Certification and statement of validity

Submission of environmental assessment
Prepared under Part 3A of the Environmental Planning and Assessment Act, 1979.

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Applicant name
Roads and Traffic Authority of NSW

Applicant address
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Proposed development
The RTA proposes to widen about 20 kilometres of the M5 Motorway between King Georges Road, Beverly Hills and Camden Valley Way, Casula. This would involve construction of new lanes in the existing reserved median in the western section of the motorway and lane marking in the east. It would also involve the installation of variable message signs on arterial roads feeding the motorway.

Land to be developed
The proposal relates to land within the Canterbury, Bankstown and Liverpool local government areas as described within the environmental assessment.

Environmental assessment
An environmental assessment is attached addressing all matters in accordance with Part 3A of the Environmental Planning and Assessment Act 1979.

Declaration
I certify that I have prepared the contents of this environmental assessment in accordance with the Director-General’s Requirements dated 6 May 2010 and that to the best of my knowledge, the information contained in the environmental assessment is neither false nor misleading.

Signature: Jesse Death
Date: 15 September 2010

Signature: Eve Tusa
Date: 15 September 2010
Executive summary

What is proposed?

The NSW Roads and Traffic Authority (RTA) proposes to widen around 20 kilometres of the M5 South West Motorway between King Georges Road, Beverly Hills and Camden Valley Way, Casula (the project).

The project would include:

- Providing additional lanes on the M5 South West Motorway for the majority of its length by pavement widening, asphalt overlays and new line-marking.
- An operations management control system on and in the vicinity of the M5 South West Motorway including a new control building at Hammondville and variable message signs on the motorway and surrounding arterial roads.
- Bridge widening by placing new infill decking in the central median between existing bridges over Queen Street and Nuwarra Road. The underpass structures at De Meyrick Avenue would be upgraded. All other bridges can accommodate the proposed widening works without structural modification.
- Noise attenuation measures at various locations along the M5 South West Motorway between King Georges Road and Camden Valley Way.

Why is it needed?

Current and emerging pressures

The M5 South West Motorway is one of the most heavily constrained roads in Sydney. The motorway is characterised by:

- Very high traffic volumes. The annual average weekday traffic volume at the Hammondville toll plaza is 91,000 (2009).
- A high percentage of freight. Around 7000 vehicles (or around eight per cent of all vehicles) are heavy vehicles transporting local, regional and interstate freight, making the motorway one of the most dominant freight corridors on the Sydney motorway network.
- Constant traffic volumes throughout the day and on weekends. During the middle of the day, traffic volumes are almost as high as in peak hours, demonstrating the extent to which business and freight rely on the corridor on weekdays. High volumes during the middle of the day on weekends demonstrate the very high demand for leisure and recreational trips as motorists seek to access key destinations along the corridor.

In the absence of additional capacity, travel times will continue to increase as congestion worsens, and more heavy vehicles will be driven onto local roads.

This situation will worsen as a result of population and employment growth in the South West Growth Centre, Liverpool Regional City, Western Sydney Employment Hub, employment lands in the M5 Corridor, and at Sydney Airport and Port Botany.
Strategic need
There are three main reasons why the NSW Government considers it necessary to prioritise the upgrading of the M5 South West Motorway as part of a broader transport strategy for Sydney:

- The project would complement other improvements to the Sydney Motorway Network, including the M7 Motorway and the current program of works for widening the F5 Freeway to Campbelltown. Both of these roads feed directly into the M5 South West Motorway at Prestons.
- The project would provide greater capacity in the M5 corridor to better serve existing and future demand.
- The project would progress the cooperative plans of the Commonwealth and NSW governments to enhance the M5 transport corridor, by linking the expanded F5 between Campbelltown and Prestons and the planned expansion of the M5 East between Beverley Hills and Mascot.

What alternatives were considered?
The RTA considered a number of different alternatives to the proposal. These included the ‘base case’ (or ‘do nothing’) option, improving the existing arterial road network, improving public transport provision, increasing the rail share of the freight task, and demand management.

