

Appendix A

Consideration of clause 228(2) factors and matters of national environmental significance and Commonwealth land

Clause 228(2) Checklist

In addition to the requirements of the *Is an EIS required?* guideline (DUAP 1995/1996) and the *Roads and Related Facilities EIS Guideline* (DUAP 1996) as detailed in the REF, the following factors, listed in clause 228(2) of the Environmental Planning and Assessment Regulation 2000, have also been considered to assess the likely impacts of the proposal on the natural and built environment.

Factor	Impact
<p>a) Any environmental impact on a community?</p> <p>The construction of the proposal would result in the following environmental impacts on the community:</p> <ul style="list-style-type: none"> • traffic delays and increased travel time during the proposed lane closures for construction of the proposal • temporary noise, vibration, dust and visual impacts to surrounding sensitive receivers during construction of the proposal • increased traffic road noise during operation of the proposal <p>The operation of the proposal would result in the following environmental impacts on the community:</p> <ul style="list-style-type: none"> • improved intersection performance • improved travel times and less congestion along Mamre Road • improved road safety through increased capacity 	<p>Short-term moderate negative impact</p> <p>Long-term minor negative impact</p>
<p>b) Any transformation of a locality?</p> <p>The construction of the proposal would cause short-term disruption to the Mamre Road corridor and residents and commuters using the corridor. Construction activities would lead to temporary changes to the locality including construction barriers and traffic detours.</p> <p>The operation of the proposal would support the liveability, planned development and future economic growth within the locality through providing:</p> <ul style="list-style-type: none"> • improved road safety and movement along Mamre Road through increased capacity and intersection upgrades • permanent change to the access to Mamre House • improved suitability of Mamre Road for pedestrians and cyclists due to the new shared user path as well as improved urban design and landscaping along the road corridor <p>However, there may be a minor inconvenience for regular users of Mandalong Close and McIntyre Avenue, due to these intersections being changed to left-in, left-out only.</p>	<p>Short-term minor negative impact</p> <p>Long-term moderate positive impact</p>

Factor	Impact
<p>c) Any environmental impact on the ecosystems of the locality?</p> <p>The proposal would involve removal of up to 9.38 hectares of native vegetation, including:</p> <ul style="list-style-type: none"> • 3.63 hectares of moderate condition PCT 849 Cumberland shale plains woodland (listed as a CEEC under the BC Act and EPBC Act) • 0.92 hectares of low condition PCT 849 Cumberland shale plains woodland (listed as a CEEC under the BC Act) • 2.84 hectares of moderate condition PCT 835 Cumberland riverflat forest (listed as an EEC under the BC Act and CEEC under the EPBC Act) • 1.52 hectares of low condition PCT 835 Cumberland riverflat forest (listed as an EEC under the BC Act) • 0.47 hectares of PCT1800 Cumberland Swamp Oak riparian forest (listed as an EEC under the BC Act) <p>The proposal may also result in water quality impacts that may affect aquatic ecosystems within South Creek. Safeguards and mitigation measures including water quality basins, swales, scour protection and biodiversity offsets have been proposed in Section 6.1.3 and 6.6.5, to manage and minimise these impacts where possible.</p>	<p>Long-term moderate negative impact, however it is noted that a significant impact is likely for Cumberland Plain Woodland (PCT 849) – refer to MNES table</p>
<p>d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</p> <p>The proposal may result in a temporary reduction in the aesthetic and recreational quality of the area during the construction phase in the form of noise and visual impacts. The proposal may also result in a temporary reduction in environmental quality due to water quality impacts during construction. Safeguards and mitigation measures have been proposed to manage and minimise these impacts where possible (see Section 7.2).</p>	<p>Short-term minor negative impact</p>

