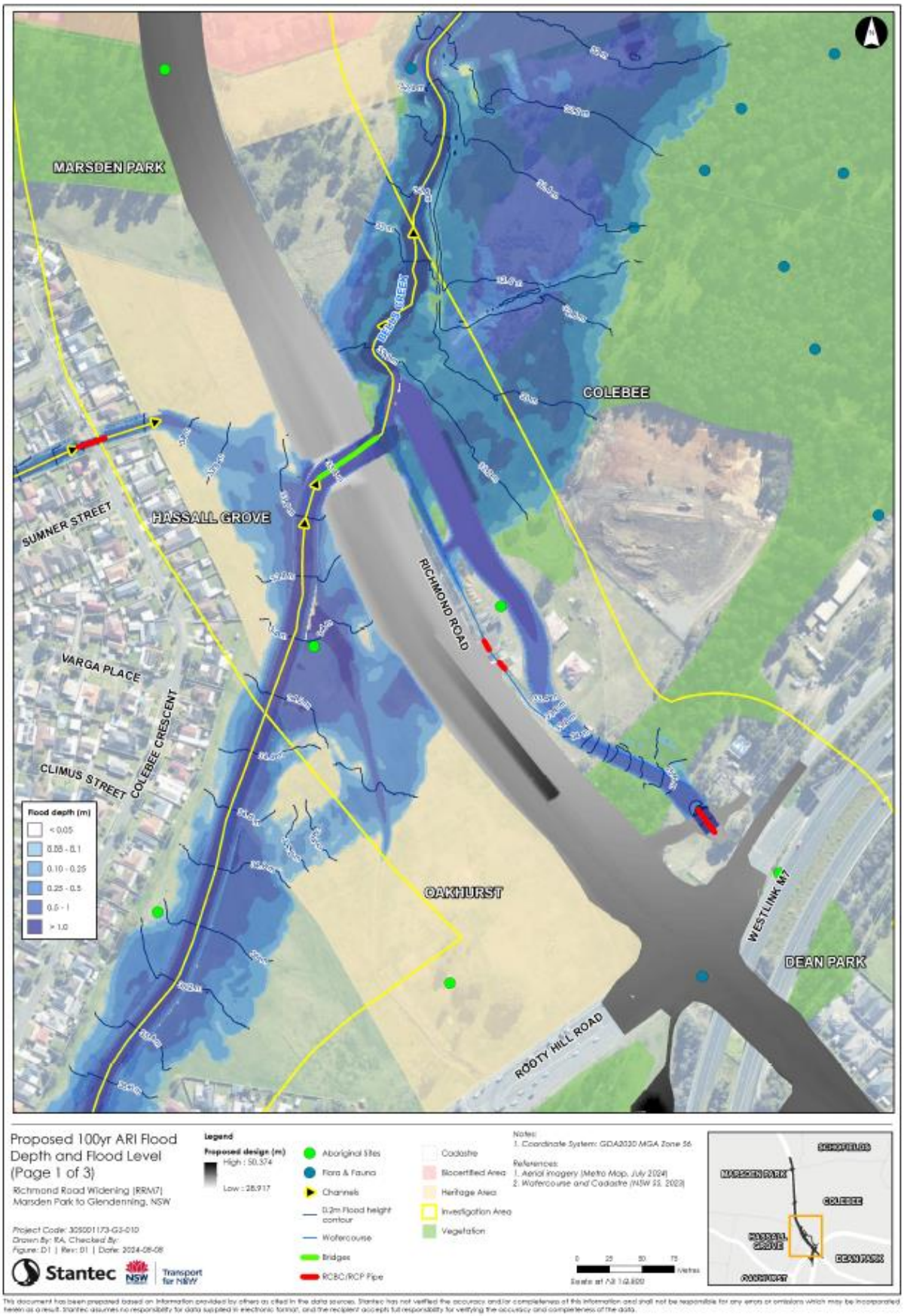


Figure 5-7 Proposed 1% AEP flood depth and flood level

Richmond Road east of Bells Creek

Flood levels

An afflux map was generated to compare the difference in flood levels between the existing scenario (as presented in the REF) and the proposed scenario (the proposal including realigned flood channel) for the 1% annual exceedance probability (AEP) flood event. The afflux map is shown in Figure 5-8 and indicates that:

- Flood levels would decrease upstream of the Bells Creek bridge crossing. This reduction would range between 200 and 500 millimetres to the north of Bells Creek, and between 20 and 200 millimetres on the southern side of Bells Creek.
- The area of land flood affected during the event (i.e. extent of flooding), as shown by the 'was wet now dry' layer, would be reduced upstream of the bridge crossing and on Richmond Road. In addition, parts of the land on either side of the proposed open flooding channel would experience reduced flooding.
- Extent of flooding has reduced within the vicinity of Sydney Water Pumping Station site and the locality east of Richmond Road, the area was inundated but would become dry.
- Extent of flooding and afflux has increased downstream of the proposed open flooding culvert inside private property at 717 Richmond Road Colbee. The overall extent of flooding is reduced across the property, however, there was a slight increase in afflux within this private property at the downstream end. The property is zoned for RU4- Primary Production Small Lots. The increase in afflux during the 1% AEP storm events is less than 100 millimetres. The increase is acceptable as per the proposed flooding performance criteria set in section 3.2.1 of the REF.

Velocity

A flow velocity change map was generated to compare the difference in velocity between the existing scenario (as presented in the REF) and proposed scenario (the proposal including realigned flood channel) for the 1% AEP flood event. The flow velocity change map is shown on Figure 5-9 and indicates that:

- Flow velocities would increase by up to 1 m/s both upstream and downstream of the bridge crossing over Bells Creek and in between the existing bridge abutments. Scour protection measures would be required to limit the erosion of bridge abutments and the Bells Creek waterway area and would be considered during detailed design.
- Realignment of the open flooding channel would increase the velocity inside the proposed open flooding channel. There is a velocity increase in the proposed open channel as there was no defined flow in the channel in the existing scenario model (as presented in the REF) and the majority of flow from the Deans Park catchment is directed through the channel in the proposed scenario. Although the location of the proposed open flooding channel has changed, the potential impacts of bank destabilisation and erosion due to increased velocities remain consistent with the assessment provided in section 6.2.3 of the REF.

Richmond Road between Langford Drive and Townson Road

The proposed scenario model was prepared to capture the proposed changes to the open flooding channel on the eastern side of Richmond Road (Change 2). As there were no proposed changes to the drainage structures at the locality between Langord Drive and Townson Road, there is no afflux generated in this locality.

Flood evacuation route

Richmond Road is a nominated flood evacuation route, however, it is currently inundated during the 1% AEP in the vicinity of Bells Creek as shown in Figure 5-6.

Following realignment of the flooding channel (Change 2), the proposed scenario modelling has indicated that the section of Richmond Road between Rooty Hill Road North and Townson Road would be flood free during the 0.2% AEP storm event as shown on Figure 5-10. This immunity would meet the Richmond Road flood evacuation route requirements. This is consistent with the assessment in the REF.

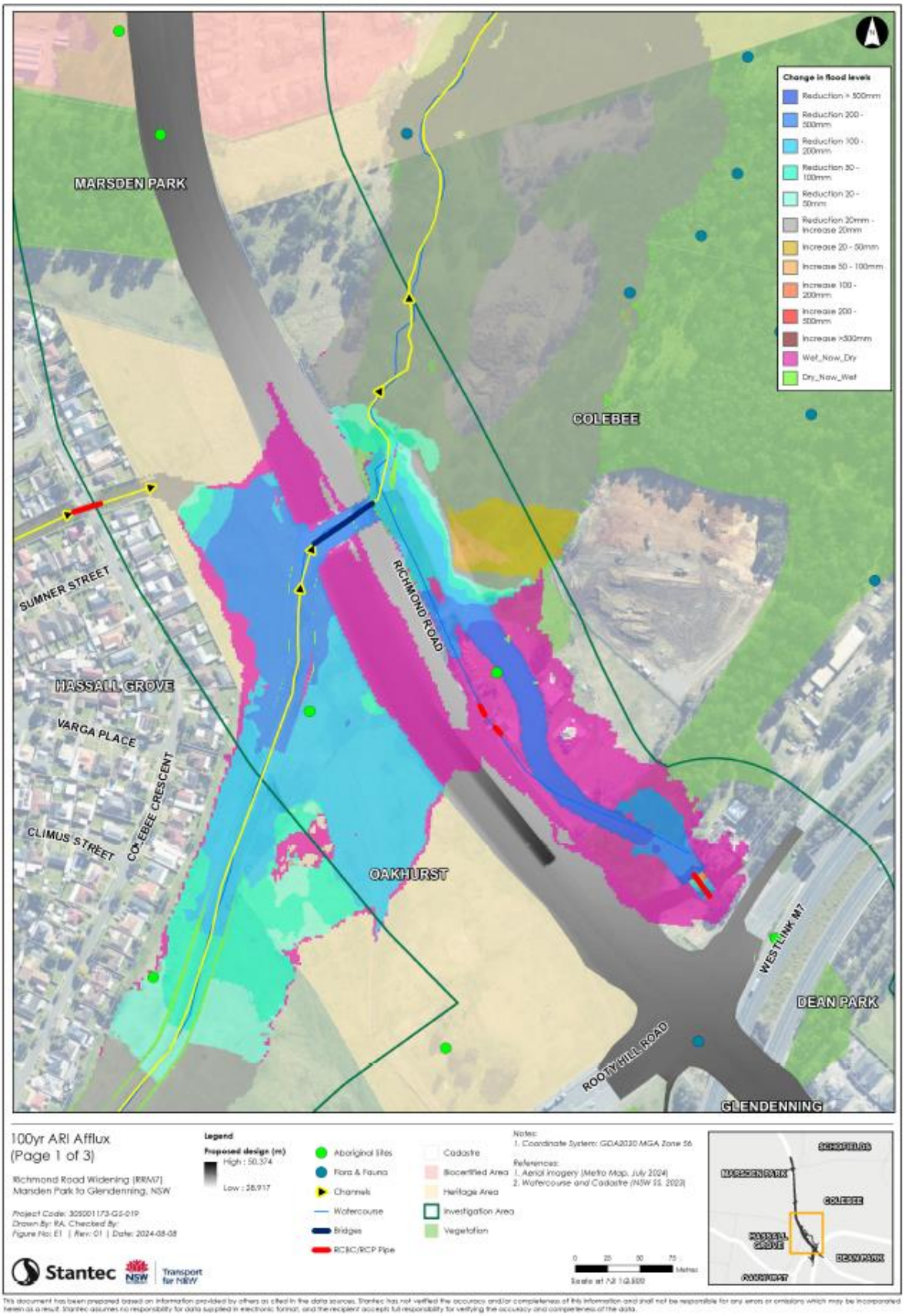


Figure 5-8 Proposed 1% AEP afflux

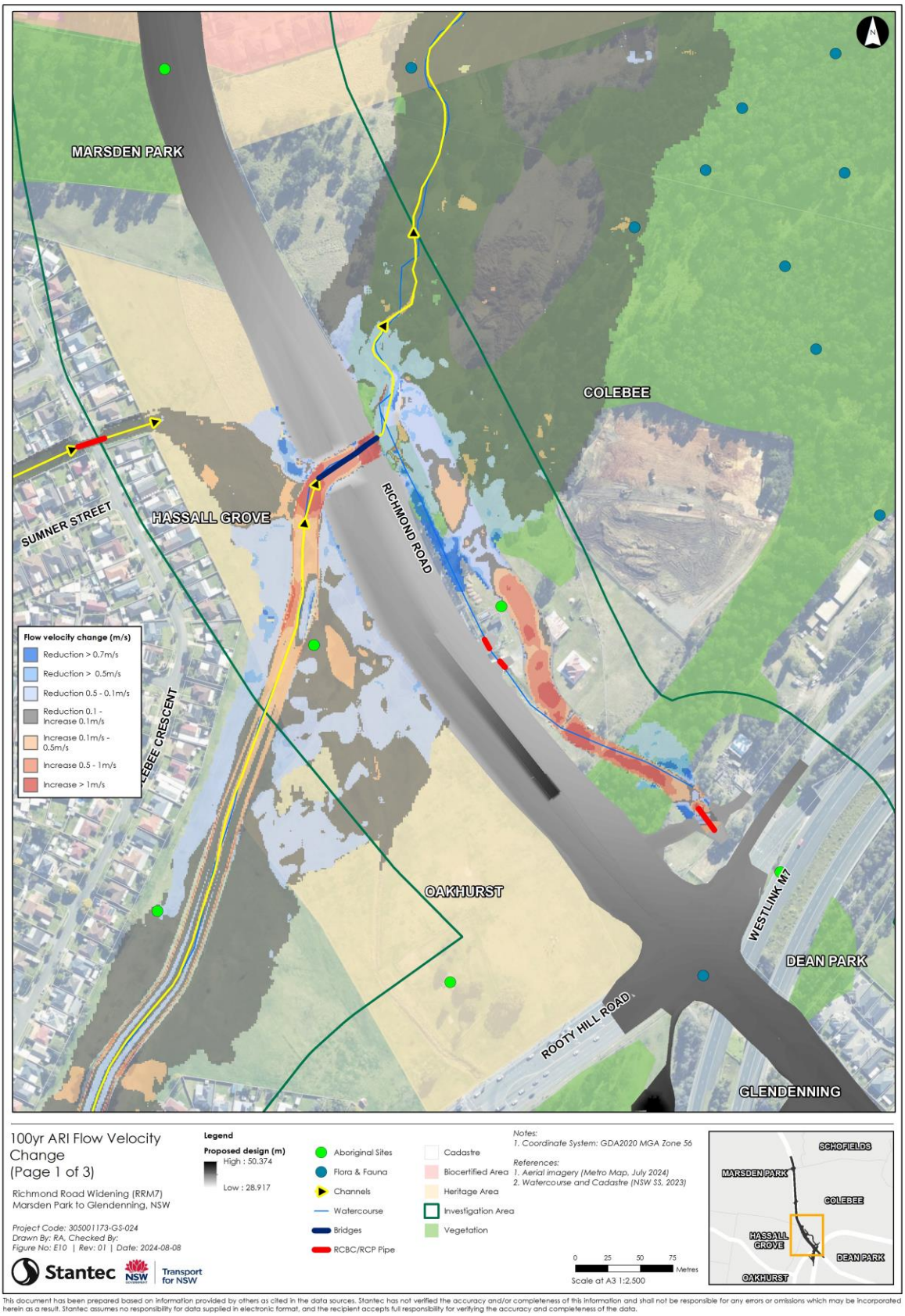


Figure 5-9 Proposed 1% AEP flow velocity change

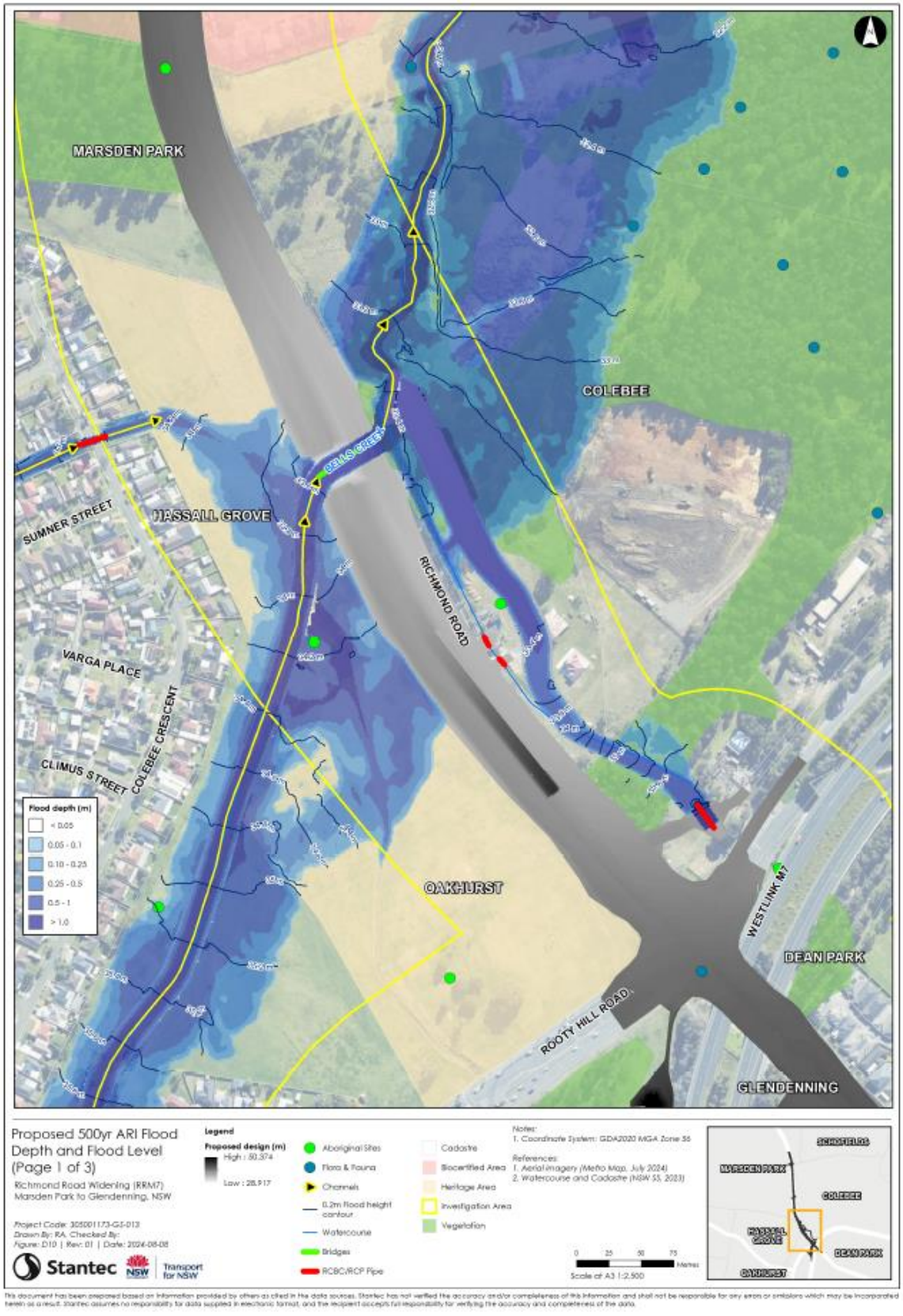


Figure 5-10 Proposed 0.2% AEP depth and flood level

5.5.4 Revised safeguards and management measures

The safeguards and managements measures in section 6.2.4 of the REF remain applicable. Additional proposed safeguards are provided in Table 5-16. Additional safeguards and management measures to those presented in the REF have been underlined.

