NSW GOVERNMENT

Redfern Station Upgrade – New Southern Concourse

Environmental Impact Statement

Artist's impression of the proposed Redfern Station Upgrade - New Southern Concourse. Indicative only, subject to detailed design.

Transport for NSW | May 2020

Certification

Submission of Environmental Impact Statement

This Environmental Impact Statement has been prepared under Part 5.1 of the (NSW) *Environmental Planning and Assessment Act 1979* and in accordance with Part 3 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

Environmental Impact Statement prepared by:

Role	Project manager	Lead author	Independent reviewer
Name	Rachel O'Hara	Dylan Drysdale	Catherine Brady
Position	Principal Environmental Scientist	Senior Environmental Scientist	Technical Director - Environment
Qualifications	Bachelor of Environmental Science; CEnvP	Bachelor of Science (Environmental Science); Certificate of Environmental Management Systems	Bachelor of Arts (Hons) Geography and Economics Master of Regional and Urban Planning
Address	AECOM Australia Pty Ltd Level 21 420 George Street Sydney NSW 2000		
In respect of	Environmental Impact Statement Redfern Station Upgrade – New Southern Concourse		
Applicant Name	Transport for NSW		
Applicant Address	18 Lee Street Chippendale NSW 2008		
Proposed development	Redfern Station Upgrade – New Southern Concourse involves the construction and operation of a pedestrian concourse to the south of the existing Lawson Street concourse providing both lift and stair access to Platforms 1-10. The new pedestrian concourse would provide a new connection across the railway corridor, extending between Little Eveleigh Street and Marian Street in the suburbs of Redfern and Eveleigh and include associated interchange upgrades.		
Land to be developed	Located on land that forms part of the existing rail corridor and adjacent land owned by the NSW Government or Council owned land.		
Environmental Impact Statement	An Environmental Impact Statement is attached that assesses all matters specified in the Secretary's Environmental Assessment Requirements dated 20 December 2019, in accordance with Division 5.2 of the (NSW) Environmental Planning and Assessment Act 1979 and other relevant legislation.		
Declaration	I certify that I have prepared the contents of the Environmental Impact Statement in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000 and the Secretary's Environmental Assessment Requirements dated 20 December 2019, and that, to the best of my knowledge the information contained in the Environmental Impact Statement is not false or misleading.		

Role	Project manager	Lead author	Independent reviewer
Signatures			
Name	Rachel O'Hara	Dylan Drysdale	Catherine Brady
Date	22/05/2020	22/05/2020	22/05/2020

Executive summary

Redfern Station (Redfern Station Upgrade – New Southern Concourse) is part of the Transport Access Program and is the first step in renewing the Redfern North Eveleigh Precinct. With Redfern Station at its core, the Redfern North Eveleigh Precinct encompasses 10 hectares of Transport for NSW owned land along the rail corridor. The precinct is positioned to become a future destination for all, with a range of housing, workspaces, and new public spaces that will promote healthy and sustainable lifestyles.

Overview

Transport for NSW (TfNSW) is the lead agency for the integrated delivery of public transport services across all modes of transport in NSW and is responsible for the delivery of projects within the Transport Access Program (TAP). The TAP is a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure across NSW.

TfNSW is the proponent for a proposal to construct and operate an upgrade of Redfern Station (Redfern Station Upgrade – New Southern Concourse) ('the Project') as part of the TAP.

The Project involves the construction of a pedestrian concourse to the south of the existing Lawson Street concourse providing both lift and stair access to Platforms 1-10. The new pedestrian concourse would provide a new connection across the railway corridor, extending between Little Eveleigh Street and Marian Street in the suburbs of Redfern and Eveleigh and include associated interchange upgrades.

The Project would provide safe and equitable access to Platforms 1 to 10, Little Eveleigh Street and Marian Street, along with generally improved customer facilities, amenity and safety. The improvements would in turn assist in supporting the growth in public transport use and would provide an improved customer experience for existing and future users of Redfern Station. The Project would support better connections for the community including access to employment, education and businesses.

This Environmental Impact Statement (EIS) has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) for the Project that were issued on 20 December 2019. Approval from the Minister for Planning and Public Spaces is required before TfNSW can proceed with the Project.

Project need and benefits

Redfern Station does not currently meet key requirements of the *Disability Standards for Accessible Public Transport 2002* (DSAPT). Existing platforms are accessed by a single stairway at the northern end of the platforms (with the exception of Platforms 6/7 which are serviced by an existing lift, and Platforms 11/12 which are serviced by escalators). The stairways do not provide an accessible path of travel for several groups of people including those with a disability, limited mobility, parents/carers with prams or customers with luggage.

The Project also aims to address current demand for the Station, and significant forecast growth in the surrounding area associated with the Sydney Innovation and Technology Hub and subsequent increase in rail patronage. Redfern Station is currently the sixth busiest station in NSW with approximately 70,000 customers on an average weekday. It is already at capacity and has deficiencies that restrict capacity to meet future demands and present a risk to customer safety.

The proposed concourse would provide connectivity between platforms 1 – 10 at Redfern Station and access to both Marian Street and Little Eveleigh Street, and would also provide cross corridor connectivity. This would address one of the existing desire line constraints, by providing access to the Station's above ground platforms closer to South Eveleigh, Carriageworks and the University of Sydney.

Project objectives

The objectives for the Project include the following:

- improve customer experience and accessibility
- reduce platform clearance times (i.e. the time required for passengers to leave a platform after alighting)
- improve customer circulation and relieve congestion within Redfern Station
- cater for the forecast customer growth for Redfern Station up to 2036
- provide durable and sustainable infrastructure
- provide improved connectivity for pedestrians, including improved urban connectivity for South Eveleigh
- support interfacing and upcoming works in the area surrounding Redfern Station
- minimise disruption to customers, staff and neighbours throughout the planning and construction of the Project.

