NSW GOVERNMENT

Transport for NSW

St Peters Station Upgrade

Review of Environmental Factors

Artist's impression of the proposed St Peters Station Upgrade, subject to change during detailed design.

March 2021

St Peters – TAP3
Review of Environmental Factors

Transport Access Program
Ref – 6548524

Contents

Document control	
Status:	Final
Date of issue:	March 2021
Version:	1.0
Document author:	Valerie Donat
Document reviewers:	Deborah Dinardo

Figures

Tables

Abbreviations

Term	Meaning
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
APS	Access to Premises (Disability Standards)
ARI	Average Recurrence Interval
ASA	Asset Standards Authority (refer to Definitions)
ASS	Acid Sulfate Soils
BAZ	Boarding assistance zone
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016* (NSW)
CBD	Central Business District
CCTV	Closed Circuit TV
CEMP	Construction Environmental Management Plan
CLM Act	*Contaminated Land Management Act 1997* (NSW)
CNVMP	Construction Noise and Vibration Management Plan
CNVS	Construction Noise and Vibration Strategy (Transport for NSW, 2019)
CPTED	Crime Prevention Through Environmental Design
CTMP	Construction Traffic Management Plan
DAWE	Department of Agriculture, Water and the Environment (Cwlth)
dbA	A-weighted decibel
DBH	Diameter Breast Height
DBYD	Dial Before You Dig
D&C	Design & Construct
DDA	*Disability Discrimination Act 1992* (Cwlth)
DoE	Commonwealth Department of the Environment
DP&E	NSW Department of Planning and Environment
DPIE	NSW Department of Planning, Industry and Environment

Term	Meaning
DSAPT	*Disability Standards for Accessible Public Transport (2002)*
DSI	Detailed Site Investigation (Phase II Contamination Investigation)
ECM	Environmental Controls Map
EES	NSW Environment, Energy and Science (Division of Department of Planning Industry and Environment) (formerly OEH)
EMS	Environmental Management System
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
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development (refer to Definitions)
ETS	Electronic Ticketing System
FM Act	*Fisheries Management Act 1994* (NSW)
Heritage Act	*Heritage Act 1977* (NSW)
HV	High Voltage
ICNG	*Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2000).
Infrastructure SEPP	*State Environmental Planning Policy (Infrastructure) 2007* (NSW)
IS rating	Infrastructure Sustainability rating under ISCA rating tool (v 1.2)
IMSB	Installation main switch board. A switchboard that will supply the required power to the lifts (and other station systems) from the pad mount transformer
ISCA	Infrastructure Sustainability Council of Australia
LCZ	Landscape character zone
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
LV	Low Voltage

Term	Meaning
MTMS	More Trains More Services program
NCA	Noise catchment area
NES	National Environmental Significance
NML	Noise Management Level
NPI	Noise Policy for Industry (EPA, 2017)
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
OEH	Formerly NSW Office of the Environment and Heritage
OHWS	Overhead Wire Structure
OOHW	Out of hours works
PA system	Public Address system
PCB	Polychlorinated biphenyl
PDP	Public Domain Plan
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
PTNL	Project Trigger Noise Level
RailCorp	(former) Rail Corporation of NSW
RAP	Remediation Action Plan
RBL	Rating Background Level
REF	Review of Environmental Factors (this document)
Roads Act	*Roads Act 1993* (NSW)
Roads and Maritime	NSW Roads and Maritime Services (formerly Roads and Traffic Authority)
ROL	Road Occupancy Licence
SDR	System Definition Review
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
SoHI	Statement of Heritage Impact
TAHE	Transport Asset Holding Entity (a NSW Government State Owned Corporation)

Term	Meaning
TAP	Transport Access Program
TCP	Traffic Control Plan
TfNSW	Transport for NSW
TGSI	Tactile Ground Surface Indicators (“tactiles”)
TMP	Traffic Management Plan
TPZ	Tree Protection Zone
TVM	Ticket Vending Machine
UDP	Urban Design Plan
VDV	Vibration Dose Value
WARR Act	*Waste Avoidance and Resource Recovery Act 2001* (NSW)
WM Act	*Water Management Act 2000* (NSW)

Definitions

Term	Meaning
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.
Asset Standards Branch	The Asset Standards Branch (formerly Asset Standards Authority - ASA) is a part of Transport for NSW, and responsible for engineering governance, assurance of design safety, and ensuring the integrity of transport and infrastructure assets. Within the rail environment, Design Authority functions formerly performed by ASA are now exercised by the Asset Management Branch.
Design and Construct Contract	A method to deliver a project in which the design and construction services are contracted by a single entity known as the Contractor. The Contractor completes the project by refining the concept design presented in the REF and completing the detailed design so that it is suitable for construction (subject to Transport for NSW acceptance). The Contractor is therefore responsible for all work on the project, both design and construction.
Detailed design	Detailed design broadly refers to the process that the Contractor undertakes (should the Proposal proceed) to refine the concept design to a design suitable for construction (subject to Transport for NSW acceptance).
Disability Standards for Accessible Public Transport	The Commonwealth *Disability Standards for Accessible Public Transport 2002* ("Transport Standards") (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.
Feasible	A work practice or abatement measure is feasible if it is capable of being put into practice or of being engineered and is practical to build given project constraints such as safety and maintenance requirements.
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.
Noise sensitive receiver	In addition to residential dwellings, noise sensitive receivers include, but are not limited to, hotels, entertainment venues, pre-schools and day care facilities, educational institutions (e.g. schools, TAFE colleges), health care facilities (e.g. nursing homes, hospitals), recording studios and places of worship/religious facilities (e.g. churches).
NSW Trains	From 1 July 2013, NSW Trains became the new rail provider of services for regional rail customers.
Opal card	The integrated ticketing smartcard being introduced by Transport for NSW.

Term	Meaning
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).
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 NSW.
Rail possession / shutdown	Shutdown is the term used by railway building/maintenance personnel to indicate that they have taken possession of the track (usually a section of track) for a specified period, so that no trains operate for a specified time. This is necessary to ensure the safety of workers and rail users.
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.
Scoping design	The scoping design is the preliminary design presented in this REF, which would be refined by the Contractor (should the Proposal proceed) to a design suitable for construction (subject to Transport for NSW acceptance).
Sensitive receivers	Land uses which are sensitive to potential noise, air and visual impacts, such as residential dwellings, schools and hospitals.
Sydney Trains	From 1 July 2013, Sydney Trains replaced CityRail as the provider of metropolitan train services for Sydney.
Tactiles	Tactile tiles or Tactile Ground Surface Indicators (TGSIs) are textured ground surface indicators to assist pedestrians who are blind or visually impaired. They are found on many footpaths, stairs and train station platforms.
The Proposal	The construction and operation of the St Peters Station upgrade.
Vegetation Offset Guide	The Transport for NSW guide that applies where there is vegetation clearing proposed, and where the impact of the proposed clearing is not deemed 'significant' for the purposes of section 5.5 of the EP&A Act. z The Guide provides for planting of a minimum of eight trees for each large tree with a diameter at breast height (DBH) of more than 60 cm, four trees where the DBH is 15-60 cm, or two trees where DBH is less than 15 cm.

Executive summary

Overview

The NSW Government is upgrading St Peters Station to improve accessibility and to prepare for service improvements to the T3 Bankstown and T8 Airport and South lines. The St Peters Station Upgrade (the Proposal) forms part of two NSW Government initiatives:

- the Transport Access Program (TAP), which aims to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. Under this program, work is proposed to provide a station precinct at St Peters that is accessible to people with a disability, limited mobility, parents/carers with prams and customers with baggage.
- the More Trains, More Services (MTMS) Program will transform the rail network over the next ten years and provide customers with more reliable, high capacity turn up and go services. This program includes a network reconfiguration strategy that will result in customers boarding and alighting trains at St Peters Station predominantly from Platforms 3 and 4 (as opposed to current operations which primarily utilise Platforms 1 and 2).

The Proposal would provide:

- two new lifts, lift landings and lift canopies at the Sydney (eastern) end of Platforms 1/2 and 3/4, connecting to the existing eastern footbridge
- closure and removal of the concourse retail kiosk for the installation of a new lift servicing Platform 1/2
- new canopies and anti-throw screens to stairs on Platform 3/4
- new canopies along Platform 3/4 for weather protection
- a standalone canopy at the western end of Platform 1 for weather protection at the boarding assistance zone (BAZ)
- modifications to the existing footbridge safety screens at new lift interface locations
- reconfiguration of the existing concourse building to accommodate a new family accessible toilet, new installation main switch board (IMSB) and existing station systems. A new switchboard would supply the required power to the lifts (and other station systems) from a pad mount transformer
- provision of one kiss and ride area on Goodsell Street and two on Lord Street
- regrading of the footpaths and landscaping work at the station entrances from Lord Street, King Street and Goodsell Street
- provision of up to six additional bike hoops at Railway Lane and Lord Street
- improvements to customer information and communications systems including wayfinding modifications, public address (PA) system modifications and new hearing induction loops as required
- platform regrading and the installation of new Tactile Ground Surface Indicators (TGSI) along the platforms
- improvements to station lighting and CCTV to improve safety and security

- electrical upgrades and service relocations and/or adjustments to accommodate the new infrastructure, including replacement of an existing transformer.

Transport for NSW (TfNSW) is the government agency responsible for the delivery of major transport infrastructure projects in NSW and is the proponent for the Proposal.

This Review of Environmental Factors (REF) has been prepared to assess all matters affecting or likely to affect the environment by reason of the construction and operation of the Proposal under the provisions of Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Subject to approval, construction is expected to commence in 2021 and take around 24 months to complete. A detailed description of the Proposal is provided in Chapter 3 of this REF. An overview of the Proposal is shown in Figure ES-1.

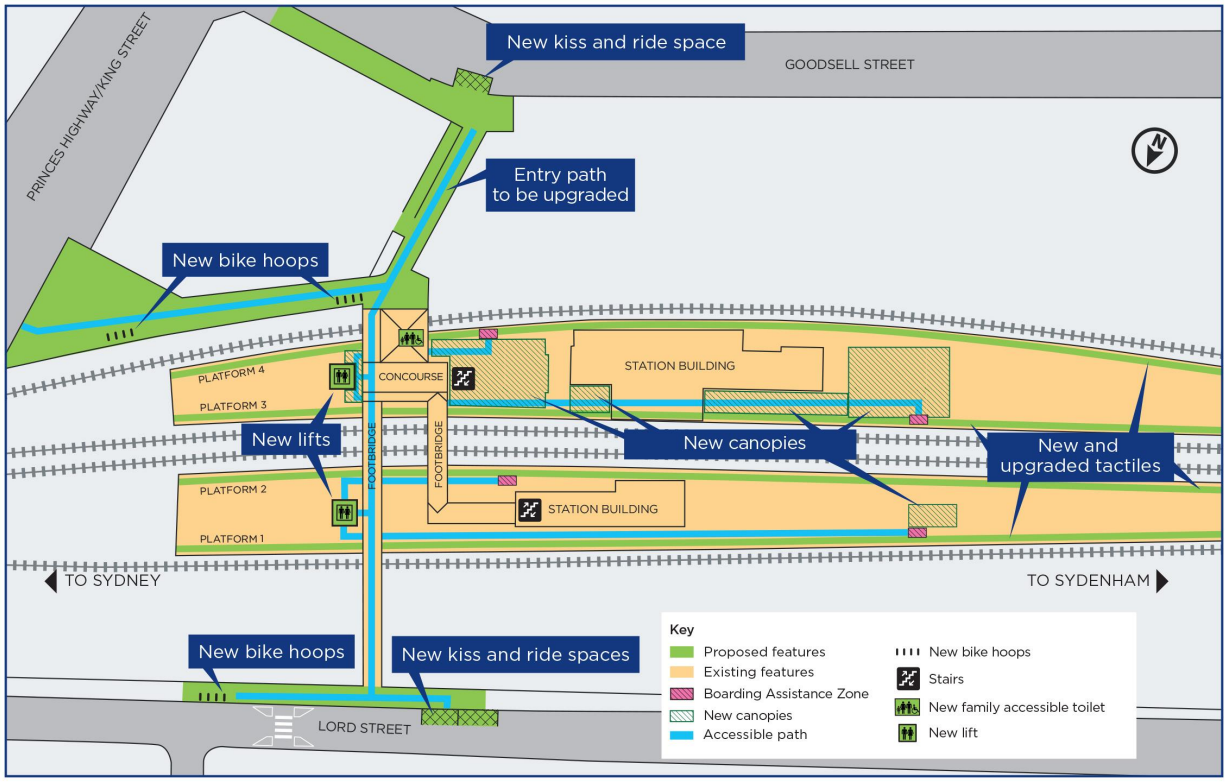

Figure ES-1 Key features of the Proposal

Need for the Proposal

The Proposal would ensure that St Peters Station would meet legislative requirements under the *Disability Discrimination Act 1992* (DDA) and the *Disability Standards for Accessible Public Transport 2002* (DSAPT). The Proposal would also ensure that customers receive a continuing level of amenity, safety and comfort on Platforms 3 and 4. The canopies proposed for these platforms would encourage customers to spread evenly along these platforms during inclement weather, reducing train dwell times and improving timetable reliability.

The Proposal is designed to drive a stronger customer experience outcome, to deliver improved travel to and between modes, encourage greater public transport use and better integrate interchanges with the role and function of town centres. The Proposal would also assist in responding to forecasted growth in the region and as such would support growth in commercial and residential development.

Chapter 2 of this REF further describes the need for the Proposal and outlines the options considered in developing the design.

Community and stakeholder consultation

Community consultation activities for the Proposal would be undertaken during the public display period of this REF with the public invited to submit feedback to help Transport for NSW understand what is important to customers and the community. The REF would be displayed for a period of two weeks. Further information about these specific consultation activities is included in Section 5 of this REF.

During the display period a Project Infoline (1800 684 490) and email address (projects@transport.nsw.gov.au) would also be available for members of the public to make enquiries.

In accordance with the requirements of the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP), consultation is required with local councils and/or public authorities in certain circumstances, including where council managed infrastructure is affected. Consultation has been undertaken with Inner West Council during the development of the design. Consultation will continue through the detailed design and construction of the Proposal.

Feedback can be sent to:

- projects@transport.nsw.gov.au
- Transport Access Program – St Peters Station Upgrade
  Associate Director Environmental Impact Assessment
  Transport for NSW
  PO Box K659
  Haymarket NSW 1240

Or submitted:

- via transport.nsw.gov/stpeters

Transport for NSW would review and assess all feedback received during the public display period, prior to determining whether or not to proceed with the Proposal.

Should the Proposal proceed to construction, the community would be kept informed throughout the duration of the construction period. Figure ES-2 shows the planning approval and consultation process for the Proposal.

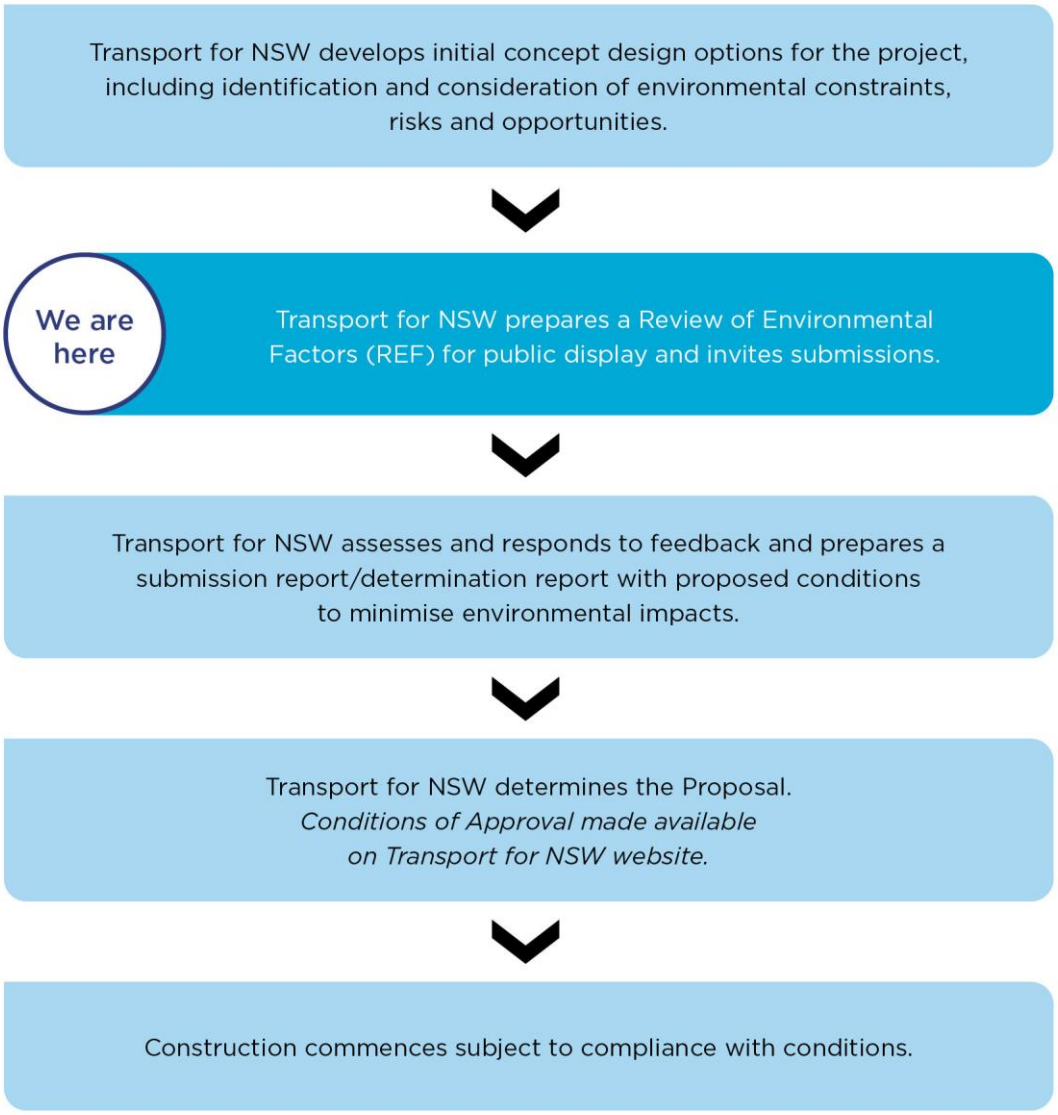

Figure ES-2 Planning approval and consultation process for the Proposal

Environmental impact assessment

This REF identifies the potential environmental benefits and impacts of the Proposal and outlines the mitigation measures to reduce the identified impacts.

The Proposal would provide the following benefits:

- improve accessibility to and around the station by providing two new lifts, lift landings and lift canopies to the eastern side of Platform 1/2 and Platform 3/4 connecting to the existing footbridge, and three kiss and ride areas on Goodsell Street and Lord Street
- improve customer amenity by installing new canopies on the platforms and stairs on Platform 3/4 and a standalone canopy at the western end of Platform 1 to provide weather protection at the BAZ, and accommodating a new family accessible toilet in the concourse building
- improve customer safety by modifying existing footbridge safety screens at new lift interface locations, improving station lighting and CCTV, platform regrading

and installing new tactiles along the platforms, and regrading footpaths at the station entrances from Lord Street, King Street and Goodsell Street

- improve customer experience by upgrading customer information and communication systems, adjusting wayfinding signage and landscaping work.

The following key impacts have been identified should the Proposal proceed:

- temporary changes to pedestrian and cyclist movements along Goodsell Street and Lord Street during construction work
- temporary changes to traffic movements and availability of parking as a result of upgrade work and presence of construction vehicles on Lord Street, King Street and Concord Street, and the delivery of construction plant and materials
- temporary change to the visual environment during construction phase due to fencing and hoarding, road barriers and signage, formwork and scaffolding, cranes and other construction equipment, site office and amenities, and night lighting
- temporary noise and vibration emissions during construction, which are predicted above 75 dBA $_{LAeq(15minute)}$ at residential receivers directly adjacent St Peters Station (along Goodsell Street and Lord Street) during the operation of noise intensive equipment v
- minor adverse direct impact and moderate adverse visual impact on the heritage significance of St Peters Station associated with the addition of two new lifts, proposed canopies and stair upgrades.

Further information regarding these impacts is provided in Chapter 6 of the REF.

Conclusion

This REF has been prepared having regard to sections 5.5 and 5.7 of the EP&A Act, and clause 228 of the EP&A Regulation, to ensure that Transport for NSW takes into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the Proposal.

The detailed design of the Proposal would also be designed in accordance with the Infrastructure Sustainable Council of Australia (ISCA) Infrastructure Sustainable (IS) Rating Tool (v 1.2) taking into account the principles of ecologically sustainable development (ESD).

Should the Proposal proceed, any potential associated adverse impacts would be appropriately managed in accordance with the mitigation measures outlined in this REF, and the Conditions of Approval imposed in the Determination Report. This would ensure the Proposal is delivered to maximise benefit to the community and minimise any adverse impacts on the environment.

In considering the overall potential impacts and proposed mitigation measures outlined in this REF, the Proposal is unlikely to significantly affect the environment including critical habitat or threatened species, populations, ecological communities or their habitats.

An artist's impression aerial view of the Proposal is shown in **Figure ES-3** below.

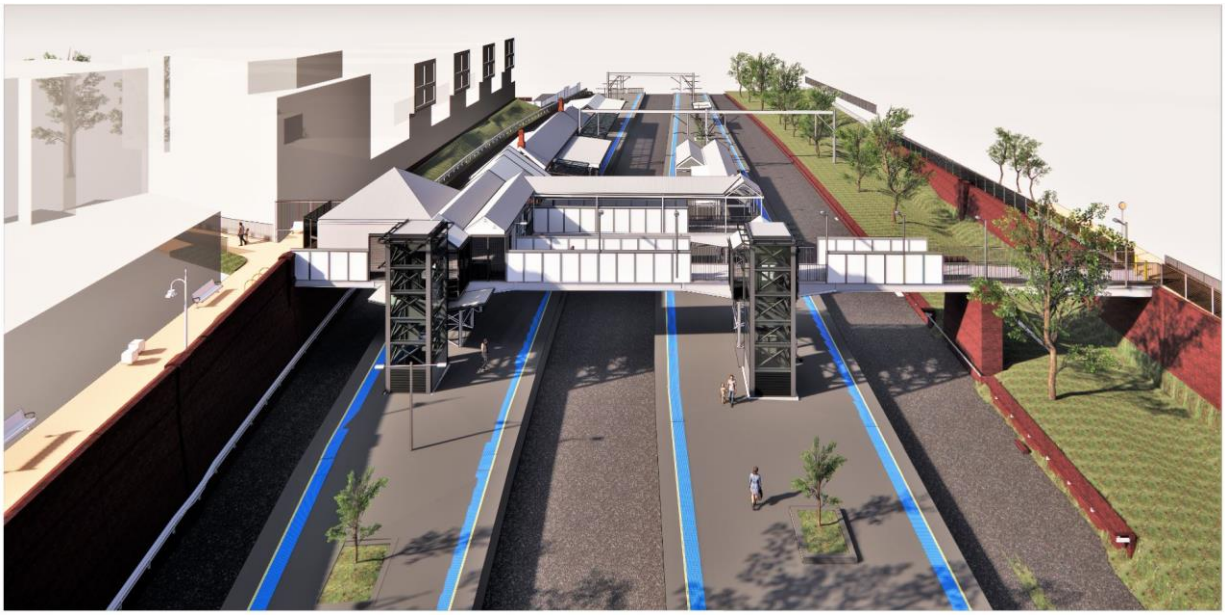

Figure ES-3 Artist's impression aerial view of Proposal

1 Introduction

Transport for NSW is responsible for strategy, planning, policy, procurement, regulation, funding allocation and other non-service delivery functions for all modes of transport in NSW including road, rail, ferry, light rail, point to point, cycling and walking. Transport for NSW is the proponent for the St Peters Station Upgrade (the 'Proposal').

1.1 Overview of the Proposal

The NSW Government is committed to facilitating and encouraging the use of public transport, such as trains, by upgrading stations to make them more accessible, and improving interchanges around stations with other modes of transport such as buses, bicycles, and cars. The NSW Government is also committed to building a modern and up-to-date rail system that will play its part in making Sydney a more productive and liveable city.

1.1.1 The need for the Proposal

The St Peters Station Upgrade, the subject of this Review of Environmental Factors (REF), forms part of the Transport Access and More Trains More Services (MTMS) programs.

The Transport Access Program (TAP) is an initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. The MTMS program will transform the rail network and provide customers with more reliable, high capacity turn up and go services.

The Proposal would improve accessibility of the station in line with the requirements of the Commonwealth *Disability Discrimination Act 1992* (DDA) and the *Disability Standards for Accessible Public transport 2020* (DSAPT). The Proposal would also ensure that customers at the station receive a continuing level of amenity, safety and comfort whilst improving timetable reliability.

The needs and objectives of the Proposal are further discussed in Chapter 2 of this REF.

1.1.2 Key features of the Proposal

The key features of the Proposal are summarised as follows:

- two new lifts, lift landings and lift canopies at the Sydney (eastern) end of Platforms 1/2 and 3/4, connecting to the existing eastern footbridge
- closure and removal of the concourse retail kiosk for the installation of a new lift servicing Platform 1/2
- new canopies and anti-throw screens to stairs on Platform 3/4
- new canopies along Platform 3/4 for weather protection
- a standalone canopy at the western end of Platform 1 for weather protection at the boarding assistance zone (BAZ)
- modifications to the existing footbridge safety screens at new lift interface locations
- reconfiguration of the existing concourse building to accommodate a new family accessible toilet, new installation main switch board (IMSB) and existing station systems. A new switchboard would supply the required power to the lifts (and other station systems) from the pad mount transformer
- provision of one kiss and ride area on Goodsell Street and two on Lord Street

- regrading of the footpaths and landscaping work at the station entrances from Lord Street, King Street and Goodsell Street
- provision of up to six additional bike hoops at Railway Lane and Lord Street
- improvements to customer information and communications systems including wayfinding modifications, public address (PA) system modifications and new hearing induction loops as required
- platform regrading and the installation of new Tactile Ground Surface Indicators (TGSI) along the platforms
- improvements to station lighting and CCTV to improve safety and security
- electrical upgrades and service relocations and/or adjustments to accommodate the new infrastructure, including replacement of an existing transformer.

Subject to planning approval, construction is expected to commence in 2021 and take around 24 months to complete.

A detailed description of the Proposal is provided in Chapter 3 of this Review of Environmental Factors (REF).

1.2 Location of the Proposal

The Proposal would involve upgrade work to St Peters Station, which is located in the suburb of St Peters in the Inner West and City of Sydney Local Government Areas (LGA) about four kilometres southwest of the Sydney Central Business District (CBD). The location of the station and its regional context is shown in Figure 1.1, and the key features located around the station is shown in Figure 1.9

St Peters Station consists of three island platforms located on the Illawarra line and is currently served by the T3 Bankstown line services. It is bound by Lord Street to the north, and residential properties along Goodsell Street to the south, with the eastern footbridge crossing over the rail corridor and providing pedestrian access to the station concourse. A secondary footbridge (‘western footbridge’) is located immediately adjacent to the main footbridge (‘eastern footbridge’) provides pedestrian access from the concourse to the station platforms.

The Proposal includes upgrades to St Peters Station on land owned by the Transport Asset Holding Entity (TAHE) and managed by Sydney Trains within the station precinct, with some work also proposed along the station entrances which are managed by the Inner West Council.