Table 5-16 Hydrology, flooding and water quality safeguards and management measures

ID	Impact	Environmental safeguard	Responsibility	Timing
H8	Flooding	• Any plant and materials would be removed and secured above the Probable Maximum Flood (PMF) level in the event of flood warnings for the area to reduce the risk of being washed into waterways. • During site works, the Bureau of Meteorology website would be checked prior to the start of the workday for any warnings and consider closing the worksite prior to the start of the working day if there is a risk of flooding.	Contractor	Construction
H9	Flooding	To ensure workers and site users are aware of flood risks during the upgrades, the following actions would be implemented as part of the CEMP: • Signage installation – clear flood risk signs would be placed at key locations, ensuring visibility for all site users. • Safety briefings – regular flood risk briefings would be conducted for workers, with attendance records maintained. • Information distribution – educational materials outlining flood hazards and emergency procedures would be provided. • Emergency drills – periodic flood response drills would be scheduled to reinforce awareness and preparedness.	Contractor	Construction
H10	Traffic delay	The SES would be notified where there are likely to be significant delays in the operation of the roads affected by the upgrades.	Contractor	Construction
H11	Increased velocities	Creek rehabilitation work would be undertaken between the Bells Creek bridge and the locality where the open flooding channel connects to Bells Creek channel.	Contractor	Post-construction
H12	Increased velocities	Scour protection measures at Bells Creek bridge that could withstand the calculated velocity would be provided during the detailed design documentation.	Contractor	Detailed design
H13	Probable maximum precipitation	Flood characteristics generated during the Probable Maximum Precipitation (PMP) events in the vicinity of the works will be generated during the detailed design stage.	Contractor	Detailed design
H14	Design changes	If the design and/or modelling is revised during detailed design, an additional environmental assessment would be required to evaluate any changes in impacts.	Contractor	Detailed design

5.6 Noise

A noise and vibration assessment (NVA) was prepared as part of the REF to assess the potential noise and vibration impacts during construction and operation of the proposal. This assessment is outlined in section 6.7 and Appendix G for the REF.

A noise and vibration addendum (Appendix G) has been carried out to assess the potential construction traffic noise impacts from the additional ancillary facilities at 136 South Street, Marsden Park (Lot 4, DP 1205982) (Site 4) and 717 Richmond Road (Lot 49, DP1104950) (Site 5), including the increase in traffic on the local road network due to construction vehicles.

Further assessment of potential construction traffic noise impact at the Newnham Street site (Site 3) was also undertaken. Information related to numbers of vehicles and proposed operating hours for the site is now available.

5.6.1 Methodology

Construction noise

Noise modelling was conducted to determine the predicted level of construction noise impact at sensitive locations surrounding the proposed ancillary compounds at South Street (Site 4), Newnham Street (Site 3) and 717 Richmond Road (Site 5). For this assessment, activities associated with the sites have been separated into two scenarios to consider the set-up of the sites and the operation of the sites during proposal construction.

The noise and vibration addendum provides a summary of the results and any additional mitigation measures to be applied in accordance with the Construction Noise and Vibration Guideline (Roads) (CNVG-R) (TfNSW, 2023a).

Construction traffic

As outlined in the CNVG-R, an initial screening test should first be applied by evaluating whether noise levels would increase by more than 2dBA due to construction traffic or a temporary reroute due to a road closure. Where increases are 2dBA or less then no further assessment is required. Where noise levels increase by more than 2dBA (ie 2.1dBA or above) further assessment is required based on the Road Noise Criteria Guideline (TfNSW, 2023b).

Modelling was conducted in accordance with the general methodology outlined in the REF noise with specific assumptions related to the ancillary sites as outlined in Appendix G.

5.6.2 Description of existing environment

Sensitive receivers

The closest residential receivers to the ancillary sites are as follows:

- Site 3 – residential receivers are located to the south of the site, with the closest resident 20 metres south-west
- Site 4 – closest residential receiver is located immediately east of the site
- Site 5 – over 200 metres from the site on the opposite side of Richmond Road.

Noise catchment areas (NCAs) are groups of sensitive receivers that are likely to experience similar acoustic environments. Based on the NCAs adopted in the REF, Site 3, Site 4 and Site 5 are assumed to be within NCA 8, NCA2 and NCA 5, respectively. The noise catchment areas are presented in Figure 5-11.

Site 4 is located in a semi-rural environment in proximity to new residential development. The background noise levels at Site 4 are influenced primarily by traffic noise from the surrounding streets such as South Street and Richmond Road. Site 4 is considered representative of NCA2 and the associated background noise logger on Townson Road, as presented in the REF. The logger location on Townson Road and Site 4 have a similar noise environment with traffic as the main contributor to the background noise levels. Both locations are a similar distance from Richmond Road, therefore the only notable difference would be the traffic noise from South Street and Townson Road. As South Street carries more traffic than Townson Road it is expected the background noise levels at Site 4 would be higher than Townson Road. As such, the assessment is considered conservative.

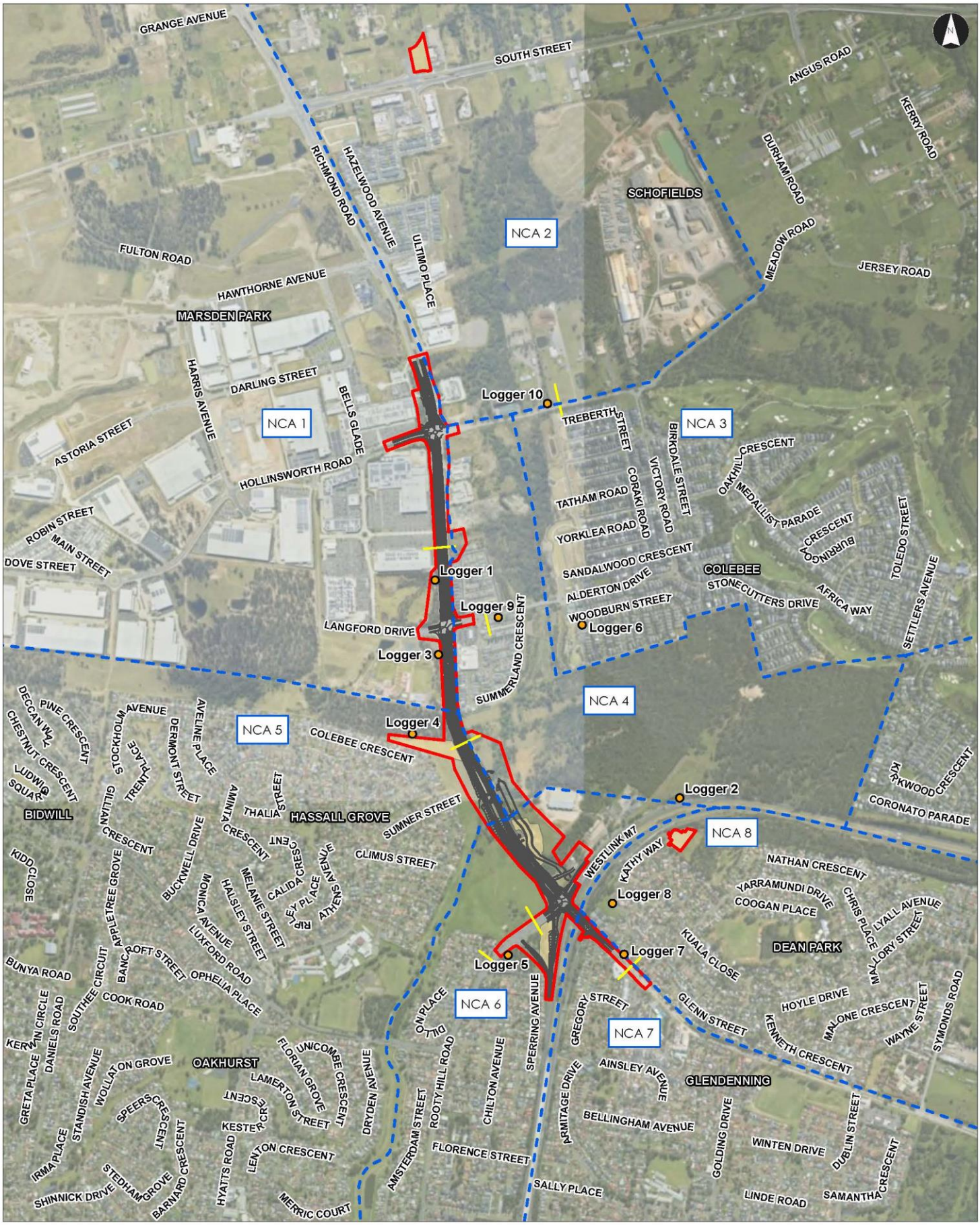


Figure 5-11: Noise catchment areas / logger locations

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173_EN_GS_016
Drawn By: RA, Checked By: MM
Rev: 03 | Date: 2025-07-10

Legend

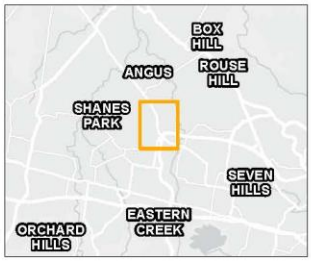
- Proposed amended REF construction boundary
- Logger
- 80% Design Freeze
- Traffic counts
- NCA
- Ancillary facility for construction

Notes:
1. Map displayed in GDA2020 MGA Zone 56

Reference:
1. Aerial imagery (Metromap, May 2025)

0 150 300 450 600 750 Metres

Scale at A3: 1:13,000



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Background noise levels and noise management levels

The rating background levels (RBL) were measured as part of the REF. The measured noise level results from the noise monitoring loggers representative of each site are provided in Table 5-17.

Based on the RBL and criteria in the Interim Construction Noise Guideline (DECC, 2009), the applicable noise management levels (NMLs) for the residential areas surrounding the three ancillary facilities are shown in Table 5-17. Due to limited activities proposed at Sites 3 and 4 they would be used during standard construction hours only. However, Site 5 would be used during both standard and non-standard construction hours for activities including material stockpiles and laydown. These hours of operation have been used in the assessment.

Residential dwellings exposed to levels above the daytime RBL +10 dB(A) are considered noise affected, with construction noise above 75 dB(A) considered highly noise affected.

Table 5-17 Measured noise levels and noise management levels

Location	Rating Background Level			Noise management level (NML), dB(A)				Sleep disturbance
				Standard hours (RBL + 10)	Outside standard hours (RBL + 5)			
	Day Mon-Fri: 7am to 6pm Sat: 8am to 1pm	Eve Mon-Sun: 6pm-10pm	Night Mon-Sun: 10pm-7am	Day Mon-Fri: 7am to 6pm Sat: 8am to 1pm	Day Sat: 1pm-6pm Sun: 7am-6pm	Eve Mon-Sun: 6pm-10pm	Night Mon-Sun: 10pm-7am	L_{Amax} Mon-Sun: 10pm-7am
Residential area surrounding Site 3 (representative Logger 8)	49	46	43	59	n/a	n/a	n/a	n/a
Residential area surrounding Site 4 (representative Logger 10)	46	45	44	56	n/a	n/a	n/a	n/a
Residential area surrounding Site 5 – Richmond Road (representative Logger 4)	46	48	42	56	51	51*	47	65

** In accordance with the Noise Policy for Industry (NPfI) (EPA, 2017), in cases where the RBL for the evening time is greater than the daytime, it is generally recommended that noise management level for the evening be set at no greater than the noise management level for the daytime.*

5.6.3 Potential impacts

Noise modelling was conducted to determine the predicted level of construction noise impact at sensitive locations surrounding the proposed ancillary compounds. For this assessment, activities associated with the two ancillary sites have been separated into two scenarios to consider the set-up of the sites and the operation of the sites during proposal construction as shown in Table 5-18.

Table 5-18 Construction plant and equipment sound power levels (SWLs)

Scenario description	Plant/Equipment	Number operating	Sound power level (SWL) per item, Leq dB(A)
	Franna crane	1	98

Scenario description	Plant/Equipment	Number operating	Sound power level (SWL) per item, Leq dB(A)
Scenario 1a: Compound site establishment (Sites 3-5), Standard hours	Excavator	1	110
	Front end loader	1	112
	Truck	1	108
	Light vehicles 4WD	4	103
	Generator	1	95
Scenario 1b: Compound operations (Sites 3 and 4), Standard hours	Light vehicles 4WD	48	103
	Generator	2	95
	Air-conditioner	4	70
Scenario 1c: Compound operations (Site 5), Standard hours and outside of standard hours	Light vehicles 4WD	48	103
	Generator	2	95
	Air-conditioner	4	70
	Truck	15	108
	Truck and dog	48	109
	Front end loader	1	112

Construction noise

Ancillary sites at Newnham Street (Site 3) and 136 South Street (Site 4)

Compound site establishment and operation is only proposed during standard hours.

Based on the modelling results, the nearest residential dwellings may experience up to 'moderately Intrusive' noise impacts during the set-up/establishment of the sites. During site set-up 'highly intrusive' (greater than 75 dB(A)) noise impacts may potentially impact the residential receiver at 130 South Street depending on the type of equipment in use and its distance from the dwelling. Note this scenario would only be expected for a short period of time in order to set-up the sites.

Based on the modelling results, the nearest residential dwellings may experience 'noticeable' noise impacts and potentially 'clearly audible' noise impacts during general operations of the two ancillary sites.

Ancillary site at 717 Richmond Road (Site 5)

Compound site establishment and operation is proposed during standard hours and non-standard hours.

The nearest residential dwellings to the west of the site may experience 'noticeable' and potentially 'clearly audible' noise impacts during the site set-up/establishment and operation during standard hours.

As Site 5 may operate 24 hours a day, the predicted noise impacts during the worst-case time period (night time, 10pm to 7am) have been determined. The nearest residential dwellings to the west may experience up to 'clearly audible' noise impacts during the general operation of Site 5 during non-standard hours.

Sleep disturbance

The CNVG-R recommends an external sound pressure level of L_{Amax} 65 dB(A) for nighttime works. Based on the assumed plant and equipment in Table 5-18 for Scenario 1c, receivers within 150 metres of the compound may potentially experience occasional noise impacts greater than L_{Amax} 65 dB(A).

Review of the noise monitoring data indicates that residential receivers located in close proximity to Richmond Road are already affected by maximum noise impacts of greater than 65dB(A) during the nighttime period, likely related to existing road traffic.

Construction vibration

Based on the type of plant/equipment used for site set-up (i.e. non vibration generating) and that operation of the Sites 3 and 4 would be limited to light vehicles, vibration impacts are predicted to be negligible.

Construction traffic

Ancillary site at Newnham Street (Site 3)

Based on the onsite noise monitoring and the noise model created for the REF, the existing Leq (equilavent continuous sound level) for Newnham Street and surrounding area (without the compound) is predicted to be approximately 56 dB(A) and is generally consistent between the hours of 7am and 6pm. This due to the significant noise impact from the M7 Motorway.

The addition of 48 light vehicles during a 1-hour period is predicted to increase the noise levels by approximately 1.1dB(A). As construction traffic associated with Site 3 is not predicted to increase traffic noise levels on the local road network by more than 2 dB(A), no further assessment is required.

Ancillary site at 136 South Street (Site 4)

The proposed site is expected to generate approximately 48 vehilces per day (i.e. up to 150 vehicle movements from 7am to 6pm). Based on the existing high traffic volumes on South Street (25,000 vehicles from 7am to 10pm), the increase in traffic noise levels due to construction vehicles associated with the site is predicted to be less than 0.1 dB(A), therefore no further assessment is required.

Ancillary site at 717 Richmond Road (Site 5)

The proposed site is expected to generate the following approximate vehicle numbers:

- 48 vehicles per day (i.e. up to 150 vehicle movements from 7am to 6pm).
- Truck movements anticipated to vary from 10-15 per day to 4-6 truck and dogs per hour during peak periods.

Based on the existing traffic volumes presented in the REF, there is a total of 40,533 vehicles using Richmond Road during the day (11% heavy vehicles) and 10,022 vehicles at night (11% heavy vehicles). Based on the existing high traffic volumes on Richmond Road, the increase in traffic noise levels due to construction vehicles associated with Site 5 is predicted to be less than 0.1 dB(A) for daytime and approximately 0.2 dB(A) for nighttime, therefore no further assessment is required.

5.6.4 Revised safeguards and management measures

Based on the above assessment, the safeguard and managements measures in section 6.7.5 of the REF have been revised as outlined in Table 5-19. Additional management measures to those presented in the REF have been underlined.

Table 5-19 Revised noise and vibration safeguards and management measures

ID	Impact	Environmental safeguard	Responsibility	Timing
NV11	Noise during construction and operation of the Newnham Street (Site 3) ancillary site	• Construction of and general use of the compound would be undertaken during standard hours only (Monday to Friday 7.00am to 6.00pm, Saturday 8.00am to 1.00pm). • The site would be used for Transport/Contractor vehicles only. No stock piling, storage of materials, storage of construction plant/equipment, truck deliveries would occur during general operation of the compound.	Contractor	Construction
NV12	Noise during operation of site compounds	• Any fixed mechanical plant such as air-conditioning or generators should be located as far as	Contractor	Construction

ID	Impact	Environmental safeguard	Responsibility	Timing
		reasonably possible from the nearest residents. Ideally, the plant should be screened from residents by onsite buildings, if possible. • Where possible, maximise offset distance between parking areas/driveways and the nearest residents. • Where possible, minimise unnecessary activity for the general operation of site 5 during non-standard hours.		