The Project

Key features

The key Project components include:

- a six metre wide concourse between Little Eveleigh Street and Marian Street
- new stair and lift access from the new concourse to Platforms 1 to 10
- an upgraded station entrance at Marian Street including station services and customer amenities
- a new station entrance at Little Eveleigh Street including station services and customer amenities
- formalisation of a shared zone on Little Eveleigh Street, including:
    - safety improvements to vehicle, cyclist and pedestrian interactions
    - improvements to streetscape such as landscaping, lighting, drainage and pavements
    - relocation of approximately 20 parking spaces (including 18 resident/restricted parking spaces, one accessible parking space and one car share scheme parking space) and bus zone
    - utility adjustments
- upgrade of Marian Street/Cornwallis Street/Rosehill Street area
    - extension of existing shared zone including part of Rosehill Street
    - safety improvements to vehicle, cyclist and pedestrian interactions including footpath widening
    - improvements to streetscape such as lighting, drainage, landscaping and pavements as well as utility adjustments
    - changes to street parking arrangements including removal of approximately 16 parking spaces (including relocation of one car share scheme parking space)
- operation of the Project.

Other components of the Project include:

- relocation of the shuttle bus zone from Little Eveleigh Street to Lawson Street
- kiss and ride on Lawson Street and associated footpath upgrade
- kiss and ride on Gibbons Street, and associated footpath upgrade

- footpath widening on Ivy Street
- relocation of a building on Platform 1 to accommodate the concourse
- repurposing, relocations and alterations to platform building features and other platform features, including privacy walls, doors, screens and roofing, platform seats and electrical equipment
- addition of platform canopies
- platform resurfacing on all platforms and associated drainage alterations
- installation of station operational components and infrastructure including:
  - wayfinding and signage
  - tactile ground surface indicators (TGSI)
  - rubbish bins
  - Closed-circuit television (CCTV)
  - passenger information system (e.g. passenger information display, public address and hearing loops)
  - emergency equipment (e.g. for fire and life safety)
- service relocations and upgrades including:
  - relocation of overhead wiring structures
  - installation of a new rail signal between Platforms 1 and 2.

Early works (such as alterations and relocations to utilities, power and signalling, communications systems, Hazmat removal works, addressing of existing safety issues/non-conformances and associated site offices/laydown areas) would not form part of the Project and would be subject to a separate environmental assessment and approval process in accordance with Part 5 Division 5.1 of the *Environmental Planning and Assessment Act 1979*.

The Project area and overview is shown in **Figure ES-1**, and the key features of the Project are shown in **Figure ES-2**.

Construction

Construction of the Project would broadly involve the following key stages:

1. site establishment and enabling works
2. building modification works
3. overhead wiring relocations/adjustments
4. main construction works, including platform preparation works, installation of the concourse and station entrances
5. Little Eveleigh Street/Ivy Street, Marian Street/Cornwallis Street/Rosehill Street, Lawson Street and Gibbons Street road works.

The construction of the Project would require key construction areas, including ancillary facilities (i.e. construction compounds) and haulage routes.

Construction of the Project is proposed to commence in late 2020/early 2021 once all necessary approvals are obtained and continue for approximately 18 months.

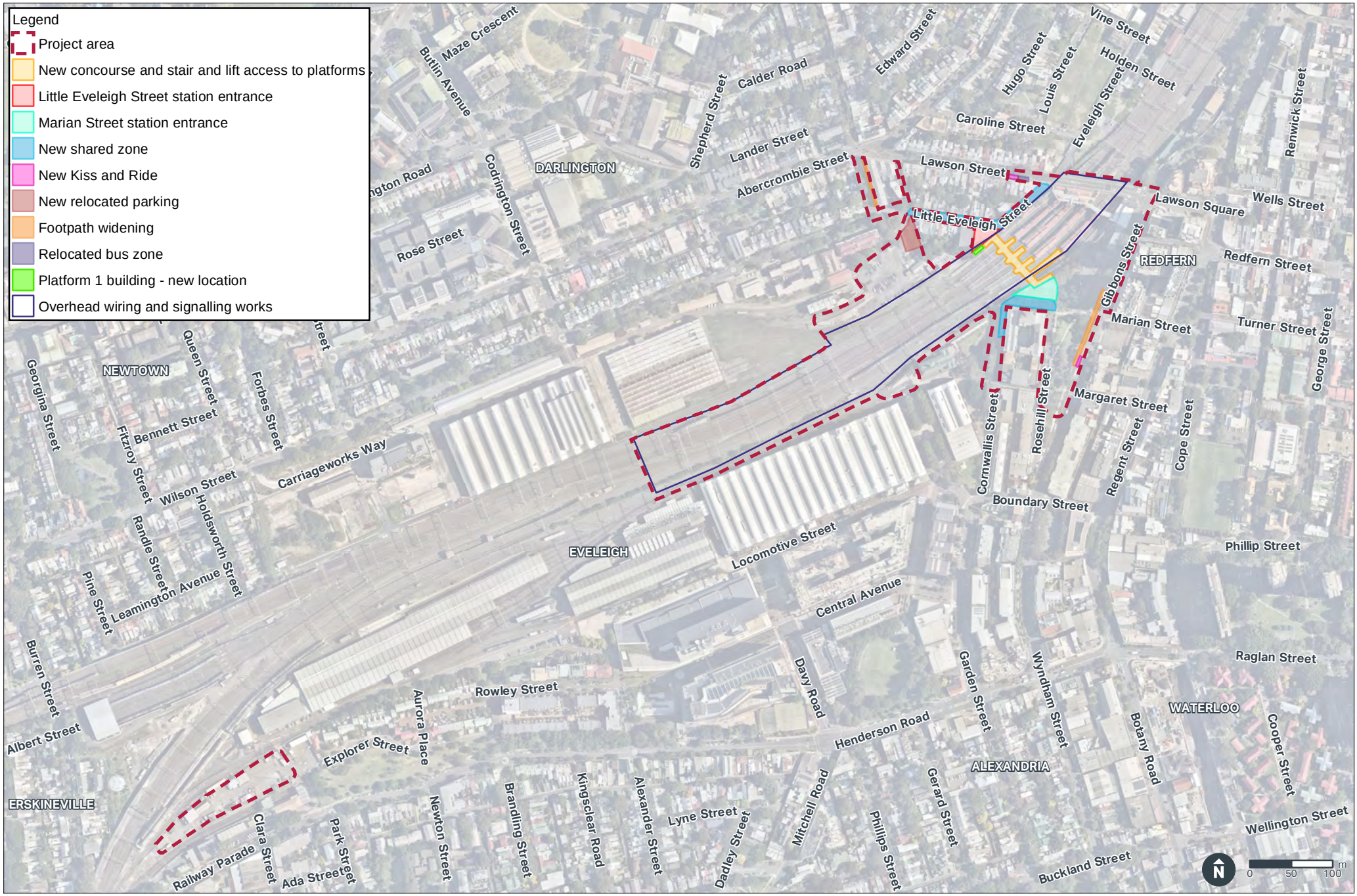

FIGURE ES-1: PROJECT AREA AND OVERVIEW OF KEY FEATURES

Indicative and subject to detailed design.