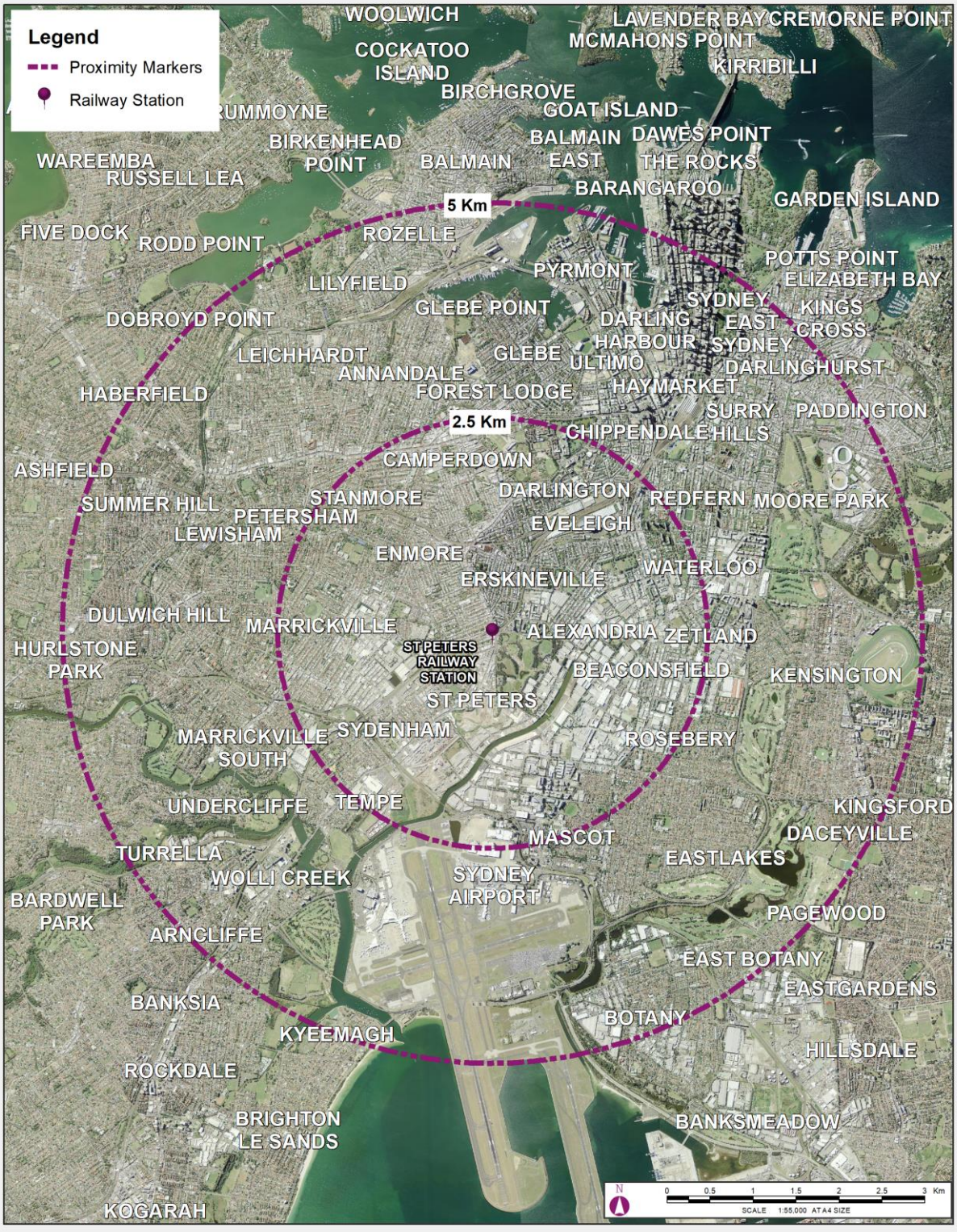

Figure 1.1 Regional context of the Proposal

1.3 Existing infrastructure and land uses

1.3.1 St Peters Station

St Peters Station is accessed via an eastern pedestrian footbridge from Lord Street and a pedestrian pathway from Goodsell Street and King Street. The eastern pedestrian footbridge and pedestrian pathway connect to the station concourse and overhead booking office, and the western pedestrian footbridge links the station concourse to the platforms via two sets of stairs.

There are three platform islands at the station. The two southern platform islands, Platform 1/2 and Platform 3/4 are currently in use, while the northern platform island adjacent to Lord Street is currently disused. Platform 1 provides services to Central Station and the City Circle and Platform 2 provides services to Campbelltown and Macarthur, and Lidcombe and Liverpool via Bankstown. There are no regular services on Platform 3 and 4. A small kiosk is located directly above Platform 1/2 at the station concourse.

There are two bus stops located approximately 30-40 metres north of the station along King Street, and two bus stops located approximately 80-100 metres east of the station along Sydney Park Road. There is a taxi rank located on Goodsell Street, which is accessed from the pedestrian pathway. There is a designated parking area at the Lord Street station entrance for authorised car share vehicles, which is accessed from the eastern pedestrian footbridge.

There are bicycle parking facilities at the Goodsell Street/King Street station entrance, providing capacity for two bicycles in total.

King Street has a road bridge and footpath which crosses the rail corridor over the eastern end of the platform.

St Peters Station Group is listed on the RailCorp Section 170 Heritage and Conservation Register (s170 register). St Peters Station is considered to have historical significance as St Peters Station was one of the earliest railway stations on the Illawarra line, opening in 1884, and was instrumental in the development of the St Peters and Newtown residential and industrial areas. The eastern and western footbridges, station building and the platforms remain in good condition and retain heritage significance in terms of their integrity and aesthetics.

Features of St Peters Station are shown in Figure 1.2 to Figure 1.8.

Figure 1.2 View of the pedestrian access from King Street

Figure 1.3 Lord Street station entrance and eastern pedestrian footbridge

Figure 1.4 View of the pedestrian access from Goodsell Street and southern station entrance

Figure 1.5 View of Platform 1 and the disused northern platform from the eastern footbridge

Figure 1.6 View of the eastern pedestrian footbridge, station concourse and station footbridge

Figure 1.7 Station concourse

Figure 1.8 View of the Platform 3/4 building from the concourse stairs

1.3.2 Land uses

Under the *Marrickville Local Environmental Plan 2011* (Marrickville LEP) and *Sydney Local Environmental Plan 2012* (Sydney LEP), the rail infrastructure is zoned SP2 Infrastructure. There is land zoned public recreation approximately 30 metres south west of the rail corridor on King Street (Sydney Park) and immediately adjacent to the rail corridor on Goodsell Street (Camdenville Park). The surrounding area around St Peters Station is a combination of land zonings, including R2 Low Density Residential, R3 Medium Density Residential, R4 High Density Residential, B2 Local Centre and B5 Business Development.

The proposed work to the interchange facilities on Goodsell Street and pedestrian access from Goodsell Street and King Street are within land zoned B5 Business Development.

There are four schools located within 500 metres of the station including:

- Camdenville Public School located approximately 250 metres northwest of the station
- Camdenville Public School Preschool located approximately 240 metres northwest
- St Pius' Catholic Primary School located approximately 390 metres west
- St Peters Public School located approximately 500 metres south.

The King Street local town centre is located north of the station, comprising numerous food and retail outlets, including the Botany View Hotel, and recreational venues including Fitness Playground Newtown. Sydney Park, the third-largest park in inner city Sydney, is located immediately south east of the station.

The site locality is shown in Figure 1.9.

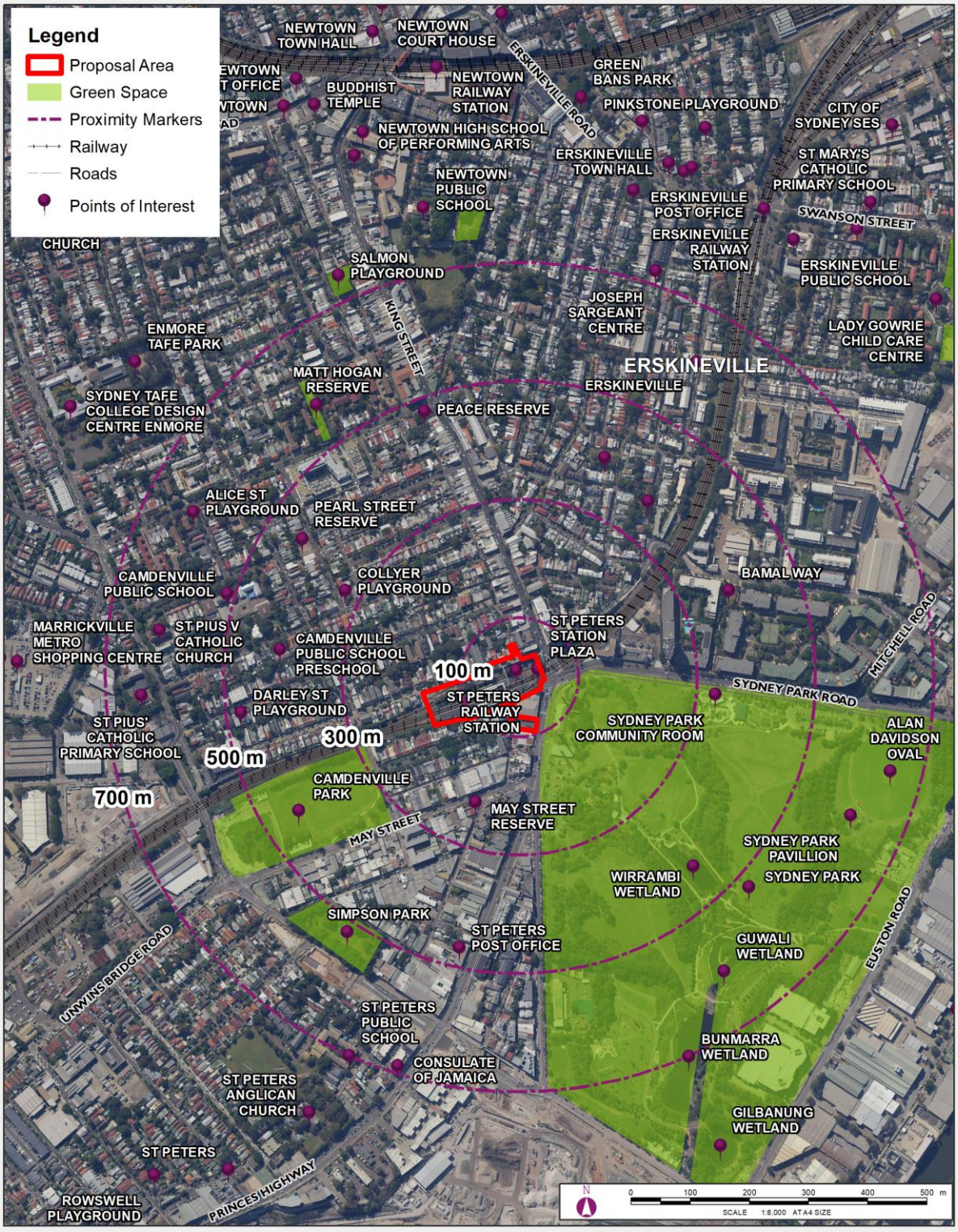

Figure 1.9 Site locality map

1.4 Purpose of this Review of Environmental Factors

This REF has been prepared by RPS on behalf of Transport for NSW to assess the potential impacts of the St Peters Station Upgrade. For the purposes of this work, Transport for NSW is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of this REF is to describe the Proposal, to assess the likely impacts of the Proposal having regard to the provisions of Section 5.5 of the EP&A Act, and to identify mitigation measures to reduce the likely impacts of the Proposal. This REF has been prepared in accordance with clause 228 of the *Environment Planning and Assessment Regulation 2000* (EP&A Regulation).

This assessment has also considered the relevant provisions of other relevant environmental legislation, including the *Biodiversity Conservation Act 2016* (BC Act), *Fisheries Management Act 1994* (FM Act) and the *Roads Act 1993* (Roads Act).

Having regard to the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), this REF considers the potential for the Proposal to have a significant impact on matters of National Environmental Significance (NES) or Commonwealth land, and the need to make a referral to the Commonwealth Department of the Environment and Energy for any necessary approvals under the EPBC Act. Refer to Chapter 4 for more information on statutory considerations.

2 Need for the Proposal

Chapter 2 discusses the need and objectives of the Proposal, having regard to the objectives of the TAP and the specific objectives of the Proposal. This chapter also provides a summary of the options that have been considered during development of the Proposal and why the preferred option has been chosen.

2.1 Strategic justification

Improving transport customer experience is the focus of the NSW Government's transport initiatives. Transport interchanges and train stations are the important gateways to the transport system and as such play a critical role in shaping the customer's experience and perception of public transport.

The St Peters Station Upgrade, the subject of this REF, forms part of the TAP. This program is designed to drive a stronger customer experience outcome to deliver seamless travel to and between modes, encourage greater public transport use and better integrate station interchanges with the role and function of town centres within the metropolitan area and developing urban centres in regional areas of NSW.

St Peters Station Upgrade also forms part of the MTMS Program, which is a program of staged investments that will progressively transform the rail network into a modern and reliable mass transit system using world class digital technology. The program is already delivering better customer outcomes through timetable enhancements and integration of Sydney Metro Northwest with the heavy rail network. The current stage of the MTMS Program will focus on delivering greater capacity, reliability and connectivity for customers on the T4 Eastern Suburbs & Illawarra Line, South Coast Line and T8 Airport and South Line.

As part of the broader network re-configuration strategy, customers will board and alight trains at St Peters from different platforms and these alternative platforms do not currently have sufficient canopy cover for customer amenity. The Proposal involves canopy upgrades to platforms at these stations to ensure that customers continue to receive a level of amenity, safety and comfort spread evenly along the platform.

Table 2.1 provides an overview of NSW Government policies and strategies relevant to the Proposal.

Table 2.1 Key NSW Government policies and strategies applicable to the Proposal

Policy / Strategy	Overview	How the Proposal aligns
Future Transport Strategy 2056 (TfNSW, 2018a)	*Future Transport 2056* is an update of NSW's *Long Term Transport Master Plan*. It is a suite of strategies and plans for transport to provide an integrated vision for the state. *Future Transport 2056* identifies 12 customer outcomes to guide transport investment in Greater Sydney. These outcomes include transport providing convenient access, supporting attractive places and providing 30-minute access for customers to their nearest centre by public transport and the provision of accessible transport services.	The TAP is identified in the Strategy as an example of the NSW Government working to improve accessibility of the rail network. As identified in the Strategy, the delivery and modernisation of infrastructure would allow greater access for people with disabilities and those with limited mobility. The Proposal would assist in meeting the following State-wide outcomes detailed in *Future Transport 2056*: • encouraging active travel (walking and cycling) and using public transport • a fully accessible network that enables barrier-free travel for all.

Policy / Strategy	Overview	How the Proposal aligns
		The Strategy also identifies the MTMS Program as a priority initiative to provide modern and reliable turn-up-and-go services to customers. The Proposal forms part of the MTMS Program and would deliver on the customer focus, safety and performance outcomes of the Strategy.
Disability Inclusion Action Plan (2018-2022) (TfNSW, 2017a)	The *Disability Inclusion Action Plan 2018-2022* was developed by Transport for NSW in consultation with the Accessible Transport Advisory Committee, which consists of representatives from peak disability and ageing organisations within NSW. The Disability Plan identifies the challenges, the achievements to date, the considerable undertaking that is required to finish the job and provides a solid and practical foundation for future progress over the next five years.	The TAP has been identified in this Plan as a key action to ensure transport networks in Sydney are accessible for all potential users. The Proposal has been developed with consideration of the objectives outlined in this Plan and seeks to improve and provide equitable access to public transport facilities. The Proposal would also make St Peters a more liveable community for people with a disability by improving accessibility at St Peters Station and interchange at the station to other transport modes including bus, taxi and private vehicles.
A Metropolis of Three Cities - Greater Sydney Region Plan (Greater Sydney Commission, 2018)	The *Greater Sydney Region Plan* is the NSW Government's 40-year land use plan for Sydney. It establishes a vision for a metropolis of three cities – the Eastern Harbour City, Central River City and Western Parkland City. One of the ten directions of the framework is a well-connected city, by developing a more accessible and walkable city, through optimising existing infrastructure where possible.	The Proposal would enable equitable access to services and employment as well as social and cultural opportunities through investment in transport. The proposed upgraded infrastructure and station entrances would promote public transport movements, walking, cycling and social opportunity, which contribute to the character and identity of the area.
Eastern City District Plan (Greater Sydney Commission, 2018b)	The *Eastern City District Plan* has been prepared to align with the visions and objectives of the *Greater Sydney Region Plan*. This Plan covers the Inner West and City of Sydney LGAs and is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney. The vision includes aligning growth with infrastructure, including transport, social and green infrastructure, and delivering sustainable, smart and adaptable solutions.	Planning Priority E1 is about planning for a city supported by infrastructure through transport programs and investing in transport interchanges. Planning Priority E10 is about delivering integrated land use and transport planning. The Proposal would upgrade St Peters Station to be accessible by wheelchair and also improve access for people with limited mobility. As such, the Proposal aligns with the vision of the Plan to focus on accessibility and inclusion when designing and building public transport.

Policy / Strategy	Overview	How the Proposal aligns
Building Momentum – State Infrastructure Strategy 2018-2038 (Infrastructure NSW, 2018)	The *State Infrastructure Strategy 2018-2038* makes recommendations for each of NSW's key infrastructure sectors including transport. Public transport is viewed as critical to productivity, expanding employment opportunities by connecting people to jobs, and reducing congestion.	The Proposal would upgrade public transport services to provide access for a wider range of customers. It would also involve the upgrade of existing infrastructure which aligns with an objective of the strategy to optimise the use of the State's existing assets.
Our Inner West 2036 (Inner West council, 2018)	*Our Inner West* is the Community Strategic Plan for the Inner West Council which identifies the community's vision, goals and strategies for the future. The Community Strategic Plan has a focus on providing unique, liveable, networked neighbourhoods and providing improved public transport services to, through and around the Inner West.	The Proposal would assist in meeting the goals of *Our Inner West 2036* of creating an accessible public transport network that meets the diverse and changing needs of the community. The Proposal would align with the population growth and ensure that public transport services are able to be used by a greater proportion of the community.
Sustainable Sydney 2030 (Council of the City of Sydney, 2017)	*Sustainable Sydney 2030* is the Community Strategic Plan for the City of Sydney and outlines the strategies and action plans for a green, global and connected city. The plan includes a strategic direction for integrated transport for a connected city with an objective to provide transport services and infrastructure that is accessible.	The Proposal would assist the goals of *Sustainable Sydney 2030* by upgrading the public transport services to be accessible to a wider range of the community. The Proposal also aligns with the strategies of creating a connected city through the upgrade and improvement of the public transport network in St Peters.
City Plan 2036 (Council of the City of Sydney, 2020)	*City Plan 2036* is the Local Strategic Planning Statement that links the NSW Government's strategic plans, the *Sustainable Sydney 2030* community strategic plan and the planning controls for the City of Sydney. The planning statement identifies planning priorities for infrastructure and liveability, supporting the strategic direction for a green, global and connected city.	The Proposal would support the planning priorities of the *City Plan 2036* improving infrastructure and liveability by upgrading the public transport services at St Peters Station to be accessible and more connected to the surrounding community.

2.2 Objectives of the Transport Access Program

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 where it is needed most. The program aims to provide:

- stations that are accessible to those with disabilities, the ageing and parents/carers with prams and customers with luggage
- modern buildings and facilities for all modes that meet the needs of a growing population
- modern interchanges that support an integrated network and allow seamless transfers between all modes for all customers

- safety improvements including extra lighting, lift alarm, fences and security measures for car parks and interchanges, including stations, bus stops and wharves
- signage improvements so customers can more easily use public transport and transfer between modes at interchanges
- other improvements and maintenance such as painting, new fencing and roof replacements.

2.3 Objectives of the More Trains More Services Program

Over the next ten years the MTMS Program will simplify and modernise the rail network, creating high capacity and turn-up-and-go services for many customers. Customers will experience more frequent train services, with less wait times, less crowding and more seats on a simpler, more reliable network.

The MTMS Program is about building a modern and up-to-date rail system that will play its part in making Sydney a more productive and liveable city. The NSW Government's *Future Transport Strategy 2056* (Transport for NSW, 2018a) identifies MTMS as a priority initiative and is a commitment to the State's transport and infrastructure needs.

MTMS is key to enabling Greater Sydney Commission's vision for the Greater Sydney Region Plan, A Metropolis of Three Cities (Greater Sydney Commission, 2018a), where most residents live within 30 minutes of their jobs, education and health facilities, services, and great places.

MTMS is a program of staged investments that will progressively transform the rail network into a modern and reliable system using world class technology.

The program is already delivering better customer outcomes through timetable enhancements and the integration of the Sydney Metro CBD and South West with the existing heavy rail network. The current stage of MTMS will focus on delivering greater capacity, reliability and connectivity for customers on the T4 Eastern Suburbs & Illawarra Line, South Coast Line and T8 Airport & South Line.

These services will be enabled by upgrading and modernising signalling and control systems and using digital technology that, when combined with other infrastructure upgrades, will deliver major increases in the capacity and reliability of the network.

2.4 Objectives of the Proposal

The specific objectives of the St Peters Station Upgrade are to:

- provide a station that is accessible to those with a disability, the ageing and parents/carers with prams and customers with luggage
- improve customer experience (weather protection, better interchange facilities and visual appearance)
- minimise pedestrian conflict and crowding points
- improve integration with surrounding precinct
- improve customer safety (CCTV and lighting upgrades)
- improve wayfinding in and around the station
- respond to the heritage values of the site
- improve customer amenity

- minimise impacts to existing vegetation.

2.5 Design development

Options for improving access to St Peters Station were developed following workshops with a stakeholder working group that included representatives from Transport for NSW and the design team. Two design options were developed from those workshops, which involved providing lifts at the existing footbridge. Due to the constructability, deliverability and heritage considerations, a third option was introduced which proposed a third location for the proposed lifts. The three options considered are further discussed below.

2.6 Alternative options considered

Improvements common to all options included the installation of two lifts to the existing footbridges connecting the footbridge to the platforms, two new accessible parking spaces, a new kiss and ride area, the provision of a family accessible toilet, and upgrading of the paths providing access from the station to the accessible parking spaces on Lord Street and Goodsell Street.

The key difference between the three options is the type and location of the lifts:

- Option 1 – through lifts located west of the footbridge (adjacent to existing stairs)
- Option 2 – in-and-out lifts located east of the footbridge
- Option 3 – one lift located east of the footbridge to Platform 3/4 and one lift located between footbridges to Platform 1/2.

A ‘do-nothing’ option was also considered where existing access to the platforms and footbridge would remain the same and there would be no changes to the way the station and interchanges currently operates. The NSW Government has identified the need for improving the accessibility of transport across NSW as a priority under the TAP. The ‘do nothing' option was not considered a feasible alternative as it is inconsistent with NSW Government objectives and would not meet the requirements of the DDA and DSAPT, help encourage the use of public transport and would not meet the needs of the St Peters community.

2.6.1 Assessment of identified options

The design options were assessed in a multi-criteria analysis that included consideration of the following criteria:

- accessibility – compliance with DSAPT
- infrastructure – accommodates supporting infrastructure (incl. station systems) and removes redundant / end of life assets
- facility operations and maintenance – maximises opportunity for safe and efficient operation and maintenance (including cleaning)
- deliverability – innovation in construction, continuity of service, minimised impact on local community and deliverable in program timeframe
- customer experience – ease of accessing the station and customer facilities, personal safety and security, convenience and comfort
- transport interchange – connectivity to the transport interchange
- urban design and precinct planning – integrates into surroundings and does not preclude future development at the station

- environment, sustainability and heritage – complies with environmental legislation, protect and enhance heritage items and significant trees, and support opportunities for sustainability initiatives.

This methodology consisted of:

- a qualitative assessment which assessed and weighted each option against the criteria listed above
- a quantitative assessment that compared the whole-of-life costs for each option (i.e. both capital expenditure and operational expenditure)

Further, an analysis of the Proposal against the urban design principles in *Around the Tracks: Urban Design for Heavy and Light Rail* (TfNSW, 2016) was undertaken as part of the Scoping Design Report for the Proposal in 2018 (Aurecon, 2018).

2.7 Justification for the preferred option

The Scoping Design Report identified Option 1 as the preferred option as:

- the entrances to both the stairs and lifts are close together, limiting the need for too many additional cameras
- it offers an equitable access for both able bodied users with the stair access and customers requiring lift access
- minimises the visual impact on the station as the lifts are located adjacent to the stairs.

Based on detailed survey data and lift dimension modelling, the Option 1 lift position was deemed unfeasible. Additionally, following further review of the scoping design and the developed options and impacts to heritage and visual amenity, Option 2 was identified to be more sympathetic to the heritage character of the station (DesignInc, 2020). As such, Option 2 was identified as the preferred option for the following reasons:

- it better preserves significant views from within the station, including views of its architectural features and clear views from the footbridge to the platforms
- the placement of the lift shafts on the eastern side of the footbridge would enable them to better integrate with the heritage character of the station.

3 Proposal description

Chapter 3 describes the Proposal and summarises key design parameters, construction method, and associated infrastructure and activities. The description of the Proposal is based on the concept design and is subject to detailed design.

3.1 The Proposal

As described in Section 1.1.2, the Proposal involves an upgrade of St Peters Station as part of the TAP and MTMS Program which would improve accessibility and amenities for customers. The description of the Proposal below is based on a concept design and is subject to detailed design.

The Proposal would include the following key elements:

- two new lifts, lift landings and lift canopies at the Sydney (eastern) end of Platforms 1/2 and 3/4, connecting to the existing eastern footbridge
- closure and removal of the concourse retail kiosk for the installation of a new lift servicing Platform 1/2
- new canopies and anti-throw screens to stairs on Platform 3/4
- new canopies along Platform 3/4 for weather protection
- a standalone canopy at the western end of Platform 1 for weather protection at the BAZ
- modifications to the existing eastern footbridge safety screens at new lift interface locations
- reconfiguration of the existing concourse building to accommodate a new family accessible toilet, new IMSB and existing station systems. A new switchboard would supply the required power to the lifts (and other station systems) from the pad mount transformer
- provision of one kiss and ride area on Goodsell Street and two on Lord Street
- regrading of the footpaths and landscaping work at the station entrances from Lord Street, King Street and Goodsell Street
- provision of up to six additional bike hoops at Railway Lane and Lord Street
- improvements to customer information and communications systems including wayfinding modifications, PA system modifications and new hearing induction loops as required
- platform regrading and the installation of new TGSI along the platforms
- improvements to station lighting and CCTV to improve safety and security
- electrical upgrades and service relocations and/or adjustments to accommodate the new infrastructure, including replacement of an existing transformer.

Figure 3.1 shows the general layout of key elements for the Proposal.