5.7 Soils and contamination

A soil and contamination assessment, including a preliminary site investigation (PSI) was prepared as part of the REF to assess the potential soil impacts during construction and operation of the proposal. This assessment is outlined in section 6.3 and Appendix D of the REF.

The PSI outlined seven areas of environmental concern (AEC) in proximity to the proposal that required intrusive investigations to define the extent of potential contamination. Additional intrusive contamination sampling of the AECs has been completed since the REF and the results are now being considered below as part of the overall impact assessment of the proposal.

The additional sampling results are outlined in the contamination site investigation (CSI) (Appendix H). The CSI has been undertaken to verify the presence or absence of contaminants of concern that may impact or be impacted by the proposal previously identified during the PSI prepared for the REF.

5.7.1 Methodology

The methodology for the CSI included:

- Collection of field samples between October and November 2024, and in February 2025. A targeted sampling approach was used to assess the AEC identified in the PSI that fall within the updated works footprint. Understanding the extent of potentially contaminated land would minimise the risk of delays during construction. The location of the samples are shown on Figure 5-12.
- Laboratory testing of soil samples at a National Association of Testing Authorities, Australia (NATA) accredited laboratory for analysis of the contaminants and parameters identified in the PSI.
- Comparison of soil sampling results against relevant human and ecological guideline criteria.
- Preparation of reporting in accordance with relevant guidelines and legislation to identify actual or potential contamination within the proposal area.

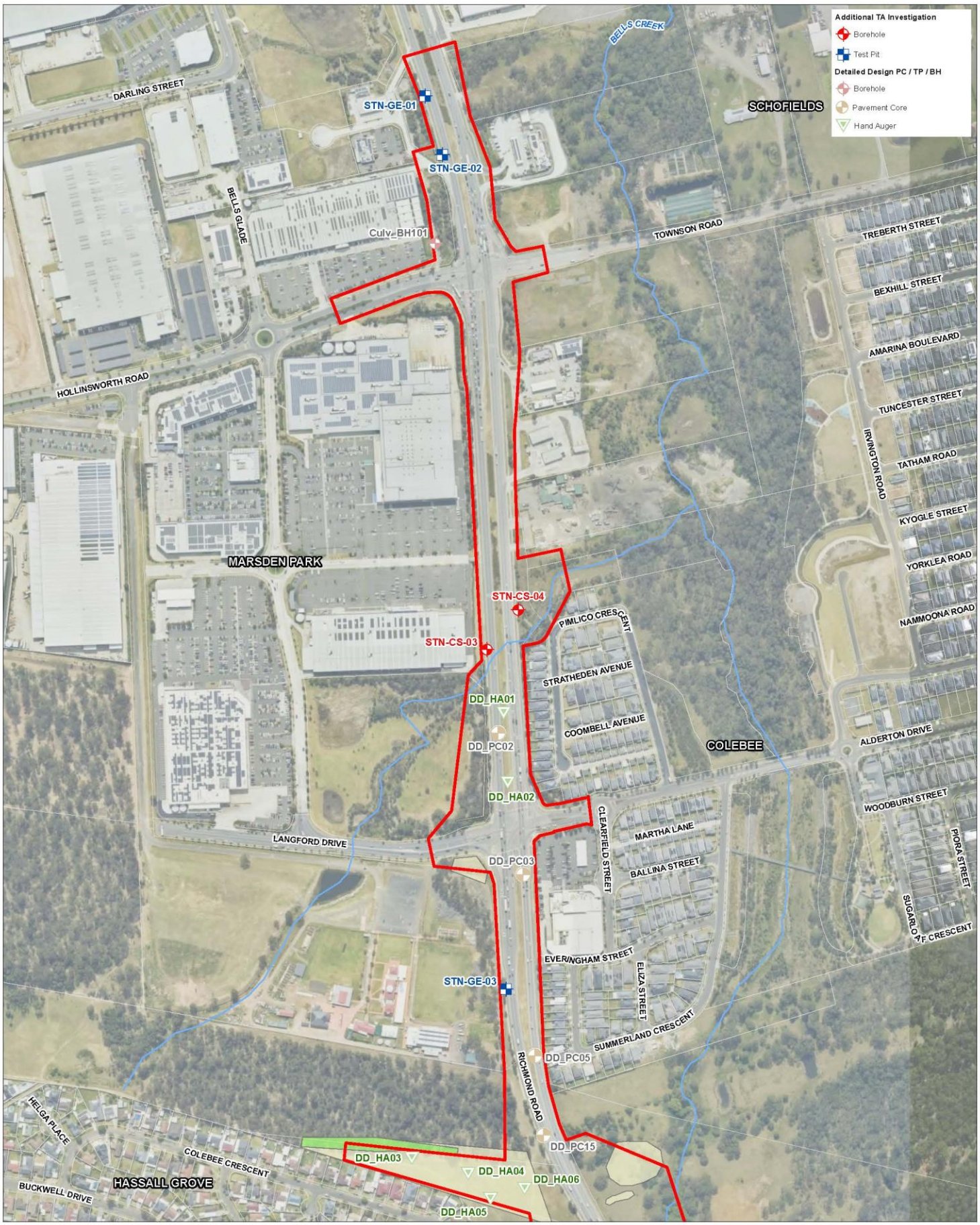

Figure 5-12 (a): PSI areas of environmental concern and sampling locations

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173-EN-GS-040
Drawn By: RA, Checked By: ET
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Watercourse
- Cadastre

Areas of Environmental Concern (AEC)

- **AEC 4:** Uncontrolled fill
- **AEC 5:** Fly tipping and stockpiling

Notes:
1. Map displayed in GDA2020 MGA Zone 56
2. AEC6 and AEC7 were not indicated due to limitation of the current investigation and scattered nature of the identified AECs.

References:
1. Aerial imagery (Metromap, May 2025)
2. Watercourse and Cadastre (NSW SS, 2023)

0 50 100 150 200 Metres
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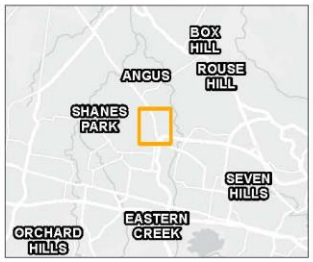

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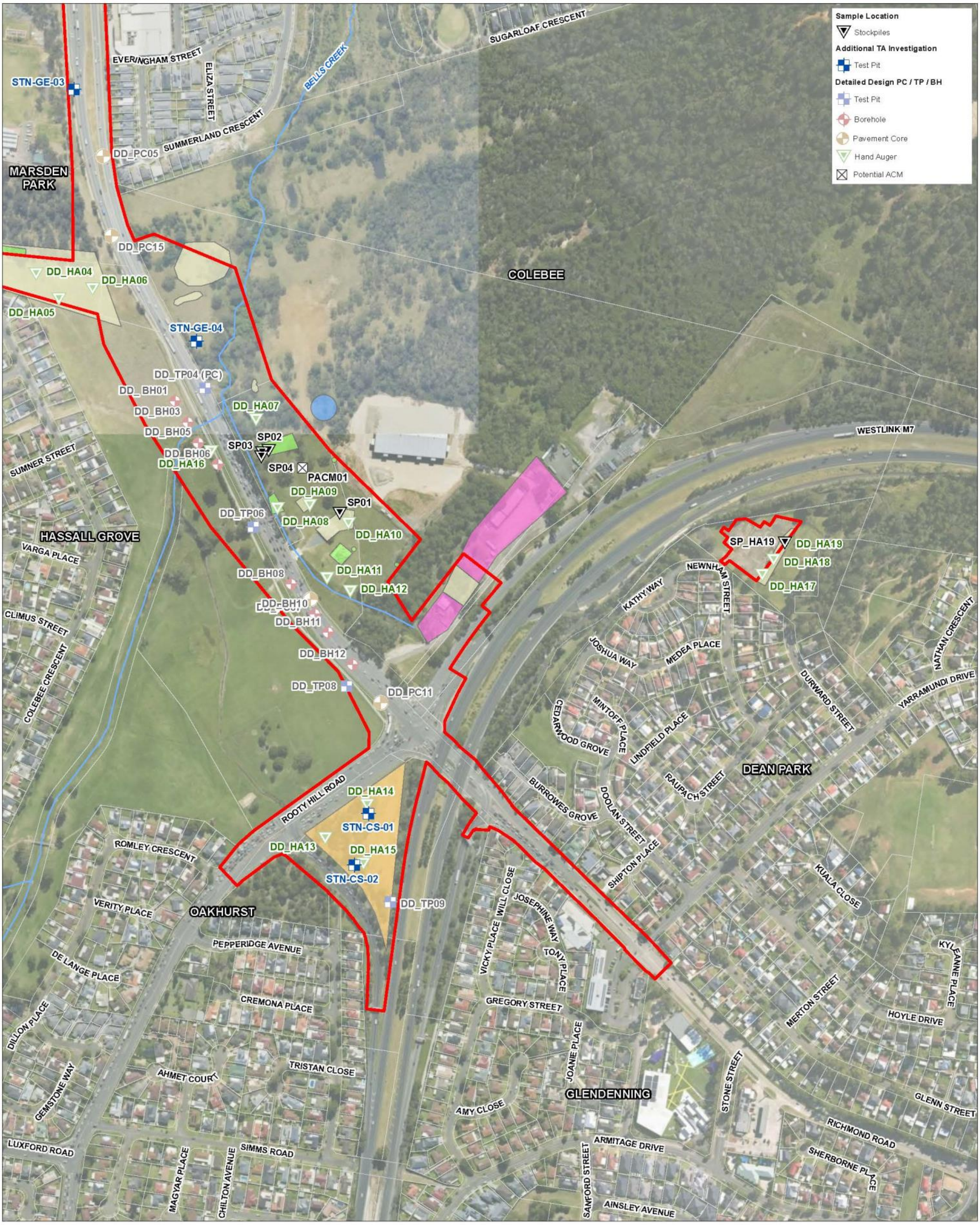


Figure 5-12 (b): PSI areas of environmental concern and sampling locations

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173-EN-GS-040
Drawn By: RA, Checked By: ET
Date: 2025-06-11
Revision: 02

Legend

- Proposed amended REF construction boundary
- Watercourse
- Cadastre

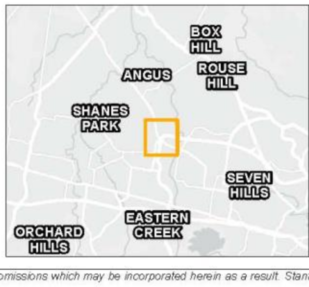
Areas of Environmental Concern (AEC)

- **AEC 1:** Waste fuel/oil containers
- **AEC 2:** Former truck repairs workshop
- **AEC 3:** Asbestos waste
- **AEC 4:** Uncontrolled fill
- **AEC 5:** Fly tipping and stockpiling

Notes:
1. Map displayed in GDA2020 MGA Zone 56
2. AEC6 and AEC7 were not indicated due to limitation of the current investigation and scattered nature of the identified AECs.

References:
1. Aerial imagery (Metromap, May 2025)
2. Watercourse and Cadastre (NSW SS, 2023)

0 50 100 150 200 Metres
Scale at A3: 1:4,500



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5.7.2 Description of existing environment

The existing topography, soil landscape and salinity characteristics of the proposal area are described in section 6.3.2 of the REF.

Acid sulfate soils

In addition to the sampling undertaken for the REF, a further 107 soil samples across 31 locations were selected for pH Field / pH Oxidised laboratory analysis to assess for actual or potential acid sulfate soils (ASS). The results indicated that a total of 17 samples possessed potential presence of actual or potential ASS.

To confirm the acid content and sulfidic acid generating potential of the soils onsite, eight selected soil samples underwent Chromium Reducible Sulfur (CRS) suite analysis. A summary of results is presented in Table 5-20**.**

Table 5-20 Acid sulfate soils CRS results summary

Analyte	Field Screen: pH (Fox)	Chromium Reducible Sulfur (CRS)	Hydrochloric acid (HCl) Extractable Sulfur	Potassium Chloride (KCl) Extractable Sulfur	CRS Suite – Net Acidity (Acidity Units)	CRS Suite – Net Acidity (Sulfur Units)
Unit	pH Unit	% S	% S	% S	mol H+/t	% S
Estimated quantitation level	-	0.005	0.005	0.005	-	-
Criteria						
ASSMAC (1998) Potential Acid Sulfate Soil Indicator Value	<3					
NASSG (2018) Sulfidic Soils		0.01				
ASSMAC (1998) / NASSG (2018) Action Criteria – Fine Soils (>1000 tonnes)					18	0.03
Sample ID						
DD_BH05_0.1	2.7	0.016	-	-	16.98	0.027
DD_BH11_4.5	2.1	0.013	-	-	8.11	0.01
DD_BH11_5	2.2	0.017	-	-	10.60	0.02
DD_HA07_0.5	3.1	0.017	-	-	25.60	0.04
DD_HA12_0.65	2.4	0.023	-	-	23.35	0.04
TP09_1.5	3.4	0.015	-	-	9.36	0.02
STN-CS-04_0.5	5.0	0.019	-	-	11.85	0.2
STN-GE-01_3	3.9	0.014	-	-	16.73	0.027
STN-GE-03_2.5	3.3	0.02	0.02	<0.02	61.19	0.10
STN-GE-04_0.5	4.6	0.021	-	-	20.10	0.03

Potential ASS may be present onsite based on sample locations TP09 (at 1.5m bgl), DD_BH11 (at 4.5m and 5, bgl), DD_HA12 (at .65m bgl), DD_BH05 (at 0.1m bgl), STN-CS-04 (at .5m bgl), STN-GE-01 (at 3m bgl), STN-GE-03 (at 2m bgl) and STN-GE-04 (at 0,5m bgl) exceeding the adopted guideline levels indicating potential ASS conditions.

Sampling locations indicating potential or actual ASS are shown on Figure 5-13. The presence of potential ASS PASS materials appears to be associated with alluvial sediments in the vicinity of Bells Creek and its tributaries where a permanent water table remains in shallow soils and sediment. One sample for potential ASS was present at the northern portion of site (STN-GE-01). It is considered that this is related to drainage from a historical retention dam north-west of site.

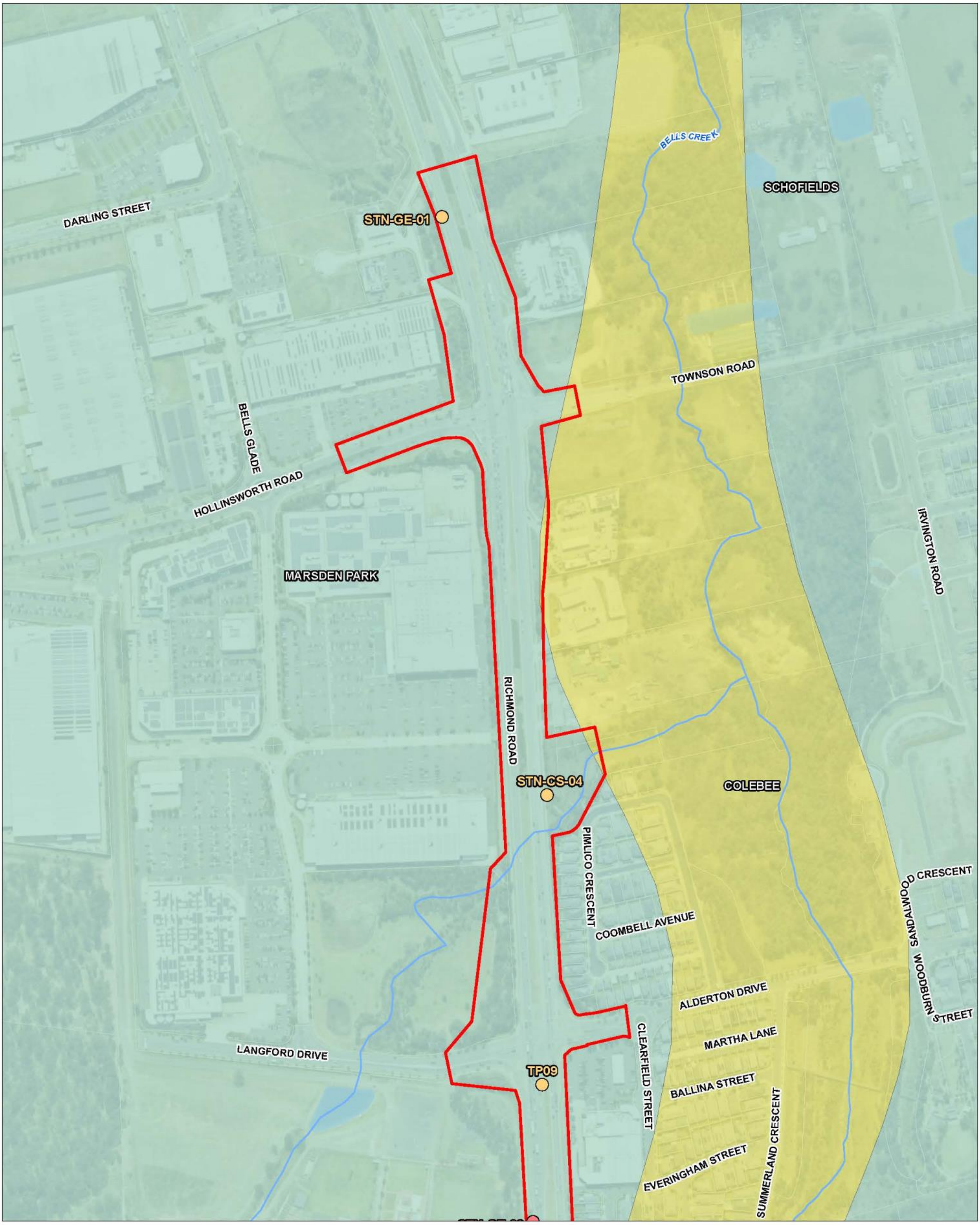


Figure 5-13 (a): Acid sulfate soil exceedances

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173-GEO-GS-044
Drawn By: AS, Checked By: ET
Date: 2025-06-11
Revision: 03

Legend

- Proposed amended REF construction boundary
- Watercourse
- Cadastre
- Waterbody