Source: Imagery © Nearmap, 2019.

FIGURE ES-2: KEY FEATURES OF THE PROJECT

Indicative and subject to detailed design.

Source: Imagery © Nearmap, 2019.

Stakeholder and community engagement

The stakeholder and community consultation process for the Project has played an integral role in informing and scoping investigations for this EIS and will continue to do so through detailed design and construction. Following the 27 February 2019 announcement of the Project, consultation began with the local community and stakeholders.

Consultation activities on the options for the proposed concourse were undertaken with the local community across two consultation periods: May–June 2019, and July–August 2019. Consultation activities included:

- stakeholder meetings (including residents and community groups)
- doorknocking local residents
- sending letters to local home owners and residents
- placement of Project consultation signage around the Station
- distribution of newsletters to businesses and residents within one kilometre of Redfern Station
- distribution of newsletters to customers at the Station during peak periods (periodically throughout the consultation period and ahead of community information sessions)
- community drop-in information sessions at Redfern Station for community members to meet and speak with the Project team
- stakeholder forums
- online surveys of customers and the local community.

In May 2019, transport customers, key stakeholder groups and community members were initially asked to provide feedback on an early concept, then from July to August 2019, on four different options, including the original concept. More than 400 responses were received across the two engagement periods from a wide range of stakeholders, such as customers and community members, community groups, local organisations and Council.

The majority of issues raised were common to large construction projects in Sydney but overall the feedback received was highly supportive of improving accessibility and reducing congestion at Redfern Station. There were also some community members who were not supportive of the Project. The responses assisted the project team in selecting the preferred option.

A Project webpage has also been established with Project information and materials such as newsletters, presentations and Frequently Asked Questions. The website also included a link to an online survey for the two consultation periods. Three community drop-in information sessions were also held at Redfern Station for community members to meet and speak with the Project team, as well as two stakeholder forums.

A Community Stakeholder Engagement Plan has been developed for ongoing engagement in the design phase. Should the Project be approved, a Community Liaison Management Plan would be developed for engagement during the construction of the Project.

Options considered

Development of the preferred option for the Project has been a result of the ongoing planning and design process, including consultation with customers, the community and key stakeholders. Four out of 12 designs were shortlisted through a multi criteria analysis (MCA) and then presented to the public for consultation, to inform the ongoing design development. Two community proposed options were also considered.

As a result of this process, Option 1 was selected as the preferred option for the Project as it provided efficiency and safety for customers, whilst also allowing integration into future developments.

Environmental assessment

This EIS has been prepared in accordance with the provisions of Part 5.2 of the *Environmental Planning and Assessment Act 1979*. It addresses the SEARs issued on 20 December 2020 (refer to **Appendix A**).

It is inevitable that a project at this location in a heavily urbanised environment would have some adverse impacts, particularly during construction. These impacts need to be considered within the context of the overall objectives of the Project and the significant transportation and other benefits it would provide over the medium to long term, particularly for future generations.

Key environmental issues have been examined throughout the design and development process. Consultation has been carried out with affected stakeholders to identify key potential impacts at an early stage. Where possible, these would be avoided or appropriate mitigation measures developed and implemented to minimise these impacts. Despite these efforts, a number of adverse impacts would remain. These impacts would be largely temporary and confined to the construction period. The main impacts identified in the environmental assessment are described in the following sections.

The Project would also result in benefits, such as improved accessibility and amenity, and would provide positive sustainability outcomes. The Project, through the creation of a new connection across the rail corridor, would support connections to employment, education and businesses.

Urban design

The Project has been developed based on the NSW Government's '*Better Placed*' guidelines and TfNSW's policy document *'Around the Tracks – urban design for heavy and light rail'*. Upon operation, the Project would improve the accessibility of the Station, and improve pedestrian and cyclist access around the Station. Trees removed during construction would also be offset so that a net positive balance in tree planting is achieved. The Project provides clear wayfinding and shortest pedestrian distances between key destinations while using crime prevention through environmental design techniques in its design both within the concourse and externally of the Station. The Project would provide a design that is inviting, engaging, and visually attractive. It would integrate views, vistas, and heritage interpretation to engage users. It is visually interesting on its own while providing a backdrop to the existing station precinct to the north. Positive public space outcomes would also be realised through the design of the shared zones on Marian Street and Little Eveleigh Street.

Construction of the Project would require the temporary use of barriers, hoardings and fences which have the potential to impact upon urban design features such as existing pedestrian and cyclist connectivity in the broader area. This could potentially increase the walking distances of customers while also potentially adding extra obstacles on already narrow footpaths.

The design of the Project has been informed by a detailed analysis of existing and future urban design, community, heritage, engineering, planning, constructability, financial, and environmental considerations.

Landscape character and visual

The existing visual environment is characterised by a highly developed urban nature, which includes existing rail and road infrastructure, and a range of built forms. Landscape character surrounding Redfern Station has been divided into several different landscape character Zones (LCZs). These LCZs have been defined by a number of qualities which contribute to overall character, including urban form, topography, vegetation and land use.

During operation, the impact of the Project on landscape character would be largely positive. The Project elements are similar in character to the LCZs in which they lie (e.g. rail infrastructure built within a working rail corridor), and the architectural design of the Project would be highly refined. The proposed new/upgraded station entrances would be integrated into the surrounding setting with landscaping and would include the adaptive reuse of an existing building, resulting in a development that is sympathetic to the surrounding landscape character.