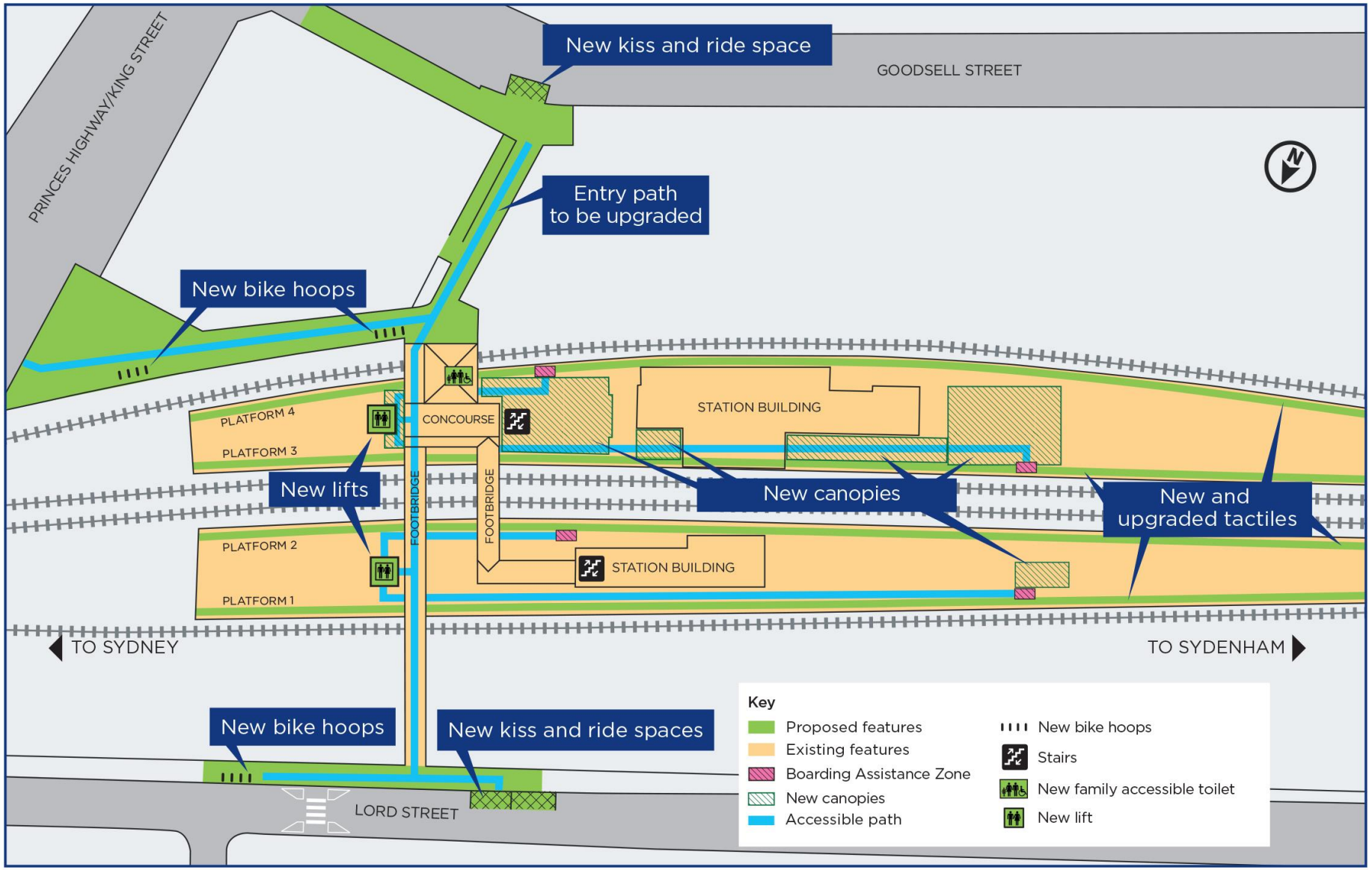

Figure 3.1 Key features of the Proposal (indicative only, subject to detailed design)

3.2 Scope of work

3.2.1 Station upgrade

Details of the proposed work to take place at the station are provided below:

- construction and installation of two new lifts and lift canopies at the Sydney (eastern) end of Platforms 1/2 and 3/4, connecting to the existing eastern footbridge
- modifications to existing footbridge safety screens at new lift interface locations
- installation of new canopies and anti-throw screens to stairs on Platform 3/4
- installation of new stand-alone glazed canopies surrounding the existing platform building on Platform 3/4 for weather protection
- installation of a new continuous canopy at the western end of Platform 3/4 for weather protection
- installation of a new stand-alone canopy at the western end of Platform 1 for weather protection at the BAZ
- removal of the retail kiosk on the concourse level to accommodate the lift to Platform 3/4
- improvements to customer information and communications systems, including wayfinding modifications, PA system upgrades, new hearing induction loops within the station platforms as required
- adjustment to station ticketing facilities, including new / adjusted Opal card readers
- improvements to station lighting and CCTV to increase safety and security
- platform upgrade work, including regrading of the platform surface, replacements of TGSI and the installation of new directional TGSI
- services relocation and/or adjustments, including lighting and communications systems (e.g. CCTV), stormwater drainage, retaining walls, and overhead wiring
- station power supply upgrade work, which includes an replacement of an existing transformer, and upgrades to earthing/bonding provisions (specific power requirements to be determined during detailed design).

3.2.2 Station building modifications

Modifications to the station buildings would include:

- reconfiguration of the existing concourse building to accommodate a new family accessible toilet, new IMBS and existing station systems. This would include:
    - extension of the northern outer wall of existing concourse building to accommodate the new family accessible toilet
    - conversion of the existing unisex toilet into a family accessible toilet
    - installation of new compliant fittings, such as a toilet, change table, basin and handrails
    - installation of new services connections (electrical, and mechanical services)
    - adjustments to the doorways and access provisions.

3.2.3 Interchange facilities

Modifications to the interchange facilities would include:

- regrading of access paths on the southern side of the station to provide an accessible path of travel from Goodsell Street and King Street to St Peters Station and Lord Street
- addition of a kiss and ride area on Goodsell Street adjacent to the existing pedestrian access from Goodsell Street to St Peters Station. Work may include kerb / footpath adjustments or installation of a mountable kerb, and signage and line marking modifications
- a new interchange zone in Lord Street to provide two kiss and ride areas and a repainted pedestrian crossing. Work may include kerb / footpath adjustments or installation of a mountable kerb, and signage and line marking modifications.

3.2.4 Ancillary work

The following ancillary work required as part of the upgrade work would include:

- regrading and resurfacing of localised areas on the platforms to provide accessible paths of travel between the lift and boarding assistance zones
- resurfacing of other areas of the platform where impacted by construction activities
- new stormwater drainage connections from new canopies to the existing stormwater system
- services and utilities protection, adjustments and/or relocations to accommodate the new work including lighting and communications systems (e.g. CCTV), stormwater drainage, overhead wiring
- upgrades to the station power supply to cater for the new lifts including:
    - adjustment to existing power supply connection points
    - new cable routes
    - new main switchboard and distribution boards
    - replacement of the existing transformer with a new padmount transformer, earthing and bonding of electrical equipment and new or modified structures.
- adjustment to station furniture, rubbish bins, and upgrade or the removal of existing Telstra payphones
- new/upgraded wayfinding signage and other station signage
- temporary site compounds for storage of materials and equipment
- temporary work (where required) during construction in order to maintain existing pedestrian ‘level of service’, such as access provisions and ramps.
- landscaping work at the southern station entrance from King Street and adjustments to wayfinding signage
- vegetation trimming to facilitate construction access.

3.2.5 Materials and finishes

Materials and finishes for the Proposal have been selected based on the criteria of durability, low maintenance and cost effectiveness, to accord with heritage requirements, to minimise visual impacts, and to be aesthetically pleasing.

Availability and constructability are also important criteria to ensure that materials are readily available, and the structure can be built with ease and efficiently. Materials are also selected for their application based on their suitability for meeting design requirements. Materials selection should also consider sustainability aspects, including consideration of supply chain and sourcing materials locally where possible, prioritising the use of reused and recycled materials where practicable, and investigating use of materials that have environmental labels.

Each of the upgraded or new facilities would be constructed from a range of different materials, with a different palette for each architectural element. Subject to detailed design, the Proposal would include the following:

- lower lift shafts – steel frame and solid panel
- upper lift shafts – steel frame with glazed infill panels
- lift canopies – metal roof
- platform building canopy connection – steel frame with glazed canopy
- platform stairs – concrete with mesh anti throw screens and canopy
- platform canopies – steel frame with glazed and metal sheet roofing.

The design would be submitted to Transport for NSW's Design Review Panel for comment before being accepted by Transport for NSW. An Urban Design Plan (UDP) including a Public Domain Plan (PDP) would also be prepared by the Contractor, prior to finalisation of detailed design for endorsement by Transport for NSW.

3.3 Design development

3.3.1 Engineering constraints

There are a number of constraints which have influenced the design development of the Proposal.

Existing structures: the placement, integrity and heritage status of existing structures needed to be considered during the development of the design – these structures included the platforms, station buildings, and the existing heritage footbridge.

Sydney Trains' requirements: modifications for existing structures and new structures within the rail corridor must be designed and constructed with consideration of train impact loads, structural clearances to the track, and safe working provisions.

Sydney Metro requirements: the completed tunnels for Sydney Metro are located approximately 18 metres below Platform 1/2 at St Peters Station. Footing designs for lifts and canopies must be designed and constructed with consideration for the completed tunnel. Approval would be required from Sydney Metro Corridor Protection prior to the commencement of excavations within the first and second reserves of the tunnels.

Heritage: St Peters Station is currently listed on the NSW State Heritage Register (SHR 01250), the RailCorp (Sydney Trains) Section 170 Heritage and Conservation Register (4801153), and the heritage schedule of the *Marrickville Local Environmental Plan 2011* (I272)). Under the NSW *State Agency heritage Guide* additional consideration, assessment and consultation is triggered. The station borders a number of Heritage Conservation Areas

also identified and protected under the *Marrickville Local Environmental Plan 2011*, the *Sydney Local Environmental Plan 2012* and relevant Development Control Plans,

Of specific note is the 1914 extensive and intact haunched girder footbridge with trestle substructure, which is one of the examples of Dorman & Long Co steel footbridges from this period. Additionally, the building on platforms 3/4 from 1884 is of aesthetic significance and serves as an example of Victorian station buildings. The station also boasts heritage listed brick faced platforms and retaining walls.

Vegetation: St Peters Station is located within an urban environment with streetscapes adjacent to the station characterised by a diversity of native and exotic plant species. Landscaping is also evident in the rail corridor, which is heavily planted with species not locally native to the area. More information on how biodiversity has been considered as part of the design development is included in Section 6.7.

Utilities: a Dial Before You Dig (DBYD) search has identified a number of utilities in the vicinity of the proposed work including:

- Ausgrid feeders along Lord Street
- Inner West Council stormwater pits and pipes
- Jemena gas mains
- NBN Co cable trenches and pits
- Optus fibre
- Sydney Water sewer and water mains
- Telstra cable
- Transgrid cable tunnel along Goodsell Street.

Construction access: construction access would require traffic control in the adjacent streets and use of a large mobile crane would be required to lift construction materials and equipment to the station from these roadways on specified days.

Public access: maintaining pedestrian access to the station during normal hours of operation.

Future patronage: the Proposal has been designed to accommodate the forecast Sydney Trains patronage growth (an increase of 15 per cent to 2036) and changing travel patterns.

More Trains More Services: the Proposal has been designed to complement operational changes to the station that will occur under the MTMS program. The MTMS program will roll out technology to improve the rail network and provide customers with more reliable, high capacity turn up and go services. Infrastructure improvements are being made across the network as part of this program such as modifications to track, signalling, stabling facilities and station platforms. The Proposal includes additional canopy cover on Platform 3/4 to meet the objectives of the MTMS program.

3.3.2 Design standards

The Proposal would be designed having regard to the following:

- *Disability Standards for Accessible Public Transport 2002* (issued under the Commonwealth *Disability Discrimination Act 1992*)
- National Construction Code
- relevant Australian Standards
- Asset Standards Authority standards

- Sydney Trains standards
- Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability Rating Scheme (V1.2)
- TfNSW Urban Design Guidelines
- *Guidelines for the Development of Public Transport Interchange Facilities* (Ministry of Transport, 2008)
- Crime Prevention Through Environmental Design (CPTED) principles
- other Transport for NSW policies and guidelines
- relevant Council standards.

3.3.3 Sustainability in design

Transport for NSW is committed to minimising the impact on the natural environment and supports ISCA and the Infrastructure Sustainability (IS) rating tool. The IS rating tool was developed and is administered by ISCA. It is an independently verified and nationally recognised rating system for evaluating sustainability across design, construction and operation of infrastructure.

The St Peters Station Upgrade is one of a number of projects within the TAP that is using version 1.2 of the IS rating tool and targeting an 'Excellent' rating. The rating scheme provides an independent and consistent methodology for the application and evaluation of sustainability outcomes in infrastructure projects.

The development of the concept design for the Proposal has been undertaken in accordance with the project targets identified in the program wide TAP 3 Sustainability Strategy.

The Sustainability Strategy sets targets across the following key issues:

- climate change adaptation and resilience
- renewable energy
- waste
- materials
- supply chain management
- community connection
- social procurement and workforce.

Key design elements and strategies developed during concept design will be used to further develop the design and construction.

3.4 Construction activities

3.4.1 Work methodology

Subject to approval, construction is expected to commence in 2021 and take around 24 months to complete. The construction methodology would be further developed during the detailed design of the Proposal by the nominated Contractor in consultation with Transport for NSW.

The proposed construction activities for the Proposal are identified in Table 3.1. This staging is indicative and is based on the current concept design and may change once the detailed

design methodology is finalised. The staging is also dependent on the Contractor's preferred methodology, program and sequencing of work.

Table 3.1 Indicative construction staging for key activities

Stage	Activities
Site establishment and enabling work	• establish site compound (erect fencing, site offices, amenities and plant/material storage areas etc.) • remove required vegetation to allow for construction laydown area • relocate or upgrade services / utilities where required • install safety barriers and hoarding around the nominated work zones on the platform
Lifts	• demolish retail kiosk on concourse • remove safety screens along footbridge in lift locations • construct lift foundations • install lift shafts and upper lift landing • install protection screens and external finishes • install lift shaft services, lift cars and fit out lift cars • install lighting / CCTV / PA services to lift landings • construct lift landing canopies • install new 200kVA transformer
Station entrance and interchange work	• remove existing pavement at entrances to be regraded • install localised new paving on Lord Street • install new decorative paving and lighting on southern access way • install new signage for kiss and ride and taxi zones • install new signage and road markings for accessible parking spots • install new wayfinding signage
Platform work	• re-grade / resurface platform in localised areas • platform finishing work (line markings, tactile indicators etc.) • removal of existing lighting and wayfinding • install new canopy footings, structures, lighting, CCTV and wayfinding
Station building work	• demolish all internal walls of concourse building and relocate building services • install new main switchboard • construct all internal walls in new building configuration and install new building services • construct new northern outer wall of concourse building and convert existing unisex toilet into a family accessible toilet • building work and services / fit out for new staffroom basin • construction of cable containment and cable reticulation/connection from new transformer to main switchboard

Stage	Activities
Site demobilisation	• cutover / commission digital PA / hearing induction loops / TGSI • test and commission CCTV cameras / station systems installation • test and commission new lifts / open to public • finishing work including fencing • site demobilisation

3.4.2 Plant and equipment

The plant and equipment likely to be used during construction includes:

- jack hammer
- bobcat
- concrete pump and truck
- water cart
- grinders and bar
- benders
- road rail excavator
- torque wrenches and impact wrenches
- hand tools
- skip trucks
- hammer drills
- piling rig
- elevated work platform
- excavator
- hi-rail plant including elevated work platform, flatbed and hiab
- lighting tower
- suction truck
- forklift
- cranes
- demolition saw
- coring machine
- vibrating roller / compaction plate

3.4.3 Working hours

The majority of work required for the Proposal would be undertaken during standard (NSW) Environment Protection Authority (EPA) construction hours, which are as follows:

- 7.00 am to 6.00 pm Monday to Friday
- 8.00 am to 1.00 pm Saturdays
- no work on Sundays or public holidays.

Certain work may need to occur outside standard hours and would include night work and work during routine rail shutdowns. These shutdown periods are scheduled closures that would occur regardless of the Proposal, when part of the rail network is temporarily closed and trains are not operating.

Out of hours works are required in some cases to minimise disruptions to customers, pedestrians, motorists and nearby sensitive receivers; and to ensure the safety of railway workers and operational assets. It is estimated that approximately five, 48-hour weekend rail shutdowns during Sydney Trains planned maintenance weekends would be required to facilitate the following:

- electrical and communication work
- construction work required for the lift installations
- construction work for the accessible footpaths, paths, stairs, car park changes
- station building work
- installation and finishing work.

Out of hours works may also be scheduled outside rail shutdown periods. Approval from Transport for NSW would be required for any out of hours work and the affected community would be notified as outlined in Transport for NSW's *Construction Noise and Vibration Strategy* (TfNSW, 2019a) (refer to Section 6.3 for further details).

3.4.4 Earthworks

Excavations and earthworks would generally be required for the following:

- construction of the crane platform within rail corridor adjacent to Platform 1
- construction of lift foundations, pits and shafts
- construction of kiss and ride areas
- localised platform regrading / resurfacing work
- other minor civil work including footings and foundations for structures, drainage / stormwater work, and trenching activities for service adjustments and relocations and drainage upgrade work.

Approximately 250 cubic metres of fill would be excavated during the construction phase and spread within the rail corridor. Any fill material that is odorous and suspected of being potentially contaminated would be sampled and treated and/or disposed in accordance with relevant legislative and sustainability requirements.

Specific locations for spoil placement would be agreed with Transport for NSW and the construction contractor during the delivery phase.

3.4.5 Source and quantity of materials

The source and quantity of materials would be determined during the detailed design phase of the Proposal and would consider the requirements of the ISCA Infrastructure Sustainability Rating Scheme (v1.2). Materials would be sourced from local suppliers where practicable. Reuse of existing materials and sourcing recycled materials would be undertaken where practicable. Investigation of materials that have environmental labels (such as an Environmental Product Declaration) would also be considered as part of the detailed design and procurement processes.

3.4.6 Traffic access and vehicle movements

Traffic and transport impacts associated with the Proposal are assessed in Section 6.1 of this REF. The potential traffic and access impacts expected during the construction of the Proposal include:

- impacts to pedestrian, rail customers and cyclists such as:
  - temporary impacts to pedestrian and cyclist movements on both sides of the station due to the movement of construction material and traffic diversions
  - temporary alterations to pedestrian access
  - increased vehicle movements
- temporary impacts to street parking on Lord Street to accommodate passage of large trucks, machinery and cranes during construction
- temporary impacts to the existing taxi zone and GoGet Car Share parking due to installation of kiss and ride areas on Goodsell Street and Lord Street
- potential alterations to traffic flow with changes to roadways.

A detailed construction methodology and associated management plans such as a Construction Environmental Management Plan (CEMP) and Traffic Management Plan would be developed during the next design phase of the Proposal to manage potential traffic and access impacts.

3.4.7 Ancillary facilities

A temporary construction compound would be required to accommodate a site office, amenities, laydown and storage area for materials and waste. An area for a construction compound has been proposed on the decommissioned northern platform (refer to Figure 3.2). The area nominated for the compound is on land owned by TAHE. Impacts associated with utilising this area have been considered in the environmental impact assessment including requirements for rehabilitation.

A cleared area within the rail corridor approximately 80 metres north of the station would be used for construction laydown, with gated access off Concord Street (refer to Figure 3.2).

3.4.8 Public utility adjustments

The Proposal has been designed to avoid relocation of services where feasible, however further investigation may be required. It is likely some services such as water, sewer, communications and gas may require relocation, but such relocation is unlikely to occur outside of the footprint of the work assessed in this REF. In the event that work would be required outside of this footprint, further assessment would be undertaken. The appropriate utility providers would be consulted during the detailed design phase.

3.5 Property acquisition

Transport for NSW does not propose to acquire any property as part of the Proposal.

As part of the Proposal, the retail lease for the kiosk situated within the station concourse would cease. This process would not involve any property acquisition.

3.6 Operation and maintenance

The future operation and maintenance of the new station is subject to further discussions with Sydney Trains, Transport for NSW, Inner West Council and City of Sydney Council. Structures constructed under this Proposal would be maintained by Sydney Trains. However, it is expected that adjacent footpaths and landscape areas would continue to be maintained by Inner West Council and City of Sydney Council.

Figure 3.2 Location of proposed temporary compound and laydown areas

4 Statutory considerations

Chapter 4 provides a summary of the statutory considerations relating to the Proposal including a consideration of NSW Government polices/strategies, NSW legislation (particularly the EP&A Act), environmental planning instruments, and Commonwealth legislation.

4.1 Commonwealth legislation

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

The (Commonwealth) EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places - defined in the EPBC Act as 'matters of National Environmental Significance (NES)'. The EPBC Act requires the assessment of whether the Proposal is likely to significantly impact on matters of NES or Commonwealth land. These matters are considered in full in Appendix A.

As the Proposal would not or is not likely to have a significant impact on any matters of NES or on Commonwealth land, a referral to the Commonwealth Minister for the Environment is not required.

4.1.2 Other Commonwealth legislation

Other Commonwealth legislation applicable to the Proposal is discussed in Table 4.1.

Table 4.1 Other Commonwealth legislation applicable to the Proposal

Applicable legislation	Considerations
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	There is an obligation on a person who discovers anything which he or she has reasonable grounds to suspect are Aboriginal remains to report that discovery to the Minister, giving particulars of the remains and their location. The Proposal does not include any previously identified Aboriginal sites and/or places (refer Section 6.5); however, considerations for unexpected finds further detailed in mitigation measures and applies to this Act.
Disability Discrimination Act 1992 (DDA)	This Act aims to eliminate as far as possible, discrimination against persons on the ground of disability in areas including access to premises and the provision of facilities, services and land. The Proposal would be designed having regard to the requirements of this Act. The key objective of the Proposal is to improve the accessibility of St Peters Station which is consistent with the objectives of this Act.

4.2 NSW legislation and regulations

4.2.1 Transport Administration Act 1988

The *Transport Administration Act 1988* establishes Transport for NSW as a public authority who is to exercise its functions in a manner that promotes certain common objectives, including to promote the delivery of transport services in an environmentally sustainable manner.

This REF has been prepared having regard to, among other things, the specific objectives of Transport for NSW under the *Transport Administration Act 1988*, including:

2A Objects of Act

…

a) to provide an efficient and accountable framework for the governance of the delivery of transport services,

b) to promote the integration of the transport system,

c) to enable effective planning and delivery of transport infrastructure and services,

d) to facilitate the mobilisation and prioritisation of key resources across the transport sector,

e) to co-ordinate the activities of those engaged in the delivery of transport services,

f) to maintain independent regulatory arrangements for securing the safety of transport services.

2B Common objectives and service delivery priorities of public transport agencies

…

(a) ***Environmental sustainability***

To promote the delivery of transport services in an environmentally sustainable manner.

(b) ***Social benefits***

To contribute to the delivery of social benefits for customers, including greater inclusiveness, accessibility and quality of life.

4.2.2 Environmental Planning and Assessment Act 1979

The EP&A Act establishes the system of environmental planning and assessment in NSW. This Proposal is subject to the environmental impact assessment and planning approval requirements of Division 5.1 of the EP&A Act. Division 5.1 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by public authorities, such as Transport for NSW, which do not require development consent under Part 4 of the Act.

In accordance with section 5.5 of the EP&A Act, Transport for NSW, as the proponent and determining authority, must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the Proposal.

Clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) defines the factors which must be considered when determining if an activity assessed under Division 5.1 of the EP&A Act has or is likely to have a significant impact on the environment. Chapter 6 of the REF provides an environmental impact assessment of the Proposal in accordance with clause 228 and Appendix B specifically responds to the factors for consideration under clause 228.

4.2.3 Other NSW legislation and regulations

Table 4.2 provides a list of other relevant legislation applicable to the Proposal.

Table 4.2 Other legislation applicable to the Proposal

Applicable legislation	Considerations
Biodiversity Conservation Act 2016 (BC Act) (NSW)	The site does not contain suitable habitat for any listed threatened species or community and is unlikely to have a significant impact on any threatened species or community (refer Section 6.7).
Biosecurity Act 2015 (NSW)	Clause 22 requires any person who deals with a biosecurity matter has a duty to ensure that in so far as is reasonably practicable, the potential biosecurity risk is prevented, eliminated or minimised. Appropriate management methods would be implemented during construction if declared priority weeds in the Inner West or City of Sydney LGAs are identified (refer to Section 6.7).
Contaminated Land Management Act 1997 (CLM Act) (NSW)	Section 60 of the CLM Act imposes a duty on landowners to notify the Department of Planning, Industry and Environment (DPIE) Environment, Energy and Science Group (EES), and potentially investigate and remediate land if contamination is above EPA guideline levels. The site has not been declared under the CLM Act as being significantly contaminated (refer Section 6.8).
Crown Lands Act 1987 (NSW)	The Proposal does not involve work on any Crown land.
Disability Discrimination Act 1992 (DDA Act) (Cwlth)	The Proposal would be designed having regard to the requirements of this Act.
Heritage Act 1977 (Heritage Act) (NSW)	• Sections 57 and 60 (approval) where items listed on the State Heritage Register are to be impacted • Sections 139 and 140 (permit) where relics are likely to be exposed • Section 170 where items listed on a government agency Heritage and Conservation Register are to be impacted. St Peters Station is listed on the RailCorp (Sydney Trains) 170 Heritage and Conservation Register. A discussion of potential impacts to local heritage is discussed in Section 6.5.
National Parks and Wildlife Act 1974 (NPW Act) (NSW)	Sections 86, 87 and 90 of the NPW Act require consent from DPIE EES for the destruction or damage of Indigenous objects. The Proposal is unlikely to disturb any Indigenous objects (refer Section 6.4). However, if unexpected archaeological items or items of Indigenous heritage significance are discovered during the construction of the Proposal, all work would cease and appropriate advice sought.
Protection of the Environment Operations Act 1997 (PoEO Act) (NSW)	The Proposal does not involve a 'scheduled activity' under Schedule 1 of the PoEO Act. Accordingly, an Environment Protection Licence (EPL) is not required for the Proposal. However, in accordance with Part 5.7 of the PoEO Act, Transport for NSW would notify the EPA of any pollution incidents that occur onsite. This would be managed in the CEMP to be prepared and implemented by the Contractor.

Applicable legislation	Considerations
Roads Act 1993 (Roads Act) (NSW)	Section 138 of the Roads Act requires consent from the relevant road authority for the carrying out of work in, on or over a public road. However, clause 5(1) in Schedule 2 of the Roads Act states that public authorities do not require consent for work on unclassified roads. The Proposal would involve work on Lord Street and Goodsell Street, which are local roads under the control of the Inner West Council. Road Occupancy Licence/s (ROL) would be obtained from the relevant roads authority for road work and any temporary road closures where required (see Section 6.1 for more information).
Sydney Water Act 1994 (NSW)	The Proposal would not involve discharge of wastewater to the sewer.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act) (NSW)	Transport for NSW would carry out the Proposal having regard to the requirements of the WARR Act. A site-specific Waste Management Plan would be prepared.
Water Management Act 2000 (NSW)	The Proposal would not involve any water use (from a natural source e.g. aquifer, river – only from the network), water management work, drainage or flood work, controlled activities or aquifer interference.

4.2.4 State Environmental Planning Policies

State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP is the key environmental planning instrument which determines the permissibility of a proposal and under which part of the EP&A Act an activity or development may be assessed.

Division 15, Clause 79 of the Infrastructure SEPP allows for certain types of development to be carried out by or on behalf of a public authority without consent on any land (i.e. assessable under Division 5.1 of the EP&A Act). Specifically, Clause 79(1) of the Infrastructure SEPP states that:

> *'Development for the purpose of a railway or rail infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.'*

Clause 78 defines 'rail infrastructure facilities' as including elements such as:

> *(a) 'railway tracks, associated track structures, cuttings, drainage systems, fences, tunnels, ventilation shafts, emergency accessways, bridges, embankments, level crossings and roads, pedestrian and cycleway facilities.'*
>
> *(d) 'railway stations, station platforms and areas in a station complex that commuters use to get access to the platforms'*
>
> *(e) public amenities for commuters*
>
> *(f) associated public transport facilities for railway stations…'*

Consequently, development consent is not required for the Proposal which is classified as a rail infrastructure facility, however the environmental impacts of the Proposal have been assessed under the provisions of Division 5.1 of the EP&A Act.