Sample Location

- NASSG (2018) Sulfidic Soils, Potential AASS
- ASSMAC (1998) / NASSG (2018) Action Criteria - Fine Soils (>1000 tonnes)

Soil Landscape

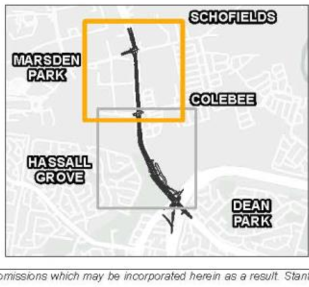
- Alluvial (South Creek)
- Residual (Blacktown)

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre & Watercourse (NSW SS, 2023)
3. Soil Landscape (DCCEEW, 2025)

0 50 100 150 200 Metres

Scale at A3: 1:4,000



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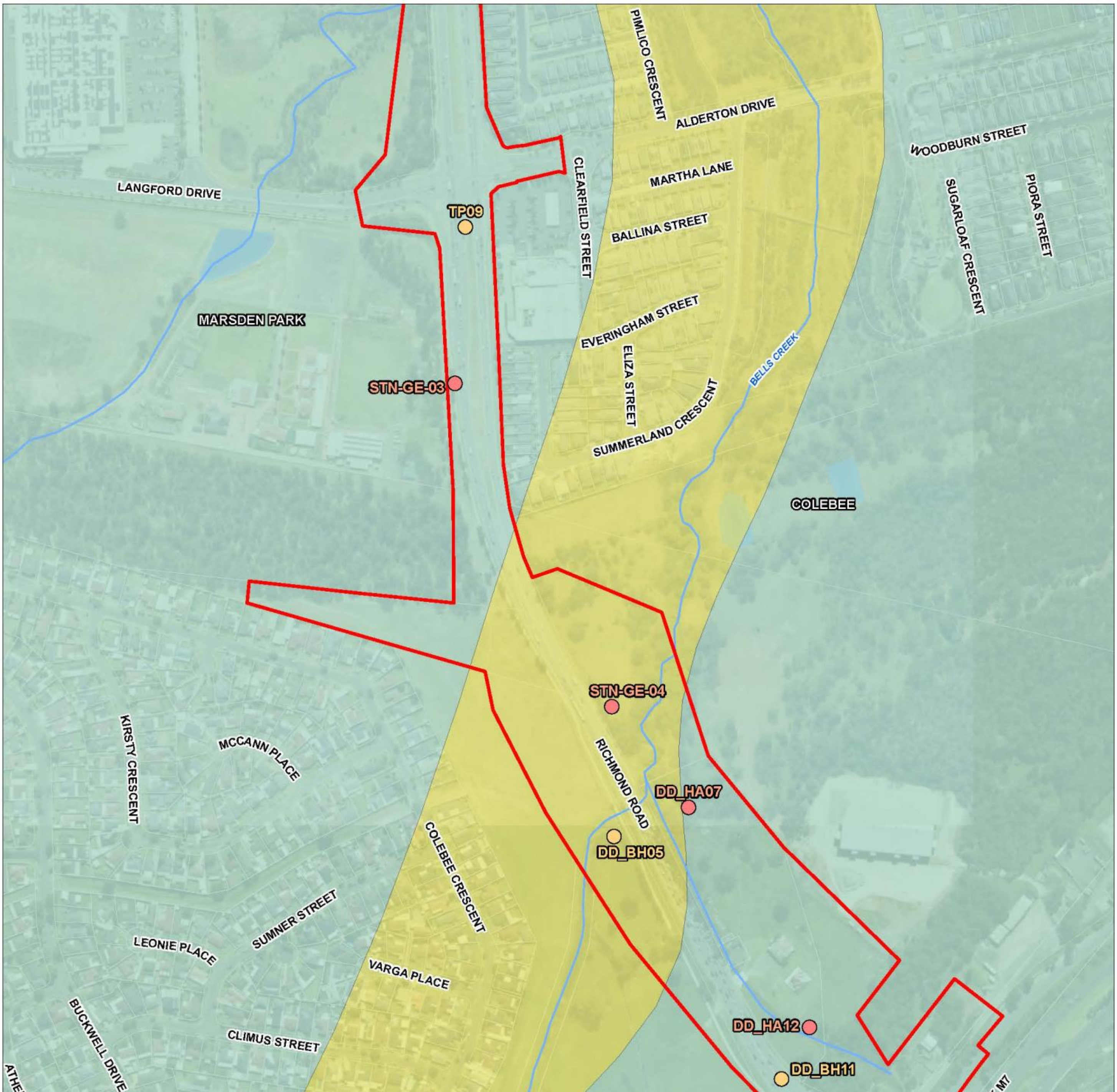

Figure 5-13 (b): Acid sulfate soil exceedances

Richmond Road Upgrade between M7 Motorway and Townson Road

Project Code: 305001173-GEO-GS-044
Drawn By: AS, Checked By: ET
Date: 2025-06-11
Revision: 03

Legend

- Proposed amended REF construction boundary
- Watercourse
- Cadastre
- Waterbody

Sample Location

- NASSG (2018) Sulfidic Soils, Potential AASS
- ASSMAC (1998) / NASSG (2018) Action Criteria - Fine Soils (>1000 tonnes)

Soil Landscape

- Alluvial (South Creek)
- Residual (Blacktown)

Notes:
1. Map displayed in GDA2020 MGA Zone 56

References:
1. Aerial imagery (Metromap, May 2025)
2. Cadastre & Watercourse (NSW SS, 2023)
3. Soil Landscape (DCCEEW, 2025)

0 50 100 150 200 Metres

Scale at A3: 1:4,000

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Contamination

The PSI prepared for the REF identified a number of areas of environmental concern (AEC) that may be encountered within the proposal area. These are replicated as follows (refer to Figure 5-12 for AEC locations):

- AEC1: Waste fuel/oil containers
- AEC2: Former truck repairs workshop
- AEC3: Asbestos waste
- AEC4: Uncontrolled fill
- AEC5: Fly tipping and stockpiling
- AEC6: Hazardous building materials contained within former and existing site strucutres
- AEC7: Multiple petrol service stations.

As part of the additional sampling undertaken for the CSI, a number of sampling locations were determined in accordance with the EPA Sampling Design Guidelines (EPA, 2022). Samples were collected at a range of locations that would be disturbed by the proposal including areas of road widening, areas within the median, ancillary sites and the open flooding channel. The sampling locations are shown on Figure 5-12. In addition, a targeted sampling approach was used to assess the AEC identified in the PSI that fall within the proposal boundary, this included AEC 2, AEC 4 and AEC 5.

In addition to the limited sampling undertaken for the REF, a further 186 soil samples were collected across 53 locations. The following sections provide a summary of the findings.

Human health

The soil samples were assessed against the human health criteria applicable to the proposed future land use. With the exception of asbestos containing material (ACM), contaminant concentrations in soil were reported either below the adopted human health assessment criteria for proposed future land use scenarios or below the laboratory level of reporting (LOR).

Contamination in the form of bonded asbestos was identified in the sub-surface at location STN-CS-02 within the former truck repair workshop property (AE2), which is located in the triangular area between the M7 Motorway, Richmond Road and Rooty Hill Road North.

Bonded asbestos in the form of cement sheeting was found on the ground surface within the south eastern portion of the site (PACM_01). In addition, potentially asbestos containing material (PACM) in the form of cement piping in fair, undisturbed condition was observed within the southern corner of the same property.

Ecological

All chemical analysis for samples analysed were recorded below the applicable ecological criteria or the laboratory LOR, with the exception of the following (ecological criteria is outlined in section 6 of the CSI in Appendix H):

- Zinc exceedances of the applicable criteria at location SP04. This does not reflect the condition of soils encountered throughout the site area, as the stockpile fill material is suspected to be of an unknown foreign source/origin, outside the site boundary.
- Localised perfluorooctane sulfonic acid (PFOS) exceedances of applicable criteria at locations DD_BH03 (0.1m bgl) and DD_HA07 (0.1m bgl). A clear on-site source of per- and poly-fluoroalkyl substance (PFAS) could not be identified, however, the exceedance may be attributed to the potential migration of impacted stormwater within Bells Creek which receives runoff from highly urbanised and industrial/commercial upstream settings including Plumpton Rural Fire Services. Fire stations typically represent a potential PFAS source where use and/or storage of products containing PFAS such as aqueous film forming foam may have occurred. The magnitudes of PFOS soil exceedances are <10-times, however, the extent of soil PFAS impacts in these locations remain unclear.

A summary of the exceedences are provided in Table 5-21.

Table 5-21 Exceedance summary

Analyte	Applicable criteria	Sample ID	Criteria value (mg/kg)	Result value (mg/kg)
Zinc	NEPM (NEPC, 2013) Ecological investigation level (EIL): Commercial / Industrial, Site Specific – Colebee (Silty CLAY)	SP04	160	347
Perfluorooctane sulfonic acid (PFOS)	PFAS NEMP 3.0 (HEPA, 2025) ecological indirect exposure	DD_BH03 (0.1m bgl)	0.003	0.0184
		DD_HA07 (0.1m bgl)	0.003	0.0054
Asbestos	NEPM (NEPC, 2013) HSL D – Comm/Ind – Asbestos	STN-CS-02_A-ACM	0.05%	0.2936 %

5.7.3 Potential impacts

Construction

The construction activities which have the potential to result in soil erosion and sediment transport are outlined in section 6.3.3 of the REF. Soil and erosion and sediment management measures provided in section 6.3.4 of the REF.

Acid sulfate soils

Based on the additional CSI testing results there is potential for PASS to be disturbed by the proposal, in particular in the alluvial sediments in the vicinity of Bells Creek.

When PASS are disturbed through excavation, removal of surface cover, prolonged groundwater level reduction, or the installation of structures that introduce oxygen pathways to the subsurface, oxidation can occur, leading to the formation of sulfuric acid. This process can result in significant environmental and structural impacts, including the leaching of metals and nutrients into nearby waterways and groundwater systems, acidification of soil and water, and increased corrosion risks to steel and concrete structures. Additionally, impacted runoff entering waterways can lower pH, harm aquatic ecosystems and threaten biodiversity. With the preparation and implementation of an ASS management plan (ASSMP) the impacts would be appropriately managed.

Contamination

The assessment in the REF identified several AEC within the construction boundary, contaminants of concern for each AEC and the receptors (ecological and human) of the potential site contamination. Furthermore, the assessment identified construction activities with the potential to disturb these contaminated materials.

The risks posed by the AEC have been further evaluated by the targeted sampling undertaken as part of the CSI. Based on the additional targeted sampling and assessment undertaken for the CSI, the following impacts are noted:

- ACM fragments may present a risk to human health if uncontrolled disturbance occurs during excavation and construction activities. Management controls or remediation of soils in accordance with SafeWork NSW guidelines on managing asbestos in the workplace would minimise these risks.
- Stockpile materials at location SP04 have potential zinc impacts, which may be in exceedance of ecological investigation levels applicable to onsite soils. There is a risk of contaminant migration, which could pose hazards to ecological receptors and groundwater systems, if stockpile materials are not managed appropriately.
- The locations where PFOS were identified would be disburbed (excavated) during construction of the proposal. PFAS compounds are highly toxic to terrestrial and aquatic ecosystems. They persist in environmental matrices, bioaccumulate in plant and animal tissues, bioconcentrate up the food chain and are generally very mobile. Therefore, soils potentially impacted with PFAS requires appropriate management or onsite reuse to prevent potential human health and environmental risks.

Operation

There would be no additional operational impacts to soil and contamination compared to those presented in section 6.3.3 of the REF.

5.7.4 Revised safeguards and management measures

Based on the above assessment, the safeguard and managements measures in section 6.3.4 of the REF have been revised as outlined in Table 5-22. Additional management measures to those presented in the REF have been underlined.

Table 5-22 Revised soils and contamination safeguards and management measures

ID	Impact	Environmental safeguard	Responsibility	Timing
SC8	Disturbance of acid sulfate soils	Due to the potential presence of ASS in soils, an Acid Sulfate Soils Management Plan (ASSMP) would be prepared if the materials are to be disturbed during construction. Consideration of design plans, bulk earthworks, construction methodologies, dewatering scenarios and interactions with buildings and structures (including piles) is required. Salinity data would also be considered to support ASS management.	Contractor	Pre-construction, Construction
SC9	Disturbance of stockpiles	Stockpile assessment would be undertaken if any onsite reuse and/or emplacement is required. Stockpile materials at location SP04 have potential zinc impacts, which may be in exceedance of ecological investigation levels applicable to onsite soils. Further assessment may include: • soil quality and leachate testing • risk assessment for onsite reuse and emplacement.	Contractor	Pre-construction, Construction
SC10	Presence of asbestos	An asbestos register and asbestos management plan would be prepared in accordance with SafeWork NSW Code of Practice: How to manage and control asbestos in the workplace (SafeWork NSW, 2022).	Contractor	Construction
SC11	Disturbance of AEC2	Further assessment of soils within AEC 2 – Former truck repair workshop would be undertaken, to: • Appropriately delineate asbestos impacted soil to estimate volume of impacted material and determine options of go / no go areas, per Transports Asbestos in soils management procedure EMF-LM-PR-0020. • Allow for a refined approach in preparation of a Remediation Action Plan (RAP) to determine opportunity for onsite encapsulation and management or offsite disposal.	Contractor	Construction
SC12	Disturbance of AEC6	If areas within AEC 6 – Hazardous building materials contained within former and existing site structures are to be demolished or removed, a Hazardous building materials (HAZMAT) survey would be undertaken for residual waste and existing structures prior to demolition and removal from site.	Contractor	Construction

ID	Impact	Environmental safeguard	Responsibility	Timing
SC13	Disturbance of PFAS	Soil sampling to delineate extents of PFAS impacts around DD_BH03_(0.1m bgl) and DD_HA07_(0.1m bgl) would be undertaken. This may include: • Vertical and horizontal soil sampling and analysis • Leachate testing of selected soil samples. Alternatively, or in addition, the following would be considered: • Site-specific risk assessment to identify feasible options for onsite reuse of PFAS impacted soils to reduce potential for unacceptable exposures and to reduce future offsite disposal costs for the project. This may include development of site reuse PFAS soil concentration criteria. Any potential for PFAS mobilisation during excavation or construction/operational phase drainage systems may also be included in the risk assessment. • Development of PFAS management plan including soil and stormwater handling, stockpiling and reuse protocols that minimise risk and ensure compliance. • Seek regulatory approvals as may be required for onsite reuse.	Contractor	Pre-construction

5.8 Other impacts

5.8.1 Existing environment and potential impacts

Consideration of the existing environment and the potential impacts of the design changes on the other environmental factors in the REF is provided in Table 5-23.

Table 5-23 Other potential impacts

Environmental factor	Existing environment	Potential impacts
Property and land use	Section 6.6.1 of the REF. Existing land use zones associated with the design changes are defined by the Blacktown Local Environmental Plan 2015 and the State Environmental Planning Policy (Precincts – Central River City) 2021 as follows: • The additional ancillary facility at South Street (Change 1a) is zoned as R3 Medium density residential and SP2 Local drainage • The additional ancillary facility at 717 Richmond Road (Change 1b) is zoned RU 4 Primary Production Small Lot. • The open flooding channel (Change 2) is zoned RU 4 Primary	As the land associated with the new additional ancillary facility at 136 South Street (Change 1a) is owned by Transport no temporary lease agreements are required during construction. Direct impacts on land use during construction would relate to the short-term presence of site office/shed and parking within the facility. Following construction, the ancillary facility offices, sheds and parking areas would be removed, and the site would be cleared of all rubbish and materials and rehabilitated to its existing condition, where feasible and reasonable. The land associated with the additional facility at 717 Richmond Road (Change 1b) and the open flooding channel (Change 2) would be acquired by the proposal. This area of vacant/vegetated land would become a work site during construction and road infrastructure during operation.

Environmental factor	Existing environment	Potential impacts
	Production Small Lots and SP2 Infrastructure. • The existing footpath (Change 3) is zoned SP2 Infrastructure.	The land associated with the existing footpath (Change 3) is within the road reserve and would change from hardstand to a grassed verge. No additional land acquisition is required for the proposed design changes and land use viability is consistent with that presented in the REF.
Landscape character and visual impacts	Section 6.9.2 of the REF. The landscape character of the additional ancillary facility at 136 South Street (Change 1a) contains a mix of rural pastures and residential and commercial properties. The remainder of the design changes are within the landscape character zones defined in the REF.	The additional ancillary facility at 136 South Street would be used for site shed/offices and employee parking. The limited activity at this site would limit the visual impact during construction, although these uses would be visible from the receivers in close proximity. Following construction, the ancillary facility would be rehabilitated to its existing condition. The visual impacts due to construction are considered low. The additional ancillary facility at 717 Richmond Road would have visual impacts experienced by road users as they travel along Richmond Road, and by pedestrians and cyclists where infrastructure allows. The impact is considered to be low due to its immediate link to construction works, the mobile nature of the receiver, and the temporary nature of construction. Following construction, the ancillary facility would be rehabilitated to its existing condition. The potential landscape and character visual impacts of the other design changes are consistent with the those described in the REF.
Socio-economic	Section 6.10.2 of the REF. The additional ancillary facility at 136 South Street is located within the Riverstone (116021630) Statistical Areas – Level 2 (SA2). Social infrastructure in proximity to the facility is primarily vegetated open space. In addition, there is a bus stop on South Street at the intersection of Fermoy Road in front of the facility. The existing footpath to be removed contains a heritage interpretation plaque that reads “this marks the boundary of the Colebee Nurragingy Land Grant 1819” which would be removed. Neither the footpath nor the plaque are heritage listed items, however, the plaque provides important interpretation of the historic Colebee Nurragingy Land Grant boundaries.	The potential socio-economic impacts of the design changes are consistent with the those described in the REF. In addition, as access to the additional ancillary facility at 136 South Street would be via Fermoy Road and limited to light vehicles during operation, impacts to the bus stop are not anticipated. The existing footpath to be removed currently serves no purpose and could lead to the unsafe crossing of Richmond Road. Removal of the footpath would have a positive impact by reducing the risk of the unwarranted crossing of Richmond Road between signalised intersections. The Colebee Nurragingy Land Grant site is state heritage listed and has significant Aboriginal cultural value. As an interpretative feature of the site, the heritage plaque also carries value by association and would be impacted. The heritage plaque would be considered as part of the heritage interpretation strategy for the proposal.
Waste management	Section 6.11.2 of the REF.	The potential waste management impacts of the design changes are consistent with the those described in the REF.
Air quality	Section 6.12.2 of the REF. There are a number of residential and commercial properties within 350 metres of the ancillary site at 136 South Streer which are considered to be sensitive human	The potential air quality impacts of the design changes are consistent with the those described in the REF. Establishment and dismantling of the additional ancillary site may lead to temporary dust impacts as

Environmental factor	Existing environment	Potential impacts
	receptors. The closest residential receiver to the additional ancillary site is in the adjacent lot.	a result of earthworks, material handling and vehicle movement. Given the limited activities during operation of the facility, impacts to sensitive receivers are considered negligible.
Climate change	Section 6.13.2 of the REF.	The potential climate change impacts of the design changes are consistent with the those described in the REF.
Sustainability	Sustainability objectives, opportunities and initiatives are outlined in section 6.14.2 of the REF.	Sustainability objectives, opportunities and initiatives of the proposal remain relevant for the design changes.
Cumulative impacts	Projects and developments with the potential to be of cumulative impact are outlined in section 6.15 of the REF.	The potential cumulative impacts of the design changes are consistent with the those described in the REF.