The visual impact of the Project during construction on the surrounding area was broadly assessed. During the construction period, temporary visual impacts would be experienced at Redfern Station and its surrounds, mainly within the rail corridor, reducing in intensity with distance from the Station. Visible construction elements would include site sheds, site hoarding and fencing, parking areas, mobile

construction equipment and lighting, equipment and plant. Construction activity would also generate traffic, including heavy vehicles, which would utilise access routes to and from construction ancillary facilities. Vegetation removal would also be required to facilitate construction work. Visual impacts during construction would be temporary (limited to the construction period) and mostly occur within the rail corridor.

The visual impact of the Project at operation on the surrounding area was also assessed from a series of carefully selected viewpoints, some of which were found to have highly sensitive receptors, such as residential and recreational areas. The effect of the Project on key views and visual amenity was considered to be largely positive. The two new station entries and road upgrades to the east and west of the rail corridor would bring additional pedestrian movement into residential streets, but the design of these upgraded streets would include shared zones and substantial landscaping, resulting in a positive visual impact. The higher pedestrian numbers in Little Eveleigh Street and Marian Street would be somewhat mitigated by urban design and landscaping within these streetscapes, providing separation between residences and pedestrian movement at ground level, visually softening the hardscape within these road corridors, and providing visual amenity.

The pedestrian concourse and upgrades to station infrastructure would lie within the active rail corridor, and while these would be a substantial visual change, they would be of a high quality and therefore a positive addition to the otherwise utilitarian rail corridor.

Land use and property

The area within which the Project would be constructed and operated is located within the rail corridor, road reserves or other government owned land adjacent to the rail corridor.

During construction, the impact on land use is generally considered minor as the operation of the rail corridor and Redfern Station would continue throughout construction works. However, the use of Gibbons Street Reserve as a construction ancillary facility would result in a temporary loss of passive recreational space. Other potential land use impacts during construction relate to possible disruptions to services, utilities and other transport assets/infrastructure.

During the operation of the Project, there would be minimal direct impacts to land use. Gibbons Street Reserve would be restored as a passive recreational space following construction. Little Eveleigh Street would be reconfigured as a shared zone, and the Marian Street shared zone would be extended and reconfigured, which would allow for shared use by pedestrians, cyclists and vehicles during operation.

The Project would lead to improvements in accessibility to Redfern Station and better integration of the rail network with existing and improved pedestrian, cyclist and public transport networks. The Project would play a part in facilitating the future development envisaged by the broader urban renewal program.

Social

The social impacts associated with construction include amenity impacts particularly noise and vibration, impacts on the heritage elements and buildings near and within Redfern Station, property impacts associated with discontinuation of the lease at 125-127 Little Eveleigh Street, and impacts to access and connectivity. Some social impacts would be permanent such as the removal of parking, the relocation of the Platform 1 Office Building, and changes to 125-127 Little Eveleigh Street. Local residents, particularly those on Little Eveleigh Street and Marian Street would also experience changes to local amenity.

During operation, potential social impacts relate to amenity impacts on local streets from increased pedestrian traffic from the introduction on station entrances and shared zones and parking relocation. These potential impacts have been a key consideration during design development, including designing the Project in accordance with the principles of Crime Prevention through Environmental Design (CPTED). Upon opening of the Project, TfNSW would undertake a review of the operation of the shared zones, in consultation with residents and relevant stakeholders, to consider any additional mitigation that may be required.

Redfern Station is located within an area containing significant social, health and education infrastructure and institutions. During operation, some impacts to amenity, access and connectivity,

social infrastructure and heritage and character would be beneficial. The Project, which includes the provision of an additional station entrance, an upgraded station entrance, shared zones and lifts to one of Sydney's busiest stations, would allow for greater accessibility and equal access to public transport, connectivity with the wider area and more easy access to these facilities. Changes would benefit the community, particularly those people who currently experience transport or mobility difficulties, non-drivers and people without access to private vehicles.

Overall the urban design of the station precinct would facilitate benefits to the community, visitors to the area and businesses (e.g. connectivity and access, safety, etc.). It would also enhance access to, understanding and conservation of the fabric/values of the historical character of the area. The new concourse would also allow improved access to areas designated for urban renewal.

Traffic, transport and access

The greatest potential impacts during construction are likely to include temporary relocation of bus stops, footpath diversions, alternative on-street parking and an increase in traffic volumes. Alternative access arrangements and footpath diversions would be required for pedestrians/cyclists along Marian Street, Little Eveleigh Street, Ivy Street, Lawson Street and Gibbons Street during the construction of the Project. Additionally, road works at Marian Street, Rosehill Street, Little Eveleigh Street, Gibbons Street and Lawson Street would result in a loss of on-street parking. However, there is existing on-street parking available in the surrounding area (within 400 metres of these streets).

A new 20-space car park at the western end of Little Eveleigh Street would be constructed prior to the construction of the shared zone on Little Eveleigh Street. This would replace 18 residential on-street parking spaces, one disabled parking space and one car-share space that would be removed for the new shared zone along Little Eveleigh Street.

Changes to the transport network would also include temporary periodic closure of the railway as although construction works within the railway would largely be undertaken during scheduled rail possessions, approximately two additional non-scheduled rail possessions would be required. Temporary bus services to replace trains would be provided during the rail possessions.

The expected peak volume of construction vehicles of 20 heavy vehicles and 40 light vehicles per day would create negligible traffic impacts on the key regional access routes, given that this traffic from the Project would result in a small percentage increase in traffic volumes for these key routes. There are likely to be partial road closures at Little Eveleigh Street and Marian Street to construct the shared zones, however as these roads mainly provide local access (which would be maintained throughout the construction phase), it is not likely that network performance would deteriorate as a result of these closures.

During operation, the new station entrance at Little Eveleigh Street, the upgrade of the station entrance at Marian Street and the establishment of new shared zones at these locations would enhance the customer experience, specifically for pedestrians and cyclists and encourage walking and cycling as an alternative mode of transport. The formalisation and provision of new kiss and ride facilities at Lawson Street and Gibbons Street and the relocation of the shuttle bus zone would optimise the Station’s operation, through integrating multiple modes of transport, with footpath and pavement upgrades proposed linking these modes to the Station.