Part 2 of the Infrastructure SEPP contains provisions for public authorities to consult with local councils and other agencies prior to the commencement of certain types of development. Section 5.2 of this REF discusses the consultation undertaken under the requirements of the Infrastructure SEPP.

The Infrastructure SEPP prevails over all other environmental planning instruments except where there is an inconsistency with *State Environmental Planning Policy (State Significant Precincts) 2005* or certain provisions of *State Environmental Planning Policy (Coastal Management) 2018*. The Proposal does not require consideration under these SEPPs and therefore do not require further consideration as part of this REF.

State Environmental Planning Policy 55 – Remediation of Land

State Environmental Planning Policy No.55 — Remediation of Land (SEPP 55) provides a State-wide approach to the remediation of contaminated land for the purpose of minimising the risk of harm to the health of humans and the environment. While development consent for the Proposal is not required, the provisions of SEPP 55 have still been considered in the preparation of this REF.

Section 6.8. of this REF contains an assessment of the potential contamination impacts of the Proposal. It is not expected that any large-scale remediation (Category 1) work would be required as part of the Proposal. The proposed land use would not differ to the existing use and, therefore, would be unlikely to be affected by any potential contaminants that exist within the rail corridor.

Impacts of contaminated lands and potential remediation are described in Section 6.8.

4.2.5 Marrickville Local Environmental Plan 2011

The Proposal is located within the Inner West LGA. The Infrastructure SEPP prevails over all other environmental planning instruments (such as LEPs) except where there is an inconsistency with *State Environmental Planning Policy (State Significant Precincts) 2005* or certain provisions of *State Environmental Planning Policy (Coastal Management) 2018.* During the preparation of this REF, the provisions of *Marrickville Local Environmental Plan 2011* were considered (refer to Table 4.3).

Table 4.3 Relevant provisions of the Marrickville LEP

Provision description	Relevance to the Proposal
Clause 2.3 Zone Objectives and Land Use Table	Under the Marrickville LEP: • the rail corridor is zoned as SP2 Infrastructure • surrounding residential areas are zoned as R2 Low Density Residential, R3 Medium Density Residential and R4 High Density Residential • north of the station along King Street is zoned as B2 Local Centre • south of the station along King Street is zoned as B4 Mixed Use and B5 Business Development • the landscaped area adjacent to the King Street station entrance path is zoned as RE1 Public Recreation • King Street is zoned as SP2 Infrastructure • Lord Street is zoned as B2 Business Development and R2 Low Density Residential • Goodsell Street is zoned as B5 Business Development and R2 Low Density Residential. The Proposal is consistent with the objectives of these zones.
Clause 5.10 Heritage conservation	Clause 5.10 of the Marrickville LEP aims to conserve the heritage significance of heritage items, archaeological sites, Aboriginal objects and Aboriginal places within the LGA. There are a number of heritage items listed on the Marrickville LEP within 100 metres of the Proposal including: • St Peters Hotel • Botany View Hotel • Goodsell Estate Heritage Conservation Area • King Street and Enmore Road Heritage Conservation Area, A discussion of potential impacts to local heritage is discussed in Section 6.5
Clause 6.1 Acid sulfate soils	Clause 6.1 of the Marrickville LEP aims to ensure that development does not disturb, expose or drain acid sulfate soils and result in environmental damage. St Peters Station is located within Class 5 acid sulfate soils. By virtue of clause 5(3) and 79 of the Infrastructure SEPP, the Proposal is permissible without development consent. Consideration of the potential impacts and mitigation measures for acid sulfate soils for the Proposal is outlined in Section 6.8.
Clause 6.2 Earthworks	Clause 6.2 of the Marrickville LEP aims to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land. By virtue of clause 5(3) and 79 of the Infrastructure SEPP, the Proposal is permissible without development consent. Consideration of the potential impacts and mitigation measures for earthworks for the Proposal is outlined in Section 6.8.

The Marrickville LEP land use zones for the Proposal are shown in Figure 4.1.

4.2.6 Sydney Local Environmental Plan 2012

The Proposal is located within the City of Sydney LGA. The Infrastructure SEPP prevails over all other environmental planning instruments (such as LEPs) except where there is an inconsistency with *State Environmental Planning Policy (State Significant Precincts) 2005* or certain provisions of *State Environmental Planning Policy (Coastal Management) 2018.* During the preparation of this REF, the provisions of *Sydney Local Environmental Plan 2012* were considered (refer to Table 4.4).

Table 4.4 Relevant provisions of the Sydney LEP

Provision description	Relevance to the Proposal
Clause 2.3 Zone Objectives and Land Use Table	Under the Sydney LEP: • the rail corridor is zoned as SP2 Infrastructure • surrounding areas are zoned as R1 General Residential and B4 Mixed Use • north of the station along King Street is zoned as B2 Local Centre • Sydney Park to the south is zoned as RE1 Public Recreation • King Street is zoned as SP2 Infrastructure • Concord Street is zoned as B2 Business Development and R2 Low Density Residential. The Proposal is consistent with the objectives of these zones.
Clause 5.10 Heritage conservation	Clause 5.10 of the Sydney LEP aims to conserve the heritage significance of heritage items, archaeological sites, Aboriginal objects and Aboriginal places within the LGA. There are a number of heritage items listed on the Sydney LEP within 100 metres of the Proposal including: • Former brickworks group • Former St Peter's Theatre facade • King Street • Former Macdonaldtown Estate. A discussion of potential impacts to local heritage is discussed in Section 6.5
Clause 7.14 Acid sulfate soils	Clause 7.14 of the Sydney LEP aims to ensure that development does not disturb, expose or drain acid sulfate soils and result in environmental damage. St Peters Station is located within Class 5 acid sulfate soils. By virtue of clause 5(3) and 79 of the Infrastructure SEPP, the Proposal is permissible without development consent. Consideration of the potential impacts and mitigation measures for acid sulfate soils for the Proposal is outlined in Section 6.8.

The Sydney LEP land use zones for the Proposal are shown in Figure 4.1.

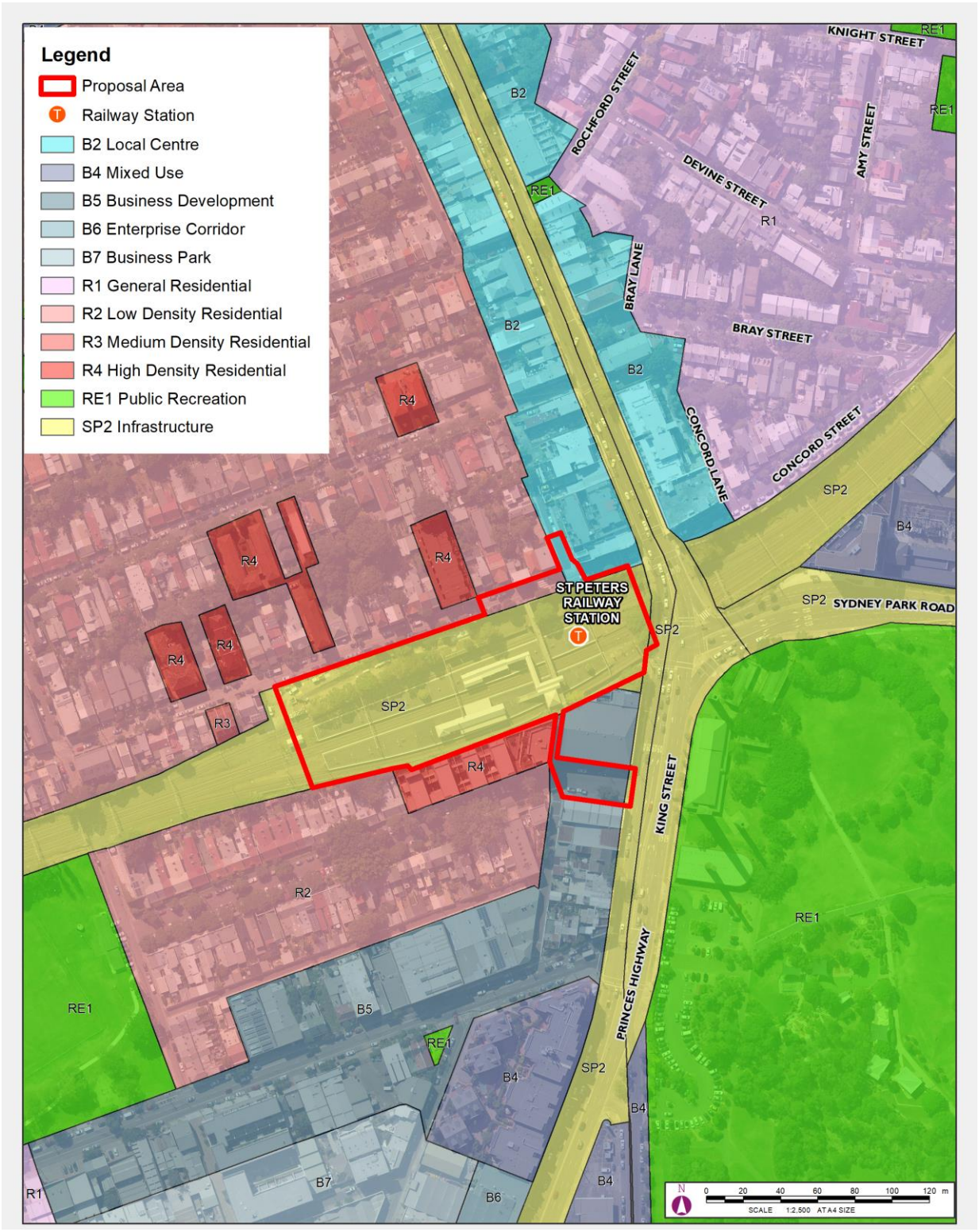

Figure 4.1 Marrickville and Sydney LEP zoning map

4.3 Ecologically sustainable development

Transport for NSW is committed to ensuring that its projects are implemented in a manner that is consistent with the principles of ecologically sustainable development (ESD). The principles of ESD are generally defined under the provisions of clause 7(4) of Schedule 2 to the EP&A Regulation as:

- the precautionary principle – If there are threats of serious or irreversible damage, a lack of full scientific uncertainty should not be used as a reason for postponing measures to prevent environmental degradation
- intergenerational equity – the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations
- conservation of biological diversity and ecological integrity – the diversity of genes, species, populations and their communities, as well as the ecosystems and habitats they belong to, should be maintained or improved to ensure their survival
- improved valuation, pricing and incentive mechanisms – environmental factors should be included in the valuation of assets and services.

The principles of ESD have been adopted by Transport for NSW throughout the development and assessment of the St Peters Station Upgrade. Section 3.3.3 summarises how ESD would be incorporated in the design development of the Proposal. Section 6.13 includes an assessment of the Proposal on climate change and sustainability, and Section 7.2 lists mitigation measures to ensure ESD principles are incorporated during the construction phase of the Proposal.

5 Community and stakeholder consultation

Chapter 5 discusses the consultation undertaken to date for the Proposal and the consultation proposed for the future. This chapter discusses the consultation strategy adopted for the Proposal and the results of consultation with the community, relevant government agencies and stakeholders.

5.1 Stakeholder consultation during concept design

Key internal stakeholders for St Peters Station, comprising of Sydney Trains and various departments within Transport for NSW, were engaged during development of the scoping design plan to provide insights into the scope of work for the Proposal, and to also participate in the development and assessment of the station improvement options.

In regard to agency and specific external stakeholders, the project has carried out consultation with the following stakeholders for St Peters:

- Heritage NSW
- Inner West Council
- City of Sydney Council
- developer at 655 King St, St Peters – design coordination for public domain areas from King St, Goodsell Street and May Lane.

5.2 Consultation requirements under the Infrastructure SEPP

Part 2, Division 1 of the Infrastructure SEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Clauses 13, 14, 15 and 16 of the Infrastructure SEPP require that public authorities undertake consultation with councils and other agencies, when proposing to carry out development without consent.

Table 5.1 provides details of consultation requirements under the Infrastructure SEPP for the Proposal.

Table 5.1 Infrastructure SEPP consultation requirements

Clause	Clause particulars	Relevance to the Proposal
Clause 13 | Consultation with Councils – development with impacts on council related infrastructure and services	Consultation is required where the Proposal would result in: • substantial impact on stormwater management services • generating traffic that would place a local road system under strain • involve connection to or impact on a council owned sewerage system • involve connection to and substantial use of council owned water supply • significantly disrupt pedestrian or vehicle movement • involve significant excavation to a road surface or footpath for which Council has responsibility.	The Proposal includes work that would: • require connections or impacts the stormwater system • disrupt pedestrian and vehicle movements • impact on road pavements under Council's care and control • impact on Council-operated footpaths. Consultation with Inner West Council and Council of the City of Sydney has commenced and would continue throughout the detailed design and construction phases.
Clause 14 | Consultation with Councils – development with impacts on local heritage	Where work: • substantially impacts on local heritage item (if not also a State heritage item) • substantially impacts on a heritage conservation area.	St Peters Station is listed as a local heritage item under the Marrickville LEP. However, the station is also listed on the State Heritage Register and RailCorp's Section 170 Heritage and Conservation Register. Accordingly, consultation with the Inner West Council and City of Sydney Council under Clause 14 is not required. Additionally, the Proposal would not have a substantial impact on a local heritage items or conservation areas within 100 metres of the Proposal. Refer to Section 6.5.
Clause 15 | Consultation with Councils – development with impacts on flood liable land	Where work: • impacts on land that is susceptible to flooding – reference would be made to *Floodplain Development Manual: the management of flood liable land.*	The Proposal is not located on land that is susceptible to flooding. Accordingly, consultation with Inner West Council and City of Sydney Council under Clause 15 is not required in. Refer to Section 6.9.
Clause 15A Consultation with Councils – development with impacts on certain land within the coastal zone	Where work: • impacts on land within a coastal vulnerability area and is inconsistent with certified coastal management program that applies to that land	The Proposal is not within a coastal vulnerability area. Accordingly, consultation with Inner West Council and City of Sydney Council under Clause 15A is not required.

Clause	Clause particulars	Relevance to the Proposal
Clause 15AA Consultation with State Emergency Service – development with impacts on flood liable land	Where work: • impacts on flood liable land - written notice must be given (together with a scope of work) to the State Emergency Services and taken into consideration any response to the notice received from the State Emergency Service within 21 days after the notice is given.	The Proposal area has not been identified in the Marrickville and Sydney LEPs as having potential for flooding. Accordingly, consultation with State Emergency Service under Clause 15AA is not required.
Clause 16 | Consultation with public authorities other than Councils	For *specified development* which includes consultation with the DPIE EES for development that is undertaken adjacent to land reserved under the *National Parks and Wildlife Act 1974*, and other agencies specified by the Infrastructure SEPP where relevant.	The Proposal is not located adjacent to land reserved under the *National Parks and Wildlife Act 1974*. Accordingly, consultation with DPIE EES under Clause 16 on this matter is not required.

5.3 Consultation objectives

The consultation objectives for the Proposal were developed to encourage stakeholder and community involvement and foster interaction between stakeholders, the community and the project team. The consultation strategy that was developed, having regard to the requirements of the planning process ensures that stakeholders, customers and the community are informed of the Proposal and have the opportunity to provide input.

The objectives of the consultation strategy are to:

- provide accurate and timely information about the Proposal and REF process to relevant stakeholders
- raise awareness of the various components of the Proposal and the specialist environmental investigations
- ensure that the directly impacted community are aware of the REF and consulted where appropriate
- provide opportunities for stakeholders and the community to express their view about the Proposal
- understand and access valuable local knowledge from the community and stakeholders
- record the details and input from community engagement activities
- build positive relations with identified community stakeholders
- ensure a comprehensive and transparent approach.

5.4 Public display

The REF display strategy adopts a range of consultation mechanisms, including:

- installation of information signage at the station with QR codes taking customers to the project webpage

- public display of the REF on the project webpage
- distribution of a project update to the local community, outlining the Proposal and inviting feedback on the REF
- advertisement of the REF public display in local newspapers and on social media with a link to the Transport for NSW website that includes a summary of the Proposal and information on how to provide feedback
- consultation with Inner West and City of Sydney Councils, Sydney Trains, NSW Trains, Sydney Metro and other non-community stakeholders.

Community consultation activities for the Proposal would be undertaken during the public display of this REF. The display period of the REF would be advertised in the week that the public display commences. The REF would be displayed for a period of approximately two weeks.

The REF would also be available on the TfNSW website[1]. Information on the Proposal would be available through the Project Infoline (1800 684 490) or by email[2].

Feedback can be sent to:

- projects@transport.nsw.gov.au
- Transport Access Program – St Peters Station Upgrade
  Associate Director Environmental Impact Assessment
  Transport for NSW
  PO Box K659
  Haymarket NSW 1240

Or submitted:

- via transport.nsw.gov/stpeters

Following consideration of feedback received during the public display period, Transport for NSW would determine whether to proceed with the Proposal and what conditions would be imposed on the project should it be determined to proceed.

5.5 Aboriginal community involvement

An Aboriginal Heritage Information Management System (AHIMS) search was undertaken for the area covered by the Proposal (the area around St Peters Station) plus a 200 metre radius, on 23 November 2020. The search confirmed there to be no known Aboriginal heritage items within or close to St Peters Station.

The extensive landscape modification that has occurred across the Proposal area suggests that intact evidence of Aboriginal land use is unlikely to occur within the boundaries of the Proposal area. Similarly, the high level of disturbance would suggest that the archaeological potential of the area is low. Accordingly, consultation with Aboriginal parties under the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010) is not required.

1 stpeters

2 projects@transport.nsw.gov.au

5.6 Ongoing consultation

At the conclusion of the public display period for this REF, Transport for NSW would acknowledge receipt of feedback from each respondent. The issues raised by the respondents would be considered by Transport for NSW before determining whether to proceed with the Proposal (refer Figure ES-2, page 16).

Should Transport for NSW determine to proceed with the Proposal, the Determination Report would be made available on the Transport for NSW website and would summarise the key impacts identified in this REF, demonstrate how Transport for NSW considered issues raised during the public display period, and include a summary of mitigation measures proposed to minimise the impacts of the Proposal.

Should Transport for NSW determine to proceed with the Proposal, the project team would keep the community, councils and other key stakeholders informed of the process, identify any further issues as they arise, and develop additional mitigation measures to minimise the impacts of the Proposal. The interaction with the community would be undertaken in accordance with a Community Liaison Plan to be developed prior to the commencement of construction.

6 Environmental impact assessment

Chapter 6 of the REF provides a detailed description of the likely environmental impacts associated with the construction and operation of the Proposal. For each likely impact, the existing environment is characterised and then an assessment is undertaken as to how the Proposal would impact on the existing environment.

This environmental impact assessment has been undertaken in accordance with clause 228 of the EP&A Regulation. A checklist of clause 228 factors and how they have been specifically addressed in this REF is included at Appendix B.

6.1 Traffic and transport

A Traffic, Transport and Access Impact Assessment was prepared for the Proposal (SLR, 2021a). The assessment involved a site inspection undertaken on the 21 October 2020. The findings of the assessment are summarised in this section.

6.1.1 Existing environment

St Peters Station is located approximately 5.5 kilometres south of the Sydney CBD and within the local government jurisdiction of the Inner West Council. The station is situated in the suburb of St Peters, at the border of suburbs of Newtown and Erskineville.

Pedestrian access to St Peters Station is currently from Lord Street (north), Goodsell Street (south) and King Street (east). Given the lack of ramps or lifts, St Peters Station does not currently accommodate persons with a disability, mobility impaired or elderly persons, or parents and carers with prams and is not DSAPT compliant.

Road network and Traffic

St Peters Station is surrounded by King Street (State Road A36) in the east and Lord Street (local road) in the north. There are three pedestrian accesses to St Peters Station, as per the below:

- King Street via an alleyway
- Goodsell Street via an alleyway
- direct access from Lord Street.

The road network is summarised in Table 6.1.

Table 6.1 Road network surrounding the Proposal area

Road	Classification	Posted speed limit	School zone	Configuration
King Street (also forms part of Princes Highway State Road A36)	Arterial road	60km/hr	No	7 marked lanes, divided carriageway, no stopping and clearway restrictions. Station frontage: Princes Highway / King Street / Sydney Park Road signalised intersection.

Road	Classification	Posted speed limit	School zone	Configuration
Lord Street	Local road	50km/hr	No	1 unmarked lane, one-way traffic, typically unrestricted parking on southern side of carriageway and 1P parking on the northern side of carriageway.
Goodsell Street	Local road	50 km/hr	No	2 unmarked lanes, undivided carriageway, typically short term parking (excludes parking permit holders) on either side of the carriageway
May Lane	Alleyway – pedestrians and cyclists only	NA	No	Approximately 3-5 metre wide alleyway with no vehicular traffic

Parking

There are no designated commuter car parking facilities available to the users of St Peters Station. A number of local streets within the vicinity of St Peters Station provide unrestricted parking, however these spaces during peak hour are typically limited.

One authorised car share parking space, currently used by GoGet, is located on Lord Street, adjacent to the eastern footbridge access to the station.

Taxis and kiss and ride

A site inspection and desktop analysis revealed that there are two sections of kerbside parking in Lord Street which can be used as informal kiss and ride areas in the vicinity of St Peters Station. Applicable restrictions at these two locations are “No Parking” which allows a vehicle to stand for up to 2-minutes as per NSW Parking Rules. Mobility parking permit holders can legally park at this location for up to 5-minutes.

However, there are no formal kiss and ride areas dedicated to pick-up and drop-off activities.

Additionally, there are currently no formal taxi zones provided at St Peters Station.

Bus services

There are four bus stops in close proximity to St Peters Station, as follows.

- two bus stops on King Street, to the north of St Peters Station (stop ID: stop ID: 204230 in the northbound direction and 204311 in the southbound direction)
- two bus stops on Sydney Park Road, to the east of St Peters Station (stop ID: 204312 in the eastbound direction and stop ID: 204451 in the westbound direction).

Table 6.2 summarises the public bus routes that utilise these bus stops.

Table 6.2 Bus services at St Peters Station

ID	Service	Route	Frequency (Peak)	Frequency (Off-Peak)
204312 204451	308	Marrickville Metro to Central Eddy Avenue via Redfern	15 minutes	30 minutes
204312 204451	348	Wolli Creek to Bondi Junction	10 minutes	N/A
204230 204311	370	Coogee to Leichhardt Marketplace	10 minutes	30 minutes
204230 204311	422	Kogarah to Central Pitt Street	10 minutes	30 minutes

Bike network and facilities

At present, there are no means of transporting a bicycle to the station platforms without having to carry it down (and up) a flight of stairs.

There are a total of five bicycle parking racks available at St Peters Station, accommodating up to 10 bicycles. Three racks are located at the May Lane access point (southern station access) and two racks are located at the Lord Street access point (northern station access).

Based on the information obtained through City of Sydney Council's website, cycle ways within proximity to St Peters Station have continuous and direct linkages to Sydney CBD and are equipped with wayfinding signage.

6.1.2 Potential impacts

a) Construction phase

The key construction activities as part of the upgrade of St Peters Station would primarily consist of construction of two new lift shafts, internal renovation of the station building and addition of kiss and ride areas on Goodsell Street and Lord Street.

Limited earthwork and excavation are required and include:

- construction of crane platform
- construction of the lift shafts and platform canopy footings
- construction of three kiss and ride areas
- localised platform regrading / resurfacing work
- construction of pad for new 200kVA transformer
- other minor civil work including footings and foundations for structures, drainage / stormwater work, and trenching activities for service adjustments and relocations and drainage upgrade work.

As part of the construction work, ancillary facilities would also be required to accommodate the needs of construction workers. Two adjacent compounds will be required to undertake the work listed above, one being a site office and parking area and another for the materials to be laid down.

Customer and public access impacts

The following impacts to pedestrians, cyclists and station customers are anticipated to arise from construction activities.

- reduction in size of footpath (or closures) adjacent to Lord Street, Goodsell Street and Concord Street may require users to dismount and potentially deviate around construction work associated with the lift shafts
- increased safety risk due to the interaction of cyclists, pedestrians and construction vehicles at the proposed site compound access and / or parked construction vehicles on Lord Street, King Street and Concord Street
- uneven surfaces and detours required during footpath closures
- increased platform congestion due to localised platform closures and dedications during the resurfacing and regrading of the platform surfaces
- potential confusion and loss of amenity for customers due to the temporary relocation of station accesses and facilities
- detours required for potential footpath closures on Lord Street and Goodsell Street due to work associated with the installation of lift shafts and construction of kiss and ride areas.

Road network and traffic

Traffic generated by construction activities includes construction worker light vehicles (including utility vans), as well as heavy vehicles for periodic delivery and removal of materials, and construction plant and equipment. It is expected that articulated vehicles (AV 19m), cranes and heavy rigid vehicles (HRV 12.5m) would be needed only while the lift shafts are being delivered. Vehicle types and sizes would vary depending on the required use, but typically include medium and large rigid vehicles and articulated vehicles for import of bulk materials or spoil removal as well as for the transportation of plant and equipment.

The amount of fill material or spoil / demolition spoil would be minor due to the limited extent of excavation required for the Proposal. Specific oversize vehicles (i.e. 200-tonne crane) may be required for prefabricated / precast elements such as canopy and lift shaft structure components, and steel beams. In such cases, specific permits would be required, and advance route planning would need to be undertaken in order to ensure that a suitable route with sufficient geometric capacity to accommodate these vehicles is chosen.

Existing traffic demands on King Street, sourced from TfNSW website indicate that the traffic volumes on King Street near Enmore Road typically exceed 1,300 vehicles per hour in a typical weekday morning peak hour. Traffic generated as part of the construction work is not expected to exceed 25 light vehicles and 15 heavy vehicles per day during the peak construction periods. Based on this, construction demand is unlikely to cause significant impact to traffic flow or operational performance except when the lift shafts are being delivered as these activities will require the closure of King Street and Lord Street intersection for a short period of time.

Parking

Access to the construction compound is expected to have a minor impact on parking in Lord Street based on the swept path assessments SLR has undertaken (refer to Appendix B of the Traffic, Transport and Access Impact Assessment). Temporary restrictions for approximately six parking spaces near the compound gate would be required to provide ease to the approach of HRV design vehicles.

The temporary removal of a length of kerbside parking in Lord Street (approximately 18 spaces) between King Street and compound gate would be required for two days and intermittently for short periods to facilitate the lift shaft installation, typically being the day the crane arrives and the day the crane departs. The temporary parking removal would also apply to the authorised car share parking space.

Parking arrangements for construction vehicles would be managed to minimise any additional impacts on parking availability in the area by maximising the use of off-road parking options (i.e. construction compounds).

Interchange facilities

Construction is not expected to have an impact on any kiss and ride and taxi activities as there are no formal kiss and ride and taxi facilities in the vicinity of the proposed construction activities. However, the “no parking” restrictions in Lord Street (used as informal kiss and ride spaces) would be unavailable while an AV is making the delivery of the lift shafts.