5.8.2 Revised safeguards and management measures

The safeguards and managements measures in relevant sections of the REF remain applicable.

6. Environmental management

The REF for the Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park, identified the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts (section 7.2 of the REF).

After consideration of the issues raised in the public submissions and changes to the proposal, the mitigation measures proposed in the REF have been revised. Additional and/or revised mitigation measures have been included in relation to heritage, hydrology, noise and contamination. A full list of mitigation measures is provided in 6.2.

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

6.1 Environmental management plans (or system)

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

The PEMP and CEMP would incorporate key sub plans including:

- Traffic Management Plan
- Soil and Water Management Plan
- Erosion and Sediment Control Plan
- Acid Sulfate Soils Management Plan
- Aboriginal Heritage Management Plan
- Non-Aboriginal Heritage Management Plan
- Noise and Vibration Management Plan
- Flora and Fauna Management Plan
- Waste Management Plan
- Construction Air Quality Management Plan.

The PEMP and CEMP would include all environmental mitigation measures identified below in section 6.3, any conditions from licences or approvals required by legislation, and a process for demonstrating compliance with mitigation measures and conditions. Other plans to be prepared separately to the CEMP include:

- Urban Design Plan
- Sustainability Management Plan
- Communications and Stakeholder Engagement Plan.

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

6.2 Licensing and approvals

No additional licenses and approvals are required for the proposed design changes. The licences and approvals outlined in Table 6-1 would be required for the proposal.

Table 6-1 Summary of licensing and approvals required

Instrument	Requirement	Timing
Fisheries Management Act 1994 (s199)	Notification to the Minister for Lands and Water prior to any dredging or reclamation works.	A minimum of 28 days prior to the start of work.
Heritage Act 1977 (s60)	Permit to carry out activities to an item listed on the State Heritage Register or to which an interim heritage order applies from the Heritage Council of NSW.	Prior to start of the activity.
National Parks and Wildlife Act 1974 (s90)	Aboriginal heritage impact permit.	Prior to start of the activity.
Protection of the Environment Operations Act 1997 (s43)	EPL for scheduled activities (road construction) from the EPA.	As agreed with EPA.

In addition, the need for the following licensing and approvals would be determined during detailed design:

- Permit under section 219 *Fisheries Management Act 1994* (FM Act).
- Approvals under the *Water Management Act 2000* (WM Act).

6.3 Summary of mitigation measures

The REF for the proposal title identified a range of environmental outcomes and mitigation measures that would be required to avoid or reduce the environmental impacts.

After consideration of the issues raised in the public submissions, the environmental management measures for the proposal (refer to section 7.2 of the REF) have been revised. If approved, the proposal would proceed subject to the environmental mitigation measures in Table 6-2.

Additional and/or modified mitigation measures to those presented in the REF have been underlined and deleted measures, or parts of measures, have been ~~struck out~~.

Table 6-2 Summary of mitigation measures

No.	Impact	Environmental safeguards	Responsibility	Timing
GEN1	General - minimise environmental impacts during construction	A CEMP would be prepared and submitted for review and endorsement of the Transport for NSW Senior Manager Environment and Sustainability prior to commencement of the activity. As a minimum, the CEMP would address the following: • any requirements associated with statutory approvals • details of how the project would implement the identified safeguards outlined in the REF • issue-specific environmental management plans • roles and responsibilities • communication requirements • induction and training requirements • procedures for monitoring and evaluating environmental performance, and for corrective action • reporting requirements and record-keeping • procedures for emergency and incident management • procedures for audit and review. The endorsed CEMP would be implemented during the undertaking of the activity.	Transport / Contractor	Detailed design / Pre-construction
GEN2	General - notification	All businesses, residential properties and other key stakeholders (schools, local councils) affected by the activity would be notified at least seven days prior to commencement of the activity.	Transport / Contractor	Pre-construction
GEN3	General - environmental awareness	All personnel working on site would receive training to ensure awareness of environment protection requirements to be implemented during the project. This would include up-front site induction and regular "toolbox" style briefings. Site-specific training would be provided to personnel engaged in activities or areas of higher risk. These include: • Threatened species habitat • Areas of Aboriginal heritage sensitivities including the Blacktown Native Institution site • Adjoining residential areas requiring particular noise management measures • Areas associated with increased flood risk.	Transport / Contractor	Detailed design / Pre-construction
GEN4	General - design	During detailed design, further modelling and design review will be undertaken to determine if it is feasible to maintain the signalised pedestrian crossing on the northern side of the Richmond Road and Rooty Hill Road North intersection. This would include potentially removing the proposed new pedestrian crossing to provide access at the M7 Motorway southbound entry ramp if the existing crossing is reinstated.	Transport / Contractor	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
TT1	Traffic and transport	A Traffic Management Plan (TMP) would be prepared and implemented as part of the CEMP. The TMP would be prepared in accordance with the Transport Traffic Control at Work Sites Manual (TfNSW, 2022b) and QA Specification G10 Control of Traffic (TfNSW, 2020). The TMP would include: • confirmation of haulage routes • confirmation of workforce parking areas • measures to maintain access to local roads and properties • site-specific traffic control measures (including signage) to manage and regulate traffic movement • measures to maintain pedestrian and cyclist access • requirements and methods to consult and inform the local community of impacts on the local road network • access to ancillary facilities including entry and exit locations and measures to prevent construction vehicles queuing on public roads • vehicle management / movement plan for ancillary facilities due to the proximity of these facilities to high speed, major movement corridors • a response plan for any construction road traffic incident • consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • traffic assessments to support any works which may temporarily reduce capacity, change the intended schedule of works or any other interruptions to general operation • monitoring, review and amendment mechanisms. Road safety audits (RSA) of the TMP would be undertaken before construction.	Contractor	Detailed design / Pre-construction
TT2	Traffic and transport	Preparation of a Traffic Guidance Scheme (TGS). The TGSs would be prepared by suitably qualified personnel for the construction area and progressively updated as the works progress.	Contractor	Pre-construction
TT3	Traffic and transport	A Road Occupancy License (ROL) would be obtained before road or lane closures.	Contractor	Pre-construction
TT4	Motorists and public transport	• Minimise road space occupied by the works in terms of time, width and length; road capacity would not be reduced unnecessarily, and sufficient capacity would be provided to accommodate expected traffic volumes. • Detailed site investigations would be undertaken to avoid any unforeseen problems that may increase traffic delays. • All work activities would be sufficiently planned to ensure road occupancies are not implemented at times of peak traffic volumes. • Road occupancies would be coordinated with transport operators regarding schedules and dimension loads. • The ability to stop work and clear travel lanes to allow traffic flows to return to normal free-flow conditions would be maintained.	Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		• Road users including public transport, local communities, emergency services (including SES) and the freight industry would be provided with timely, accurate, relevant and accessible information about changed traffic arrangements and delays resulting from construction activities. • Road occupancies would allow for and accommodate all road users ranging in size from oversized heavy vehicles, buses, pedestrians and cyclists. • Ensure that free flow traffic is not delayed in any direction at any single road occupancy for longer than five minutes. • Queues caused by road occupancies measured along a single lane in any direction should not exceed 250 metres in length. • Road occupancies involving the closure of any shoulder or auxiliary lane should always provide a minimum of one travel lane in each direction through period of occupancy. • Detour signage would be installed at appropriate locations to inform drivers of road closures. • Undertake daily travel time surveys through the project to monitor and verify delays caused by project works and ensure traffic delay criteria is satisfied. • Conduct a Road Safety Audit (RSA) after the implementation of any traffic switches, with the intention to address any identified issues and regularly monitor the implemented arrangements. This would involve consultation with all relevant stakeholders to identify issues.		
TT5	Pedestrians	• All footpaths for construction workers within the works areas would be clearly delineated, signed and fenced to prevent access to work areas and sufficiently separated from vehicular traffic. • Pedestrians would be segregated from live traffic by safety barriers where required. • Appropriate pedestrian detour signage would be provided to guide / direct pedestrians where detours are available.	Contractor	Construction
TT6	Cyclists	A road shoulder would be maintained for cyclists. If this is not possible during certain construction tasks, the speed limit would be reduced to maintain cyclist safety.	Contractor	Construction
TT7	Heavy vehicles	Heavy vehicle access, including for oversized vehicles, would be maintained at all times during construction.	Contractor	Construction
TT8	Traffic control	Development of temporary signposting schemes associated with the traffic staging arrangements. Traffic control devices may include safety barriers, pavement markings, portable variable message signs and temporary traffic signals.	Contractor	Construction
TT9	Construction access points	• Minimise the number of access points. • New construction access points would not adversely impact on any existing intersections, traffic facilities or traffic generation developments. • Security fences and gates at access points would be indented to enable vehicles to park clear of the adjacent travel lanes. • Access points would be constructed of a suitable all-weather surface that prevents debris from being tracked onto the adjacent travel lanes.	Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		• Access points would be clearly visible to approaching traffic and signposted accordingly. • Use of temporary traffic control would be considered to facilitate short-term major haulage operations and the movement of oversized vehicles where required.		

H1	Erosion and sedimentation	A Soil and Water Management Plan (SWMP) would be prepared and implemented as part of the CEMP during construction. The SWMP would include (but not limited to):
		• objectives and targets for soil and water quality management
		• approvals, licence requirements and relevant legislation
		• overview of the existing environment and potential impacts of construction works
		• identification of high-risk activities (such as the bridge construction around Bells Creek) and sensitive areas and the need for an Environmental Work Method Statement (EWMS)
		• environmental control measures in relation to:
		  ○ erosion and sedimentation including the preparation and updating of Erosion and Sediment Control Plans (ESCPs) throughout construction
		  ○ stockpile management
		  ○ spoil and fill management
		  ○ surface water quality
		  ○ refuelling of vehicles and equipment and accidental spills
		  ○ storage or hydrocarbons
		  ○ wet weather events
		  ○ groundwater dewatering and management of groundwater in-flow during construction
		• a surface water monitoring program including regular monitoring of Bells Creek within the mixing zone (100 m downstream) as well as an upstream reference point for each discharge point
		• auditing and reporting requirements
		• site inductions and training for construction personnel.
		The SWMP would be prepared in accordance with the following specifications and guidelines:
		• Managing Urban Stormwater: Soils and Construction (Landcom, 2004)
		• Transport's Soil and Water Management Specification (G38)
		• Transport Erosion and Sedimentation procedure.
			Contractor	Pre-construction