The ‘base case’ option was not seen as a viable option as the consequences are likely to be unacceptable to the people and businesses that rely on the M5 South West Motorway. The other initiatives were generally considered to complement the project but none would be an adequate standalone response to the identified strategic need.

What option was chosen, and why?
Upgrading the existing M5 South West Motorway to provide additional capacity is confirmed to be the preferred option because it would meet the project objectives, have lower costs than most other options and could be delivered with comparatively fewer environmental and social impacts. Many of the comparative advantages arise as a result of the motorway being originally designed to accommodate the later addition of increased capacity.

What are the key issues?

Traffic and transport

Construction Traffic
During the anticipated two-year construction period, the existing number of operating traffic lanes on the M5 South West Motorway would be maintained during the daytime and peak periods to avoid traffic congestion impacts. However, existing lane widths may need to be narrowed, which would impact on traffic capacity.

A reduction in shoulder widths and associated posted speeds would also likely affect traffic capacity on the motorway, leading to increased travel times and some traffic diverting from the motorway to use alternative routes.

An increase of about 10 per cent in travel time and a decrease in travel speed of about 10 per cent is expected during morning and evening peak hours. An increase of about 14 per cent in travel time and a decrease in travel speed of about 13 per cent is expected during inter-peak hours.

The majority of the proposed construction site compounds would generate little more than one vehicle/truck per hour. All these sites are located close to the M5 South West Motorway and adjacent arterial routes.
allowing fairly direct access for construction traffic. Therefore, minimal impact on the local network is expected.

Localised traffic diversions at De Meyrick Avenue would result in increased use of Kurrajong Road, Old Kurrajong Road and Reserve Road during upgrade of the underpass. These roads are expected to experience traffic flow of about two vehicles per minute on average and are capable of accommodating additional traffic volumes over the construction period.

The closure of the motorway over 20 nights near De Meyrick Avenue would require redirection of vehicles onto the Hume Highway, which is considered achievable, especially as closures would likely occur at night-time and/or at other traditionally quiet periods.

Reduction of the motorway speed limit in the vicinity of De Meyrick Avenue to 80 kilometres per hour would decrease average traffic speeds, with the largest decreases likely to occur in free-flow situations outside the peak periods.

Operational traffic
The project would provide the additional capacity required to accommodate future travel demand generated by population and employment growth, and increases in the freight task.

With the M5 West widening, the travel time on the M5 South West Motorway eastbound between Camden Valley Way and King Georges Road is forecast to decrease from 22 to 18 minutes in 2016 and from 32 to 25 minutes in 2026 in the AM peak period. The AM eastbound travel time on the parallel route (comprising Canterbury Road from Wiley Park to Bankstown, Milperra Road to Milperra, Newbridge Road to Liverpool and the Hume Highway to Casula) is forecast to decrease from 38 to 36 minutes in 2016, and from 44 to 41 minutes in 2026.

The M5 South West Motorway eastbound travel speed between Camden Valley Way and King Georges would increase from 56 to 67 kilometres per hour in 2016, and from 39 to 50 kilometres per hour in 2026.

It is expected that with a future M5 East expansion, increases in traffic on the motorway would be principally confined to the eastern section where the expansion occurs, with additional traffic entering and leaving at the Fairford Road and King Georges Road interchanges.

Public transport
The project would reduce congestion on radial roads. This would improve travel times along strategic bus corridors that utilise the arterial roads around the M5 South West Motorway. It is anticipated that travel speeds on the parallel route would increase by 6.7 per cent in the AM peak eastbound direction in 2026 with a corresponding reduction in traffic volumes of 5.6 per cent.

Reduced demand and travel times on the parallel route present an opportunity to implement bus priority measures that exploit this increased capacity.

Induced traffic and modal shift
The project is expected to result in an increase in private vehicle trips of between 0.1 per cent and 0.3 per cent from areas of South West Sydney including Bankstown, Fairfield, Liverpool, Campbelltown, and Camden. Some of this is attributable to diversion (mode shift) from public transport, which is estimated to drop between 0.2 per cent and 0.8 per cent, depending on year and time of day.

These amounts are relatively small, especially when considered in the context of future travel demand increases driven by population growth, employment growth and associated land use changes.