Noise and vibration

Noise generated by the construction of the Project has been a key consideration through the development of the Project’s construction methodology. Despite this, the Project would result in construction noise impacts. The greatest construction noise impacts would be experienced by residents located on the western side of Redfern Station, including Little Eveleigh Street, Lawson Street and Wilson Street.

The noise level would vary throughout the construction period, with as much of the Project construction as possible to be undertaken during the day, however some out of hours works would be required for the Project (to minimise disruptions to traffic, pedestrians, nearby residents and businesses, and also for constructability, safety, continuity of rail services reasons and/or to meet approval requirements (e.g. Road Occupancy Licence)).

Vibration would also be generated by the Project construction. This vibration has the potential to affect heritage-listed items within the Project area if these items fall within the minimum work distances identified for vibration intensive works. Where the screening criteria for vibration are predicted to be exceeded, a more detailed assessment would be undertaken including a condition assessment in consultation with a heritage specialist to ensure sensitive heritage fabric is adequately monitored and managed.

If these minimum working distances are complied with, no adverse impacts from vibration intensive works are likely in terms of human response or cosmetic damage. A construction noise and vibration management plan would be in place to minimise the construction noise and vibration, including specific mitigation measures for sensitive receivers closest to the works (e.g. scheduling construction works to minimise the noise impact on sensitive receivers).

During operation, the Project is not anticipated to generate significant additional vehicular traffic, and therefore negligible impacts to traffic noise around Redfern Station are expected during operation. As a new car park is proposed at the end of Little Eveleigh Street, to offset parking lost on Little Eveleigh Street from the construction of the shared zone, most receivers on this street would experience a reduction in the current noise levels associated with parking cars. However, noise from car parking activities during night-time may cause sleep disturbance for some residents on Little Eveleigh Street living in proximity to the new car park. The car park would be used infrequently during the night-time (as there are only 20 spaces), therefore it is unlikely that the acoustic environment would change significantly from the current frequency of cars parking along Little Eveleigh Street.

The investigations undertaken to inform the design of the Project estimated that approximately 3,300 and 6,770 people would be walking down Little Eveleigh Street and Marian Street respectively during a typical AM peak hour. Noise from additional pedestrians walking along Little Eveleigh Street and Marian Street would be noticeable. The noise generated by commuters would likely comprise footfall noise and conversations and would not be considered atypical for an urban area. The Project would investigate further opportunities to minimise noise impacts to residents through the ongoing design development of the Little Eveleigh Street and Marian Street shared zones.

Non-Aboriginal heritage

Non-Aboriginal heritage impacts have been assessed against the three State heritage listed items potentially affected by the Project – the Redfern Railway Station Group, the Eveleigh Railway Workshops and the Eveleigh Chief and Mechanical Engineers Office, as well as several locally listed heritage items and conservation areas within the City of Sydney Local Government Area (Darlington Heritage Conservation Area and Golden Grove Heritage Conservation Area).

The Redfern Railway Station Group is a significant heritage item associated with the growth and development of Redfern as a place, as well as being an important element and transportation hub associated with the NSW Railways. The Eveleigh Railway Workshops are one of the finest historic railway engineering workshops in the world, containing intact late 19th century and early 20th century forge installations and a collection of cranes and power systems. The Eveleigh Chief Mechanical Engineers Office is a fine Victorian railway office building and reflects the importance of the railway engineers in the development of the State's rail network and its close association with Eveleigh Railway Workshops.

Darlington Heritage Conservation Area is representative of mid-nineteenth century residential subdivisions and mid to late-nineteenth-century working-class housing. Golden Grove Heritage Conservation Area is representative of the late nineteenth-century residential subdivision and was developed with the influence of the Eveleigh Railway Workshops.

The Project would result in impacts to the aesthetic, historic, and rarity values of the Redfern Station Railway Group. A major adverse impact to the aesthetic significance of Redfern Station Railway Group is expected from the construction concourse, station entrance, stairs and lifts. Further, moderate adverse impacts to the aesthetic, historic, and rarity values of the Redfern Station Railway Group are expected from the relocation of the Platform 1 Office Building.

Design decisions and mitigation measures identified to minimise these impacts have included positioning the proposed concourse, platform canopies, stairs and lifts, at the southern end of the Redfern Station and away from significant historic structures, allowing for the majority of heritage

elements at the Station to be retained. Further, the proposed concourse has been designed to achieve transparency using glazed and perforated metal panels and minimising the bulk and scale of the concourse.

The concourse would also provide an opportunity to reference former historic pedestrian routes and views. The relocation of the Platform 1 Office Building is necessary to construct the new concourse. Options for retention of the Platform 1 Office Building were considered and relocation was determined as the sole practical means of ensuring its survival, avoiding demolition. Adverse impacts of the relocation have been mitigated by relocating the building on the same platform and providing an equally appropriate setting in association with the Eveleigh Railway Workshops.

The Project also has the potential to have a minor adverse impact on both the aesthetic and technical values of the Eveleigh Railway Workshops. Although the proposed concourse is outside the heritage boundary of Eveleigh Railway Workshops, a minor adverse impact to the industrial character and significant views has been identified. However, this industrial character is less relevant outside the Eveleigh Railway Workshops Precinct and significant views are already obscured by existing railway infrastructure. Nevertheless, impacts would be mitigated by ensuring a maximum level of transparency is achieved through the glazed and perforated metal panels on the concourse, as well as ongoing consideration of design refinements to minimise bulk and scale. The concourse would have a beneficial impact to the social value of Eveleigh Railway Workshops by reinstating former historic pedestrian routes.

The Project would have a neutral impact to the Eveleigh Chief Mechanical Engineers Office and Golden Grove Heritage Conservation Area.

The proposed works to 125-127 Little Eveleigh Street have the potential for a minor adverse impact on the Darlington Heritage Conservation Area. Impacts would be mitigated by conservation works to the building which would improve the building's presentation and have a positive impact on the aesthetic significance of the Conservation Area.

