

# Project Environmental Risk Register

Risk comprises the likelihood of an event occurring and the consequences of that event.

Likelihood		Consequence	
A	Almost certain	1	Widespread and/or irreversible impact
B	Likely	2	Extensive but reversible (within 2 years) impact or irreversible local impact
C	Possible	3	Local, acceptable or reversible impact
D	Unlikely	4	Local, reversible, short term (<3 months) impact
E	Rare	5	Local, reversible, short term (<1 month) impact

The risk levels for likely and potential impacts are derived using the following risk matrix.

		LIKELIHOOD				
		A	B	C	D	E
CONSEQUENCE	1	High	High	Medium	Low	Very low
	2	High	High	Medium	Low	Very low
	3	Medium	Medium	Medium	Low	Very low
	4	Low	Low	Low	Low	Very low
	5	Very low	Very low	Very low	Very low	Very low

Aspect	Potential Impact	Likelihood	Consequence	Risk Level	Management Measure	Residual Impact
<b>Traffic</b>	<ul style="list-style-type: none"> <li>Cumulative construction traffic impacts with surrounding road upgrades and surrounding developments.</li> <li>Use of unauthorised access routes</li> </ul>	B	5	Very low	<ul style="list-style-type: none"> <li>CTMP to include a cumulative traffic generation assessment and mitigation measures.</li> <li>Traffic control devices inclusive of signage, Drivers Code of Conduct to be in place to manage and regulate construction vehicle traffic movements to and from the Site during construction.</li> <li>All vehicles are to enter and depart the Site in a forward direction, with reverse movements to occur only within the site boundary.</li> </ul>	Very low
<b>Urban Design and Visual Impact</b>	<p>The site currently comprises pastoral farmland.</p> <p>The Project will alter the existing characteristics of the area.</p>	C	4	Low	<ul style="list-style-type: none"> <li>Pad levels respond to the topography and have been designed to reduce the visual height of buildings by siting them as close to existing level as possible and stepping them down towards Mamre Road.</li> <li>An extensive landscape buffer planting will screen building facades. Office entry frontages are to include flowering plants and landscaping in and around car parking areas, this will help with way finding and provide shade.</li> </ul>	Low
<b>Stormwater and Drainage</b>	Potential impacts of Project on existing stormwater flow and quality.	C	3	Medium	<ul style="list-style-type: none"> <li>Suitable erosion and sediment controls shall be provided by the Contractor and maintained throughout all stages of works, including at completion of the bulk earthworks.</li> <li>The inspection and maintenance requirements outlined in Section 4.16 of the WCMS report must be carried out while earthworks are being conducted, and all areas re-established.</li> <li>In accordance with the ESCP, stormwater within the settling zone should be drained or pumped out within 5 days (design time), if the nominated water quality targets can be met, to the satisfaction of the superintendent. Flocculation should be employed where extended settling is likely to fail to meet the objectives within the 5-day period.</li> </ul>	Low
<b>Biodiversity</b>	<p>The Project will impact the 0.35 hectares of native vegetation identified as Plant Community Type (PCT) 1071: <i>Phragmites australis</i> and <i>Typha orientalis</i> coastal freshwater wetlands of the Sydney Basin Bioregion and 0.03 hectares of PCT 835: Forest Red Gum - Rough- barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion (Cumberland Riverflat Forest).</p>	A	3	Medium	<ul style="list-style-type: none"> <li>All workers to undertake a site induction inclusive of environmental requirements as part of their site familiarisation.</li> <li>Seed collection should be undertaken prior to clearing of native vegetation.</li> <li>Native animals are to be relocated in accordance with the former Office of Environment and Heritage's <i>Policy on the Translocation of Threatened Fauna in NSW</i>.</li> <li>Hollows to be removed should be retained and reused within the remaining vegetation within the adjacent riparian corridor.</li> <li>Implement the approved ESCP.</li> <li>Implement the approved Dam Dewatering Plan.</li> </ul>	Low