Pedestrians and cyclists
The project is not predicted to have any significant impacts on pedestrian and cyclist amenity or access.

Due to the limited number of bicycle and pedestrian facilities provided within the M5 South West Motorway corridor, opportunities for integration with surrounding networks are limited.
A number of opportunities to enhance cycleway and pedestrian pathways in surrounding areas are currently included in the RTA’s Bicycle Program and are either under construction or have funds allocated for their completion in the coming years. Others will be considered for inclusion in the program in the future.

**Noise and vibration**

*Operational noise*

The noise and vibration assessment concluded that there are predicted to be about 285 dwellings that would experience night-time noise levels that exceed the night-time Environmental Criteria for Road Traffic Noise criteria 10 years after opening of the project (2023 future design scenario). To reduce noise levels at these locations, five new noise walls of varying heights are proposed along the alignment and at one location an existing noise wall would be raised from three metres to five metres.

Architectural treatments would also be considered at about 182 residences and at Hammondville Public School. Architectural treatments may include fresh air ventilation, sealing of wall vents, and checking window and door seals (and replacing where necessary).

*Construction noise*

The M5 South West Motorway is one of the busiest roads in Sydney, carrying about 85,000 vehicles each weekday, and with substantial traffic volumes also on weekends. Constructing the project under traffic is a complex task that would inevitably involve lane closures and even full carriageway closures for asphaltig works. Closing lanes during peak periods would result in significant traffic disruption at the worksite and along the entire motorway. In addition, congestion on the motorway increases the risk of traffic incidents and often has a flow-on effect of causing congestion on the orbital network, increasing the risk of secondary incidents. It is therefore considered inappropriate to undertake these works in circumstances where a large number of people would be affected by daytime traffic disruption.

An assessment of the potential noise impacts associated with construction of the project (including potential impacts from out-of-hours construction) indicates that construction of the project would exceed construction noise management levels in all noise catchments. Noise exceedances would typically be in the range 2–13dBA for daytime and evening works, and could exceed noise management levels by up to 28dBA during the night-time. This assessment has been undertaken in accordance with the Interim Construction Noise Guidelines (DECC, 2009) and feasible and reasonable noise management measures have been identified as part of this assessment.

**Biodiversity**

The biodiversity assessment concluded that the project would have a low overall impact on threatened biodiversity. The following is noted:

- The project is unlikely to exacerbate any key threatening processes.
- The project would lead to a loss of about six per cent of the population of *Acacia pubescens* (Downy Wattle) within the region. Uncertainties surrounding the importance of the Downy Wattle population have contributed to a conservative approach to management of impacts on this species; this approach includes the development of a propagation and translocation program.
- The project may affect potential habitat for *Litoria aurea* (Green and Golden Bell Frog). Where project components are required within potential Green and Golden Bell Frog habitat targeted surveys for the species would be undertaken. Appropriate design measures have been adopted along the drainage lines and drainage basins to manage potential impacts on the Green and Golden Bell Frog.
- The project would have negligible impacts on vegetation communities, having regard to the scale of expected impacts and the condition, past and current disturbances, fragmentation and isolation of each affected area.
• The project would have negligible impacts on other threatened species and is unlikely to result in any adverse impacts on the connectivity of identified ecological corridors.

Visual impact, urban design and landscaping
The project would be primarily confined to the existing motorway road reserve, which would limit visual impacts. However, there would be some visual impact from the installation of variable message signs at key locations on surrounding arterial roads and the loss of vegetation in the M5 South West Motorway median.

The variable message signs would inform and guide motorists as to the operation of the motorway and guide them to alternative routes in the event of incidents. There would also be limited visual impacts from the installation of five new noise walls along the alignment.

What are the other issues?
A number of other issues were assessed including geology, soils and water, hydrology and flooding, air quality, greenhouse gases and climate change, Aboriginal heritage, non-Aboriginal heritage, socio-economic and land use, resources and waste, and cumulative impacts and interactions.

An environmental risk assessment of these issues identified that any potential impacts could be mitigated by the application of standard environmental management measures.