The Project has evolved following extensive optioneering, continued consultation with industry professionals, the community and independent review by the TfNSW Design Review Panel. The Project area has complex issues including heritage constraints and urban design challenges, as well as physical limitations which include existing underground tunnels. The Project is necessary to respond to accessibility issues, and is also required to address emerging and future pedestrian traffic requirements from adjacent developments, providing cross corridor connections to access major hubs and celebrating the cultural and built history of the area by implementing heritage interpretation.

Aboriginal heritage

A previously recorded Aboriginal site is listed as being located within the Project area, however evidence of the site was not found as part of this assessment. Past historical activities have resulted in bulk excavation of the area which have more than likely destroyed this site. The Metropolitan Local Aboriginal Land Council and Heritage NSW, Department of Premier and Cabinet would be further consulted with the view to amend the recorded status of the site. No additional Aboriginal sites or areas of Aboriginal archaeological sensitivity are located within the Project area, therefore there would be no impacts to Aboriginal sites during construction or operation.

Other issues

Other issues assessed include:

- biodiversity
- soils, groundwater and contamination
- flooding, hydrology and water quality
- air quality
- hazard and risk
- waste and resources
- climate change and sustainability.

This EIS has identified that the Project would result in only minor impacts to the issues identified above. Notwithstanding, management and mitigation measures have been identified to minimise potential impacts identified.

Cumulative impacts

There are a number of projects proposed in the area surrounding the Project that were considered to have potential to result in cumulative impacts with the Project. Given the potential overlap of construction with these projects, the key potential cumulative impacts were determined to be construction traffic and transport, noise and vibration, social and property and land use impacts.

Cumulative impacts would be dynamic and time/activity specific and are therefore difficult to define in detail at this stage of the assessment process. TfNSW would continue to work closely with relevant stakeholders and other project proponents to manage and co-ordinate the interface with other projects under construction at the same time, and would consult with a range of State and local government agencies.

During operation, there is anticipated to be a net cumulative benefit for the community. Considered together with these other projects, the Project would provide:

- improved accessibility and safety at the Station and connectivity with the public transport network overall
- improved access to employment areas and housing in the surrounding area
- a potential increase in economic activity, businesses and employment opportunities, particularly around Redfern Station.

Environmental management

The primary document that would drive the environmental management approach during construction of the Project is the Construction Environmental Management Framework. The framework provides a whole of project life-cycle approach to construction environmental management and includes a range of requirements including the preparation of specific environmental management plans and sub-plans to implement the framework. Performance outcomes have been developed for each key issue for the Project, which TfNSW have committed to achieving. Mitigation measures designed to manage the potential impacts include measures to achieve the performance outcomes.

Project justification and conclusion

The Project forms part of the TAP, a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. The Project has been designed to comply with the DSAPT, which Redfern Station does not currently meet.

In addition, the Station is located within the Sydney Innovation and Technology Precinct, (NSW Government, 2018), which is a commitment by the NSW Government to create a globally competitive innovation and technology hub located in the Central to Eveleigh corridor creating 25,000 new innovation jobs. This precinct contributes to the high forecast demand for the Station.

The Project has been designed to meet the DSAPT, and would support the objectives of relevant NSW government policies and plans. The Project would provide safe and equitable access to Platforms 1-10 and the surrounding pedestrian network, along with generally improved customer facilities, amenity and safety. The proposed pedestrian concourse also provides cross corridor connectivity, enabling access between major destination precincts on either side of the railway. The improvements would in turn facilitate existing demand, ease congestion and assist in supporting the growth in public transport use, providing an improved customer experience for existing and future users of Redfern Station.

The Project has been developed with the objective of minimising potential impacts on the local and regional environment and community. The design and construction methodology would continue to be developed with this overriding objective in mind, taking into account the input of stakeholders and the local community.

The Project's environmental performance would be demonstrated by implementing the Construction Environmental Management Framework, Construction Environmental Management Plan (and its' sub-plans) and Construction Noise and Vibration Strategy. They would include a range of environmental mitigation measures developed following the environmental assessment documented in this EIS. With the implementation of the proposed management and mitigation measures, the potential environmental impacts of the Project are considered manageable.

Next steps

This EIS will be placed on public display by Department of Planning, Industry and Environment (DPIE) for a minimum statutory period of 28 days, in accordance with Schedule 1 of the *Environmental Planning and Assessment Act 1979*. This EIS will be made available on the DPIE website at https://www.planningportal.nsw.gov.au/mIajor-projects.

During the public exhibition period, stakeholders and the community are encouraged to make written submissions to the DPIE in relation to the Project. Submissions can be made online at https://www.planningportal.nsw.gov.au/major-projects or in writing (citing development application number SSI-10041) and addressed to the planning officer listed below:

Department of Planning, Industry and Environment

Attention: Director – Transport Assessments

GPO Box 39

Sydney NSW 2001

Consultation activities proposed to be undertaken during the public exhibition of this EIS includes:

- release of an EIS summary document
- media releases
- online community information video sessions
- newsletter letterbox drop
- Project webpage updates
- newspaper advertising
- offer of online stakeholder meetings (including Aboriginal and Torres Strait Islander engagement, local businesses, government agencies).
- emails and phone calls to community members and stakeholder groups who have registered to be on the project contact list
- social media.

During exhibition of this EIS, government agencies and key stakeholders would also be offered Project briefings.

Following the exhibition period, TfNSW will consider the issues raised in submissions and will respond to community feedback in a submissions report. The report will also document the outcomes of any ongoing investigations and design work identified following the exhibition of this EIS.

If the Project is approved, it would be undertaken in accordance with the mitigation measures proposed in this EIS, the submissions report, and the conditions of approval.