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Waterways and riparian areas	<p>The DPE hydroline layer shows one unnamed second order watercourse within the Project Site, which travels in a westerly direction and is fed by two first order watercourses that are located to the northeast.</p> <p>The Project will remove the existing dams at the site.</p>	B	3	Medium	<p>The CEMP includes an Erosion and Sediment Control Plan (ESCP), prepared in accordance with the Blue Book – Managing Urban Stormwater: Soils and Construction (Landcom 2004) and implemented prior to works.</p> <p>Key protection measures include:</p> <ul style="list-style-type: none"> <li>▪ Sediment and erosion controls should be designed in accordance with <i>Managing Urban Stormwater – Soils and Construction</i> (Landcom, 2004).</li> <li>▪ Sediment fences to slow overland flow and trap sediments created from surface erosion.</li> <li>▪ Identify opportunities for re-use of water from any on-site dewatering activities site including dust suppression.</li> <li>▪ Aquatic fauna is required to be protected during construction activities, including decommissioning of the farm dams. In order to ensure that aquatic fauna is protected during the dam decommissioning process the Dam Dewatering Plan is to be implemented.</li> <li>▪ Native fish healthy enough for relocation are to be contained and transported to an appropriate dam/ lake/ waterhole/ creek.</li> </ul>	Low
Noise and vibration	<p>Noise emissions from construction exceed Noise Affected Level criteria and impact nearby sensitive receivers</p> <p>Community or stakeholder complaints</p>	B	3	Medium	<p>Feasible and reasonable mitigation measures to reduce construction noise levels will be reviewed and implemented where complaints are received and validated by exceedance of NML.</p> <p>Work practices are to be implemented where appropriate, including:</p> <ul style="list-style-type: none"> <li>▪ Avoid the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby residents.</li> <li>▪ Develop routes for the delivery of materials and parking of vehicles to minimise noise to local residents/ businesses.</li> <li>▪ Where possible, avoid the use of equipment that generates impulsive noise.</li> </ul> <p>Additional measures for plant and equipment include:</p> <ul style="list-style-type: none"> <li>▪ Where possible, choose quieter plant and equipment based on the optimal power and size to most efficiently perform the required task.</li> <li>▪ Operate plant and equipment in the quietest and most efficient manner.</li> <li>▪ Switch off idle plant.</li> <li>▪ Regularly inspect and maintain plant and equipment to minimise noise and vibration level increases, to ensure that all noise and vibration reduction devices are operating effectively.</li> </ul>	Low

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					<ul style="list-style-type: none"> <li>Nearby residents are to be notified prior to construction works commencing. Noise monitoring during the initial stages of construction is to be undertaken to confirm actual construction noise levels. If noise management levels are exceeded, the contractor is to identify feasible mitigation measures that reduce construction noise levels to acceptable limits.</li> </ul>	
Contamination and remediation	Exposure of contamination or hazardous materials during construction	C	3	Medium	<p>A Remediation Action Plan (RAP) has been prepared by Douglas Partners that includes the following mitigation measures:</p> <ul style="list-style-type: none"> <li>Asbestos remediation works must be undertaken by an appropriately licensed asbestos Remediation Contractor and in accordance with <i>Work Health and Safety Regulation NSW 2011</i> and any other applicable SafeWork NSW or Safe Work Australia regulations or guidelines</li> <li>A waste classification assessment is to be carried out in accordance with NSW EPA (2014) <i>Waste Classification Guidelines, Part 1: Classifying Waste</i> (EPA, 2014) for any material requiring off-site disposal.</li> <li>Potentially contaminated material shall be stockpiled at a suitable designated location.</li> <li>All transport of waste and disposal of materials must be conducted in accordance with the requirements of the <i>POEO Act (1997)</i>.</li> <li>It is the responsibility of the Contractor to develop a Site Management Plan detailing overall site management, environmental management (including soil, air and water) and occupational health and safety plans.</li> </ul>	Low
Aboriginal cultural heritage	Impacts to Aboriginal objects during the construction of the Project	D	4	Low	<p>An Unexpected Finds Policy is to be implemented in the event of any unexpected finds of Aboriginal sites, objects, or archaeological deposits being identified during construction. The protocol states if Aboriginal objects are identified during ground disturbing works:</p> <ul style="list-style-type: none"> <li>All work must immediately cease in, and around, the location of the unexpected find.</li> <li>The contractor supervisor must notify the environmental manager for the Project, and a qualified archaeologist must be contacted to assess the provenance and significance of the find.</li> <li>Should the find be an Aboriginal object, further consultation with RAPs, assessment and approval may be required before works can continue in that area.</li> </ul> <p>If human remains are found:</p> <ul style="list-style-type: none"> <li>Immediately cease all work at the location.</li> <li>Notify site manager and project archaeologist.</li> </ul>	Very low