Why should the project proceed?
The M5 West widening project would improve travel efficiency, increase freight capacity, support growth and enhance the ability to manage incidents on the motorway. It would deliver benefits that outweigh the initial upfront construction cost and ongoing operational cost, and would create the potential for wider economic benefits.

Potential adverse impacts associated with the project have been fully assessed, and strategies to avoid, minimise and mitigate those impacts have been an integral part of the project development process. A number of commitments have also been made to ensure the best possible environmental outcomes are achieved during the construction and operation of the project.

How can I comment on the project and the environmental assessment?
The NSW Department of Planning has made this environmental assessment publicly available for a minimum period of 30 days. During this period it is available for inspection on the Department of Planning’s website (www.planning.nsw.gov.au), on the project website (www.m5corridorexpansion.com.au), and at a number of display locations:

• Liverpool City Library
• Bankstown Library.
• City of Canterbury Administration Centre exhibition floor.
• Riverwood Library.
• Roads and Traffic Authority, Miller Street North Sydney.
• Department of Planning, Bridge Street Sydney.
The RTA will also be holding community information sessions and the community information line will be available throughout the exhibition period (1800 633 332 – toll free).

Any person may make a written submission to the Department of Planning during the exhibition period. Submissions should be made to:

[address]

Or online at: http://majorprojects.planning.nsw.gov.au/
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## Glossary and abbreviations