H2	Erosion and sedimentation	A primary site-specific ESCP and progressive ESCPs would be prepared and implemented as part of the SWMP.	Contractor	Pre-construction
H3	Erosion and sediment control	A construction erosion and sedimentation assessment would be undertaken to determine specific location, sizing and effectiveness of erosion and sediment control measures during construction. This assessment would also consider construction flooding impacts as the staging plans are refined as the detailed design progresses.	Transport	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
H4	Water quality	Consult with Blacktown City Council about operational pollution reduction targets.	Transport	Detailed design
H5	Water quality	A water quality assessment would be undertaken prior to construction to determine the discharge criteria for the local waterways. Undertake water quality monitoring during construction of the proposal. The discharge rate of sediment basins (if required) is to be adjusted to ensure that turbidity within the mixing zone does not exceed discharge criteria.	Contractor	During construction
H6	Water resources	Detailed design of the open flooding channel is to consider the following: • A vegetation management plan to both stabilise banks and manage the groundwater table. • Geotechnical investigations to collect geotechnical information including soil type and groundwater levels along the proposed realignment. • Low flow channel requirements, a naturalised channel design, and scour protection.	Transport	Detailed design
H7	Groundwater resources and quality	Monitor the volume of groundwater that is dewatered during construction to ensure extraction does not exceed more than three mega litres a year. Test the quality of groundwater prior to discharge.	Contractor	Construction
H8	Flooding	• Any plant and materials would be removed and secured above the Probable Maximum Flood (PMF) level in the event of flood warnings for the area to reduce the risk of being washed into waterways. • During site works, the Bureau of Meteorology website would be checked prior to the start of the workday for any warnings and consider closing the worksite prior to the start of the working day if there is a risk of flooding.	Contractor	Construction
H9	Flooding	To ensure workers and site users are aware of flood risks during the upgrades, the following actions would be implemented as part of the CEMP: • Signage installation – clear flood risk signs would be placed at key locations, ensuring visibility for all site users. • Safety briefings – regular flood risk briefings would be conducted for workers, with attendance records maintained. • Information distribution – educational materials outlining flood hazards and emergency procedures would be provided. • Emergency drills – periodic flood response drills would be scheduled to reinforce awareness and preparedness.	Contractor	Construction
H10	Traffic delay	The SES would be notified where there are likely to be significant delays in the operation of the roads affected by the upgrades.	Contractor	Construction
H11	Increased velocities	Creek rehabilitation work would be undertaken between the Bells Creek bridge and the locality where the open flooding channel connects to Bells Creek channel.	Contractor	Post-construction
H12	Increased velocities	Scour protection measures at Bells Creek bridge that could withstand the calculated velocity would be provided during the detailed design documentation.	Contractor	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
H13	Probable maximum precipitation	Flood characteristics generated during the Probable Maximum Precipitation (PMP) events in the vicinity of the works will be generated during the detailed design stage.	Contractor	Detailed design
H14	Design changes	If the design and/or modelling is revised during detailed design, an additional environmental assessment would be required to evaluate any changes in impacts.	Contractor	Detailed design
SC1	Erosion and sedimentation	Refer H1		
SC2	Erosion and sediment control	Refer H2		
SC3	Erosion and sediment control	Refer H3		
SC4	Contaminated lands	Undertake additional contamination testing and assessment at locations identified in Figure 6-4 of the REF that would be disturbed by the proposal (in consideration of the identified AEC) to confirm the presence of contamination. If contamination is present and exceeds the adopted site criteria, a Remedial Action Plan (RAP) would be developed in line with the relevant guidelines to ensure appropriate management and mitigation measures are in place.	Transport	Detailed design
SC5	Contaminated lands	Unexpected Finds Protocol would be prepared and included within the CEMP to manage unexpected occurrences of contaminated materials.	Contractor	Pre-construction
SC6	ASS	Undertake further testing of soils during detailed design to allow for clearer delineation of ASS extents in relation to the proposed ground disturbance footprint. This testing would: • include screening of soils with the pHField / pHOxidation methodology • target areas of proposed cut or dewatering • determine whether an ASS Management Plan is necessary, in accordance with published guidance including ASSMAC (1998), National ASS Guidelines (Sullivan et al, 2018) and Guidelines for the Management of Acid Sulfate Materials (RTA, 2005).	Transport	Detailed design
SC7	Accidental spill	A site-specific emergency spill plan would be developed and include spill-management measures in accordance with the Transport Code of Practice for Water Management (RTA, 1999) and relevant EPA guidelines. The plan would address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities (including Transport EPA officers).	Contractor	Construction
SC8	Disturbance of acid sulfate soils	Due to the potential presence of ASS in soils, an Acid Sulfate Soils Management Plan (ASSMP) would be prepared if the materials are to be disturbed during construction. Consideration of design plans, bulk earthworks, construction methodologies, dewatering scenarios and interactions with buildings and structures (including piles) is required. Salinity data would also be considered to support ASS management.	Contractor	Pre-construction, Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
SC9	Disturbance of stockpiles	Stockpile assessment would be undertaken if any onsite reuse and/or emplacement is required. Stockpile materials at location SP04 have potential zinc impacts, which may be in exceedance of ecological investigation levels applicable to onsite soils. Further assessment may include: • soil quality and leachate testing • risk assessment for onsite reuse and emplacement.	Contractor	Pre-construction, Construction
SC10	Presence of asbestos	An asbestos register and asbestos management plan would be prepared in accordance with SafeWork NSW Code of Practice: How to manage and control asbestos in the workplace (SafeWork NSW, 2022).	Contractor	Construction
SC11	Disturbance of AEC2	Further assessment of soils within AEC 2 – Former truck repair workshop would be undertaken, to: • Appropriately delineate asbestos impacted soil to estimate volume of impacted material and determine options of go / no go areas, per Transports Asbestos in soils management procedure EMF-LM-PR-0020. • Allow for a refined approach in preparation of a Remediation Action Plan (RAP) to determine opportunity for onsite encapsulation and management or offsite disposal.	Contractor	Construction
SC12	Disturbance of AEC6	If areas within AEC 6 – Hazardous building materials contained within former and existing site structures are to be demolished or removed, a Hazardous building materials (HAZMAT) survey would be undertaken for residual waste and existing structures prior to demolition and removal from site.	Contractor	Construction
SC13	Disturbance of PFAS	Soil sampling to delineate extents of PFAS impacts around DD_BH03_(0.1m bgl) and DD_HA07_(0.1m bgl) would be undertaken. This may include: • Vertical and horizontal soil sampling and analysis • Leachate testing of selected soil samples. Alternatively, or in addition, the following would be considered: • Site-specific risk assessment to identify feasible options for onsite reuse of PFAS impacted soils to reduce potential for unacceptable exposures and to reduce future offsite disposal costs for the project. This may include development of site reuse PFAS soil concentration criteria. Any potential for PFAS mobilisation during excavation or construction/operational phase drainage systems may also be included in the risk assessment. • Development of PFAS management plan including soil and stormwater handling, stockpiling and reuse protocols that minimise risk and ensure compliance. • Seek regulatory approvals as may be required for onsite reuse.	Contractor	Pre-construction
AH1	Aboriginal heritage	An Aboriginal Heritage Management Plan (AHMP) would be prepared in accordance with the PACHCI (RMS, 2011) and the Unexpected Heritage Items Procedure (TfNSW, 2024d) and implemented as part of the CEMP. It would provide specific drafting guidance on measures and controls to be implemented for managing impacts on Aboriginal heritage. The AHMP would be prepared in consultation with all relevant Aboriginal groups.	Contractor	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
AH2	Unexpected finds	The Unexpected Heritage Items Procedure (TfNSW, 2024d) would be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. This applies where Transport does not have approval to disturb the object/s or where a specific safeguard for managing the disturbance (apart from the Procedure) is not in place. Work would only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Construction
AH3	AHIP	An application for an Aboriginal Heritage Impact Permit (AHIP) would be made under section 90A of the *National Parks and Wildlife Act 1974* for the land and associated objects within the boundaries of the study area, excluding the area within the boundary of AHIP 5224 and AHIP 5276. The AHIP would also be sought for the specified Aboriginal sites and Aboriginal objects contained within the following sites: • MPIP 12 (AHIMS # 45-5-3741) • Richmond Road Bells Creek AFT 1 (AHIMS # 45-5-5471) • Richmond Road Bells Creek AFT 2 (AHIMS # 45-5826) • Western Sydney PAD 3 (AHIMS # 45-5-3322).	Contractor	Detailed design
AH4	Existing AHIPs	Any works related to the current proposal undertaken within the boundary of AHIP 5224 and AHIP 5276 would be required to comply with the existing permit conditions.	Transport	All phases
AH5	Salvage excavation	The AHIP would include provision for impact mitigation through archaeological salvage excavation. Salvage excavation would be required at sites Richmond Road Bells Creek AFT 1 (AHIMS 45-5-5471), Richmond Road Bells Creek AFT 2 (AHIMS 45-5-5826) and Western Sydney PAD 3 (AHIMS 45-5-3322). Salvage excavation would be completed prior to any activities (including pre-construction activities) which may harm Aboriginal objects at these locations. Salvage excavation activities would be undertaken in accordance with the methodology provided in ~~Appendix E~~ Appendix C.	Contractor	Pre-construction
AH6	Site protection	The boundary of the AHIP area adjacent to the non-impacted portion of sites Richmond Road Bells Creek AFT 2 (AHIMS 45-5-5826), Western Sydney PAD 3 (AHIMS 45-5-3322) and Grange Avenue AFT 4 (AHIMS 45-5-4871) would be demarcated with protective fencing and listed in the CEMP. These areas would be identified as 'no-go zones' on the CEMP maps and workers inducted as to appropriate protection measures and requirements to comply with conditions in the adjacent AHIP.	Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
AH7	Collected / salvaged Aboriginal objects	The short-term management of collected Aboriginal objects is as follows: • Any Aboriginal objects that are removed from the land by actions authorised by an AHIP, must be moved as soon as practicable to the temporary storage location (see below) pending any agreement reached about the long-term management of the Aboriginal objects. • The temporary storage location would be Kelleher Nightingale Consulting Pty Ltd, Suite 505-507, 155 King Street, Sydney NSW 2000. • Any Aboriginal objects stored at the temporary storage location must not be further harmed, except in accordance with the conditions of the AHIP. The long-term management of collected Aboriginal objects is as follows: • Recovered objects would be managed in accordance with Requirement 26 “Stone artefact deposition and storage” in the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010b).	Contractor	Construction
AH8	Blacktown Native Institution property access	The location and design of a permanent access to the DSMG owned portion of the Blacktown Native Institution site would be subject to further assessment and is to be developed in consultation with the DSMG and Blacktown City Council with reference to their future plans for this site.	Transport	Detailed design
AH9	Aboriginal culture	Consultation would continue with DSMG throughout detailed design and construction. DSMG input would be sought on: • the location and design of the interim and potential permanent driveway relocation • the opportunity to include cultural interpretations or design into the proposed road infrastructure (i.e. the flyover bridge or abutments) • the opportunity for culturally sensitive and locally indigenous plantings within the road corridor • the opportunity for the proposal to support the proposed development of the Blacktown Native Institution site in accordance with the Vision for Country (COLA, 2024) • the ongoing development of the Connecting with Country assessment.	Transport	Detailed design
AH11	Surface Collection	The AHIP should include provision for impact mitigation through surface collection at the impacted Aboriginal archaeological sites. Surface collection would be undertaken in accordance with the following methodology below: • Surface artefact collection within the sites would be restricted to the approved AHIP area. • The collection of surface artefacts would be undertaken with Aboriginal site officers. • Photographs and the details of each artefact collected, including attributes and location/context would be recorded during the surface collection. • The AHIMS site records would be updated to include the details of the collected surface artefacts.	Contractor	Pre-construction
AH10	Māori community	Consultation with the Sydney Māori community would be undertaken as part of the REF exhibition and continue throughout detailed design as appropriate.	Transport	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
NAH1	Non-Aboriginal heritage	A Non-Aboriginal Heritage Management Plan (NAHMP) would be prepared and implemented as part of the CEMP. It would provide specific guidance on measures and controls to be implemented to avoid and mitigate impacts to non-Aboriginal heritage during construction.	Contractor	Detailed design / Pre-construction
NAH2	Non-Aboriginal heritage	If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the Unexpected Heritage Items Procedure (TfNSW, 2024d) must be followed.	Contractor	Construction
NAH3	Non-Aboriginal heritage	Consultation with relevant stakeholders, including relevant parties for the Colebee and Nurragingy Land Grant would be undertaken during detailed design.	Transport	Detailed design
NAH4	Non-Aboriginal heritage	~~Refer AH9~~ Consultation would continue with DSMG throughout detailed design and construction, under the Working Group agreement. DSMG input would be sought on: • the location and design of the interim and potential permanent driveway relocation • the opportunity to mitigate visual impacts of the proposal from the Blacktown Native Institution site, including cultural interpretations or design into the proposed road infrastructure (i.e. the flyover bridge or abutments) • the opportunity for culturally sensitive and locally indigenous plantings within the road corridor • the opportunity for the proposal to support the proposed development of the Blacktown Native Institution site in accordance with the Vision for Country (COLA, 2024) • the ongoing development of the Connecting with Country assessment • impacts to culturally significant vegetation within the Blacktown Native Institution heritage curtilage and opportunities for replanting (including species and locations) and/or reuse of removed vegetation • management of wildlife within the site during construction and potential future wildlife connectivity for operation of the road corridor and the DSMG site. • design impacts and management of Bells Creek within the Blacktown Native Institution site during construction and plans for regeneration of the creekline as part of the works. • management of noise impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use. • management of potential overshadowing and privacy impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use.	Transport	Detailed design
NAH5	Non-Aboriginal heritage	Refer AH10		
NAH6	Non-Aboriginal heritage	An opportunity for inclusion of culturally sensitive design and interpretation would be considered throughout detailed design to minimise the visual impacts from the Blacktown Native Institution site in consultation with	Transport	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
		the DSMG. These opportunities would align with relevant Heritage Council guidelines and the CMP for the site (GML, 2023).		
NAH7	Non-Aboriginal heritage	Further archaeological investigations would be undertaken during detailed design to minimise potential impacts on the archaeological resource on the eastern side of Richmond Road, south of the Colebee and Nurragingy Land Grant and within the Sylvanus Williams grant.	Transport	Detailed design
NAH8	Non-Aboriginal heritage	An application for an approval under section 60 of the *Heritage Act 1977* would be prepared. The section 60 application would include the Aboriginal archaeological salvage works being undertaken in accordance with an Aboriginal Heritage Impact Permit under section 90 of the *National Parks and Wildlife Act 1974*.	Transport	Detailed design
NAH9	Non-Aboriginal heritage	Detailed design would take into consideration the findings and recommendations of the Conservation Management Plan (CMP, 2024), Connecting with Country (Nguluway, 2025) and Urban Design Concept (DesignInc, 2024) reports.	Transport	Detailed design
NAH10	Non-Aboriginal heritage	Any changes to the proposal during detail design would be reviewed to determine if additional assessment is required under the EP&A Act and/or the SOHI.	Transport	Detailed design
NAH11	Non-Aboriginal heritage	An Archaeological Methodology and Research Design (AMRD) would be prepared to identify the archaeological testing methodology for investigation of the unconfirmed burials within the Blacktown Native Institution site. The methodology will be developed in consultation with the DSMG stakeholders/Working Group and the outcomes of the testing would inform the detailed design.	Transport	Detailed design
PL1	Property acquisition	All property acquisition would be carried out in accor*dance with the* Land Acquisition Information Guide (RMS, 2014) and the *Land Acquisition (Just Terms Compensation) Act 1991.*	Transport	Pre-construction
PL2	Property adjustment	Property access and adjustments for properties impacted by the proposal would be developed in consultation with affected property owners.	Transport	Detailed design
PL3	Property adjustment	Ongoing consultation with properties affected by fencing adjustment, access and other infrastructure would be undertaken.	Contractor	Pre-construction
PL4	Change in land use value during construction	Compound and ancillary facilities would be decommissioned, and the sites rehabilitated to their existing condition or as otherwise agreed with the landowner as soon as possible.	Contractor	Construction
PL5	Changes to property access	Undertake early consultation and regularly communicate with affected landowners and residents where temporary property access changes would be required.	Contractor	Pre-construction
PL6	Blacktown Native Institution property access	The temporary access to the Blacktown Native Institution site would be constructed and opened prior to the closure of the existing access in order to maintain ongoing vehicle access to the site throughout construction.	Contractor	Construction
PL7	Blacktown Native Institution property access	The design and location of the temporary access would be further developed in consultation with DSMG.	Transport	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
PL8	Blacktown Native Institution property access	No direct impacts to the DSMG owned portion of the Blacktown Native Institution curtilage for the construction of the access are permitted, without further assessment and consultation with the DSMG and the NSW Heritage Office.	Transport	Detailed design
PL9	Blacktown Native Institution property access	Refer AH8		
NV1	Noise and vibration	A Noise and Vibration Management Plan (NVMP) would be prepared and implemented as part of the CEMP. The NVMP would generally follow the approach in the Interim Construction Noise Guideline (DECC, 2009) and identify: • all potential significant noise and vibration generating activities associated with the activity • feasible and reasonable mitigation measures to be implemented, taking into account Beyond the Pavement: urban design policy, procedures and principles (TfNSW, 2023c) • a monitoring program to assess performance against relevant noise and vibration criteria • arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.	Contractor	Detailed design / Pre-construction
NV2	Noise and vibration	All sensitive receivers (e.g., schools and local residents) likely to be affected would be notified at least seven days before commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification would provide details of: • the proposal • the construction period and construction hours • contact information for project management staff • complaint and incident reporting • how to obtain further information.	Contractor	Detailed design / Pre-construction
NV3	Construction hours	Where feasible carry out works within standard hours as follows: • 7am-6pm Monday to Friday • 8am-1pm Saturdays • no work on Sundays or public holidays.	Contractor	Construction
NV4	Construction hours	Where night works are essential, the use of high impact machinery such as pile-driving, vibratory rollers and impact devices (rock breakers and jackhammers) would be avoided in the vicinity of sensitive receivers, where possible.	Contractor	Construction
NV5	Construction traffic	Further assessment of traffic noise at the Newnham Street compound would be undertaken in accordance with the RNCG (TfNSW, 2023b).	Transport	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
NV6	Construction noise	Where feasible, implement standard mitigation measures in accordance with the CNVG-R (TfNSW, 2023a).	Contractor	Pre-construction / Construction
NV7	Construction noise	Where feasible, implement additional mitigation measures in accordance with the CNVG-R (TfNSW, 2023a) where noise levels are predicted to exceed the noise management levels. This may include notification, respite periods and alternative accommodation.	Contractor	Pre-construction / Construction
NV8	Construction vibration	For high vibration sources, vibration monitoring would be undertaken to confirm the minimum working distances at specific site locations. Additionally, further detailed analysis based on the frequency dependent guideline vibration levels in BS7385-2:1993 and DIN4150-3:2016 may be utilised in conjunction with site-specific measurements to derive alternative cosmetic damage objectives and minimum working distances	Contractor	Pre-construction
NV9	Construction vibration on heritage structures	If works are proposed at less than the safe working distances for heritage listed items, specialist advice would be sought from an appropriately qualified structural engineer who is familiar with heritage structures.	Contractor	Pre-construction
NV10	Operational noise	Undertake an assessment to identify feasible and reasonable noise mitigation measures for properties where operational noise is predicted to exceed relevant criteria.	Transport	Detailed design
NV11	Noise during construction and operation of the Newnham Street (Site 3) ancillary site	• Construction of and general use of the compound would be undertaken during standard hours only (Monday to Friday 7.00am to 6.00pm, Saturday 8.00am to 1.00pm). • The site would be used for Transport/Contractor vehicles only. No stockpiling, storage of materials, storage of construction plant/equipment, truck deliveries would occur during general operation of the compound.	Contractor	Construction
NV12	Noise during operation of site compounds	• Any fixed mechanical plant such as air-conditioning or generators should be located as far as reasonably possible from the nearest residents. Ideally, the plant should be screened from residents by onsite buildings, if possible. • Where possible, maximise offset distance between parking areas/driveways and the nearest residents. • Where possible, minimise unnecessary activity for the general operation of site 5 during non-standard hours.	Contractor	Construction
B1	General	A Flora and Fauna Management Plan (FFMP) would be prepared in accordance with Transport for NSW's Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c) and implemented as part of the CEMP. The FFMP would include, but not be limited to: • plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas • requirements set out in the Landscape Guideline (TfNSW, 2023d) • pre-clearing survey requirements, including specific pre-clearance measures for Cumberland Plain Land Snail and Southern Myotis (i.e. roost searches of culverts and bridges prior to any impacts) • procedures for the management of resident Kangaroo populations during construction • procedures for unexpected threatened species finds and fauna handling	Contractor	Detailed design / Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		• procedures addressing relevant matters specified in the DPI Policy and guidelines for fish habitat conservation and management (DPI, 2013) • protocols to manage weeds and pathogens.		
B2	Removal of native vegetation	Native vegetation removal would be minimised through detailed design and during construction.	Transport / Contractor	Detailed design / Construction
B3		Pre-clearing surveys would be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Pre-construction
B4		Vegetation removal would be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Construction
B5		Native vegetation would be re-established in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Post construction
B6		The unexpected species find procedure is to be followed under the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c) if threatened ecological communities, not assessed in the biodiversity assessment, are identified in the proposal area.	Contractor	Construction
B7		A Biodiversity Offset Strategy would be developed, in accordance with the guidelines, to detail obligations under the Biodiversity Policy (TfNSW, 2022c).	Contractor	Pre-construction
B8		A Tree and Hollow Replacement Plan would be developed, in accordance with the guidelines, to detail obligations under the Biodiversity Policy (TfNSW, 2022c).	Contractor	Pre-construction
B9	Removal of threatened fauna habitat	Threatened fauna habitat removal would be minimised through detailed design and during construction.	Transport / Contractor	Detailed design / Construction
B10		Fauna would be managed in accordance with Guide 9: Fauna handling of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c). Specific pre-clearance measures for Cumberland Plain Land Snail have been included in Appendix G of the BAR (Appendix H of the REF). Pre-clearance surveys for Cumberland Plain Land Snail would be undertaken in all areas of PCT 3320 and PCT 4025 prior to any vegetation clearing. Any individuals located during the pre-clearance surveys would be relocated directly into suitable vegetation outside of the proposal area.	Contractor	Pre-construction / Construction
B11		Habitat removal would be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Construction
B12		Habitat would be replaced or re-instated in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Artificial hollows of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
B13		The unexpected species find procedure is to be followed under Guide 1: Pre-clearing process of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c) if threatened fauna, not assessed in the biodiversity assessment, are identified in the proposal area.	Contractor	Construction
B14		Refer B3		
B15	Removal of threatened flora	Threatened flora removal would be minimised through detailed design and during construction.	Contractor	Detailed design / Construction
B16		Prior to the determination of the proposal, targeted flora surveys would be completed for all identified candidate species that have not yet been surveyed. Assessments of significance and calculations of offsetting obligations would be completed for any additional threatened species detected on site.	Contractor	Detailed design
B17		Pre-clearing surveys would be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Construction
B18		The unexpected species find procedure is to be followed under Guide 1: Pre-clearing process of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c) if threatened flora species, not assessed in the biodiversity assessment, are identified in the proposal area.	Contractor	Construction
B19	Aquatic impacts	Impacts to aquatic habitat would be minimised through detailed design and during construction. Any instream/flow structures (e.g. the proposed bridge structure) would be designed and installed in accordance with the Policy and Guidelines for Fish Friendly Waterway Crossings (DPI, 2013), Why do fish need to cross the road?: fish passage requirements for waterway crossings (Fairfull and Witheridge, 2003).	Contractor	Detailed design / Construction
B20		Refer H2		
B21		Aquatic habitat would be protected in accordance with Guide 10: Aquatic habitats and riparian zones of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c) and section 3.3.2 Standard precautions and mitigation measures of the Policy and guidelines for fish habitat conservation and management Update 2013 (DPI, 2013).	Contractor	Construction
B22		Refer SC7		
B23		Following construction affected aquatic habitat would be rehabilitated and removed aquatic habitat re-instated in accordance with Guide 10: Aquatic habitats and riparian zones of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Post construction
B24	Groundwater dependent ecosystems	Interruptions to water flows associated with groundwater dependent ecosystems would be minimised through detailed design.	Contractor	Detailed design
B25	Changes to hydrology	Changes to existing surface water flows would be minimised through detailed design.	Contractor	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
B26	Edge effects on adjacent native vegetation and habitat	Exclusion zones would be set up at the limit of clearing in accordance with Guide 2: Exclusion zones of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Construction
B27	Injury and mortality of fauna	Refer B10		
B28	Invasion and spread of weeds	Weed species would be managed in accordance with Guide 6: Weed management of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Construction
B29	Invasion and spread of pests	Pest species would be managed within the proposal area.	Contractor	Construction
B30	Invasion and spread of pathogens and disease	Pathogens would be managed in accordance with Guide 2: Exclusion zones of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024c).	Contractor	Construction
B31	Noise, light, dust and vibration	Shading and artificial light impacts would be minimised through detailed design.	Contractor	Detailed design
B32	Wildlife connectivity	Consider wildlife connectivity options for the management of resident kangaroo populations adjacent to the Blacktown Native Institution site and the corresponding area on the eastern side of Richmond Road.	Transport	Detailed design
LC1	Urban Design Plan	The Urban Design Concept Plan (Design Inc (2024), Appendix I of the REF) would form the basis of future landscape and detailed design development, providing an integrated urban design for the proposal, providing practical detail on the application of design principles and objectives identified in the environmental assessment. The Plan would include design treatments for: • location and identification of existing vegetation and proposed landscaped areas, including species to be used • built elements including retaining walls, bridges and noise walls • pedestrian and cyclist elements including footpath location, paving types and pedestrian crossings • fixtures such as seating, lighting, fencing and signs • details of the staging of landscape works taking account of related environmental controls such as erosion and sedimentation controls and drainage • procedures for monitoring and maintaining landscaped or rehabilitated areas.	Contractor	Detailed design / Pre-construction
LC2	Urban design	The urban design objectives and principles outlined in section 2.3.2 of this REF would be considered during subsequent design stages.	Transport	Detailed design
LC3	Visual impact of construction work	Work sites, including construction areas and supporting ancillary facilities would be managed to minimise visual impacts, including appropriate fencing or screening (e.g. use of shade cloth), storage of equipment, parking, stockpile screening and arrangements for the storage and removal of rubbish and waste materials.	Contractor	Construction
LC4	Visual impact of construction work	Refer PL4		