Factor	Impact
<p>e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</p> <p>The proposal would involve construction of a new driveway to Mamre House and introduction of other minor elements (such as roadside signage). These new elements would directly and indirectly impact on Mamre House, which is a State and locally listed non-Aboriginal heritage item. The proposal would also result in minor impacts on other locally listed heritage items: Marsden Memorial Cairn and Luddenham Road Alignment. The design for the proposal has been able to minimise impacts on non-Aboriginal heritage through sympathetic urban and landscaping designs and identification of heritage interpretation opportunities based on specialist heritage advice. TfNSW would obtain the necessary heritage approvals (including a s60 and s140 permit for Mamre House and s139(4) exception notification for Luddenham Road) prior to direct impacts on these sites.</p> <p>The proposal would also have a direct impact to eight Aboriginal archaeological sites, which could not be completely avoided during design refinement due to the limited area available for road widening. TfNSW would apply for an AHIP prior to any impact or harm to these sites. Approaches to further reduce impacts to Aboriginal heritage would be identified during detailed design and construction, including through identification of 'no-go zones' and implementation of an unexpected finds protocol.</p>	<p>Long-term minor to moderate negative impact</p>
<p>f) Any impact on the habitat of protected fauna (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)?</p> <p>The proposal would involve removal of habitat for threatened fauna species listed under the BC Act including:</p> <ul style="list-style-type: none"> • 6.12 hectares of habitat for Southern Myotis (listed as vulnerable under the BC Act) • 3.40 hectares of habitat for Cumberland Plain Land Snail <p>Safeguards and mitigation measures have been proposed in Sections 6.1.4 to manage and minimise these impacts where possible. Biodiversity offsets required for the proposal in accordance with the BAM have also been identified in Section 6.1.5, including the offset credit liability for Southern Myotis and Cumberland Plain Land Snail.</p>	<p>Long-term moderate negative impact</p>

Factor	Impact
<p>g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</p> <p>The proposal would require the removal of up to 9.38 hectares of endangered ecological communities. Removal of this vegetation could lead to loss of fauna and flora habitat. However, this impact to potential habitat is not considered large enough to endanger any species. Moreover, no threatened flora species have been identified within the proposal area.</p> <p>The proposal may also result in a potential for fauna injury or mortality throughout the construction phase due to vehicle and equipment movements within the proposal area. As Mamre Road is an existing operational road, any increased risk of roadkill during operation would be minor.</p> <p>Safeguards to minimise potential impacts on threatened species have been outlined in Section 6.1.4 and 6.1.5.</p>	<p>Long-term minor negative impact</p> <p>Short-term minor negative impact</p>
<p>h) Any long-term effects on the environment?</p> <p>The proposal would result in long-term impacts on:</p> <ul style="list-style-type: none"> • biodiversity through loss of native vegetation • Aboriginal heritage through direct impacts to Aboriginal sites • non-Aboriginal heritage through direct impacts to State and locally listed heritage items • noise through increased road traffic noise along Mamre Road • traffic by reducing travel times and easing congestion along Mamre Road <p>However, the design of the proposal has and would continue to be refined to avoid and minimise long-term adverse impacts on the environment, where possible (refer to Section 2.5 and Section 7.2).</p>	<p>Long-term moderate negative impact</p> <p>Long-term minor positive impact</p>
<p>i) Any degradation of the quality of the environment?</p> <p>If uncontrolled, the proposal has the potential to temporarily degrade the quality of the environment during construction through erosion, sedimentation, dust, vegetation removal and noise and vibration impacts. Several safeguards and mitigation measures have been proposed to manage and minimise these potential impacts (refer to Section 7.2).</p> <p>During operation, the design has incorporated WSUD measures as well as sympathetic urban design and landscaping. As a result, the quality of the environment is not likely to be degraded.</p>	<p>Short-term moderate negative impact</p> <p>Long-term neutral impact</p>
<p>j) Any risk to the safety of the environment?</p> <p>The construction of the proposal would result in reduced safety for pedestrians and cyclists due to construction activities. These users would be encouraged to use alternative routes during this phase of the proposal.</p> <p>The operation of the proposal would result in increased safety for users of Mamre Road, including vehicles, pedestrians and cyclists, through the provision of improved road and active transport infrastructure.</p>	<p>Short-term minor negative impact</p> <p>Long-term moderate positive impact</p>