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<td>Acid sulfate soils (ASS)</td>
<td>The extremely acidic soils that result from the disturbance or drainage and subsequent oxidation of previously waterlogged potential acid sulfate soils.</td>
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<td>Annual average daily traffic (AADT)</td>
<td>The total traffic in both directions at a specified location calculated from mechanically obtained axle counts.</td>
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<td>Annual exceedance probability (AEP)</td>
<td>The probability of a rainfall or flood event exceeding a nominated level in a year. A one percent AEP is the probability of an event exceeding a nominated level in 100 years.</td>
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<td>Australian Height Datum (AHD)</td>
<td>The standard reference level used to express the relative height of various features. A height given in metres AHD is essentially the height above sea level.</td>
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<td>Alignment</td>
<td>The general route (e.g., of a roadway) in plan and elevation.</td>
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<td>Alluvium</td>
<td>Unconsolidated deposit of gravel, sand or mud formed by water flowing in identifiable channels. Commonly well sorted and stratified.</td>
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<td>AM peak period</td>
<td>6–10am weekdays.</td>
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<td>ANZECC</td>
<td>Australian and New Zealand Environment and Conservation Council. A Ministerial Council operating between 1991 and 2001 that provided a forum for member governments to develop coordinated policies about national and international environment and conservation issues.</td>
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<tr>
<td>Aquifer</td>
<td>Geologic formation, group of formations, or part of a formation capable of transmitting and yielding quantities of water.</td>
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<td>Archaeological site</td>
<td>A site with any material evidence of past Aboriginal activity that remains within a context or place that can be reliably related to that activity.</td>
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<td>Asphalt or asphaltic concrete</td>
<td>A dense, continuously graded mixture of coarse and fine aggregates, mineral filler and bitumen usually produced hot in a mixing plant.</td>
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<td>Background noise level</td>
<td>The ambient sound-pressure noise level in the absence of the sound under investigation exceeded for 90 per cent of the measurement period. Normally equated to the average minimum A-weighted sound pressure level.</td>
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<td>Batter</td>
<td>The side slope of walls, embankments and cuttings or the degree of such slope, usually expressed as a ratio of horizontal distance to one vertical height.</td>
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<tr>
<td>Bedrock</td>
<td>The side slope of walls, embankments and cuttings or the degree of such slope, usually expressed as a ratio of horizontal distance to one vertical height.</td>
</tr>
<tr>
<td>Benefit–cost ratio</td>
<td>The ratio of the present value of benefits to the present value of costs of a project.</td>
</tr>
<tr>
<td>Bore</td>
<td>A cylindrical drill hole sunk into the ground from which water is pumped for use or monitoring.</td>
</tr>
<tr>
<td>Borehole</td>
<td>A hole produced in the ground by drilling for the investigation and assessment of soil and rock profiles.</td>
</tr>
<tr>
<td>Carriageway</td>
<td>The portion of a roadway devoted to vehicular traffic generally delineated by kerbs, a verge or a median.</td>
</tr>
<tr>
<td>Cast in situ</td>
<td>The placement of wet concrete in forms at the construction site.</td>
</tr>
<tr>
<td>Catchment</td>
<td>The area drained by a stream or body of water, or the area of land from which water is collected</td>
</tr>
<tr>
<td>CO</td>
<td>Carbon monoxide</td>
</tr>
<tr>
<td>Colluvial soils</td>
<td>Stony clays that have been moved downslope by soil creep and slopewash but may include a proportion of windblown red clay (parna) and higher terrace alluvium.</td>
</tr>
<tr>
<td>Term</td>
<td>Meaning</td>
</tr>
<tr>
<td>-----------------------------</td>
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</tr>
<tr>
<td>Concentration (air quality)</td>
<td>Vehicles emit pollutants to the air, which are transported and diluted resulting in a volume of pollutant per volume of ambient air. Ambient air quality goals are expressed in terms of concentrations, which are measured in parts per million or micrograms per cubic metre.</td>
</tr>
<tr>
<td>Concept design</td>
<td>Initial functional layout of a concept, such as a road or road system, to provide a level of understanding to later establish detailed design parameters.</td>
</tr>
<tr>
<td>dBA</td>
<td>Decibels using the A-weighted scale measured according to the frequency of the human ear.</td>
</tr>
<tr>
<td>DECCW</td>
<td>NSW Department of Environment, Climate Change and Water.</td>
</tr>
<tr>
<td>DEWHA</td>
<td>Commonwealth Department of the Environment, Water, Heritage and the Arts.</td>
</tr>
<tr>
<td>Decibel</td>
<td>A scale unit used in the comparison of powers and levels of sound energy.</td>
</tr>
<tr>
<td>Dioxin</td>
<td>A group of halogenated organic compounds, significant because they act as environmental pollutants.</td>
</tr>
<tr>
<td>DoP</td>
<td>NSW Department of Planning.</td>
</tr>
<tr>
<td>Design speed</td>
<td>A nominal speed used for the design of geometric features of the road, such as curves.</td>
</tr>
<tr>
<td>DGRs</td>
<td>Director General’s requirements. Requirements and specification for the environmental assessment prepared by the Director General of Planning under section 75F of the <em>Environmental Planning and Assessment Act 1979</em>.</td>