Public transport

Train services would be affected during track possessions, although these are not specific to this project and would occur regardless and accordingly are not impacts arising from the Proposal. Buses would replace trains during rail possession periods. Accordingly, any construction activities occurring during possessions would utilise replacement bus services. These arrangements would be addressed as part of the Construction Traffic Management Plan (CTMP) and Traffic Control Plans (TCPs).

Beyond track possession periods, the proposed construction work is expected to result in slightly reduced travel speeds due to the active traffic management needs which could increase travel times for bus services on King Street during the delivery of lift shafts and other large materials.

Property access

Property accesses would be maintained and unaffected by construction work where possible, however temporary obstruction of accesses may be required during activities such as the loading and unloading of oversize materials and plant. Should this be necessary all affected properties would be notified well in advance of disruptions.

b) Operational phase

The Proposal would result in an overall positive impact by contributing towards making public transport more accessible to the community.

Customer and public access impacts

The Proposal would enhance pedestrian accessibility given the inclusion of facilities such as two new lifts and improvements to the canopy. Beyond station accessibility, these enhancements would also serve to improve the connection across the rail corridor and improve user amenity.

The proposed two new lifts are integral in allowing all platforms and areas of the station to be accessed by persons with a disability or mobility impairment, which is currently not possible given the existing entrances do not have lifts. This would facilitate improved community outcomes by increasing the independence and mobility of the local community regardless of their level of mobility, therefore reducing reliance on private vehicles as a means of travel.

The proposed regrading and resurfacing of accessways between the southern station entrance and King Street and Goodsell Street would also provide similar benefits through the elimination of trip hazards and enhanced pedestrian circulation.

A number of pedestrian capacity assessments were undertaken by Arcadis to identify the pedestrian movement performance in the following sections of St Peters Station (using 2036 patronage forecasts).

- platform access stairs
- station or footbridge access stairs
- footbridge
- platform area.

Despite assumed pedestrian forecast 2036 demand (including +15% contingency) , results of the study indicated that all elements of the station are expected to operate at Level of Service C or better under the current timetable arrangements. Any congestion issues are expected to be mitigated with the high frequency rail services that will be introduced by 2030 as part of the MTMS program as well as the Sydney Metro.

The Proposal would provide up to six additional bicycle parking hoops at the Railway Lane and Lord Street station entrances, increasing the capacity of bicycle parking at the station. Regrading of accessways and access routes are expected to benefit pedestrians and cyclists as a result of improved surface and reduced trip hazards. The provision of two new lifts is expected to attract additional cyclists as cyclists would no longer need to carry their bicycles up and down the stairs.

The Proposal is not expected to have any impact on existing property accesses within the vicinity of the station.

Road network and traffic

The Proposal would increase accessibility to St Peters Station and improve the customer experience and amenity, potentially leading to a minor increase in utilisation and patronage. This may be due to customers either travelling by train where they did not before, or by changing from another nearby station.

As a result, there may be a minor increase in traffic generation however, it is expected to be minor and would have a negligible impact on the surrounding road network or the amenity of local residents.

Parking and access

No changes to the existing general parking arrangements are proposed. It should also be noted that no accessible parking space would be provided as part of the Proposal.

The authorised car share parking space located on Lord Street that is currently utilised by GoGet would be relocated further west to accommodate two new kiss and ride parking areas as part of the Proposal.

The Proposal is not expected to have any impact on existing property accesses within the vicinity of the station.

Interchange facilities

The Proposal comprises the provision of three new kiss and ride areas.

The taxi zone space in Goodsell Street is currently operating as a “Work Zone” space due to the ongoing construction of a mixed-use development located at the intersection of King Street and Goodsell Street. It is expected that the taxi space would be reinstated upon the completion of this construction.

6.1.3 Mitigation measures

A CTMP would be prepared by the Construction Contractor in consultation with Transport for NSW and provided to Inner West Council. The CTMP would be the primary tool to manage potential traffic and pedestrian impacts associated with each phase of construction. The CTMP, at a minimum, would include:

- procedures for preparing and implementing TCPs which would provide details for signage and timing of any detours and traffic controls to manage temporary road disruptions such as modifications to the taxi zone on Goodsell Street and the delivery of large plant and materials
- necessary ROL's and permits required for the passage of construction vehicles and required consultation with Council and other relevant authorities
- identification of final construction traffic access routes, ancillary facilities, contractor parking and loading zones
- nomination of access routes to and from the local road network and contractor parking
- scheduling of work / deliveries to avoid peak times and limiting of work in the road carriageway as much as practicable to limit traffic and parking impacts and maintain customer access to the station
- measures to:
  - limit temporary parking losses
  - maintain pedestrian cross corridor access and customer access to the station through traffic and pedestrian diversions
  - maintain private property access unless otherwise agreed
  - identify changed traffic / pedestrian conditions including details of construction signage including signposts and variable message signs, traffic controllers and other community notifications.

The following mitigation measures would also be implemented:

- consultation with the NSW Taxi Council and bus services would be undertaken to discuss impacts and consider alternate arrangements during construction
- The CTMP would consider the suggested haulage routes and swept path assessments for accessing the construction compound and laydown areas as identified in the Traffic Transport and Access Impact Assessment (SLR, 2021a).

Refer to Table 7.1 for a full list of proposed mitigation measures.

6.2 Urban design, landscape and visual amenity

A Landscape Character and Visual Impact Assessment was undertaken by RPS for the Proposal (RPS, 2021a). The assessment included desktop analysis, site inspection and creation of photomontages. The photomontages provide an indication of what the Proposal may look like from key representative viewpoints once complete, in particular to demonstrate the bulk and scale, noting that materials and finishes are indicative and would be further investigated during detailed design.

The methodology adopted for the assessment is guided by policy and guidelines outlined in *Beyond the Pavement* (Transport for NSW, 2020) and the *Guideline for Landscape character*

and visual impact Environmental Impact Assessment Practice Note assessment EIA-N04 (Transport for NSW, 2020).

The sensitivity and magnitude of the landscape and visual impact was assessed to produce a combined impact rating of negligible, low, moderate and high (refer to Figure 6.1).

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High Impact	High-Moderate	Moderate	Negligible
Moderate	High- Moderate	Moderate	Moderate-Low	Negligible
Low	Moderate	Moderate-Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Figure 6.1 Landscape character and visual impact rating matrix adapted from Transport for NSW (2020)

6.2.1 Existing environment

Seven landscape character zones (LCZs) have been identified for the Proposal, as described in Table 6.3 and shown in Figure 6.2. A LCZ is defined as the collective qualities including the built form, natural elements, and the cultural and social facets that combine to provide a locale with a unique sense of place.

Table 6.3 Local character zones surrounding the Proposal area

LCZ	Description
LCZ 1	LCZ 1 comprises of open spaces around the Proposal. The landscape in this zone is heavily modified with contrived vegetative elements. This landscape character zone has some capacity to accommodate some change and continue to retain its valued attributes if the open space and connection therein are maintained.
LCZ 2	LCZ 2 incorporates the commercial and public buildings on King Street (Princes Highway) Commercial – North of St Peters Station. The landscape in this zone is heavily urbanised/modified with minimal contrived vegetative elements. In part due to its eclectic nature, this landscape character zone has some capacity to accommodate some change and continue to retain its valued attributes.
LCZ 3	LCZ 3 are the modern apartments associated with pockets of urban infill around the site. The landscape characteristics in this zone are modern and urbanised with contrived/introduced vegetative elements. This landscape character zone has a substantial capacity to accommodate change without losing its attributes.
LCZ 4	LCZ 4 comprises residential uses around the St Peters Station precinct. This Landscape Character Zone type is proliferated around the precinct in several zones. The landscape in this zone is heavily urbanised/modified with minimal contrived vegetative elements in parts of this zone. This landscape character zone has the capacity to accommodate some change without losing its valued attributes.
LCZ 5	LCZ 5 is St Peters Station (the Proposal work) and the rail corridor. The station is bound by King Street, Lord Street, John Street, and Goodsell Street. The LCV continues in both north-easterly (inbound) and westerly (outbound) direction. The landscape in this zone is heavily industrialised/modified with contrived vegetative elements. This landscape character zone has the capacity to accommodate change.

LCZ	Description
LCZ 6	LCZ 6 is King Street south of the Station. The landscape characteristics in this zone are heavily urbanised/modified with. This landscape character zone has an abundant capacity to accommodate change without losing its valued attributes.
LCZ 7	LCZ 7 is the light industrial area in the locality known as St Peters Triangle. The landscape in this zone is heavily urbanised/modified with minimal contrived vegetative elements in parts of this zone. This landscape character zone has the capacity to accommodate some change without losing its valued attributes.

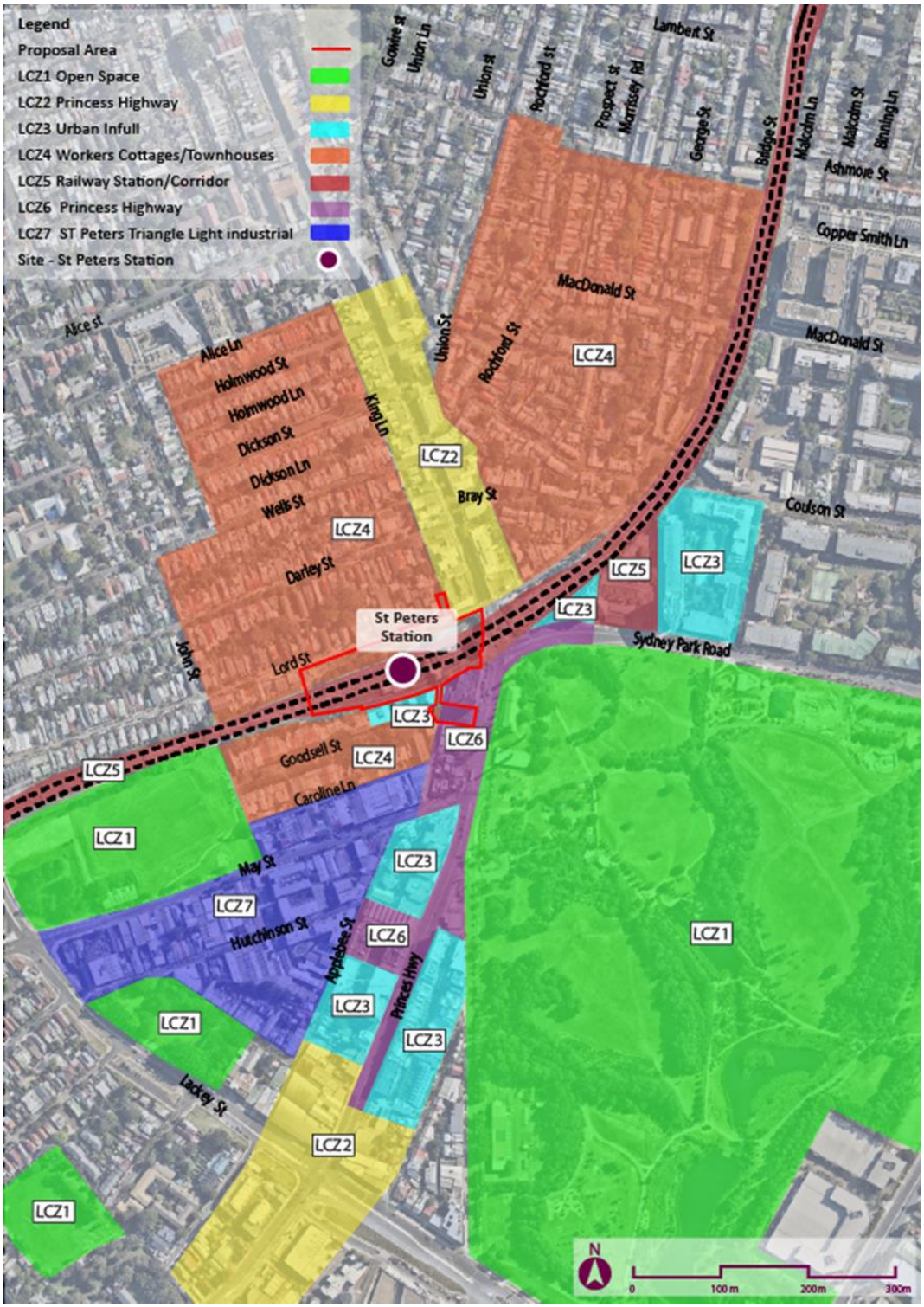

Figure 6.2 Landscape character zones surrounding the Proposal area

Visual receivers / viewpoints

Visual receivers are individuals and / or groups of people whose views may be affected by the Proposal. These include users of residential dwellings, commercial properties and open space and generally comprise residents, rail customers, motorists and pedestrians.

The following locations have been identified to represent key viewpoints to and from the Proposal.

- viewpoint 1: View from King Street at Darley Street
- viewpoint 2: View from Sydney Park Road approaching intersection with King Street
- viewpoint 3: View from King Street at May Street
- viewpoint 4: View from Goodsell Street at May Lane
- viewpoint 5: View from St Peters Station plaza
- viewpoint 6: View from St Peters Station platform.
- viewpoint 7: View from St Peters Station plaza to overhead walkway entry (south)
- viewpoint 8: View from Concord Street at King Street
- viewpoint 9: View from Lord Street – mid block
- viewpoint 10: View from Camdenville Oval at northern end of Council Street
- viewpoint 11: View from Lord Street at laneway

As part of the Visual Impact Assessment, an assessment was undertaken to understand the potential impacts on views as a result of the Proposal at these locations. These locations are shown in Figure 6.3.

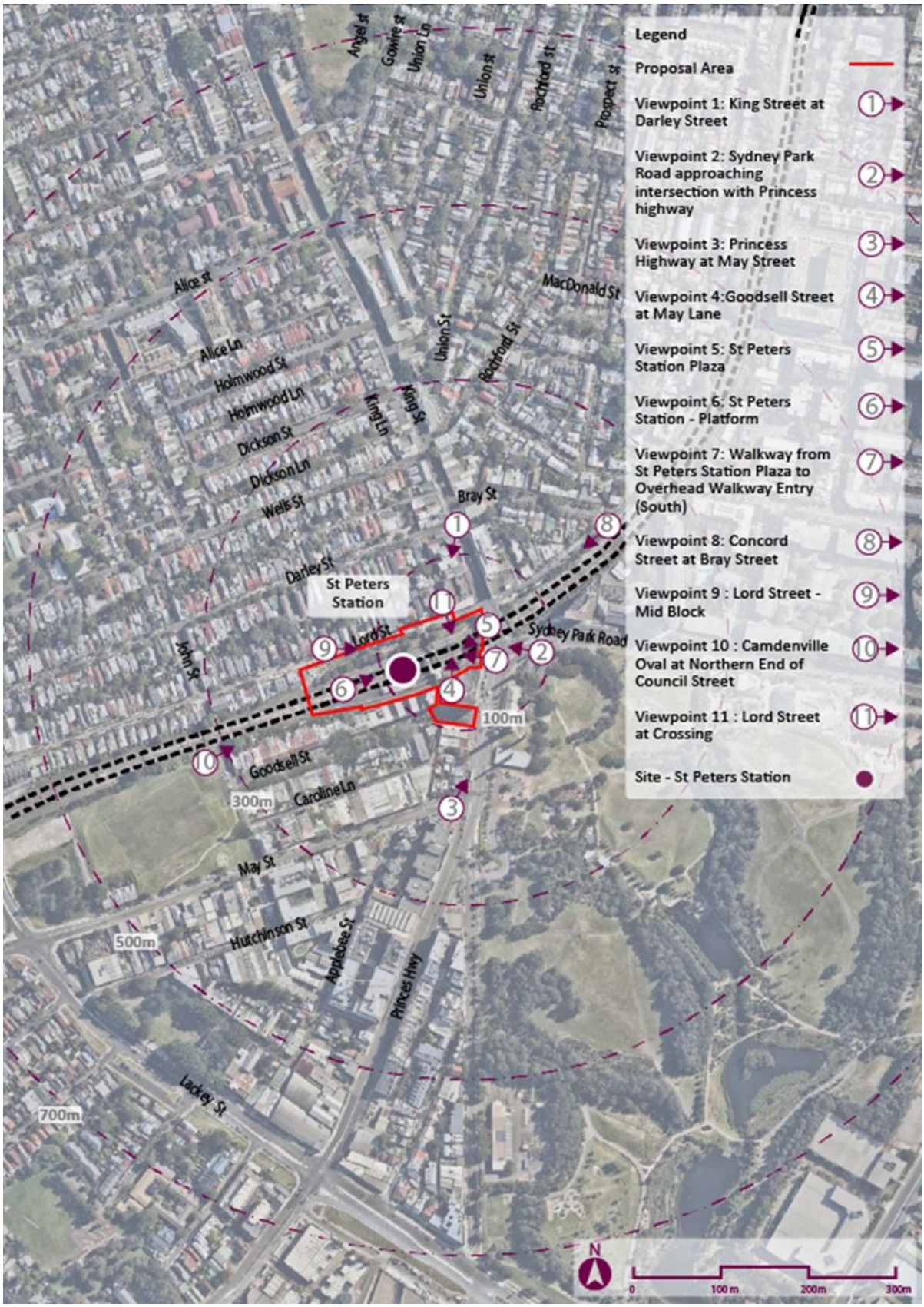

Figure 6.3 Viewpoints surrounding the Proposal area

6.2.2 Potential impacts

a) Construction phase

Construction activities would generally be more visible than the operational stage of the Proposal. The construction activities would be transient in nature. Temporary elements likely to be introduced into the visual environment include:

- fencing and hoarding
- road barriers and signage
- ground disturbance
- formwork and scaffolding
- cranes and other construction equipment
- site office and amenities including the storage of materials and equipment.

Although temporary, construction would be a prominent feature of the scene and contrast the surrounding scale and character of the station. This would temporarily impact the views from passengers, motorists, and residential dwellings as the most sensitive receptors.

To facilitate the upgrades, up to five trees in close proximity to the proposed work may need to be protected. These are detailed in Section 6.7.

Where night work is required for the Proposal this would involve the use of temporary lighting for operational, safety and security purposes. Lighting installations would be placed to avoid light spill to adjoining road corridors and residential areas.

All viewpoints have low sensitivity to change due to the urbanised / contrived environment with low scenic value, predominately dominated by rail and road infrastructure. The magnitude of change on the landscape during construction is low given the scale of new elements such as construction plant, equipment and ancillary facilities that are not a significant visual departure from the existing landscape character and are temporary in nature.

The impacts of the introduction, replacement and removal of permanent built elements at St Peters Station as a result of the Proposal have been further assessed below.

b) Operational phase

Photomontages have been prepared from viewpoints 2, 6 and 11 to provide an indication of what the Proposal may look like during operation and are included in Figure 6.4 to Figure 6.9. These viewpoints were chosen to highlight different aspects of the Proposal and demonstrate potential future views from the most impacted viewpoints.

An assessment of the visual sensitivity and magnitude of each viewpoint during the operational phase of the Proposal is provided in Table 6.4, utilising the impact grading system matrix previously discussed (Figure 6.1). In summary, the Proposal would result in Negligible to Low impacts for the selected viewpoints.

Lighting would be designed in accordance with the requirements of standards relevant to *AS 1158 Road Lighting, AS 4282 Controlling the Obtrusive Effects of Outdoor Lighting* and *AS 1428 Design for Access and Mobility,* and as such operational lighting impacts (such as light spill) are expected to be negligible.

Figure 6.4 Viewpoint 2 – Proposal from corner of Sydney Park Road and King Street - existing view

Figure 6.5 Viewpoint 2 - Photomontage of the view from corner of Sydney Park Road and King Street

Figure 6.6 Viewpoint 6 – St Peters Station platform - existing view

Figure 6.7 Viewpoint 6 - Photomontage of the view from the platform

Figure 6.8 Viewpoint 11 – View from Lord Street at laneway - existing view

Figure 6.9 Viewpoint 11 - Photomontage of the view from Lord Street at laneway

Table 6.4 Summary of visual impact assessment

Viewpoint (VP)	Summary	Overall impact (sensitivity x magnitude)
Viewpoint 1: View from King Street at Darley Street	• the Proposal is consistent with the existing urban landscape character of this viewpoint • the Proposal changes cannot be viewed from this location due to existing buildings obscuring views.	Negligible
Viewpoint 2: View from Sydney Park approaching intersection with King Street	• some parts of the Proposal are visible from this viewpoint, however the Proposal is consistent with the existing urban landscape character of this viewpoint • the scale of the Proposal from this viewpoint would not be a visual departure from the existing landscape character for users of King Street or Sydney Park Road.	Low
Viewpoint 3: View from King Street at May Street	• the Proposal is consistent with the existing urban landscape character of this viewpoint • the Proposal changes cannot be viewed from this location due to existing buildings obscuring views.	Negligible
Viewpoint 4: View from Goodsell Street at May Lane	• the nature of the Proposal and proposed materials would be consistent with the existing urban landscape character of this viewpoint • the view is highly urbanised with the buildings, and other infrastructure dominating the view • small parts of the Proposal are visible from this viewpoint • the scale of the Proposal from this viewpoint would not be a visual departure from the existing landscape character	Low
Viewpoint 5: View from St Peters Station Plaza	• the Proposal is consistent with the existing urban landscape character of this viewpoint • the Proposal changes cannot be viewed from this location due to a brick wall obscuring views.	Negligible

Viewpoint (VP)	Summary	Overall impact (sensitivity x magnitude)
Viewpoint 6: View from St Peters Station platform	• the Proposal is consistent with the existing urban landscape character of this viewpoint • the view is highly urbanised with the railway infrastructure dominating this view, though is moderately sensitive to change due to the views including heritage listed platform buildings • the proposed station infrastructure is a minor visual departure from the existing visual conditions, however the proposed materials would be consistent with the existing landscape character • at this viewpoint the scale of the Proposal is not a substantial increase over the existing infrastructure. • the Proposal is not a departure from existing landscape character in the zone.	Moderate - Low
Viewpoint 7: View from walkway from St Peters Station plaza to the overhead walkway entry	• the nature and scale of the Proposal is consistent with the existing urban landscape character of this viewpoint • the view is urbanised with built infrastructure throughout dominating this view • small parts of the Proposal are visible from this viewpoint, however the proposed materials would be consistent with the existing landscape character • dependent on the timing for construction of the Proposal, and timing of completion of the multi-use block, residents in the 647-655 King Street block may experience a change in magnitude. An assessment of the change in magnitude at this site cannot be determined at the time of publishing this report as construction of the residential block is ongoing and a viewpoint cannot be established.	Low
Viewpoint 7: Extrapolated view from new residential tower proposed for completion in May 2021	• based on the highly contrived character of the view and the time of exposure that residents would have prior to the Proposal's completion the extrapolated view from residents on the north and west sides of the residential building has low scenic amenity and has low sensitivity to change • the scale of the project for residents on the north and west side of the residential building would be somewhat a visual departure from the existing built environment in and around the station • the use of appropriate materials and building massing outcomes would be in keeping with the landscape character available in this view • the Proposal would not be a departure from existing landscape character.	Moderate – Low

Viewpoint (VP)	Summary	Overall impact (sensitivity x magnitude)
Viewpoint 8: View from Concord Street at King Street	• the Proposal is consistent with the existing urban landscape character of this viewpoint • the view is urbanised with built infrastructure throughout dominating this view. • very small parts of the Proposal are visible from this viewpoint.	Low
Viewpoint 9: View from Lord Street – mid block	• the Proposal is consistent with the existing urban landscape character of this viewpoint and the proposed new structures would be designed to be sympathetic with the surrounding landscape • the view is highly urbanised with the railway infrastructure evident in this view • the proposed station infrastructure is a minor visual departure from the existing visual conditions at this viewpoint, however the nature and scale of the Proposal is not a substantial increase over the existing infrastructure.	Low
Viewpoint 10: View from Camdenville Oval at Northern end of Council Street	• the Proposal is consistent with the existing urban landscape character of this viewpoint and the proposed changes cannot be viewed from this location due to existing buildings obscuring views.	Negligible
Viewpoint 11: View from Lord Street at laneway	• the nature and scale of the Proposal is consistent with the existing urban landscape character of this viewpoint • the view is urbanised with built infrastructure throughout dominating this view • small parts of the Proposal are visible from this viewpoint.	Low

6.2.3 Mitigation measures

Mitigation measures would be reviewed where appropriate during detailed design development and construction planning to minimise the level of visual impact of the construction and operation phases of the Proposal.

The detailed design of the Proposal is to be undertaken with reference to the recommendations included in the Landscape Character and Visual Impact Assessment (RPS, 2021a). Key project-specific mitigation includes:

- implementation of materials and finishes that complement the existing platform buildings and infrastructure to mitigate the visual impacts of the proposed elements
- review of the impacts of the construction laydown area on vegetation along Lord Street
- retention of mature trees and vegetation (where possible) to maintain screening to new and existing railway infrastructure

- undertaking any vegetation offsetting in accordance with the *Vegetation Offset Guide* (TfNSW, 2019)
- implementation of landscape design proposed in the initial Urban Design and Public Domain Plan, which is to be updated in the detailed design phase.

Measures to mitigate visual impacts during construction would be included in a CEMP for the Proposal and would include measures such as minimising light spill during night work (including identification of sensitive receptors) and screening of compounds.

Refer to Table 7.1 for a full list of proposed mitigation measures.

6.3 Noise and vibration

6.3.1 Existing environment

This section provides a summary of the Noise and Vibration Impact Assessment undertaken by SLR (2021b). The assessment included:

- establishing the existing background noise levels in the vicinity of St Peters Station
- establishing the construction noise management levels and vibration limits that would apply to the upgrade work
- predicting environmental noise and vibration levels at nearby residential and other sensitive receivers due to the upgrade work
- considering potential noise from the operation of the upgraded St Peters Station
- identifying mitigation measures to reduce and manage noise and vibration impacts from the upgrade work to comply with established construction noise management levels and vibration limits.

As operational noise levels are expected to remain mostly unchanged and the specific mechanical systems to be installed for the Proposal are not yet finalised, no quantitative modelling of operational noise impacts was undertaken.

Noise sensitive receivers

The area surrounding the station was divided into three noise catchment areas (NCA01 to NCA03) as shown in Figure 6.10.

NCA01, located on both sides of the rail corridor to the east of St Peters Station, east of King Street and north of Sydney Park Road is mostly residential buildings east of King Street and north of Sydney Park Road with outdoor recreation areas and various commercial receivers. The closest receivers are located around 15 metres from the proposed Concord Street laydown area and around 70 metres north-east of the St Peters Station platform.

NCA02, located on the north side of the rail corridor, west of King Street is mostly residential buildings with a commercial building on Lord Street, mixed commercial/residential along King Street, and Camdenville Public School around 300 metres to the north-west. The closest receivers are located around 20 metres northwest of the St Peters Station platform.

NCA03, located on the south side of the rail corridor, southwest of Sydney Park Road is mostly residential buildings immediately to the south of the station with various commercial buildings along King Street and May Street to the south, and the Sydney Park outdoor recreation areas to the east. The closest receivers are located around 15 metres south of the St Peters Station platform.

Background noise levels

Existing noise levels (prior to construction of the Proposal) are measured to understand existing ambient noise levels and their sources, which inform the assessment of potential noise impacts from the Proposal.

Rating Background Noise Levels (RBLs) are determined from measurement of L_{A90} noise levels (representing the noise level exceeded for 90 per cent of the monitoring period) in the absence of noise from the Proposal.

To determine the RBLs, unattended noise monitoring using noise loggers was undertaken from 18 November 2020 to 30 November 2020 at the locations shown in Figure 6.10. RBLs are reported as L_{A90} as shown in Table 6.5.