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Glossary and abbreviations

Table 1 Glossary

Term	Meaning
A-weighted decibels (dB(A))	The A-weighting is a frequency filter applied to measured noise levels to represent how humans hear sounds. The A-weighting filter emphasises frequencies in the speech range (between 1kHz and 4 kHz) which the human ear is most sensitive to, and places less emphasis on low frequencies at which the human ear is not so sensitive. When an overall sound level is A-weighted it is expressed in units of dB(A).
Acid sulfate soils	Naturally occurring soils, sediments or organic substrates (e.g. peat) that are formed under waterlogged conditions. These soils contain iron sulfide minerals (predominantly as the mineral pyrite) or their oxidation products. In an undisturbed state below the water table, acid sulfate soils are benign. However, if the soils are drained, excavated or exposed to air by a lowering of the water table, the sulfides react with oxygen to form sulfuric acid.
Airborne noise	Airborne noise is sound transmitted through the air/atmosphere, e.g. conversation between people.
Ambient noise	The all-encompassing noise at a point composed of sound from all sources near and far.
Ancillary facility area	Areas required for temporarily storing materials, plant and equipment and providing space for other ancillary facilities, such as site offices, during construction.
Annual Exceedance Probability (AEP)	The probability or likelihood of an event occurring or being exceeded within any given year.
Assessment background level (ABL)	The overall background level for each day, evening and night period for each day of the noise monitoring.
Australian Height Datum	The standard reference level used to express the relative height of various features. A height given in metres AHD is the height above mean sea level.
Average Recurrence Interval	The likelihood of occurrence, expressed in terms of the long-term average number of years, between flood events as large as or larger than the design flood event. For example, floods with a discharge as large as or larger than the 100-year ARI flood will occur on average once every 100 years.
Background noise	The underlying level of noise present in the ambient noise when extraneous noise (such as transient traffic and dogs barking) is removed. The L_{90} sound pressure level is used to quantify background noise.
Blue Book	Landcom, 2004, Managing Urban Stormwater: Soils and Construction, Volume 1 (Landcom, 2004) and Volume 2D (DECCW, 2008)
Community	A group of people living in a specific geographical area or with mutual interests that could be affected by the Project.
Construction	Includes all physical work required to construct the Project and also includes construction planning such as the development of construction management plans.
Day	The period from 7:00 am to 6:00 pm Monday to Saturday and 8:00 am to 6:00 pm Sundays and public holidays.
Decibel (dB)	The measurement unit of sound.

Term	Meaning
Detailed design	Detailed design broadly refers to the process that the Construction Contractor undertakes (should the Proposal proceed) to refine the concept design to a design suitable for construction (subject to Transport for New South Wales acceptance).
Down-side	Down-side refers to the direction of travel away from Central Station.
Disability Standards for Accessible Public Transport	The Commonwealth *Disability Standards for Accessible Public Transport 2002* ("DSAPT") (as amended) are a set of legally enforceable standards, authorised under the Commonwealth *Disability Discrimination Act 1992* (DDA) for the purpose of removing discrimination 'as far as possible' against people with disabilities. The Transport Standards cover premises, infrastructure and conveyances, and apply to public transport operators and premises providers.
Ecologically Sustainable Development	As defined by clause 7(4) Schedule 2 of the EP&A Regulation. Development that uses, conserves and enhances the resources of the community so that ecological processes on which life depends are maintained, and the total quality of life, now and in the future, can be increased.
Evening	The period from 6:00 pm to 10:00 pm Monday to Sunday and public holidays.
Feasible	A work practice or mitigation measure is feasible if it can be engineered and is practical to build and/or implement, given Project constraints such as safety, maintenance and reliability requirements.
Flow width	Flow width represents with width of water flow for a given rainfall event. Flow width limits are applied for the safety of vehicular traffic.
Frequency (noise)	The repetition rate of the cycle measured in Hertz (Hz). The frequency corresponds to the pitch of the sound. A high frequency corresponds to a high pitched sound and a low frequency to a low pitched sound.
Ground-borne noise	Ground-borne noise is noise generated by vibration transmitted through the ground into a structure, e.g. tunnelling works affected residential building above.
Impact	Influence or effect exerted by a project or other activity on the natural, built and community environment.
Interchange	Transport interchange refers to the area/s where passengers transit between vehicles or between transport modes. It includes the pedestrian pathways and cycle facilities in and around an interchange.
L_{10}	The sound pressure level exceeded for 10 per cent of the measurement period. For 10 per cent of the measurement period it was louder than the L_{10}.
L_{90}	The sound pressure level exceeded for 90 per cent of the measurement period. For 90 per cent of the measurement period it was louder than the L_{90}.
L_{max}	The maximum sound pressure level measured over the measurement period.
L_{min}	The minimum sound pressure level measured over the measurement period.
Maximum depth velocity	The product of depth of flow and velocity which typically represents a safety criteria for floodway safety.
Night	The period from 10:00 pm to 7:00 am Monday to Saturday and 10:00 pm to 8:00 am Sundays and public holidays.
Opal card	The integrated ticketing smartcard introduced by Transport for New South Wales. Opal is now the only way to travel via train, bus, ferry and light rail in NSW.
Out of hours works	Defined as works *outside* standard construction hours (i.e. outside of 7am to 6pm Monday to Friday, 8am to 1pm Saturday and no work on Sundays/public holidays).
Project area	The Project area comprises the overall potential area of direct disturbance by the Project, which may be temporary (for construction) or permanent (for operational infrastructure) and extend below the ground surface.