Factor	Impact
<p>k) Any reduction in the range of beneficial uses of the environment?</p> <p>The proposal would not result in a reduction in the range of beneficial uses of the environment.</p>	<p>Nil</p>
<p>l) Any pollution of the environment?</p> <p>Providing the mitigation measures outlined in this REF are implemented (refer to Section 7.2), the operation of the proposal is not expected to result in any pollution of the environment. However, there would remain some impacts during the construction of the proposal, including dust, noise from construction activities and light spill from nightworks.</p>	<p>Nil</p> <p>Short-term minor negative impact</p>
<p>m) Any environmental problems associated with the disposal of waste?</p> <p>The proposal would result in the generation of waste. Providing the mitigation measures proposed in Section 6.11.2 are implemented, the proposal is not likely to cause environmental problems associated with the disposal of waste.</p>	<p>Nil</p>
<p>n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</p> <p>The earthwork estimates for the proposal estimated that there would be about 66,100 m³ more fill material that would be needed to construct the proposal compared to what would be excavated during construction. This material would need to be imported from a suitably licensed nearby quarry or other viable sources such as nearby infrastructure projects with excess clean excavated material.</p> <p>The proposal is not likely to result in increased demands on resources that are, or are likely to become, in short supply.</p>	<p>Nil</p>
<p>o) Any cumulative environmental effect with other existing or likely future activities?</p> <p>There is potential for cumulative traffic, noise and biodiversity impacts, where other projects are being constructed nearby at the same time as the proposal. Safeguards and management measures have been proposed in Section 6.12.5 to avoid or minimise these impacts, where possible. This includes consultation and coordination with other nearby project teams, where possible.</p> <p>During operation, the proposal would result in cumulative positive traffic impacts with other nearby future road upgrades proposed to improve the safety, movement and travel times within the surrounding road network. This includes the Mamre Road upgrade Stage 2, M12 Motorway, M4 Roper Road Westbound On-Ramp projects and potential upgrade of Luddenham Road.</p>	<p>Short-term minor negative impact</p> <p>Long-term moderate positive impact</p>

Factor	Impact
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The proposal would not impact on coastal processes or hazards, including those under projected climate change conditions.	Nil

Matters of National Environmental Significance and Commonwealth land

Under the environmental assessment provisions of the EPBC Act, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government Department of Agriculture, Water and the Environment.

A referral is not required for proposed actions that may affect nationally listed threatened species, endangered ecological communities and migratory species. Impacts on these matters are still assessed as part of the REF in accordance with Australian Government significant impact criteria and taking into account relevant guidelines and policies.

Factor	Impact
<p>a) Any impact on a World Heritage property? There are no World Heritage properties within or near the proposal area.</p>	<p>Nil</p>
<p>b) Any impact on a National Heritage place? There are no National Heritage places within or near the proposal area.</p>	<p>Nil</p>
<p>c) Any impact on a wetland of international importance? There are no wetlands of international importance within or near the proposal area.</p>	<p>Nil</p>
<p>d) Any impact on a listed threatened species or communities? The unavoidable impacts to Commonwealth threatened biodiversity include the following:</p> <ul style="list-style-type: none"> • direct impact to about 3.63 hectares of Cumberland Plain Woodland, which meets the Commonwealth CEEC definition • direct impact to about 2.84 hectares of River-Flat Eucalypt Forest, which meets the Commonwealth CEEC definition <p>Assessments of Significance for the above threatened biodiversity were completed, and have been provided in the BDAR in Appendix D. It was concluded that the proposal may have a significant impact to Cumberland Plain Woodland. The proposal is unlikely to have a significant impact on the River-Flat Eucalypt Forest.</p> <p>The proposal will result in a biodiversity offset for Cumberland Plain Woodland, and River-flat Eucalypt Forest, which in turn will ensure the in-perpetuity management of these EPBC Act listed TECs. Further safeguards and management measures are outlined in Section 6.1.4.</p>	<p>Significant direct impacts may occur on Cumberland Plain Woodland</p> <p>This REF and BDAR has been prepared to meet the requirements of the EPBC Act strategic assessment approval for TfNSW Division 5.1 road activities.</p>

Factor	Impact
<p>e) Any impacts on listed migratory species?</p> <p>The proposal area was considered to have moderate likelihood of habitat for the Yellow Wagtail (Migratory), given the species can occupy relatively open/cleared environments. The proposal area would provide foraging potential for the species and is unlikely to be breeding habitat.</p> <p>The proposal may result in direct impacts to about 9.38 hectares of potential habitat for the Yellow Wagtail. Assessments of Significance concluded the proposal is unlikely to have a significant impact on listed migratory species (refer to Appendix D).</p>	<p>Minor direct impacts may occur for listed migratory species.</p>
<p>f) Any impact on a Commonwealth marine area?</p> <p>There are no Commonwealth marine areas within or near the proposal area.</p>	<p>Nil</p>
<p>g) Does the proposal involve a nuclear action (including uranium mining)?</p> <p>The proposal would not involve any nuclear action.</p>	<p>Nil</p>
<p>h) Additionally, any impact (direct or indirect) on the environment of Commonwealth land?</p> <p>The proposal would not result in any direct or indirect impact on Commonwealth Land.</p>	<p>Nil</p>