Table 6.5 Unattended noise monitoring results

Location	Address	Period[1]	Rating Background Level (L_{A90}) in dB	Ambient noise level (L_{Aeq}) in dB
L.01	68 Bray Street, Erskineville	Day time	44	64
		Evening	42	66
		Night time	38	62
L.02	23 Lord Street, Newtown	Day time	45	59
		Evening	43	57
		Night time	36	53
L.03	3 Goodsell Street, St Peters	Day time	44	65
		Evening	44 (45 actual)[2]	67
		Night time	37	65

Note 1: Day is defined as 7.00am to 6.00pm, Monday to Saturday and 8.00am to 6.00pm Sundays & Public Holidays. Evening is defined as 6.00pm to 10.00pm Monday to Sunday. Night time is defined as 10.00pm to 7.00am Monday to Saturday and 10.00pm to 8.00am Sundays & Public Holidays.

Note 2: The evening RBL has been reduced to match the daytime RBL due to the measured evening RBL being higher than the daytime, as outlined in the NPfI.

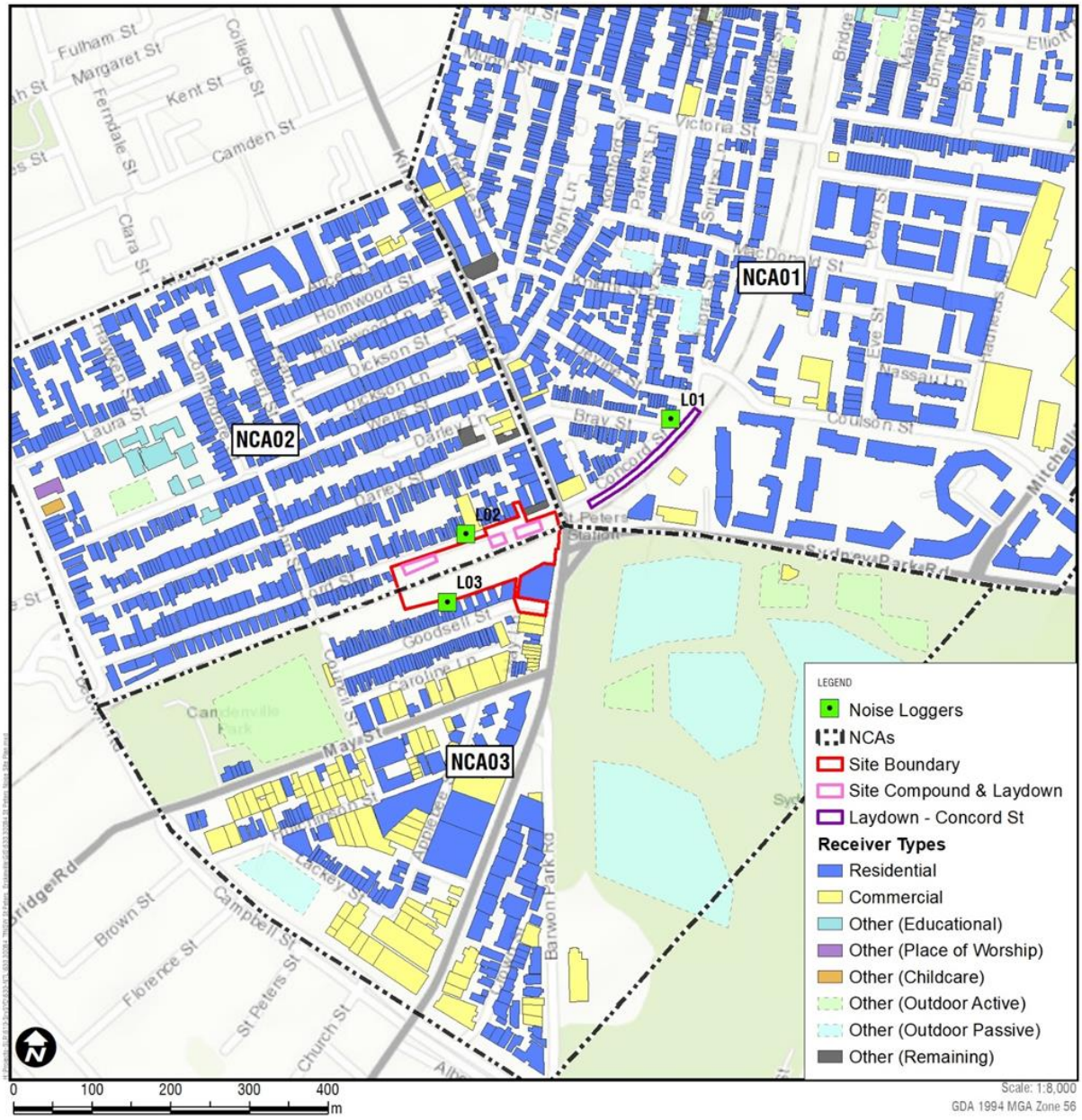

Figure 6.10 Noise catchment areas and noise monitoring locations

Operator attended monitoring was also undertaken on 18 November 2020 at each logger location. Daytime ambient noise levels at all locations were observed to be dominated by train passbys, including flanging noise primarily at L01. Local traffic and aircraft also contributed to the noise level at most locations.

The daytime background noise was typically distant traffic at all locations.

Construction noise criteria

The EPA's *Interim Construction Noise Guideline* (ICNG) (Department of Environment and Climate Change, 2009) is the principal guideline for the assessment and management of construction noise in NSW. The ICNG recommends standard hours of construction as:

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm

- Sundays and public holidays: no work.

Noise management levels (NMLs) have been determined for receivers as per the procedures in the ICNG. The ICNG prescribes set noise management levels for non-residential receivers such as commercial, schools and places of worship. Noise management levels for residential receivers are calculated based on the RBL + 10 dB(A) (for day time periods) or the RBL + 5 dB(A) (for evening and night time periods).

In addition, a 'highly noise affected' level of 75 dB(A) for residential receivers represents the point above which the ICNG indicates there may be strong community reaction to noise. Where work exceeds the noise management levels, all reasonable and feasible measures (such as equipment selection and location, construction scheduling and respite periods) should be implemented to reduce noise levels as far as practicable.

The construction NMLs calculated for residential receivers are listed in Table 6.6. The NML for sensitive receivers nearby such as educational institutes and places of worship, is prescribed by the ICNG, and is an internal noise management level. The corresponding external noise level (which the assessments are based on) has therefore been determined on the assumption that a 10 dB(A) noise reduction from outside to inside is applicable. This is considered to be a typical assumption for a 'windows open' scenario.

Sleep disturbance noise goals have also been established for residential receivers. The sleep disturbance criteria for all NCAs are a screening level RBL + 15 dB(A). Where construction work is planned to extend over more than two consecutive nights, the ICNG recommends that an assessment of sleep disturbance impacts should be completed.

For traffic noise, the criterion applied on public roads generated during the construction phase of a project is an increase in existing road traffic noise of no more than 2 dB(A).

Table 6.6 NMLs for construction

NCA	Receiver type	Standard construction (RBL+10dB)	Out of Hours (RBL+5dB)[1]			Sleep disturbance (RBL+15dB)
		Day time	Day time	Evening	Night	
NCA01	Residential	54	49	47	43	53
NCA02	Residential	55	50	48	41	51
NCA03	Residential	54	49	49	42	52
All	Commercial	70	70	n/a	n/a	n/a
All	Childcare centre	50	50	n/a	n/a	n/a
All	Place of worship	55	55	55	n/a	n/a
All	Educational	55	55	n/a	n/a	n/a
All	Medical centre	65	65	n/a	n/a	n/a
All	Hotel	55	55	55	55	n/a
All	Public building	55	55	n/a	n/a	n/a

NCA	Receiver type	Standard construction (RBL+10dB)	Out of Hours (RBL+5dB)[1]			Sleep disturbance (RBL+15dB)
		Day time	Day time	Evening	Night	
All	Outdoor passive recreation	60	60	60	n/a	n/a
All	Outdoor Active recreation	65	65	65	n/a	n/a

Note 1: Out of Hours construction hours – Evening hours are 6pm to 10pm. Night time hours are 10pm to 7am Sunday to Saturday and 10pm Saturday to 8am Sunday

Ground-borne noise assessment criteria

Construction work can cause ground-borne noise impacts in nearby buildings when vibration generating equipment is in use. Vibration can be transmitted through the ground and into the structure of nearby buildings, which can then create audible noise impacts inside the building. The ICNG and the *Construction Noise and Vibration Strategy* (CNVS) (Transport for NSW, 2019) provide evening and night-time ground-borne noise NMLs for residences to protect the amenity and sleep of affected residents. The ground-borne noise NMLs are:

- evening $L_{Aeq(15\ minute)}$: 40 dBA
- night-time $L_{Aeq(15\ minute)}$: 35 dBA.

For commercial receivers, the CNVS does not provide guidance in relation to acceptable ground-borne noise levels. An internal NML of 60 dBA has been used for these receivers, which is consistent with other similar infrastructure projects.

The NMLs only apply where internal ground-borne noise levels are higher than noise transmitted through the air. This situation can occur where buildings near to construction work have high performing facades which attenuate the airborne component, or where sensitive internal areas do not have facades which face the construction work. Should buildings susceptible to ground-borne noise be identified in the project area this should be assessed during preparation of the Construction Noise and Vibration Management Plan (CNVMP).

Construction vibration criteria

The effects of vibration in buildings can be divided into three main categories:

- those in which the occupants or users of the building are inconvenienced or possibly disturbed
- those where the building contents may be affected
- those in which the integrity of the building or the structure itself may be prejudiced.

Human comfort

The EPA's *Assessing Vibration: a technical guideline* (Department of Environment and Conservation, 2006) provides guideline values for continuous, transient and intermittent events that are based on a Vibration Dose Value (VDV) rather than a continuous vibration level. The VDV is dependent upon the level and duration of the short-term vibration event, as well as the number of events occurring during the day time or night time period.

The maximum criteria level is 0.4 $m/s^{1.75}$ for residences during the day time and 0.26 $m/s^{1.75}$ during the night time. For offices, educational facilities and places of worship (when in use) the

maximum criteria is 0.8 m/s$^{1.75}$. For critical working areas (such as precision laboratories) the maximum criteria is 0.2 m/s$^{1.75}$.

Effects on building contents

People can perceive floor vibration at levels well below those likely to cause damage to building contents or affect the operation of typical equipment. For most receivers, the controlling vibration criterion would be the human comfort criterion, and it is therefore not normally required to set separate criteria in relation to the effect of construction vibration on most building contents.

Where appropriate, objectives for the satisfactory operation of critical instruments or manufacturing processes should be sourced from manufacturer's data and / or other published objectives.

Structural damage vibration

Structural damage vibration limits are based on British Standard *BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2*. The standard provide frequency-dependent vibration limits related to cosmetic damage, noting that cosmetic damage is very minor in nature, is readily repairable and does not affect the structural integrity of the building.

The recommended vibration limits from BS 7385 for transient vibration for minimal risk of cosmetic damage to residential and industrial buildings is shown in Table 6.7.

Table 6.7 Transient vibration guide values for minimal risk of cosmetic damage (BS 7385)

Type of building	Peak particle velocity: 4 – 15 Hz	Peak particle velocity: 15 Hz and above
Reinforced or framed structures industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
Un-reinforced or framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Safe working distances

Safe working distances for items of vibration intensive equipment are provided in Table 6.8.

Table 6.8 Safe working distances from vibrating plant

Plant item	Rating/description	Safe working distance (Cosmetic damage)	Safe working distance (Human response)
Vibratory roller	< 50 kN (Typically 1-2t)	5 m	15 m to 20 m
	< 100 kN (Typically 2-4t)	6 m	20 m
	< 200 kN (Typically 4-6t)	12 m	40 m
	< 300 kN (Typically 7-13t)	15 m	100 m
	> 300 kN (Typically 13-18t)	20 m	100 m
	> 300 kN (Typically > 18t)	25 m	100 m
Small hydraulic hammer	300 kg - 5 to 12t excavator	2 m	7 m
Medium hydraulic hammer	900 kg - 12 to 18t excavator	7 m	23 m

Plant item	Rating/description	Safe working distance (Cosmetic damage)	Safe working distance (Human response)
Large hydraulic hammer	1600 kg - 18 to 34t excavator	22 m	73 m
Jackhammer	Hand held	1 m (nominal)	Avoid contact with structure
Bored piling	< 800 mm	2 m	n/a

Operational noise criteria

The *Noise Policy for Industry* (EPA, 2017) (NPI) has two broad objectives:

- control intrusive noise levels in the short-term
- maintain noise amenity levels for specific land uses over the medium to long-term.

The NPI sets out procedures for establishing the project intrusiveness $L_{Aeq(15minute)}$ and project amenity $L_{Aeq(period)}$ noise levels, where the lower (i.e. more stringent) is then adopted as the Project Trigger Noise Level (PTNL). Applicable PTNLs for all noise sensitive receiver areas surrounding the Proposal have been calculated and are shown in Table 6.9.

Table 6.9 Project Trigger Noise Levels - residential

NCA	Time of day	Intrusive[1] (dBA)	Amenity[2] (dBA)	Overall PTNL[3] (dBA)
NCA01	Day	49	53	49
	Evening	47	43	43
	Night	43	38	38
NCA02	Day	50	53	50
	Evening	48	43	43
	Night	43	38	38
NCA03	Day	49	53	49
	Evening	49	43	43
	Night	42	38	38

Note 1: Project intrusive noise level is RBL + 5dB

Note 2: The recommended amenity noise levels have been reduced by 5 dB to give the project amenity noise levels due to other sources of industrial noise being present in the area

Note 3: Resulting PTNL is the lower of the project intrusive and project amenity noise levels

6.3.2 Potential impacts

a) Construction phase

Noise

To assess the potential impacts from the proposed work, the construction phases described in Section 3.4 were used to develop indicative construction scenarios comprising typical plant and equipment. The scenarios developed were:

- site establishment – including establishment of compound / work areas and vegetation removal
- main work – including demolition activities, excavation, lift installation, station building modifications and platform work
- site demobilisation.

A 3D computer noise model was then used to predict the $L_{Aeq(15minute)}$ and $L_{A1(1minute)}$ noise levels for each of the NCAs resulting from the above scenarios. Predictions include the source noise levels of the anticipated equipment, the location of the nearest sensitive receivers, the number of plant items likely to be operating at any given time, the distance between the equipment and the receivers, and any shielding or reflections that the topography or buildings may provide.

Worst-case noise level predictions have been made based on worst case impacts for each work scenario when the work is located at the nearest position within the work area to each receiver. The predictions are provided in the Noise and Vibration Impact Assessment (SLR, 2021b). The impacts are summarised in Table 6.10.

In practice, the noise levels would vary because plant would move around the worksites and would not all be operating concurrently. This means that noise levels are likely to be lower than the worst-case noise levels presented for notable periods of time during the work.

Residential receivers are considered to be highly noise affected if noise levels from construction exceed 75 dBA $L_{Aeq(15minute)}$.

The location of receivers with potential to be highly noise affected at noise intensive times during these activities is shown in Figure 6.11.

Table 6.10 Summary of predicted noise impacts

Work scenario	Summary of predictions	Timing and duration of work
Site establishment and demobilisation	• during site establishment, the most potentially affected residential receivers are predicted to exceed the daytime NMLs by up to 30 dB in NCA02 and NCA03. During these noise-intensive work the receivers with the highest NML exceedances are generally those with direct line of sight to the equipment and situated immediately adjacent to the work. • impacts at other sensitive receiver types are generally below NML with the exception of receivers immediately adjacent to the work (ie the nearby mixed commercial and hotel in NCA02 north of the work. • while some NML exceedances have been identified as relatively high, these impacts are highly dependent on the specific location of the high noise plant which would be considered to minimise the impacts. • NML exceedances of this magnitude would be limited to periods when noise intensive plant is operating directly adjacent to the sensitive receivers. Sensitive receivers which are located further away from the proposed work areas would have lower NML exceedances. For example, the predicted noise levels at the second row of receivers from the work area typically reduce by 10 dB when compared with the front row. However, due to the noise intensive nature of the equipment, NML exceedances are predicted over the adjacent area during the site establishment work.	Standard day time hours and out of hours work (including rail shutdowns).

Work scenario	Summary of predictions	Timing and duration of work
Main work	• due to the close vicinity to the work, the closest receivers in all adjacent catchments are predicted to exceed the NMLs during noise intensive activity. The highest predicted noise levels at residential receivers exceed the NML by over 30 dB during most of the noise intensive activities when located immediately adjacent to the first row of receivers in NCA02 and NCA03. • the highest predicted noise levels at non-residential receivers exceed the NML by over 25 dB during demolition work at the hotel (Sydney Park Hotel) in NCA02. NML exceedances of this magnitude would be limited to the rooms with a line of sight to the proposed equipment for this work. Consultation with this hotel may allow scheduling of some work at a time when these receivers are not occupied and therefore not susceptible to adverse noise impacts. • the night-time noise management levels are based on the lower background noise level during this period. The culmination of these factors results in an increased risk of sleep disturbance at many surrounding residential receivers. Where practical it is recommended that use of noise intensive equipment is scheduled to occur in the less sensitive daytime period to reduce the magnitude of the resultant NML exceedances and sleep disturbance impacts.	Standard day time hours and out of hours work (including rail shutdowns).
Site compounds and laydown areas	• the nearest-affected residential receivers in NCA02 and NCA03 are predicted to exceed the daytime NMLs by up to 18 dB and 10 dB respectively during the proposed compound and laydown activity at the Lord Street rail corridor location. • construction noise levels in NCA01 due to the Concord Street rail corridor laydown area are predicted to exceed NMLs by up to 19 dB during the daytime and up to 30 dB during out of hours at residential receivers during the work. • the highest predicted noise levels at non-residential receivers exceed the NML by up to 14 dB at Sydney Park Hotel in NCA02.	Standard day time hours and out of hours work (including rail shutdowns).

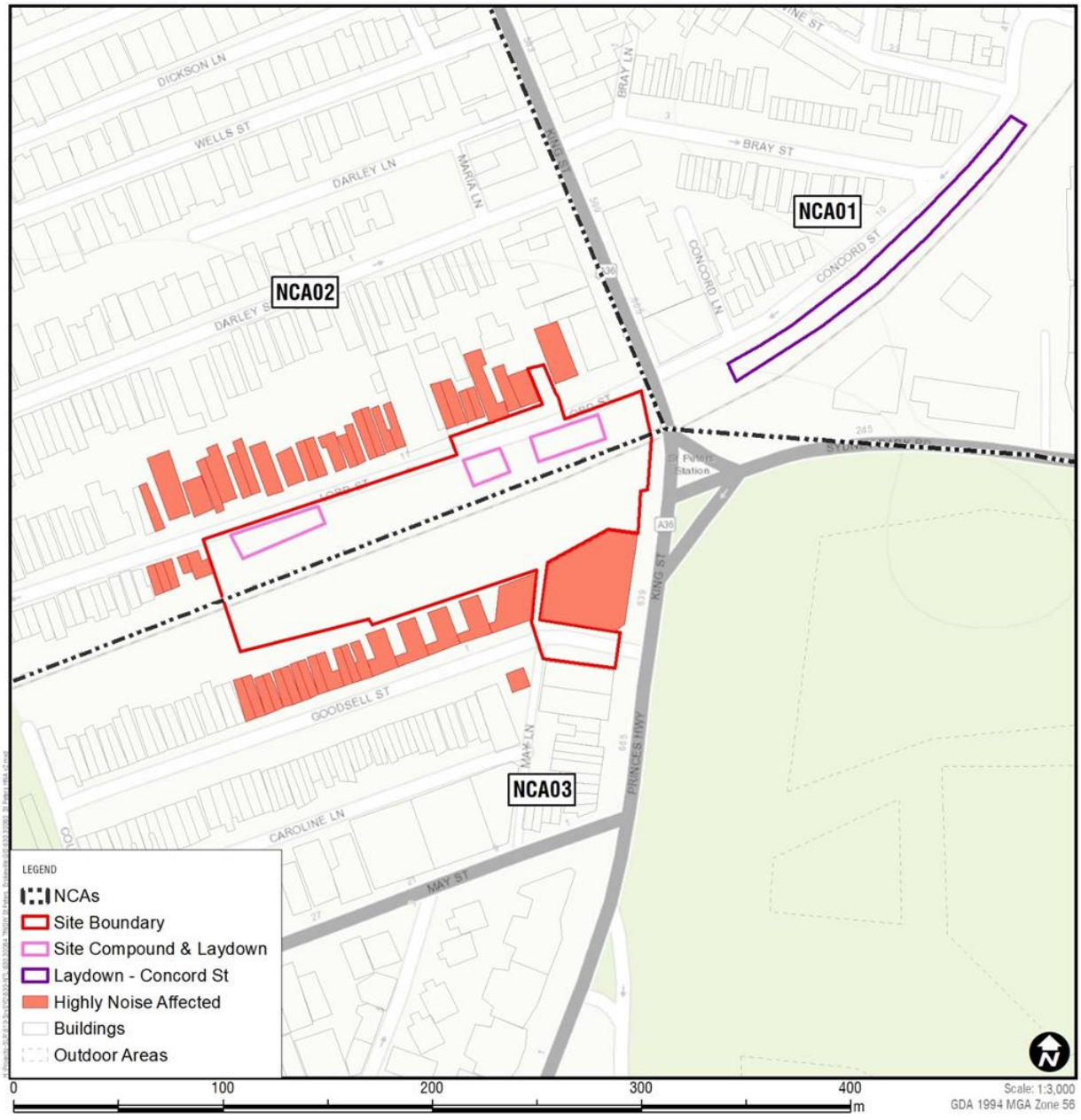

Figure 6.11 Highly affected noise receivers

Cumulative noise impacts

Cumulative noise impacts warrant assessment where more than one work scenario operates at the same time and in the same location such that the same receiver is impacted by noise from more than one work scenario simultaneously. Generally, the proposed work is scheduled in consecutive phases and therefore cumulative noise impacts are not predicted as the assessment is controlled by noise impacts from the individual phases (as assessed).

Where construction work associated with other projects occurs at the same time as the Proposal work, this has the potential to result in marginally higher noise levels at the nearby receivers. However, noisy work from each project would typically not occur at the same time, and may affect different facades of a building, minimising the cumulative impacts.

A development at 641-657 King Street is currently under construction and major work is anticipated to be completed by May 2021. The development, DA201700013 is an eight storey

mixed use development including retail, residential apartments, basement car parking and associated landscaping. Proposed work for the Proposal is anticipated to commence mid-2021 and therefore is not expected to overlap with construction activities for the 641-647 King Street development.

Construction traffic noise

Construction vehicles associated with the Proposal on public roads are not expected to exceed 15 heavy vehicle deliveries per day during peak construction periods (scheduled Sydney Trains track work periods) and less during non-track work periods.

The relatively small number of construction vehicles accessing the site is predicted to have an insignificant effect on existing road traffic noise levels and further consideration of noise impacts due to construction traffic is not required.

Vibration

Vibration intensive equipment is proposed during the service relocation work scenarios which include the use of jackhammers and bored piling.

Piling work is associated with several work activities. It is assumed that piling work would be performed using non-vibration intensive bored piling. If the Contractor elects to use an alternative piling method, the vibration levels generated by this plant may be higher and would require further assessment.

Vibratory rolling is proposed during the following scenarios:

- excavation
- platform resurfacing work
- resurfacing of King Street / Goodsell Street footpaths.

Jackhammering is proposed during platform canopies work, as well as the two activities above.

Vibratory rolling during the station work at its closest would be the around 15 metres from the closest residential receivers. For resurfacing work on King Street / Goodsell Street footpaths, the work may be closer than 15 metres to the nearest buildings which are immediately adjacent to the footpath.

Human comfort

In relation to human comfort (response), the safe working distances in Table 6.8 relate to continuous vibration and apply to residential receivers. For most construction activities, vibration emissions are intermittent in nature and for this reason, higher vibration levels, occurring over shorter periods are permitted, as discussed in *Assessing Vibration - a technical guideline* (Department of Environment and Conservation, 2006).

Cosmetic damage assessment

Indicative vibration levels at nearby receivers are shown in Table 6.11.

Table 6.11 Indicative vibration levels at receivers

Receiver	Approximate distance to work area	Indicative vibration level (mm/s)[1]
NCA01 (residential)	70 metres	< 1
NCA02 (residential)	20 metres	4.8
NCA03 (residential)	15 metres (station platform)	7.5

	< 15 metres (King St / Goodsell St footpaths)	> 7.5

Note 1: Estimated from the safe working distances specified in TfNSW Construction Noise and Vibration Strategy and assumed dense rock.

The information presented in Table 6.11 indicates that the separation distance from the nearest receivers is sufficient to mitigate the potential impacts for a medium sized vibratory roller with the exception of the King Street / Goodsell Street footpath resurfacing work which may exceed the screening criteria should this be required within 15 metres of a standard residential type building. Alternative methods would be considered to mitigate this risk. Industrial type reinforced buildings are generally considered less susceptible to vibration than a brick residential type construction and therefore the finalised work location would also consider the adjacent building construction to ensure acceptable levels of vibration are satisfied.

Heritage building impacts

Heritage structures identified in close proximity of the Proposal area are identified in Section 6.5.

Heritage buildings are to be considered on a case by case basis. Where a historic building is deemed to be sensitive to damage from vibration (following inspection), it is recommended to reduce the vibration criteria accordingly in line with the *Construction Noise and Vibration Strategy* (TfNSW, 2019a).

The more conservative DIN 4150 (German Institute for Standardisation, DIN4150-3:1999-02 *Structural vibration – Effects of vibration on structures)* superficial cosmetic damage criteria of 2.5 mm/s should be considered for vibration sensitive structures. Where heritage buildings of a typical residential-type construction are not found to be structurally unsound, DIN 4150 superficial cosmetic damage criteria of 5 mm/s may be more suitable as a screening criterion.

For the proposed construction activities, the vibration intensive equipment is limited to the vibratory roller (during excavation and platform resurfacing work).

During these works the DIN4150 criteria could be exceeded at the following heritage items.

- St Peters Railway Station.
- Sydney Park Hotel.

As such, alternative lower vibration techniques to the vibratory roller (e.g. non-vibratory rolling or use of a smaller capacity roller) would be preferred when in the near vicinity of these items.

Where vibration intensive work is required to be undertaken within the specified safe working distances, or in close proximity to vibration sensitive heritage structures, vibration monitoring would be undertaken to ensure acceptable levels of vibration are satisfied.

b) Operational phase

Due to the minor to negligible increase in operational noise, noise monitoring and assessment was not completed.

At this stage of the design specific lift systems have not been selected, which means it is too early to assess compliance with the applicable noise criteria. However, given this type of noise source generally has relatively low noise emissions, it is anticipated that the lift system designs could be relatively easily mitigated if required during the detailed phase of the Proposal through the selection of appropriate equipment. While noise emissions from PA systems are generally louder than the other operational noise sources, they can typically be designed to minimise any impacts through the equipment selection, location, directionality and volume.

6.3.3 Mitigation measures

Prior to commencement of work, a CNVMP would be prepared and implemented in accordance with the requirements of the *Construction Noise and Vibration Strategy* (TfNSW, 2019a) and the Noise and Vibration Impact Assessment (SLR, 2021b) and in consultation with impacted receivers.

The CNVMP would prescribe reasonable and feasible mitigation measures to minimise construction noise and vibration. The measures would focus on contractor inductions, selection and operation of plant and equipment, work scheduling (including respite periods), prescribing safe working distances for vibration intensive equipment, procedures for noise and vibration monitoring and obtaining approvals for out of standard hours work. The CNVMP would also detail requirements for managing potential vibration impacts to heritage structures through monitoring and safe working distances.