No.	Impact	Environmental safeguards	Responsibility	Timing
LC5	Light spill	The design of temporary lighting would be undertaken in accordance with the requirements in Australian Standard AS 4282-2019 Control of the Obtrusive Effects of Outdoor Lighting and would avoid unnecessary light spill on adjacent receivers.	Contractor	Construction
LC6	Vegetation removal	Refer B2		
LC7	Vegetation removal	Clearly define clearance limits and exclusion zones to protect existing vegetation cover.	Contractor	Construction
LC8	Vegetation removal	Undertake landscape planting on the basis of the Urban Design Concept Plan (Design Inc (2024), Appendix I of the REF) including: • Screening planting with local plant species that match the community and landscape character to minimise the impacts. • Median planting with native grasses to reduce the apparent extent of hard paving and mitigate visual impact of the widening.	Transport	Detailed design
LC9	Visual impact of flyover bridge	Design of the curvature of the bridge would include small enough segments to achieve a smooth curved profile rather than a faceted profile, to achieve the elegant form envisioned for the structure.	Transport	Detailed design
LC10	Visual impact of flyover bridge	High quality design and finish to the bridge abutment walls, particularly where they face the Blacktown Native Institution site, and ongoing engagement with Aboriginal stakeholders around the potential for cultural interpretation.	Transport	Detailed design
LC11	Visual impact of flyover bridge	Opportunities for artwork and/or design on the flyover bridge and retaining walls would be developed in consultation with local knowledge holders.	Transport	Detailed design
LC12	Visual impact of flyover bridge	Opportunities for landscape treatment in the south-east corner of the Blacktown Native Institution site would be developed in consultation with local knowledge holders.	Transport	Detailed design
SE1	General socio-economic impacts	A Communications and Stakeholder Engagement Plan would be developed prior to the commencement of construction and would be implemented during construction to provide timely and accurate information to stakeholders and to ensure that: • All stakeholders are identified through detailed stakeholder mapping which is updated regularly as needed. This would include identification of vulnerable groups or persons that may be affected by the proposal. • Accurate and accessible information about the proposal is made available to keep the community and stakeholder aware of and up to date with the proposal. Proposal information in languages other than English (i.e., Tagalog, Punjabi, and Hindi, etc.) would be made available subject to consultation results. • Opportunities for community and stakeholder feedback and inputs are provided. • Prior to potential impacts occurring, the affected community members and stakeholders are provided with details such as timing, likely extent, duration and nature of impacts, of proposed activities that may impact them. • Continued consultation, follow up with community notifications/ letter-box drops, would be set up to notify the broader community, recreational groups, businesses and other stakeholders.	Transport / Contractor	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
SE2	General socio-economic impacts	A complaints handling procedure would be developed which would ensure: • A webpage, email and free-call number would be established for enquiries and complaints regarding the proposal and would remain active prior to and for the duration of construction. • Contact details would be clearly displayed at the entrances to the ancillary facilities. • All enquiries and complaints would be tracked through a tracking system and acknowledged within 24 hours of being received.	Transport / Contractor	Pre-construction
SE3	Impacts to Blacktown Native Institution site	Refer AH9		
SE4	Impacts to Blacktown Native Institution site	Refer PL6		
SE5	Impacts to Blacktown Native Institution site	The Blacktown Native Institution would be consulted during construction planning to consider how potential impacts can be minimised as far as possible, such as possible scheduling the timing and duration of noisy works outside of community event times.	Contractor	Pre-construction
SE6	Business impacts	• Access to business properties would be maintained throughout construction. • On-going consultation would be undertaken with local business owners that may be impacted by altered access arrangements during construction. • Consultation would be carried out with any businesses directly impacted during construction to identify approaches to reduce impact upon these businesses, particularly in terms of access and signage visibility.	Transport / Contractor	Detailed design / Pre-construction
SE7	Parking	• The proposal would provide adequate on-site parking arrangements to accommodate all workers and anticipated visitors. • Site inductions for all workers would include the need for workers to park in the designated parking areas.	Contractor	Pre-construction / Construction
SE8	Impacts on public transport	• Existing and any temporary bus stops accesses would be accessible during construction such as for wheelchair users and parents with prams. • Wayfinding signs would be provided to advise users of changed bus stop locations and to direct users to relocated bus stops. • Any changes to bus timetables or routes would be communicated prior to their occurrence such as via signage at bus stops and the regular proposal communications.	Contractor	Pre-construction / Construction
SE9	Impacts on active transport	• Active transport movement throughout the proposal corridor would be maintained during the construction stage, using detours and alternative route arrangements if necessary. The TMP would include measures to manage pedestrian access. • Signage would be installed to direct users to bus stops as required, and the Contractor is to ensure that access remains compliant with the *Disability Discrimination Act 1992*.	Contractor	Pre-construction / Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		• Prior to changes being implemented, they would be communicated to the community via methods to be set out in the Community and Stakeholder Engagement Plan and signage and wayfinding would be provided on site. Signage is not to obstruct travel paths.		
SE10	Emergency services	• Connectivity and access for emergency services is to be maintained during construction. • Ongoing consultation would occur with emergency services (including the SES) to ensure their needs are respected in construction management plans. Information would be provided to emergency services in relation to the location of ancillary facilities, gates and access routes.	Contractor	Construction
SE11	Impact on social infrastructure	Representatives of affected social infrastructure would be consulted to identify potential impacts with planned construction staging and access arrangements and how they may be mitigated, including: • Baitul Huda Mosque • St. Francis of Assisi Primary School • Blacktown Native Institution • and affected childcare centres.	Contractor	Pre-construction / Construction
SE12	Economy, employment, and business impacts	• Strategies to increase local procurement, local employment and local training opportunities (particularly with groups such as Aboriginal people, women, young people, the unemployed, and the neurodiverse) would be developed to maximise local benefits. • In line with Transport's Aboriginal Procurement Policy Transport would source construction workforce from the Aboriginal community and procuring from Aboriginal owned businesses or social enterprises.	Transport / Contractor	Detailed design / Pre-construction
W1	Waste	A Waste Management Plan (WMP) would be prepared and implemented as part of the CEMP. The WMP would include (but not be limited to): • measures to avoid and minimise waste associated with the proposal • classification of wastes and management options (re-use, recycle, stockpile, disposal) • statutory approvals required for managing on- and off-site waste, or application of any relevant resource recovery exemptions • procedures for storage, transport and disposal • monitoring, record keeping and reporting. • The WMP would align with Transports Waste Management Guideline (EMF-WM-GD-0055) and relevant other Transport waste fact sheets, guidelines and policies.	Contractor	Detailed design / Pre-construction
W2	Waste Management general	All wastes would be managed and disposed of in accordance with the POEO Act, POEO Waste Regulation and NSW Waste Classification Guidelines (EPA, 2014). All wastes and excess material would be disposed of at an appropriately licensed facility.	Contractor	Construction
W3	Waste Management general	Excavated material would be reused on site where feasible and suitable for the intended reuse. Where excavated material cannot be used on site, opportunities for reuse on nearby projects would be investigated.	Contractor	Construction
W5	Waste	Site induction would include waste management and disposal requirements and facilities.	Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
W6	Waste	Any additional fill material required would be sourced from appropriately licensed facilities and/or other construction projects wherever possible. Additional fill material would be sourced and verified as suitable for use in accordance with relevant EPA and Transport guidelines.	Contractor	Construction
W7	Waste	Resource management hierarchy principles would be followed: • avoid unnecessary resource consumption as a priority • avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) • disposal is undertaken as a last resort.	Contractor	Construction
W8	Waste	If vegetation is to be mulched and transported off site for beneficial reuse, it would be assessed for the presence of weeds, pest, and other disease and a Mulch Management Plan prepared in accordance with the NSW EPA Mulch Order and Exemption.	Contractor	Construction
W9	Waste	There is to be no disposal or re-use of construction waste on to other land.	Contractor	Construction
W10	Waste	Waste is not to be burnt on site.	Contractor	Construction
W11	Waste	Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.	Contractor	Construction
W12	Waste	A review would be undertaken during detailed design to determine if an Environmental Protection Licence under the POEO Act is required for the proposal.	Transport	Detailed design
AQ1	Construction air quality management	A Construction Air Quality Management Plan (AQMP) would be prepared and implemented as part of the CEMP. The AQMP would include, but not be limited to: • Potential sources of air pollution. • Air quality management objectives consistent with any relevant published EPA guidelines. • Roles and responsibilities for carrying out the AQMP. • A stakeholder communications plan that includes community engagement before work commences on site. • Name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. • A process of recording all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Regular liaison meetings with other high risk construction sites within 500 metres of the proposal, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. • Dust monitoring and inspection plan with different levels of monitoring/inspection in response to the potential impact of the planned activity, dry/windy conditions, or in response to community complaints. This may include visual assessments of dust plumes, dust deposition measurement, and/or continuous PM_{10} ambient air monitoring.	Contractor	Pre-construction / Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		• Specific mitigation measures (in addition to those listed as baseline measures as listed in AQ2, AQ3, and AQ4) with proposed action trigger levels for implementation of the mitigation measures. • A process for altering management measures as required and reprogramming construction activities if the safeguards and management measures do not adequately restrict dust generation. • A progressive rehabilitation strategy for exposed surfaces.		
AQ2	Construction and demolition	• Ensure all vehicles switch off engines when stationary - no idling vehicles. • Only use cutting, grinding or sawing equipment fitted with or used in conjunction with suitable dust suppression techniques. • Ensure an adequate water supply on the site for effective dust/ particulate matter suppression/ mitigation, using non-potable water where possible and appropriate. • No bonfires and burning of waste materials. • Ensure effective water suppression is used during demolition operations. • Erect barriers that are higher than the activity or stockpiles where dusty activities are planned near receptors. • Employ sediment and erosion management measures.	Contractor	Construction
AQ3	Earthworks	• Cover, seed or fence stockpiles to prevent wind whipping. • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Use hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. • Only remove the cover in small areas during the work and not all at once.	Contractor	Construction
AQ4	Track-out	• Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	Contractor	Construction
CC1	Climate Change	A detailed climate change risk assessment would be carried out by reviewing and investigating the preliminary risks and adaptation options in accordance with latest Transport Climate Risk Assessment Guidelines (TfNSW, 2021) and other applicable NSW and national guidelines. This would include a sensitivity analysis check and consideration of climate change for flooding as per Australian Rainfall and Runoff V4.2 (Australian Government, 2019).	Contractor	Detailed design / Pre-Construction
S1	Sustainability	Integrate sustainability requirements/ initiatives/ opportunities identified in the Sustainability Plan (Stantec, 2024b) into future design.	Contractor	Detailed design
S2	Sustainability	Preparation and implementation of the detailed project Sustainability Management Plan including a sustainability workshop to investigate proposal specific risks and opportunities.	Transport	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
C1	Cumulative construction impacts	The Construction Environmental Management Plan (CEMP) and associated sub-plans would consider potential cumulative impacts from surrounding development activities as they become known. This would include, but not limited to: • consultation with the proponent and/or lead contractor of adjacent construction projects • preparation of traffic management plans in consultation with adjacent construction projects • schedule noisy work to avoid cumulative noise with adjacent construction projects, where possible • development of respite periods in consultation with adjacent construction projects, where possible • minimise clearing, especially outside the NWGA and CPCP and prioritise use of areas of prior disturbance • implementation of appropriate sediment and erosion control measures.	Contractor	Pre-construction / Construction

7. Decision statement

Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) applies to the proposal. A review of environmental factors (REF) has been prepared and considered against the requirements of sections 5.5 and 5.7 of the EP&A Act. The REF was prepared in accordance with the factors required to be considered under section 171 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation).

Following public display of the REF, this Determination Report was prepared to address submissions, undertake additional environmental assessment for proposed minor changes, finalise the environmental mitigation measures and make a decision whether or not to make determination.

Transport for NSW has formed the opinion that the activity detailed in the Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park - REF and this Determination Report will have some environmental impacts which can be ameliorated satisfactorily. This assessment has considered that these impacts are unlikely to be significant and therefore an environmental impact statement does not need to be prepared and approval for the proposal does not need to be sought under Division 5.2 of the EP&A Act Various mitigation measures are proposed.

The proposal described in the REF and this Determination Report will not affect areas of outstanding value and not likely to significantly affect threatened species, populations or ecological communities or their habitats or other biodiversity values listed under the BC Act. Therefore, the concurrence of the Coordinator-General Environment, Energy and Science Group, DPHI is not required and a species impact statement or a Biodiversity Development Assessment Report (BDAR) is not required.

The proposal described in the REF and this Determination Report would not significantly affect biodiversity values listed under the FM Act.

In addition, this assessment has considered impacts to threatened species, ecological communities and migratory species listed under *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*(EPBC Act).

The REF identified a range of environmental outcomes and mitigation measures that would be required to avoid or reduce the environmental impacts. After consideration of the issues raised in the public submissions, the environmental mitigation measures for the proposal have been updated as outlined in section 6 of this Determination Report.

Having regard to the REF and this Determination Report, I determine the proposal may proceed for the reasons listed above:

Signature	
Name of authorised person	
Position	
Branch	
Division	
Date of determination	date/month/year

8. Definitions

Term / Acronym	Definition
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACM	asbestos containing material
AEC	areas of environmental concern
AEP	annual exceedance probability. The probability of an event occurring or being exceeded within a year. For example, a 5% AEP flood would have a 5% chance of occurring in any year.
AHIMS	Aboriginal Heritage Information Management System
AHMP	Aboriginal Heritage Management Plan
AHIP	Aboriginal Heritage Impact Permit
AMAA	Ahmadiyya Muslim Association Australia
AMRD	Archaeological Methodology and Research Design
AoS	Assessment of Significance
AQMP	Construction Air Quality Management Plan
ASS	acid sulfate soils
ASSMP	acid sulfate soil management plan
BAM	Biodiversity Assessment Method
BAM-Calculator	Biodiversity Assessment Method calculator
BAR	Biodiversity Assessment Report
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BOS	Biodiversity Offset Scheme
Council	Blacktown City Council
CCTV	closed circuit television
CEMP	Construction environmental management plan
CMP	Conservation Management Plan
CNVG-R	*Construction Noise and Vibration Guideline (Roads)* (TfNSW, 2023a)
CPCP	Cumberland Plain Conservation Plan
CSI	Contamination site investigation
dB	Decibel. A measure of sound level. The decibel is a logarithmic way of describing a ratio. The ratio may be power, sound pressure, voltage, intensity or other parameters. In the case of sound pressure, it is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure squared to a reference sound pressure squared.
DCCEEW	former Department of Climate, Change, Energy, the Environment and Water
DCP	Blacktown Development Control Plan 2015
DECC	former Department of Environment and Climate Change
DPIE	former Department of Planning, Industry and Environment
DSMG	Dharug Strategic Management Group
EPA	Environment Protection Agency
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW). Provides the legislative framework for land use planning and development assessment in NSW