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					<ul style="list-style-type: none"> <li>▪ Notify NSW Police.</li> <li>▪ Notify Heritage NSW on the Environment Line 131 555 as soon as practicable and provide details of the remains and their locations.</li> <li>▪ Do not recommence any work at the location until cleared.</li> </ul>	
Surface / Groundwater	Impacts to soil and groundwater during construction	D	4	Low	<ul style="list-style-type: none"> <li>▪ Sediment and erosion controls should be designed in accordance with <i>Managing Urban Stormwater – Soils and Construction</i> (Landcom, 2004).</li> <li>▪ A fill management protocol (FMP) should be prepared to control the quality of fill imported to the site. The FMP should include provision for the import of suitable material. The FMP should also provide controls regarding the suitability of imported material from a salinity and geotechnical perspective.</li> </ul>	Low
Non-Aboriginal cultural heritage	Impacts to archaeological items during construction	D	4	Low	<p>The Unexpected Finds Policy is to be enacted during the works. This involves the following activities:</p> <ul style="list-style-type: none"> <li>▪ Excavation work in that area must cease and the contractor must notify the environmental manager for the Project, and a qualified archaeologist must be notified.</li> <li>▪ An archaeologist is to attend site to assess the integrity and significance of the remains.</li> <li>▪ Should the unexpected find constitute significant non-Aboriginal archaeological remains, further assessment and approval may be required prior to those works commencing.</li> </ul>	Very low
Social impacts	Disruption to neighbours and adjacent land users during construction	D	4	Low	<ul style="list-style-type: none"> <li>▪ Continue to consult with TfNSW and Council as the Mamre Road Precinct develops to monitor road performance and make future modelling adjustments as required.</li> <li>▪ Implement the CTMP to manage potential traffic and road safety impacts.</li> <li>▪ Consider ways to incorporate the local history and/or culture of the area into the site design. This should be undertaken in consultation with the community and may include measures such as using names of local significance for buildings or prioritising native landscaping species on site.</li> <li>▪ Design terraced outdoor spaces to be shaded and include appropriate seating and amenities to support workers on shift breaks. This can be undertaken during the future detailed design and fit out applications.</li> </ul>	Low

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Ecologically sustainable development	<p>Increase in energy consumption</p> <p>Implement the following measures to reduce potable water consumption. Installing fixtures and fittings with the following minimum WELS rating:</p> <ul style="list-style-type: none"> <li>▪ Taps: 5-Star WELS</li> <li>▪ Urinals: 6-Star WELS</li> <li>▪ Toilets: 4-Star WELS</li> <li>▪ Showers: 3-Star WELS (&gt;4.5 but ≤ 6.0 L/min)</li> <li>▪ Office air conditioning systems to include waterless heat rejection.</li> <li>▪ Landscaping design to incorporate endemic and drought tolerant species</li> <li>▪ Installation of rainwater tanks connected to the proposed buildings to provide rainwater for landscape irrigation and flushing toilets.</li> <li>▪ Water monitoring system to allow for total building consumption data to be captured.</li> </ul> <p><b>Building Materials:</b></p> <p>Implement the following measures to reduce the impact of building materials on the environment:</p>	B	4	Low	<ul style="list-style-type: none"> <li>▪ The building is required to comply with NCC 2022 Section J energy efficiency requirements including building fabric (J1), building sealing (J3), air-conditioning and ventilation systems (J5), artificial lighting and power (J6), heated water supply (J7) and facilities for energy monitoring (J8).</li> <li>▪ All warehouse spaces will include a minimum 10% roof area for translucent sheeting.</li> <li>▪ LED lighting is to include smart lighting controls including time clicks; motion sensors and daylight sensors.</li> <li>▪ Energy monitoring systems to allow for the following end use data to be captured: <ul style="list-style-type: none"> <li>a. Total building consumption</li> <li>b. Total tenant consumption</li> <li>c. Office lighting consumption</li> <li>d. Office small power consumption</li> <li>e. Office HVAC consumption</li> <li>f. Warehouse lighting consumption</li> <li>g. Warehouse small power consumption</li> <li>h. Photovoltaic generation</li> </ul> </li> </ul>	Low