Term	Meaning
Proponent	A person or body proposing to carry out an activity under Division 5.1 of the EP&A Act - in this instance, Transport for New South Wales.
Rating background level (RBL)	The overall background level for each day, evening and night period for the entire length of noise monitoring.
Reasonable	Selecting reasonable measures from those that are feasible involves making a judgment to determine whether the overall benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the measure.
REDWatch	An active community group that covers the suburbs of Redfern, Eveleigh, Darlington and Waterloo.
SA2	As defined by the Australian Bureau of Statistics (ABS), are geographical regions that reflect functional areas and represent how communities interact socially and economically.
Secretary's Environmental Assessment Requirements (SEARs)	Requirements and specifications for an environmental assessment prepared by the Secretary of the Department of Planning, Industry and Environment under section 5.16 of the EP&A Act.
SEIFA	The socio-economic indices for areas (SEIFA) are scores and ratings used to broadly define the relative socio-economic advantage and/or disadvantage of an area in terms of a person's access to material and social resources, and the ability to participate in society (ABS, 2016).
Sensitive receivers	Persons, facilities, structures or organisms that are sensitive to potential noise, vibration, air and visual impacts, such as residents, schools, heritage structures and medical facilities.
Sound power level	The total sound emitted by a source.
Sound pressure level	The amount of sound at a specified point.
Special audible characteristics	Noise with characteristics that can cause annoyance and disturbance, containing noticeable factors such as tonality, low frequency noise, impulsive or intermittent noise events
Sydney Trains	From 1 July 2013, Sydney Trains replaced CityRail as the provider of metropolitan train services for Sydney.
The Project	The construction and operation of the Redfern Station Upgrade – New Southern Concourse.
Track possession	Track possession means the temporary closure of part of the railway network for a specified period of time for the purposes of carrying out repair, maintenance or upgrading work on or adjacent to the railway network, during which no trains operate.
Traffic noise	The total noise resulting from road traffic. The L_{eq} sound pressure level is used to quantify traffic noise.
Up-side	Up-side refers to the direction of travel towards Central Station.
Urban design	The process and product of designing human settlements, and their supporting infrastructure, in urban and rural environments.
Vibration intensive works	Works which use vibration intensive equipment such as jack hammers, piling rigs and rock breakers.

Table 2 Abbreviations

Term	Meaning
ABL	Assessment background level
ABS	Australian Bureau of Statistics
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
ANZEC	Australian and New Zealand Environment Council
ASS	Acid Sulfate Soils
ATAC	Accessible Transport Advisory Committee
AVATG	*Assessing Vibration: A Technical Guideline*
BC Act	*Biodiversity Conservation Act 2016 (NSW).*
BDAR	Biodiversity development assessment report
BEP	Built Environment Plan
BoM	Bureau of Meteorology
C2E	Central to Eveleigh
CBD	Central Business District
CCTV	Closed Circuit Television
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
CLM Act	*Contaminated Land Management Act 1997*
CLMP	Community Liaison Management Plan
CMP	Conservation Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CNVS	*Construction Noise and Vibration Strategy*
CPTED	Crime Prevention through Environmental Design
CSEP	Community Stakeholder Engagement Plan
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CTMP	Construction Traffic Management Plan
DA	Development application
dB	Decibel
dB(A)	A-weighted decibels
DBH	Diameter Breast Height
DBYD	Dial Before You Dig
DDA	*Disability Discrimination Act 1992* (Cwlth)
DECC	Department of Environment Climate Change
DECCW	Department of Environment, Climate Change and Water

Term	Meaning
DP	Deposited plans
DPC	Department of Premier and Cabinet
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and Environment
DSAPT	*Disability Standards for Accessible Public Transport (2002)*
DRP	Design Review Panel
EIA	Environmental Impact Assessment
EILs	Ecological investigation levels
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000* (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPI	Environmental Planning Instrument
ESD	Ecologically sustainable development
ESLs	Ecological screening levels
GDEs	Groundwater Dependent Ecosystems
GLVIA	*Guidelines for Landscape and Visual Impact Assessment*
GREP	*Government Resource Efficiency Policy*
GSC	Greater Sydney Commission
HARD	Historical Archaeological Research Design
Heritage Act	*Heritage Act 1977* (NSW)
HILs	Health investigation levels
HMP	Heritage Management Plan
HV	High Voltage
Hz	Hertz
ICNG	*Interim Construction Noise Guideline*
ICOMOS	International Council on Monuments and Sites
IHO	Interim Heritage Orders
IS	Infrastructure Sustainability
ISCA	Infrastructure Sustainability Council of Australia
ISEPP	*State Environmental Planning Policy (Infrastructure) 2007*
L_{Amax}	Maximum A-weighted sound pressure level
LCZs	Landscape Character Zones
LEP	Local Environmental Plan
LGA	Local Government Area

Term	Meaning
LiDAR	Light Detection and Ranging
LV	Low voltage
Mirvac	Mirvac Group
MCA	Multi criteria analysis
MLALC	Metropolitan Local Aboriginal Land Council
MNES	Matters of National Environmental Significance
NARCliM	NSW and ACT Regional Climate Modelling
NCA	Noise catchment areas
NCIE	National Centre of Indigenous Excellence
NEPC	National Environment Protection Council
NML	Noise management levels
NSW	New South Wales
NPW Act	*National Parks and Wildlife Act 1974*
OEH	NSW Office of the Environment and Heritage
OEMP	Operational Environmental Management Plan
OHW	Overhead wiring
OOHW	Out-of-Hours Works
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
PDP	Public Domain Plan
PM	Particulate matter
POEO Act	*Protection of the Environment Operations Act 1997*
RailCorp	(former) Rail Corporation of NSW
RBL	Rating background level
RCP	Representative Concentration Pathways
RNP	*NSW Road Noise Policy*
Roads and Maritime	NSW Roads and Maritime Services
ROLs	Road Occupancy Licences
ROTAP	Rare or Threatened Australian Plants
RPA	Royal Prince Alfred Hospital
SA2	Statistical Area Level 2
SDG	Sustainable Design Guidelines
SEARs	Secretary's environmental assessment requirements
SEIFA	Socio-economic indices for areas
SEPP	State Environmental Planning Policy
SHI	State Heritage Inventory
SHR	State Heritage Register

Term	Meaning
SIA	Social impact assessment
SIS	Building Momentum: State Infrastructure Strategy 2018-2038
SMP	Sustainability Management Plan
SSD	State significant development
SSI	State significant infrastructure
SSP	State Significant Precinct
STAR	Sydney Terminal Area Reconfiguration
TAP	Transport Access Program
TfNSW	Transport for New South Wales
TGSI	Tactile ground surface indicators
The Region Plan	The Greater Sydney Region Plan
TPZs	Tree Protection Zones
TSP	Total suspended particulates
UDP	Urban Design Plan
UNESCO	United Nations Educational, Scientific and Cultural Organization
UrbanGrowth (UGDC) (now Infrastructure NSW)	UrbanGrowth NSW Development Cooperation (now Infrastructure NSW)
VDV	Vibration dose values
VENM	Virgin excavated natural material
WARR Act	*Waste Avoidance and Resource Recovery Act 2007*
WSUD	Water sensitive urban design