For any highly affected noise receivers (over 75 dB), Transport for NSW would communicate with the impacted residents regarding the duration and noise level of the work, and by describing any respite offers or periods that would be provided. Additional mitigation measures also include:

- verification monitoring of noise and/or vibration during construction would be conducted at the affected receivers or a nominated representation location
- alternative accommodation would be provided for residents living in close proximity to construction works should construction result in unreasonably high noise impacts. Alternative accommodation would be considered where reasonable and feasible
- alternative construction methodology would be undertaken where the proposed construction methodology has a high risk of causing structural damage to buildings near the Proposal area.

Operational plant and equipment would be designed with regard to the PTNLs.

Refer to Table 7.1 for a full list of proposed mitigation measures.

6.4 Aboriginal heritage

6.4.1 Existing environment

An AHIMS search was undertaken for the Proposal area plus a 200 metre radius, on 23 November 2020. No Aboriginal sites were identified in the search.

Certain landscape features, such as nearby waterways, sand dune systems, ridge tops, ridge lines, headlands, cliff faces and rock caves / shelters, can indicate the likely presence of Indigenous objects. None of these features are present immediately surrounding the station and therefore the Proposal is not considered to be located within a high risk landscape for Indigenous heritage potential. The extensive landscape modification and high level of disturbance that has occurred across the Proposal area suggests that the presence of culturally sensitive buried items is unlikely within the boundaries of the Proposal.

6.4.2 Potential impacts

a) Construction phase

Construction of the Proposal would involve some minor excavation and other ground disturbing activities as listed in Section 3.4.4. Ground disturbing activities have the potential to impact Aboriginal sites if present.

As no known Aboriginal heritage items are located in the vicinity of the Proposal area and no high-risk landscape features are located at or near the Proposal area, the potential for unknown items to be present is considered to be low. As such, the Proposal is unlikely to affect Indigenous heritage during construction.

b) Operational phase

There would be no risks to Aboriginal heritage from the operation of the Proposal.

6.4.3 Mitigation measures

If previously unidentified Aboriginal objects are uncovered during construction, in accordance with Transport for NSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2019b), work would cease in the vicinity of the find and the Transport for NSW Project Manager and Transport for NSW Environment and Planning Manager would be notified immediately to assist in co-ordinating next steps which are likely to involve consultation with an archaeologist, Heritage NSW, , DPIE and the Local Aboriginal Land Council/s. If human remains are found, work would cease, the site would be secured and the NSW Police and the Energy, Environment and Science Group would be notified.

Refer to Table 7.1 for a full list of proposed mitigation measures.

6.5 Non-Aboriginal heritage

A Statement of Heritage Impact (SoHI) has been prepared by RPS (2021b) for the Proposal. This included a desktop assessment and site inspection of the Proposal area on 21 October 2020. The assessment of the SoHI is summarised in this section.

6.5.1 Existing environment

A desktop search of historic registers including the World Heritage List, National Heritage List, Commonwealth Heritage List, NSW SHR, RailCorp's Section 170 Heritage and Conservation Resister and the heritage schedule of the Sydney LEP was undertaken for the Proposal area and surrounds.

Heritage listed items in and within the vicinity of the Proposal are listed in Table 6.12. St Peters Railway Station Group is listed on the SHR, RailCorp's Section 170 Heritage and Conservation Register and the Marrickville LEP 2011. The extent of the heritage listing for the station is shown in Figure 6.12.

Table 6.12 Heritage items in proximity to the Proposal area

Name / Item	Listing no.	Register	Location in relation to St Peters Station
St Peters Railway Station Group	State: SHR 01250, SHI 4801152 Local: I272	SHR, Heritage Act 1977 s170 Register, Heritage Act 1977 Marrickville LEP 2011	Within Proposal area
St Peters Hotel including interiors	Local: L159	Marrickville LEP 2011	Adjacent to Proposal area

Name / Item	Listing no.	Register	Location in relation to St Peters Station
King Street and Enmore Road Heritage Conservation Area	Local: C2	Marrickville LEP 2011	Adjacent to Proposal area
Goodsell Estate Heritage Conservation Area	Local: C16	Marrickville LEP 2011	Adjacent to Proposal area
Former Bedford Brickworks group including chimneys, kilns and grounds	Local: C27	Sydney LEP 2012	Adjacent to Proposal area
Former St Peter's Theatre façade	Local: I614	Sydney LEP 2012	Adjacent to Proposal area
King Street	Local: C47	Sydney LEP 2012	Adjacent to Proposal area

Figure 6.12 St Peters Railway Station Group and local heritage items in proximity to the Proposal

Historical background

St Peters was one of the more substantial of the stations built in 1884, which reflected the importance of the locality for industry and residential development. The station included a station building fronting Lord Street, containing general waiting room, station master's and ticket offices, ladies waiting rooms with lavatory and parcels office. The station building had light ornamental iron verandahs attached to both the street and platform front. The station also included a waiting shed on the Illawarra side of the line with a ticket office and ladies waiting room at either end, and an ornamental iron verandah to the platform front. The station had two platforms with access from the Cooks River Road by stairs with landings built on brick arches with retaining walls, and a signal box within an enclosure at the top of and between the stairs.

Quadruplication of the railway line through St Peters occurred in 1900. Further excavation for the extension of the Cooks River Road (now Princes Highway) overbridge was required on the Illawarra Line between Illawarra Junction and Sydenham. The Sun reported in March 1912:

> *Between Erskineville and St Peters, the line runs along a high embankment. Thousands of cubic feet of filling from the excavations along the extension works have been tipped over the side of this embankment to widen it sufficiently to carry the new roads. This was done some time ago, so that the bank might settle down into firmness for the road bed…*
>
> *It is at St Peters that the show-section of the work is found. There is an overbridge there, too. This line at nearly every station is practically underground. Along the overbridge runs the Cook's River-road and tram lines.*
>
> *This bridge consists of one arch. Two other arches are being tunnelled, one at each side of it. Illustrations II and III [Plate 3.4 and Plate 3.5] show gangs of men at work in these tunnels. As the excavations are made the brick piers of the arch are built up with it. The excavated material is tipped into drays, which back into the tunnel…*
>
> *For a distance of two hundred yards on either side great cuts have been taken out of the hill. The new roads will run between the high, steep cuttings, terminating in the triple arched tunnel with the platforms of St Peters Railway Station on the other side. Thence the new tracks sweep away to the westward toward Sydenham, where the present phase of the track duplication will end (The Sun 21 March 1912:2).*

In 1913 proposed alterations to the station buildings at St Peters included alterations to the Ladies Lavatory, the Store Room and Urinals. The alterations included the addition of a sliding door for access to the Store Room, between the Ladies Lavatory and the Urinals.

In 1914 the 1884 Station Building on the Sydney side was demolished and replaced, and a footbridge and Booking Office constructed. The Booking Office included a parcels counter and three ticket windows to the Booking Hall, which connected the public footbridge with a passenger footbridge that provided access to the station platforms.

By 1916 access to the station from Cooks River Road had been removed (refer to Figure 6.13).

In July 1949 plans for New Station Buildings at Street Level detail a proposal for a new station entrance building on the Princes Highway (formerly Cooks River Road) and new access arrangements (refer Figure 6.14). The plans did not proceed, and the station's arrangement remained until 1995 when the station building on the Illawarra side was demolished and replaced with a canopy.

The Booking Office was extensively altered in around 1940 and 1999. In the mid twentieth century, the booking office was either extensively remodelled or rebuilt, with the length of the building reduced and the roof profile altered from gable to hipped. Plans dated 1999 for Booking Office Modifications show extensive alterations, including re-cladding, the relocation of windows, and new internal fit out to the booking office. Steel canopies were also built over the footbridge and the stairs to Platforms 1 and 2 in 1999.

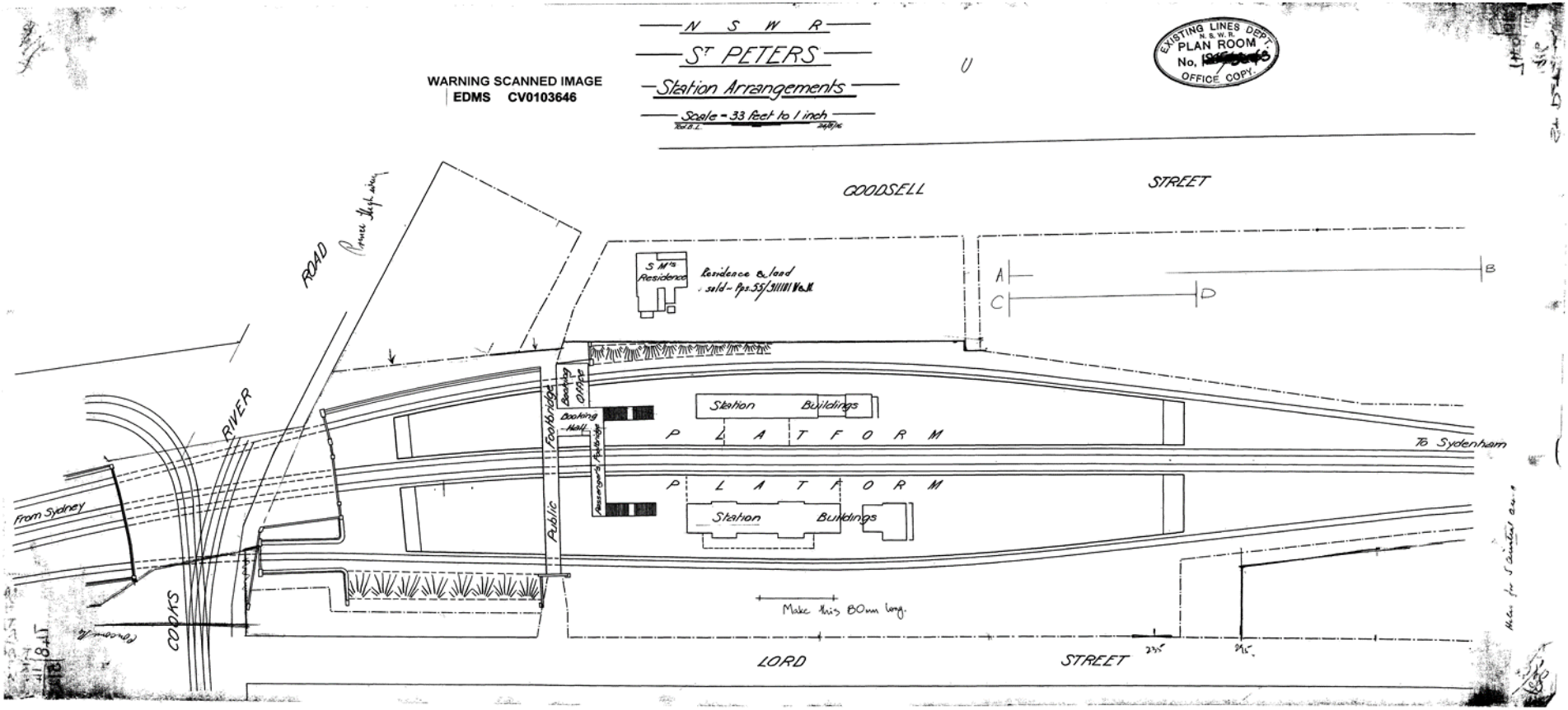

Figure 6.13 St Peters Station arrangements, 24 August 1916 (Transport for NSW EDMS CV0103646)

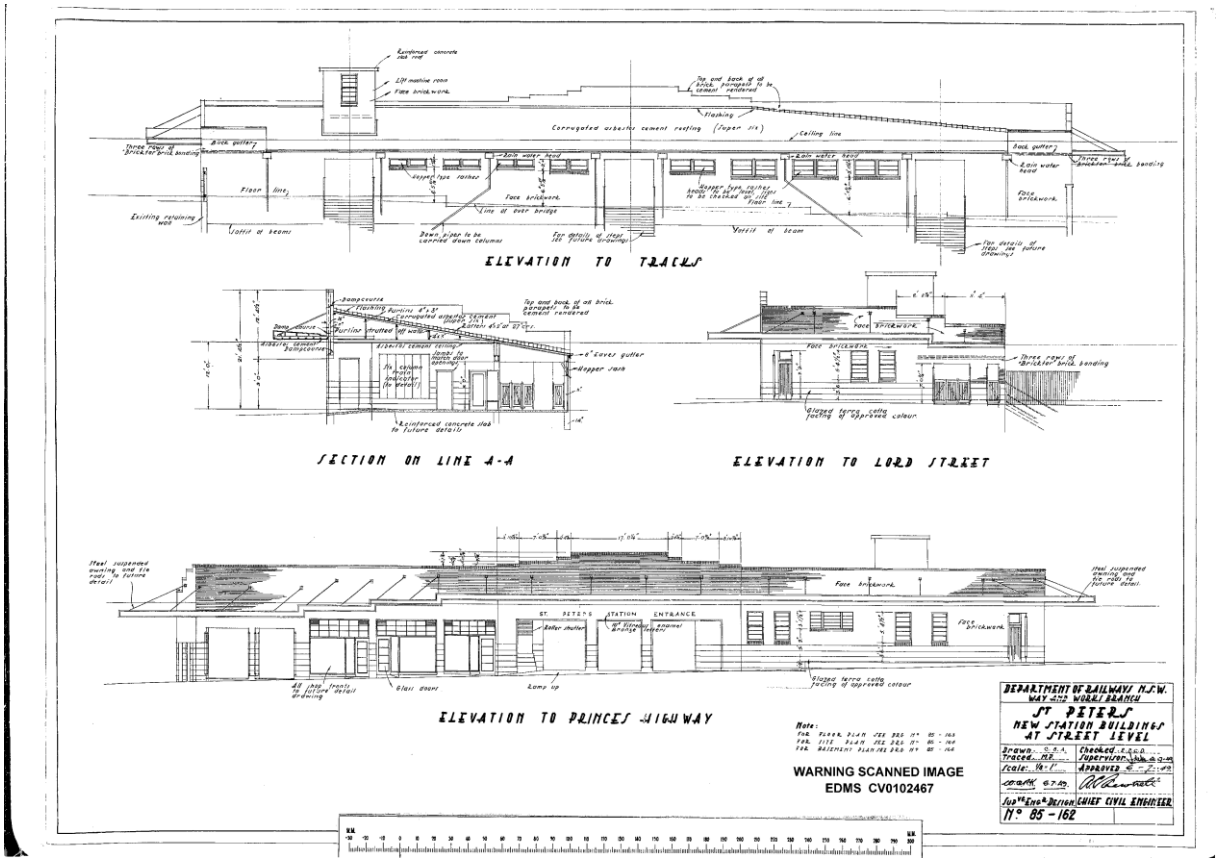

Figure 6.14 Proposed St Peters New Station Buildings at Street Level, 6 July 1949, which were never built (Transport for NSW EDMS CV0102467)

St Peters Railway Station Group

Chapter 4 of the SoHI provides a detailed description of the existing physical condition for those elements likely to be impacted by the Proposal including:

- platform building
- island platforms
- footbridge
- overhead booking office and booking hall
- overbridge
- retaining walls.

The statements of significance from each agency for St Peters Railway Station are presented below.

The statement of significance for the SHR item St Peters Railway Station (SHR No. 01250) as presented on the SHR is:

> *This is a good example of a standard early second class building and forms part of a group of structures in the area that indicate the early history of the station. It also demonstrates adaptability with the original small 2 bay awning on one face and the later cantilevered awning to the rear or former street facade of the building. It is the last remnant at the site of the early period of railway development.*
>
> *Brick retaining walls are a significant part of the heritage as the railway builders sought to locate lines in restricted space without resuming too much property.*

The statement of significance for the Section 170 item St Peters Railway Station Group (SHI Database No. 4801153) as presented on the State Heritage Inventory (SHI) is:

> *St Peters Railway Station - inclusive of the Platform 3-4 building (1884), brick faced platforms (1884), brick retaining walls, Princes Highway overbridge (1900), steel footbridge, stairs, and newel posts (1914) - is of historical significance as one of the earliest railway stations on the Illawarra line, developed from 1884 to the present, and for its role in the development of the St Peters/Newtown area since 1884.*
>
> *The station is of aesthetic significance for its fine third class Platform 3/4 station building, a simple late Victorian station building with awnings which demonstrate adaptability, having an original small 2-bay awning on Platform 3 and later cantilevered awning to Platform 4 (the former street façade). The surviving building is one of five stations on the Illawarra line with a 3rd class platform building.*
>
> *The footbridge was identified as an item of high heritage significance in the 2016 'Railway Footbridges Heritage Conservation Strategy'. It is an extensive and intact haunched girder footbridge with a trestle substructure. The 1914 footbridge is one of a number of examples of Dorman Long & Co steel footbridges of this period on the Illawarra Line (other examples at St. Peters, Erskineville). It makes a strong visual contribution to the State significant St Peters Railway Precinct.*

The statement of significance for the Marrickville LEP 2011 item St Peters Railway Station Group, including interiors (Item No. I272) as presented on the State Heritage Inventory (SHI) is:

> *St Peters Railway Station is of state historical significance as one of the earliest railway stations on the Illawarra line, developed from 1884, and for its role in the development of the St Peters/Newtown area since 1884. St. Peters Railway Station, with its 1884 Platform building 1900 brick overbridge, and1914 steel footbridge and stairs is of aesthetic significance as a collection of late 19th to early 20th century railway station structures. The St Peters Railway Station platform building is of aesthetic significance as a simple late Victorian station building. The 1914 haunched beam steel footbridge structure and stairs designed and manufactured by renowned engineers Dorman Long & Co are of aesthetic significance.*

The Railway Overhead Booking Office's Heritage Conservation Strategy assessed the heritage significance of the overhead booking office at St Peters Railway Station as:

> *St Peters Station has historical significance as an important original station on the Illawarra Railway which demonstrates the development of the railway from 1884 to 1914. The station has historic and social significance as a transport hub for the St Peters area. The footbridge and overhead booking office are historically associated with the rail quadruplication works to the Cooks River in the 1910s. However, alterations to the overhead booking office detract from its aesthetic value and historic integrity, such that it is now difficult to interpret and has poor representative value. In contract, the platform buildings and footbridge continue to have aesthetic and representative value.*

The conservation strategy identified the overhead booking office at St Peters Railway Station as having an incidental contribution to the station and being of state significance by association to the broader station only. After 1943, the overhead booking office was extensively remodelled or rebuilt, and in around 2000 the exterior was reclad and the interior refurbished. As such, the overhead booking office is not considered to be a significant aspect of the station complex as its integrity has been heavily compromised by extensive renovations. It is considered that the above is an accurate assessment of the heritage significance of this item.

The Railway Footbridge Heritage Conservation Strategy assessed the heritage significance of the footbridge at St Peters Railway Station as:

The footbridge has High heritage significance. It is an extensive and intact haunched girder footbridge with a trestle substructure. It makes a strong visual contribution to the State significant St Peters Railway Station Precinct. The replacement of the balustrades to the footbridge detract from its significance. The 1914 footbridge is one of a number of examples of Dorman Long & Co steel footbridges of this period on the Illawarra Line (other examples at St Peters, Erskineville).

Historical research and a review of site conditions confirms these to be an accurate assessment of the heritage significance of this item.

Potential archaeological features

The archaeological potential of the Proposal area is moderate to high. The archaeological potential of the Proposal area is associated with the potential for the following archaeological resources:

- evidence of the 1884 station building and subsequent 1914 station building on the Sydney side (Platform 1 and 2)
- evidence of the 1884 stairs which provided access to the station from Cooks River Road
- evidence of a footbridge at the westernmost end of the station platforms as shown on plans dated 1902 and 1908, and on the plan with annotations dated 1913 and 1917.

If surviving, archaeological resources associated with the 1884 station building or subsequent 1914 station building would be limited to the brick footing of the building, floor surfaces and chimneys. It is likely that any archaeological resources associated with the 1884 station building would be severely impacted by the subsequent construction of the 1914 station building. It is also likely that any archaeological resources associated with the 1884 or 1914 station building would be impacted by platform regrading and below ground utilities infrastructure. It is unlikely that any intact archaeological resources associated with the 1884 station building would be identified, though the potential for intact evidence of the 1914 station building is high. There is potential for artefacts associated with the use of the 1884 station building, or subsequent 1914 station building to be identified as part of a demolition fill, or if intact archaeological resources are identified, as part of an underfloor deposit.

Despite the potential for archaeological resources associated with the development of the station from 1884 to be identified, research potential is limited. If identified, intact archaeological resources associated with the station are unlikely to contribute information not available through other sources. The 1884 station building, and the subsequent 1914 station building, is well documented, with the 1914 station building not demolished until 1995. Evidence of the stairs which provided access to the station from the Cooks River Road, or the footbridge at the easternmost end of the station platforms, is unlikely to contribute any further information than detailed in the documentary record.

Figure 6.15 Areas of archaeological potential within the Proposal area

6.5.2 Potential impacts

c) Construction phase

An assessment of heritage impact has been undertaken in accordance with the definitions in Table 6.13.

Table 6.13 Defining level of impact

Level of impact	Description
Major adverse	The Proposal would have a severe, long-term and irreversible impact on the item. This includes partial or complete demolition of the item or additions in the vicinity of the item that would impact the visual setting of the item.
Moderate adverse	The Proposal would have an adverse impact on the item. This includes removal of an important aspect of the setting or temporary removal of significant elements or fabric. This impact could be reduced through appropriate mitigation measures.
Minor adverse	The Proposal would have a minor adverse impact on the item. This may be the result of the action affecting only a minor element or part of the setting. This impact may be temporary or reversible.
Neutral	The Proposal would not have an impact on the significance of the item or a significant element.

Station upgrade

Construction and installation of two new lifts

Lift access to the footbridge and platform is required in order to meet DDA requirements to provide an accessible path of travel. Two new lifts are proposed on the eastern (Sydney) side of Platforms 1/2 and 3/4 connecting to the existing footbridge. The lift landings and canopies would connect the lift wells to the footbridge, requiring the replacement or installation of protective screens along the footbridge at the interface between the lift canopy and footbridge. Awnings either side of the lift well on Platform 3/4 would also be installed at platform level to provide covered access and egress.

Construction and installation of lifts on Platforms 1/2 and 3/4 would require removal of sections of non-significant existing balustrade and protective barriers along the pedestrian footbridge on Platforms 1/2 and 3/4. The main haunched girder structure of the footbridge would not be physically impacted by the proposal. The previous replacement of balustrades with protective barriers has already detracted from the significance of the footbridge. Removal of non-significant balustrades and protective barriers would not further detract from the heritage significance of the footbridge and would have a minor adverse impact.

Demolition of the existing kiosk at the eastern (Sydney) end of the overhead booking hall would be required for the installation of the lift to Platform 3/4. The kiosk is a modern addition to the booking hall and is not associated with the significance of the footbridge or station complex. Its removal would not detract from the significance of the footbridge or station complex and would have a minor adverse impact.

Lift construction would also require lift void pits to be excavated into each platform. Excavation on each platform would be within non-significant fill. This would have a minor adverse impact.

The lifts would align with existing stairs leading to the platforms from the passenger footbridge for visual symmetry and would connect to the public footbridge via a new concrete landing. The lift wells would be taller than the footbridge, however, to reduce visual impact would be steel framed glass enclosures. The proposed lift canopy connecting the lifts to the footbridge would not align in height and pitch to the existing roofline of the booking hall. Perforated panel screens would be used on the sides of the canopies with metal sheet roofing to match both new and existing canopies across the station for aesthetic symmetry. The awnings to the lift door entry at platform level would be of metal and sloped to align with the adjacent footbridge structure for visual symmetry and reduce visual impact. The lift shafts would add a new built form to the historic setting, resulting in a moderate adverse visual impact.

The proposed lift installation would have a minor adverse physical impact and a moderate adverse visual impact.

Installation of new canopies

Canopies are proposed above the stairs leading to Platform 3/4, along the northern facade of the platform building facing Platform 3 and at the western end of Platform 3/4 and Platform 1. The canopies are to provide covered access and egress for passengers, particularly over the boarding assistance zone at either end of the platform. Stair upgrades to meet DDA requirements would also be undertaken.

The canopy over the stairs on Platform 3/4 is of an asymmetric design that contrasts with the heritage nature of the station, clearly defining new fabric from old, while its modulating design reduces its bulk. For consistency and aesthetic symmetry with other aspects of the Proposal, the canopy would be of metal sheet roofing. Side screens of anti-climb welded mesh are included for security reasons, whilst providing visibility and light. The awnings at platform level are angled to align geometrically with the haunched beams of the footbridge structure and are of matching design and materials to the awnings either side of the adjacent lift well for visual and aesthetic symmetry, as well as reducing visual impact.

The canopies along the northern façade of the platform building (Platform 3) are of glass, designed as a simple awning style of similar height and angle to the adjacent platform building awning. Set forward from the building, the canopy design follows the edge of the station building to achieve heritage objectives rather than access compliance. The visual symmetry and clean, modern architecture clearly separates the new structure from the old and avoids impact to the heritage fabric. Glazing affords visibility of the heritage fabric and reduces visual impact to the station building and wider station complex.

The boarding assistance zone canopy at the western end of Platform 3/4 connects to the glazed canopy. It is of a shallow gable design of the same pitch as the glazed canopy for visual symmetry and is of metal sheet roofing for consistency and aesthetic symmetry with the other canopies proposed across the station. Its visual impact is reduced by standing away from the heritage platform building.

The boarding assistance zone canopy at the western end of Platform 1 is a small free standing awning of similar pitch, height and design to the other awnings proposed across the station and is of the same metal sheet roofing for consistency and aesthetic symmetry. It stands away from heritage structures and the existing canopies on Platform 1/2, and would have minimal visual impact.

Visual impact of the canopies has been considered and reduced through the deliberate omission of canopies along the east façade of the Platform 3/4 building, and by retaining, where possible, views from the footbridge to the platform building. Furthermore, the large scale of the Platform 3/4 building and footbridge can support the slightly larger canopy forms, especially when considering the character of the surrounding St Peters neighbourhood, which is a mixture of historic and modern architecture in response to changing social needs of the community.

The canopies are to be separate free standing structures and would not directly impact the stairs, footbridge or platform building. Minor impact to the platforms would be required for footings and stormwater drainage connections. New compliant handrails, stair treads and risers would have a minor adverse impact on the previously modified stairs of the footbridge. The canopies would add a new intrusive elements to the platforms, particularly Platform 3/4, where it would obscure views between the heritage platform building and the footbridge. This is partially mitigated by the glazed canopy sections and their separation from the platform building. Additionally, bulk and scale of the canopies has been reduced through various design reviews to provide a canopy design that is sympathetic to the heritage fabric. Design and material selections clearly separate new elements from old while limiting visual impact.

Overall, the proposed canopies and stair upgrades would have a minor adverse physical impact and a moderate adverse visual impact.

Customer information and communications systems and safety improvements

These include:

- wayfinding modifications, PA system modifications and new hearing induction loops as required
- adjustment to station ticketing facilities, including new Opal card readers
- improvements to station lighting and CCTV to increase safety and security.

Customer information and communications systems and safety improvements are consistent with the continued use of the station and would not adversely impact the heritage significance of St Peters Railway Station. Where modifications or impact to heritage fabric is required, these should be undertaken in a reversible manner.

It is understood that wayfinding signage would be in the standard wayfinding framing format for consistency across the Station and TfNSW train network. Services would be installed in

accordance with Sydney Trains (2017) Heritage Technical Note: Installation of New Electrical and Data Services at Heritage Sites.