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					<ul style="list-style-type: none"> <li>▪ Use recycled crushed concrete, crushed brick, glass fines, Reclaimed Asphalt Pavement in construction.</li> <li>▪ Use timber should be from sustainable sources or recycled</li> <li>▪ PVC used in the construction of the development which meets the requirements of the "Best Practice Guidelines for PVC in the Built Environment"</li> <li>▪ Stormwater pipe and systems to be from products with a high recycled content</li> <li>▪ Steel roofing and cladding to have an Environmental Performance Declaration (EPD)</li> <li>▪ Sufficient recycling and waste storage facilities are to be provided.</li> </ul> <p><b>Environmental Management:</b></p> <ul style="list-style-type: none"> <li>▪ Principal contractor to implement the Waste Management mitigation measures detailed in the CEMP.</li> <li>▪ Urban heat island effects will be reduced by maximising landscaping areas and incorporating high SRI rooves.</li> </ul>	
Air quality	Air emissions (dust) are likely during the construction	B	3	Medium	<ul style="list-style-type: none"> <li>▪ Implement the Community Communications Strategy (CCS) that includes community engagement before work commences onsite.</li> <li>▪ Implement the CAQMP.</li> <li>▪ Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.</li> <li>▪ Make the complaints log available to relevant authorities and surrounding landowners.</li> <li>▪ Undertake daily onsite and offsite inspections to monitor dust.</li> <li>▪ Undertake daily onsite and offsite inspections at nearby receptors to monitor dust. Record inspection results and make available to relevant authorities.</li> <li>▪ Plan site layout so that dust generating activities are located away from receptors, as far as possible. Avoid site runoff of water or mud.</li> <li>▪ Ensure trucks switch off engines when stationary.</li> <li>▪ Use water assisted dust sweepers at the Site. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation.</li> </ul>	Low

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Waste	Potential impacts from waste generation	D	4	Low	<ul style="list-style-type: none"> <li>Practical building design and construction techniques, including construction staging and ordering pre-cut materials at the required sizes.</li> <li>Appropriate collection and subsequent reuse, recycling or treatment offsite for items such as batteries, cardboard, timber, plastic, glass etc.</li> <li>Careful on-site storage, sorting and separation of different waste products, especially for waste appropriate for recycling and reuse.</li> <li>Waste storage during the demolition and construction phases should be in accessible locations with the appropriate use of dedicated stockpile areas, skip bins and waste and recycling bins, (demolition up to approximately 12 x 1,000L bins) and (construction up to approximately 8 x 1,000 L bins) that are well maintained.</li> <li>Waste during construction works will be appropriately classified, with samples taken as required by appropriately trained and experienced personnel.</li> <li>Soil analysis to be undertaken (if required).</li> </ul>	Low
Bushfire	The site is bushfire prone and the workers may be at risk during a bushfire event.	D	3	Low	<ul style="list-style-type: none"> <li>Implement a 7.5 metre (minimum) area of defendable space around the outer edge of each warehouse.</li> <li>Use cladding materials for the external surfaces of the development which are fire retardant materials such as metal sheeting, pre-cast cement panels or masonry.</li> <li>Undertake regular inspections and maintenance of the Managed Lands or curtilage / landscaped areas / hard standing areas within the proposed development is to be undertaken by the owners (or their agents) according to Planning for Bushfire Protection (RFS, 2019).</li> <li>Maintain of any retained areas of Managed Lands or curtilage/ gardens within the development as an Inner Protection Area (IPA) in accordance with Planning for Bushfire Protection (RFS 2019).</li> <li>Ensure that future landscape plantings within the site are in accordance with the requirements of Appendix 4 of Planning for Bushfire Protection (RFS 2019).</li> </ul>	Low
Hazards and risks	Hazardous materials uncovered during construction which may cause risk to construction workers	C	3	Low	<ul style="list-style-type: none"> <li>Hazardous materials to be managed in accordance with the requirements of the WHS Act, WHS Regulation and subordinate Codes of Practice, and relevant Australian Standards and guidelines.</li> <li>A Remediation Works Plan should be developed to aid compliance with the requirements of the WHS Act and Regulation including those that relate to the identification of hazards and control of</li> </ul>	Low

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					<p>associated risks.</p> <ul style="list-style-type: none"> <li>▪ HBM should be removed prior to any significant disturbance such as maintenance, refurbishment and demolition work.</li> <li>▪ Prior to any work involving hazardous materials a risk assessment should be conducted and Safe Work Method Statement (SWMS) developed. The SWMS should outline the controls to ensure that the risk of exposure to the hazardous materials is adequately controlled.</li> <li>▪ Hazardous materials remediation and removal work should be undertaken under controlled conditions.</li> <li>▪ Waste should be assessed and classified for disposal in accordance with the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste, November 2014.</li> <li>▪ Waste should be disposed of at a facility that is licensed to accept the waste and all waste disposal receipts are to be retained.</li> <li>▪ At the completion of hazardous material remediation and removal work a clearance inspection should be conducted by a Competent Person, or in the case of friable asbestos, by a Licensed Asbestos Assessor.</li> </ul>	