</tr>
<tr>
<td>ESD</td>
<td>Ecologically sustainable development.</td>
</tr>
<tr>
<td>Ecology</td>
<td>The relationship between living things and the environment.</td>
</tr>
<tr>
<td>Ecosystem</td>
<td>A functional unit of energy transfer and nutrient cycling in a given place. It includes all relationships within the biotic community and between the biotic components of the system.</td>
</tr>
<tr>
<td>EEC</td>
<td>Endangered ecological community. An ecological community identified by relevant legislation as having endangered status.</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental management plan.</td>
</tr>
<tr>
<td>Environment</td>
<td>A term for all the conditions (physical, chemical, biological and social) in which an organism or group of organisms, including humans, exists.</td>
</tr>
<tr>
<td>Environmental assessment</td>
<td>An environmental assessment is a focussed analysis undertaken for the purposes of Part 3A of the <em>Environmental Planning and Assessment Act 1979</em>, written generally to comply with the requirements issued by the Director-General of the Department of Planning.</td>
</tr>
<tr>
<td>EPA</td>
<td>Environment Protection Authority (now part of the Department of Environment, Climate Change and Water).</td>
</tr>
<tr>
<td>Grade separation</td>
<td>The separation of road, rail or other traffic so that crossing movements, that would otherwise conflict, are at different levels.</td>
</tr>
<tr>
<td>Groundwater</td>
<td>Subsurface water contained within the saturated zone.</td>
</tr>
<tr>
<td>Hydrocarbon</td>
<td>Any organic compound – gaseous, liquid or solid – consisting only of carbon and hydrogen.</td>
</tr>
<tr>
<td>Hydrology</td>
<td>The study of rainfall and surface water runoff processes</td>
</tr>
<tr>
<td>Term</td>
<td>Meaning</td>
</tr>
<tr>
<td>-----------------------------</td>
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</tr>
<tr>
<td>LA&lt;sub&gt;10&lt;/sub&gt;</td>
<td>The noise level that is exceeded for 10% of the sample period. During the sample period, the noise level is below the LA&lt;sub&gt;10&lt;/sub&gt; level for 90 per cent of the time. The LA&lt;sub&gt;10&lt;/sub&gt; is a common noise descriptor for environmental noise and road traffic noise.</td>
</tr>
<tr>
<td>LA&lt;sub&gt;90&lt;/sub&gt;</td>
<td>The noise level that is exceeded for 90 per cent of the sample period. During the sample period, the noise level is below the LA&lt;sub&gt;90&lt;/sub&gt; level for 10 per cent of the time. This measure is commonly referred to as the background noise level.</td>
</tr>
<tr>
<td>LA&lt;sub&gt;eq&lt;/sub&gt;</td>
<td>The equivalent continuous sound level. This is the energy average of the varying noise over the sample period and is equivalent to the level of constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.</td>
</tr>
<tr>
<td>Local road</td>
<td>A road or street used primarily for access to abutting properties.</td>
</tr>
<tr>
<td>Longitudinal section</td>
<td>The section drawn along the length of the route showing vertical elevation.</td>
</tr>
<tr>
<td>NPWS</td>
<td>NSW National Parks and Wildlife Service (now part of the Department of Environment, Climate Change and Water).</td>
</tr>
<tr>
<td>PAD</td>
<td>Potential archaeological deposit – any location considered to have a moderate to high potential for subsurface archaeological material.</td>
</tr>
<tr>
<td>pH</td>
<td>A measure of acidity or alkalinity of a solution, numerically equal to seven for neutral solution, increasing with increasing alkalinity and decreasing with increasing acidity. Originally stood for the words potential of hydrogen.</td>
</tr>
<tr>
<td>Piling – bored</td>
<td>A method of inserting piles using a drilling or boring motion.</td>
</tr>
<tr>
<td>Piling – driven</td>
<td>A method of inserting piles using a driving or hammering motion.</td>
</tr>
<tr>
<td>Proponent</td>
<td>The person or organisation that proposes carrying out a project or activity.</td>
</tr>
<tr>
<td>RBL</td>
<td>Rating background level. This is the median noise value of the assessment background levels values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night-time.</td>
</tr>
<tr>
<td>Receptor/receiver</td>
<td>An environmental modelling term used to describe a map reference point where the impact is predicted. A sensitive receptor is a home, workplace, school or other place where people spend some time. An elevated receptor is a point above ground level.</td>
</tr>
<tr>
<td>RTA</td>
<td>Roads and Traffic Authority of New South Wales.</td>
</tr>
<tr>
<td>South West Growth Centre</td>
<td>The South West Growth Centre is within the boundaries of Liverpool, Camden and Campbelltown local government areas. It covers about 17,000 hectares and has capacity for around 110,000 new dwellings for 300,000 people.</td>
</tr>
<tr>
<td>Threatened</td>
<td>As defined under the Threatened Species Conservation Act 1995, a species, population or ecological community is threatened when it is likely to become extinct or is in immediate danger of extinction.</td>
</tr>
<tr>
<td>TSC Act</td>
<td>The NSW Threatened Species Conservation Act 1995 is an Act to conserve threatened species, populations and ecological communities of animals and plants.</td>
</tr>
<tr>
<td>Turbidity</td>
<td>A measure of light penetration through a water column containing particles of matter in suspension.</td>
</tr>
<tr>
<td>Water table</td>
<td>The surface of saturation in an unconfined aquifer at which the pressure of the water is equal to that of the atmosphere.</td>
</tr>
<tr>
<td>Western Sydney Employment Hub</td>
<td>The Western Sydney Employment Hub will be located near the intersection of the M4 and M7 motorways and is expected to offer 2450 hectares of space, creating up to 36,000 jobs in Greater Western Sydney.</td>
</tr>
</tbody>
</table>