Term / Acronym	Definition
EP&A Regulation	Environmental Planning and Assessment Regulation 2021
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process
ESCPs	Erosion and Sediment Control Plans
EWMS	Environmental Work Method Statement
FFMP	Flora and Fauna Management Plan
FM Act	*Fisheries Management Act 1994* (NSW)
Heritage Act	*Heritage Act 1977* (NSW)
ICNG	Interim Construction Noise Guidelines (DECC, 2009)
IU	Inspection unit
LOR	level of reporting
LOS	Level of Service. A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers
NAHMP	Non-Aboriginal Heritage Management Plan
NCA	Noise Catchment Area
NML	Noise Management Level
NVMP	Noise and Vibration Management Plan
NWGA	North West Growth Area
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NPWS	National Parks and Wildlife Service
NVA	noise and vibration assessment
OEH	former Office of Environment and Heritage
PACHCI	Procedure for Aboriginal cultural heritage consultation and investigation (RMS, 2011)
PACM	potentially asbestos containing material
PASS	Potential acid sulfate soils
PCT	Plant community type
PEMP	Project Environmental Management Plan
PFAS	per- and poly-fluoroalkyl substance
PFOS	perfluorooctane sulfonic acid
PMF	probble maximum flood
PMP	Probable maximum precipitation
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
PSI	Preliminary site Investigation
RAPs	registered Aboriginal parties
RBL	Rating Background Level. The underlying level of noise present in the ambient noise when extraneous noise is removed and excluding noise from the project under consideration. This is described using the LA_{90} descriptor.
REF	review of environmental factors
RMS	former Roads and Maritime Services
RNCG	Road Noise Criteria Guideline (TfNSW, 2023b)

Term / Acronym	Definition
ROL	Road Occupancy License
RSA	Road Safety Audit
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
SEPP (Transport and Infrastructure)	State Environmental Planning Policy (Transport and Infrastructure) 2021
SES	State Emergency Services
SHR	State Heritage Register
SOHI	Statement of Heritage Impact
SWL	Sound power level
SWMP	Soil and Water Management Plan
TEC	Threatened Ecological Community
TBDC	Threatened Biodiversity Database Collection
TfNSW	Transport for NSW
TGS	Traffic Guidance Scheme
TMP	Traffic Management Plan
Transport	Transport for NSW
TTIA	Traffic and Transport Impact Assessment
VHT	vehicle hours travelled
VKT	Vehicle kilometres travelled
WM Act	*Water Management Act 2000* (NSW)
WMP	Waste Management Plan

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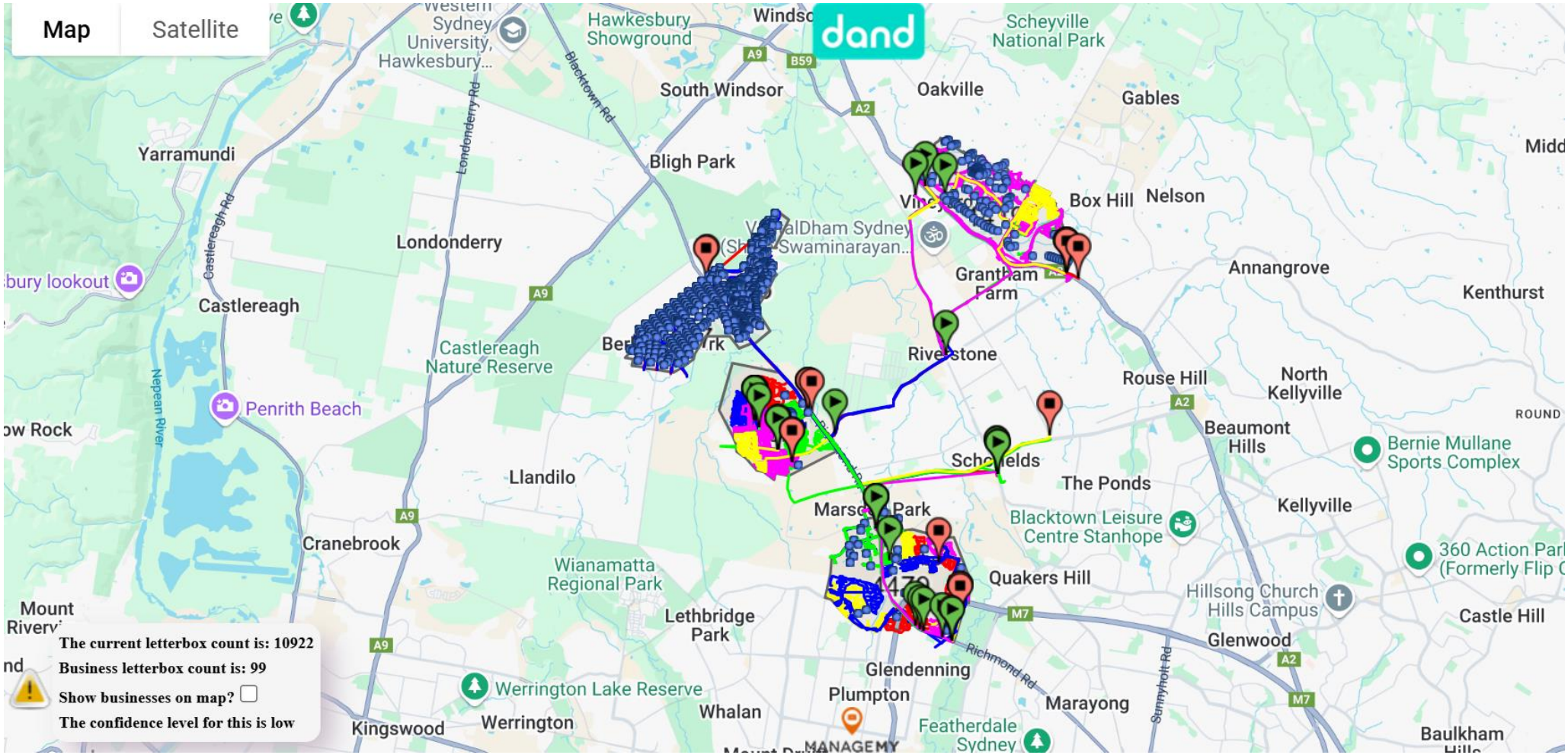
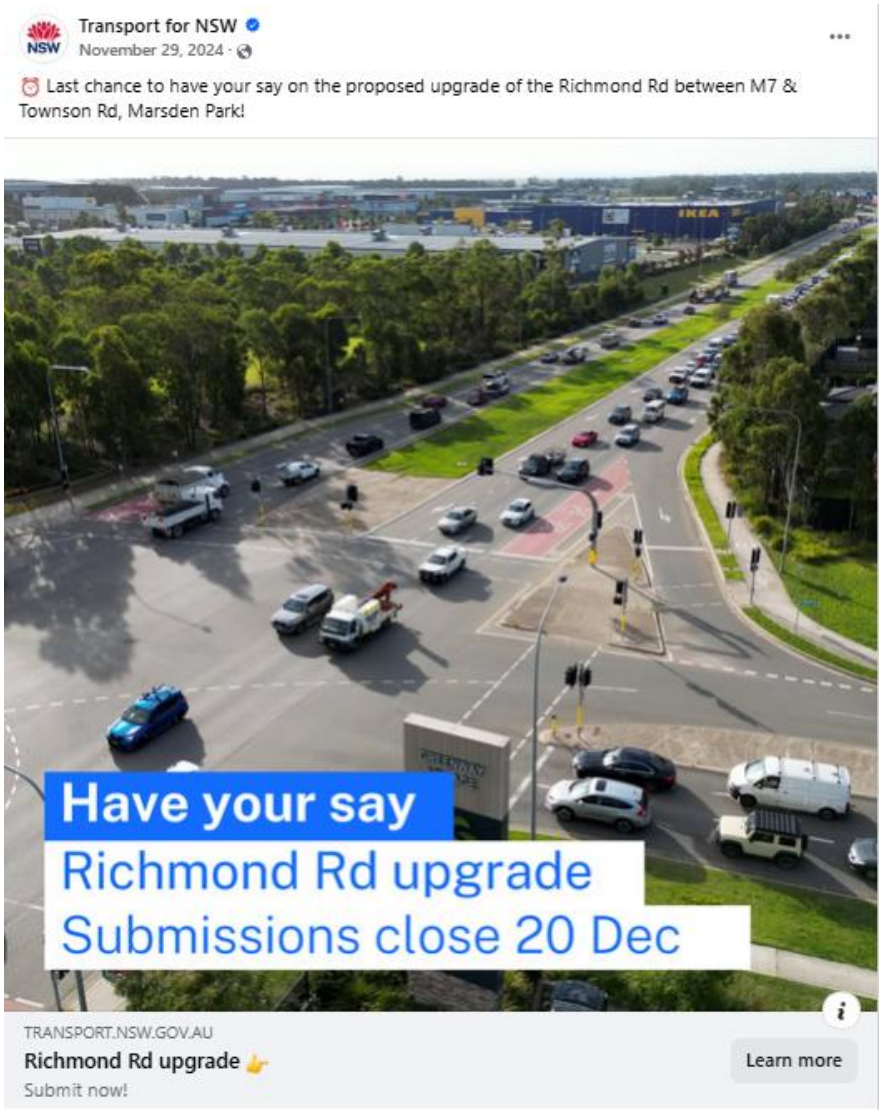
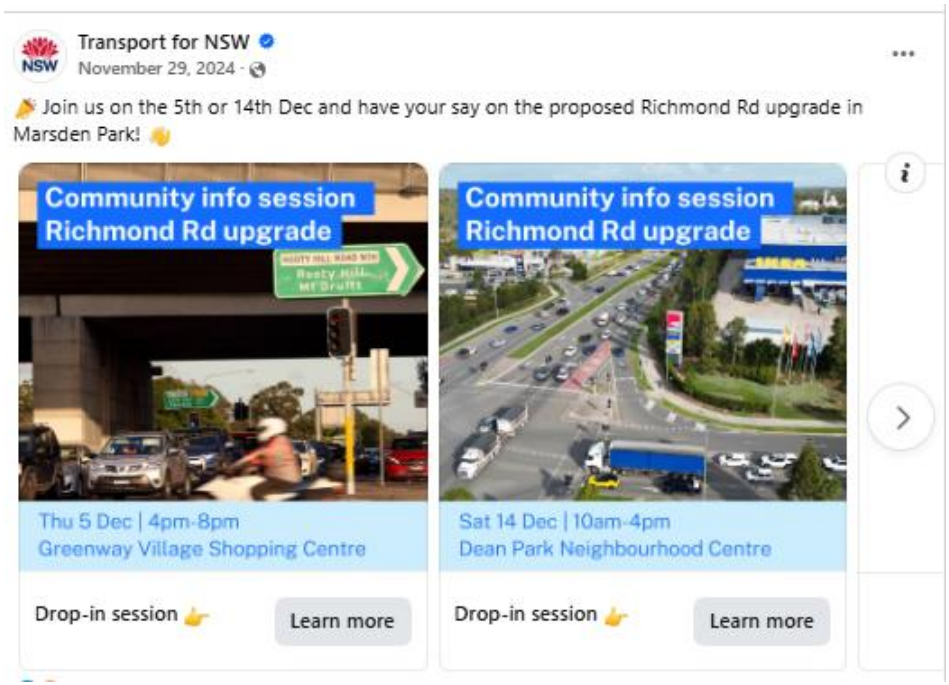
Appendix A: Consultation collateral

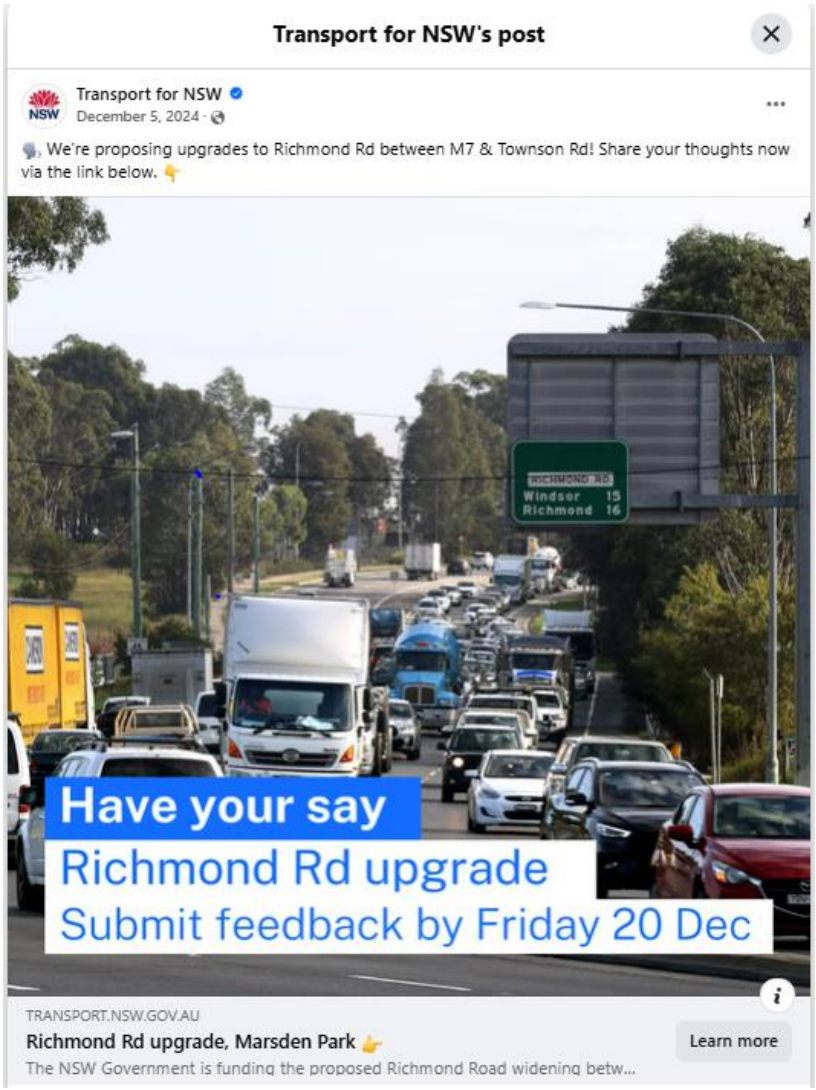


A map showing the distribution area for the letterbox drop of REF Community Update





Facebook posts that were included as part of the REF advertisement



Facebook posts that were included as part of the REF advertisement.

Appendix B: Statutory consultation checklists

Transport and Infrastructure SEPP

Certain development types

Development type	Description	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
Car Park	Does the project include a car park intended for the use by commuters using regular bus services?	No		Section 2.110
Bus Depots	Does the project propose a bus depot?	No		Section 2.110
Permanent road maintenance depot and associated infrastructure	Does the project propose a permanent road maintenance depot or associated infrastructure such as garages, sheds, tool houses, storage yards, training facilities and workers' amenities?	No		Section 2.110

Development within the Coastal Zone

Development type	Description	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
Development with impacts on certain land within the coastal zone	Is the proposal within a coastal vulnerability area and is inconsistent with a certified coastal management program applying to that land?	No		Section 2.14

Note: See interactive map at **Planning Portal NSW spatial viewer - find a property**. Note the coastal vulnerability area has not yet been mapped.

Note: a certified coastal zone management plan is taken to be a certified coastal management program.

Council related infrastructure or services

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
Stormwater	Are the works likely to have a *substantial* impact on the stormwater management services which are provided by council?	Yes	Blacktown City Council	Section 2.10
Traffic	Are the works likely to generate traffic to an extent that will *strain* the capacity of the existing road system in a local government area?	Yes	Blacktown City Council	Section 2.10
Sewerage system	Will the works involve connection to a council owned sewerage system? If so, will	No		Section 2.10

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
	this connection have a *substantial* impact on the capacity of any part of the system?			
Water usage	Will the works involve connection to a council owned water supply system? If so, will this require the use of a *substantial* volume of water?	No		Section 2.10
Temporary structures	Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a *minor* or *inconsequential* disruption to pedestrian or vehicular flow?	Yes	Blacktown City Council	Section 2.10
Road & footpath excavation	Will the works involve more than *minor* or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	Yes	Blacktown City Council	Section 2.10

Local heritage items

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
Local heritage	Is there is a local heritage item (that is not also a State heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the heritage significance of the item/area are more than minor or inconsequential?	No		Section 2.11

Flood liable land

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
Flood liable land	Are the works located on flood liable land? If so, will the works change flood patterns to more than a *minor* extent?	Yes	Blacktown City Council	Section 2.12

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
Flood liable land	Are the works located on flood liable land? (to any extent). If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance?	Yes	State Emergency Services	Section 2.13

Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled Floodplain Development Manual: the management of flood liable land published by the New South Wales Government.

Public authorities other than councils

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
National parks and reserves	Are the works adjacent to a national park or nature reserve, or other area reserved under the *National Parks and Wildlife Act 1974*, or on land acquired under that Act?	No		Section 2.15
National parks and reserves	Are the works on land in Zone E1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	Yes	National Parks and Wildlife Service (NPWS), Department of Climate Change, Energy, the Environment and Water (DCCEEW)	Section 2.15
Navigable waters	Do the works include a fixed or floating structure in or over navigable waters?	No		Section 2.15
Artificial light	Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory)	No		Section 2.15
Defence communications buffer land	Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in section 5.15 of Lockhart LEP 2012, Narrandera LEP 2013 and Urana LEP 2011.	No		Section 2.15
Mine subsidence land	Are the works on land in a mine subsidence district within the meaning of the *Mine Subsidence Compensation Act 1961*?	No		Section 2.15

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) section
Willandra Lakes Region World Heritage Property	Are the works on or reasonably likely to have an impact on, a part of the Willandra Lakes Region World Heritage Property?	No		Section 2.15
Western City operational area	Are the works within a Western City operational area specified in the *Western Parkland City Authority Act 2018,* Schedule 2 with a capital investment value of $30 million or more.	No		Section 2.15
Bush fire prone land	Are the works for the purpose of heath service facilities, correctional centres or residential accommodation in bush fire prone land?	No		Section 2.16

SEPP (Precincts – Central River City) 2021 and SEPP (Precincts – Western Parkland City) 2021

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP section
Clearing native vegetation	Do the works involve clearing native vegetation (as defined in the *Local Land Services Act 2013*) on land that is not **subject land** (as defined in cl 17 of schedule 7 of the *Threatened Species Conservation Act 1995*)?	No		Section 3.24

Appendix C: Aboriginal Cultural Heritage Assessment Report

Appendix D: Statement of Heritage Impact

Appendix E: Addendum Traffic and Transport Impact Assessment

Appendix F: Addendum Biodiversity Assessment Report

Appendix G: Addendum Noise and Vibration Impact Assessment

Appendix H: Contamination Site Investigation

NSW GOVERNMENT

Attachment D RRM7 Determination Report

Final Audit Report 2025-08-07

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