Overall, the proposed work would have neutral impact.

Regrading of platforms and installation of new directional TGSI

The Proposal includes platform regrading, replacement and installation of TGSIs and yellow safety lines to accommodate accessible, safe paths of travel.

The platforms are brick faced with an asphalt surface. They have been modified numerous times over the years, including widening and lengthening in the early twentieth century.

The platform regrading would directly impact the platforms through grading and resurfacing. The platforms' existing asphalt surface would be excavated up to a depth of 150 millimetres prior to resurfacing. The archaeological potential of the proposal area is moderate to high. Removal of platform surfaces in areas of archaeological potential may impact archaeological resources associated with:

- the demolished 1884 station building and subsequent 1914 station building on Platform 1/2
- the 1884 stairs which provided access to the station from Cooks River Road
- a footbridge at the westernmost end of the station platforms as shown on plans dated 1902 and 1908, and on the plan with annotations dated 1913 and 1917.

Should the Proposal impact the above areas of archaeological sensitivity, the physical impact to potential archaeological resources would be minor to moderate adverse, dependent on the extent, condition and research potential of the archaeological resources uncovered.

However, shallow excavation of the modern asphalt surface and avoidance of the platforms' original brick facing and other heritage elements such as the platform building and footbridge during the work would significantly reduce any physical heritage impact. Further reduction of impact could be achieved through archaeological recording, and in situ retention, of any identified archaeological resources.

Installation of TGSIs across the platforms and yellow safety lines to the full length of all platforms would be confined to the regraded asphalt surface and would not impact on the heritage significance.

It is understood that all platform work would be carried out in accordance with the Sydney Trains (2015) Heritage Platforms Conservation Management Strategy.

Overall, the proposed platform work would have a minor to moderate adverse physical impact.

Services relocation and adjustment

The Proposal would also require the relocation of services for the installation of lifts and canopies. Where practicable, ground disturbance would be within existing trenches. However, where this is not possible, ground disturbance may be required within areas of archaeological potential associated with the former (1884, 1914) station buildings. The potential for archaeological resource associated with the former station buildings is moderate to high. If the Proposal intends to impact this area of archaeological sensitivity, the physical impact to potential archaeological resources would be minor to moderately adverse, dependent on the extent, condition and research potential of the archaeological resources uncovered.

Overall, these proposed service relocation works would have a minor to moderate adverse physical impact.

Station building modifications

Installation of new family accessible toilet

A family accessible toilet is required in order to meet DDA requirements. Installation of the family accessible toilet in the overhead booking office would require the extension of the building footprint, demolition of two existing toilet cubicles and the rearrangement of walls, doorways and access provisions in the concourse area. New DDA compliant fittings and service connections would also be required. The overhead booking office has been heavily modified over the years and further modification is not considered to adversely impact its heritage significance. However, extension of the building area would have a minor visual impact on the sightlines, massing and flow of the footbridge and its concourse.

There would be a minor visual impact from the additional built form, however the proposed extension to the overhead booking office would maintain sightlines of the stairs to Platform 3/4 and would have a minimal impact on views of the platforms from the concourse, booking hall or proposed adjacent lift.

The proposed family accessible toilet would have a minor adverse physical impact and a minor adverse visual impact.

Reconfiguration to accommodate a new IMSB and existing station systems

A new IMSB is required for continued use of the station in order to power the lifts and other station systems. Installation would require new electrical and mechanical services to be installed in the overhead booking office, as well the provision of fireproofing. Rearrangement of internal walls and doorways may also be required. The overhead booking office has been heavily modified over the years and further modification in order to maintain the future use of the station and overhead booking office aera is not considered to adversely impact its heritage significance.

The proposed IMSB cupboard would have a neutral impact.

Interchange facilities

Goodsell Street and King Street

The existing station retaining wall and heritage light poles would be retained, however regrading of some sections of path would be required. New brick paving, seating, bicycle hoops, hand rails and plantings would be added, along with a kiss and ride area at the end of Mary Lane on Goodsell Street.

The stone kerbs on Goodsell Street and those near the bin enclosure on Mary Lane may be impacted by the proposed works, however, heritage fabric associated with St Peters Railway Station would not be impacted. Re-landscaping the access path and providing additional interchange facilities enables continued use of the area and is in keeping with the historic nature of this pathway.

Overall, the proposed work would have a neutral impact.

Lord Street

The existing pedestrian crossing and planters are to be retained, while the bicycle hoops, footpath and rail corridor protection fence are to be replaced. New kiss and ride areas will be added to the western side of the station entrance.

Replacement of the rail corridor fence will impact the fabric of the historic cutting retaining wall beneath through the removal of current fixings and the introduction of new fixings. Visually, upgrading interchange facilities at the Lord Street entrance will not adversely impact the significance of St Peters Railway Station or St Peters Hotel to the east on Lord Street.

Overall, the proposed work would have a minor adverse physical impact and a neutral visual impact.

Ancillary work

Ancillary works associated with the Proposal primarily relate to upgrades to utilities, power supply and station furniture and amenities, and are consistent with the continued use of the station. It is understood that these would be carried out in accordance with the Sydney Trains *Heritage Technical Note: Installation of New Electrical and Data Services at Heritage Sites* (2017), and Sydney Trains and NSW TrainLink *Station Component Guide* (2017).

While heritage fabric may be partially impacted by ancillary works, significant heritage fabric would not be impacted.

Overall, ancillary work carried out in accordance with the requisite guidelines would have a neutral impact.

Ancillary facilities

The Proposal includes ancillary facilities within the SHR curtilage to accommodate an office, amenities, laydown and storage area for materials. The proposed location for the construction compound is an existing open lay down area at the western end of the station, north of the decommissioned northern platform. The eastern end of the decommissioned northern platform is proposed as a temporary lay down area. The Proposal also includes use of a cleared area within the rail corridor 80 metres north of the station for construction laydown.

The ancillary facilitates are temporary and while the construction compound is located within the SHR curtilage, the impact would be neutral. No ground disturbing activities are proposed at any ancillary facilities and therefore the ancillary facilities would not impact significant fabric.

Impact to adjacent heritage items and conservation areas

Adjacent heritage items and conservation areas would not be physically impacted by the Proposal. While certain aspects of the Proposal may be visible from surrounding heritage items, such as the lifts from St Peters Hotel (Marrickville LEP Item No. I159) and the Former St Peters Theatre façade (Sydney LEP Item No. I614), views to these heritage items would not be obstructed by the Proposal.

Views to and from the Former Bedford Brickworks (Sydney LEP Item No. I27) would not be adversely impacted by upgrading the King Street and Goodsell Street path area, nor would the adjacent Goodsell Estate Heritage Conservation Area (Marrickville LEP Item No. C16). The work would improve the visual appearance of the station pathway area and would not impede views to the adjacent heritage item and conservation area.

Upgrades to Lord Street would also improve the visual appearance of the northern station entrance without impacting views to or from the adjacent St Peters Hotel (Marrickville LEP Item No. I159) and King Street and Enmore Road Heritage Conservation Area (Marrickville LEP Item No.C2).

Views to and from the King Street Heritage Conservation Area (Sydney LEP Item No. C47) would not be impacted by the Proposal.

Overall, the Proposal would have a neutral physical and a minor adverse visual impact on adjacent heritage items and conservation areas.

Overall impact

Overall, the Proposal demonstrates compliance with the existing controls and objectives regarding heritage conservation and will have an acceptable heritage impact subject to the recommendations of the SoHI.

While the Proposal would impact the heritage significance of the station, the impact of the Proposal can be mitigated to a degree through detailed design. Given the need for improved accessibility, the Proposal is considered necessary and its heritage impact is acceptable. The siting and use of materials are considered appropriate. Operational phase

The operation of the Proposal would not substantially impact non-Indigenous or archaeological heritage.

6.5.3 Mitigation measures

A number of mitigation measures are proposed to minimise the heritage impact of the Proposal on the St Peters Railway Station Group, including:

- the detailed design would be developed in consultation with a heritage architect and should aim to make the design more neutral and reference the station building, as well as reduce overall contrast. In particular, the detailed design should consider the following:
  - recommendation measures advised by GML during the system definition review (SDR) phase to be implemented in the detailed design to mitigate potential heritage impacts including:
    - ensure canopy and canopy structural members are reduced in size and are of a sympathetic design and materiality to the heritage footbridge and heritage platform building
    - avoid fixing elements to the footbridge of the heritage platform building. New canopies and structures should be independently supported to minimise direct and potential indirect impacts to these elements
    - avoid extensions to the overhead booking office structure onto the footbridge concourse to maintain historic views of the platforms from the concourse as far as practicable
    - new canopies should follow the rake of early/original awnings where in proximity to the platform building
    - incorporate heritage interpretation into the design of May Lane and the footpath/plaza to King Street.
  - where appropriate, the detailed design should also respond to existing and significant architectural detail, such as the architectural detailing of the station building, or the footbridge
  - interface of new structures with old, including joints and columns, should attempt to reduce physical impact to heritage fabric as well as be structurally sympathetic and unobtrusive
  - modifications to the exterior of the overhead booking office should tie in with existing form and fabric to minimise visual impact and, where possible, maintain historic views over the platforms from the concourse
  - canopies should be designed in accordance with the Sydney Trains *Canopies and Shelters Design Guide for Heritage Stations* (2016)
  - canopy column placement should be rationalised in front of heritage structures to reduce visual impact. In particular, columns along the northern façade of the platform building should be placed in front of solid walls, and avoid obscuring architectural features such as windows and doors

    - materials and finishes should be of a more neutral palette rather than high contract to o minimise visual impact.
- work should be undertaken by suitably experiences tradespersons with experience in undertaking works on State Heritage items
- prior to work commencing, contractors would be briefed as to the sensitive nature of the project area and informed of any recommended mitigation measures or controls required
- non-Aboriginal heritage awareness training would be provided for all contractors and personnel prior to commencement of construction to outline the identification of potential heritage items and associated procedures to be implemented in the event of the discovery of non-Aboriginal heritage materials, features or deposits (that is, unexpected finds), or the discovery of human remains
- to avoid impact to significant fabric during the construction of the Proposal, it is recommended that measures, as determined in consultation with a suitably qualified heritage architect, be put in place to protect significant fabric of the footbridge from accidental impact during construction, including installation of lifts, canopies, the family accessible toilet and stair upgrades
- measures, as determined in consultation with a suitably qualified heritage architect, would be put in place to protect significant fabric of the platform building from accidental impact during the construction including the installation of canopies, regrading of platforms and installation of utilities in the platform building
- measures, as determined in consultation with a suitably qualified heritage architect, would be put in place to protect significant fabric on the platform during the proposed regrading and resurfacing. The platform surface should be reinstated on completion
- new services should be installed in accordance with the Sydney Trains Heritage Technical Note: *Installation of New Electrical and Data Services at Heritage Sites (2017)*. The exact location of services is not yet confirmed. Installation of services should be planned in consultation with an appropriate specialist such as a heritage architect or archaeologist and aim to minimise impact to significant fabric and potential archaeological resources. Where practicable, services should be installed within the existing conduit to minimise the cumulative impact to significant fabric
- it is recommended that a photographic archival record of St Peters Railway Station is prepared prior to, and at the completion of, construction in accordance with the NSW Heritage Office (former) publication *How to prepare archival records of heritage items and Photographic Recording of Heritage Items using Film or Digital Captur*e. Copies of the archival record should be provided to Heritage NSW, Sydney Trains Heritage and the local library
- it is recommended that a heritage interpretation plan be prepared for St Peters Railway Station in accordance with NSW Heritage Office (former) publication *Interpreting Heritage Places and Items* and the Sydney Trains Heritage Interpretation Guideline. This could be incorporated into the design of May Lane and the footpath to King Street
- though the potential for archaeological resources within the Proposal area is high, the archaeological resources are unlikely to hold research potential. If identified, it is recommended that any archaeological resources are recorded by a suitably qualified archaeologist in accordance with Heritage NSW standards including *How to Prepare Archival Records of Heritage Items and Photographic Recording of*

Heritage Items Using Film and Digital Capture; however, no further archaeological management is required

- if archaeological resources not identified in the assessment of archaeological potential are identified, the Transport for NSW Unexpected Finds Procedure should be implemented
- the addition of components such as seating, lighting and signage would be consistent with the Sydney Trains and NSW TrainLink *Station Component Guide* (2017) and to the existing seating, lighting and signage at the station
- if the proposed work, or Proposal area, is modified to those discussed in this report, additional heritage advice may be required to appropriately manage and mitigate any potential impacts caused by these changes.

Refer to Table 7.1 for a full list of proposed mitigation measures.

6.6 Socio-economic impacts

6.6.1 Existing environment

Land uses within the suburb of St Peters generally comprise low to high density residential developments, educational facilities, industrial estates, commercial / retail facilities along King Street and recreational public space. Other notable features around the station precinct include Sydney Park, Botany View Hotel, and Fitness Playground Newtown, which are located within 100 metres of the Proposal area.

The King Street local town centre mainly features buildings with commercial / retail frontages with residential space atop. The town centre includes retail and food outlets, health care and beauty services, and a gym. Additionally, there is a kiosk in the concourse of St Peters Station which provides retail and food services to station users.

The closest residential properties to the Proposal are within 30 metres of the Proposal area, on Lord Street and Goodsell Street. There are also residential properties along King Street which are within 30 metres of the Proposal area.

Sydney Park is located approximately 50 metres south-east of the station and features open grassed spaces, a playground, children's cycle track, skate park, wetlands, sports oval and outdoor fitness areas. Sydney Park also contains heritage remains of the brickworks that formerly occupied part of the site.

A review of the Australian Bureau of Statistics 2016 Census data indicates the suburb of St Peters has a population of 3,145 people, with a median age of 34 years. Of the employed persons at St Peters, 43 per cent use public transport as at least one of their methods to travel to work, 33.4 per cent being via train. People aged 65 years or over made up approximately 6.8 per cent of the population. In addition, there is potential that the St Peters Station also services customers within neighbouring suburbs including Erskineville, Newtown. Marrickville, and Alexandria.

The *Eastern City District Plan* predicts that the Eastern City district would have a 64 per cent increase in the population of those aged between 65 – 84 years, and a 102 per cent increase in the population of those aged between 85 years and above, by the year 2036. One of the ten directions for the metropolis of three cities and the Eastern City district is to create a well connected city by developing a more accessible and walkable city, which is important to meet changes in the demographics of the district (Greater Sydney Commission, 2018a and 2018b).

Further, one of the strategic directions of the *Our Inner West 2036* is 'unique, liveable, networked neighbourhoods', where public transport is reliable, accessible, connected and enjoyable. *Our Inner West 2036* outlines some of the challenges facing the Inner West

community, including rapid population growth, lack of accessibility to numerous train stations and increasing traffic congestion on major roads. To address these challenges, *Our Inner West* identifies the importance of improving accessibility to public transport, improving public services to, through and around the Inner West, and providing transport infrastructure that aligns to population growth (Inner West Council, 2018).

Similarly, *Sustainable Sydney 2030* and the C*ity Plan 2036* include strategic directions for integrated transport, infrastructure and liveability and identifies an accessible and connected public transport network as a key planning priority (City of Sydney, 2017 and 2020).

The Proposal would be designed so that people of all ages and abilities can participate in community life by increasing access to public transport, contributing to positive liveability, productivity and sustainability outcomes. Improved public transport infrastructure would also encourage a greater number of the Inner West community to use public transport instead of private vehicles, reducing traffic congestion throughout the area.

According to the Transport for NSW Transport Performance and Analytics data, the AM peak hour demand at St Peters Station in 2017 was 3,196 passengers and is forecast to increase to 4,172 passengers by 2036. The PM peak hour demand is expected to reach 3,530 passengers by 2036. The Proposal has been designed to accommodate the forecast Sydney Trains patronage growth and changing travel patterns, including an ageing population. St Peters Station has a number of existing facilities for customers including ticket machines, Opal card readers, unisex toilets (non-accessible). Other transport facilities are discussed in Section 6.1.

6.6.2 Potential impacts

a) Construction phase

The construction phase of the Proposal has the potential to impact station customers, pedestrians, adjacent residents, school students, commercial facilities and motorists due to:

- pedestrian and traffic changes associated with the partial road closures and footbridge closures
- minor increase in traffic including truck movements delivering site materials, plant and equipment
- temporary parking loss at the Lord Street station entrance to accommodate the site compound
- construction noise, vibration, dust and visual impacts.

b) Operational phase

It is anticipated that the Proposal would result in the following benefits to St Peters and the wider area including:

- improved and equitable access to St Peters Station for customers resulting from the installation of lifts and accessible parking
- improved customer amenity and facilities at the station including a family accessible toilet, CCTV, improved wayfinding and new lighting
- improved safety and upgrade of the footbridge by improving its condition
- potential increased use of public transport to and from St Peters.

It is noted that the Proposal would require the removal of the existing kiosk in the station concourse. However similar services are provided for in close proximity along King Street so it is expected that this would have a minor impact only to the community and station users.

6.6.3 Mitigation measures

A number of environmental safeguards would be implemented to minimise potential impacts on the community including:

- mitigation measures in respect of potential impacts to amenity (e.g. noise, dust and visual) as assessed in the relevant sections of this report and listed in Section 7.2 of this report
- development of a Community Liaison Management Plan (to be developed by the Construction Contractor prior to construction) which would identify potential stakeholders and the best-practice methods for consultation. The Plan would identify tools to effectively communicate with each stakeholder group during construction and encourage feedback and facilitate opportunities for the community and stakeholders to have input into the project, where possible
- informing the community of construction progress, activities and impacts in accordance with the Community Liaison Management Plan
- providing contact details for a 24-hour construction response line, Project Infoline and email address provided for ongoing stakeholder contact throughout the construction phase.

6.7 Biodiversity

A Flora and Fauna Assessment report (RPS, 2021c) and Arboricultural Impact Assessment Report (Allied Tree Consultancy, 2021) were prepared for the Proposal. This included a site inspection by a qualified ecologist and arborist on 21 October and 5 November 2020, and an arborist on 29 October 2020, along with a review of relevant databases and other ecological resources including:

- NSW Biodiversity Conservation Division Atlas of NSW Wildlife
- Commonwealth Department of Agriculture, Water and the Environment Protected Matters Search Tool
- Biodiversity Conservation Division Threatened Species Profile Database.

6.7.1 Existing environment

St Peters Station is located within an urban area which has been modified over a long period of time. Due to the long history of rail land use and site management, existing vegetation within the Proposal area consists of native and exotic plant species resulting from the suburb's colonial heritage.

Some native species have been identified within the landscaped environment, though these have been planted and are predominantly not locally native to the area. Native species observed within the Proposal area are listed below:

- Bangalay (*Eucalyptus botryoides*)
- Lemon-scented Gum *(Corymbia citriodora)*
- Tallowwood *(Eucalyptus microcorys)*
- Narrow-leaved Black Peppermint *(Eucalyptus nicholii)*
- Swamp Oak *(Casuarina glauca)*
- Wallangarra White Gum *(Eucalyptus scoparia)*

- Yellow Gum *(Eucalyptus leucoxylon subsp. pruinosa)*.

Most of the Proposal area is dominated by exotic species and reflects the highly modified character of the inner western parts of Sydney. Some native groundcover was observed along the disused platform and was dominated by Red-leg Grass *(Bothriochloa macra)* and Weeping Grass *(Microlaena stipoides)*.

Figure 6.16 to Figure 6.20 provides a visual appreciation for the condition of the native and exotic groundcover and midstory layers within the rail corridor and the mature vegetation within the Proposal area.

Figure 6.16 Vegetation adjacent to the disused platform, showing an example of vegetation within the Proposal area

Figure 6.17 Vegetation in wet part of the Proposal area

Figure 6.18 Example of exotic vegetation within the Proposal area

Figure 6.19 Vegetation of the northern batter within the Proposal area

Figure 6.20 Narrow-leaved Black Peppermint on the disused platform within the Proposal area

A search using the EPBC Act protected matters search tool with a one kilometre radius of the Proposal area was undertaken on the 18 December 2020. The search identified 27 listed Threatened Ecological Communities, 101 threatened fauna species and 52 threatened flora species that may occur in the Proposal area. The Flora and Fauna Assessment (RPS, 2021) confirmed there are no threatened ecological communities present in the Proposal area. Three threatened flora species were detected within the Proposal area, as described in Table 6.14.

Table 6.14 Threatened flora species observed within the Proposal area

Species name	Listing	Location observed	Natural range of occurrence
Narrow-leaved Black Peppermint	Vulnerable under BC Act and EPBC Act	Four trees observed on the disused platform	New England Tablelands
Wallangarra White Gum *(Eucalyptus scoparia)*	Endangered under BC Act Vulnerable under EPBC Act	One tree observed on the disused platform	New England Tablelands
Yellow Gum *(Eucalyptus leucoxylon* subsp. *Pruinose)*	Vulnerable under BC Act	One tree observed on the disused platform	Riverina

Analysis of data obtained from the Proposal area as part of the Flora and Fauna Assessment confirms the absence of native vegetation cover forming part of a recognised plant community type (PCT) listed in the NSW BioNet Vegetation Information System (Biodiversity Conservation Division, 2019). Vegetation observed is consistent with regional vegetation mapping (i.e. urban Exotic / Native).

A total of five fauna species were identified during opportunistic surveys of the Proposal area. These include:

- Sulphur Crested Cockatoo *(Cacatua galerita)*.
- Rainbow Lorikeet *(Trichoglossus moluccanus)*
- Noisy Miner *(Manorina melanocephala)*
- Welcome Swallow *(Hirundo neoxena)*
- Common Myna *(Sturnus tristis).*

These species are commonly found in the urban environment and none are listed as either threatened or migratory species. Furthermore, no important fauna habitat such as hollow-bearing trees, fallen logs or termite mounds were observed.

Priority weeds identified within the Proposal area include Duck Weed *(Lemna disperma)*, Fleabane *(Conyza sp.)*, Crofton Weed *(Ageratina adenophora)*, Pampas Grass *(Cortaderia selloana)*, and Lantana *(Lantana camara)*.

6.7.2 Potential impacts

a) Construction phase

Direct impacts

The Proposal would not require the removal of any vegetation in or within proximity to the Proposal and therefore would not result in direct impacts on vegetation.

Indirect impacts

The Proposal may indirectly impact up to five trees to facilitate the upgraded station entrances and lifts and other accessibility upgrades around the station. The identified trees are not directly located in the footprint of the proposed design, however they are subject to a major encroachment (i.e. the infrastructure design is in excess of 10 per cent of the tree protection zone). Protection measures would be implemented during construction to avoid direct impacts to the identified trees and root systems and avoid the need to remove any of the identified trees.

A summary of these trees has been assessed in the Aboricultural Impact Assessment (Allied Tree Consultancy, 2021) for the Proposal, and their approximate location is shown in Figure 6.21. In summary:

- trees numbered 1 and 23 south and south-east of the station may be indirectly impacted by proposed work required to facilitate the regrading of the access path between the St Peters Station southern entrance and King Street
- tree numbered 4 on the western end of Platform 3/4 may be indirectly impacted by proposed work required to facilitate platform regrading
- trees numbered 5 and 6 at the northern station entrance on Lord Street may be indirectly impacted by proposed work required to facilitate mobilisation of the construction lay down areas and facilitate regrading of the footpath surrounding the Lord Street footbridge.

During detailed design, alternate construction methodologies that are sympathetic toward root retention / tree protection would also be explored and implemented where possible to further mitigate any potential impacts on the identified trees. Any impacts on these trees are not considered to have an impact on the overall ecological values of the areas as it would not result in the loss of a naturally occurring plant community type. Additionally, none of the indirectly impacted trees have been identified as being a threatened flora species.

Table 6.15 Impacted trees (Allied Tree Consultancy, 2021)

Tree number*	Species	Description
1	Golden Locust *(Robinia pseudoacacia Frisia)*	A 10 metre high exotic tree located adjacent to the southern entrance to the station. Two wounds in the crown structure from prior branch tear out were present. Assessed as providing a fair contribution to the visual character and amenity of the local area. Subject to a potential major encroachment due to the proposed regrading of the accessway.
4	Evergreen Ash *(Fraxinus grifithii)*	A three metre high exotic tree located on the western end of Platform 1/2. Assessed as providing a fair contribution to the visual character and amenity of the local area. Subject to a potential major encroachment due to potential regrading of the platform.
5	Black Tea-tree *(Melaleuca bracteata)*	A four metre high native tree located adjacent to the northern station entrance on Lord Street. Assessed as providing a fair contribution to the visual character and amenity of the local area. Subject to a potential major encroachment due to potential regrading of the footpath.
6	Narrow Leaved Paperbark *(Melaleuca linariifolia)*	A six metre high native tree located adjacent to the northern station entrance on Lord Street. Assessed as providing a fair contribution to the visual character and amenity of the local area. Subject to a potential major encroachment due to potential regrading of the footpath.
23	Peppercorn Tree *(Schinus molle)*	A 10 metre high exotic tree located at the end of the accessway between St Peters Station and King Street. Assessed as providing a high contribution to the visual character and amenity of the local area due to its size and location. Subject to a potential major encroachment due to the proposed regrading of the accessway.

* Tree numbers are derived from the Aboricultural Impact Assessment and represented in Figure 6.6 of this REF.

Figure 6.21 Trees likely to require protection (to be confirmed during detailed design)

The most likely indirect impact arising from the Proposal is the introduction, establishment and spread of weeds within the Proposal area and to adjoining areas of vegetation. Weed establishment and spread generally results from soil disturbance and excavation as well as use of equipment that may carry weed propagules.

Mitigation measures to be implemented during the construction and operational phases of the Proposal are recommended to manage and control the incidence and effect of priority and environmental weeds on the receiving environment. There is potential for high threat weeds observed within and adjacent to the Proposal to benefit from construction work that involves disturbance. Therefore, the management of these species would be a means of minimising any indirect impacts on the adjoining environment.

Additionally, the removal of existing hardstand or grasses has the potential to increase the risk of sediment laden stormwater run-off from the Proposal area into the stormwater network. Mitigation measures to manage potential soil and water impacts from the proposed work are outlined in Section 6.8.3.

Fauna habitat

The area impacted by the Proposal has limited habitat of value to native flora and fauna. No other important fauna habitat features such as hollow-bearing trees, fallen logs or termite mounds were observed.

Vehicle, plant and construction equipment would temporarily increase noise pollution within the Proposal area. This can cause disruption to normal fauna activity and lead to the departure of species from an area during construction.

Key Threatening Processes

Key Threatening Processes are listed under Schedule 4 of the BC Act and EPBC Act. There are no relevant Key Threatening Processes that have the potential to affect biodiversity values within the Proposal area.

b) Operational phase

No operational impacts to biodiversity are anticipated from the Proposal.

6.7.3 Mitigation measures

A number of additional environmental safeguards would be implemented to minimise potential impacts to biodiversity:

- vegetation management measures would be implemented to address exotic flora with biosecurity requirements
- clearance supervision would be undertaken by an ecologist for any fauna potentially present
- a site specific Erosion and Sediment Control Plan would be prepared and implemented to protect landform stability and would include environmental safeguards to prevent damage to waterways, drainage lines, basins, flood-affected areas or slopes above 10 per cent
- vegetation offsetting would be undertaken in accordance with Transport for NSW's Vegetation Offset Guide (TfNSW, 2019l). Locally native species, such as Blueberry Ash (*Elaeocarpus reticulatus*), would be planted where offsetting is required
- the following conditions would be implemented during the demolition stages for the zones of protection:
    - machinery would not be used in the areas of the tree protection zone for any tree at any time unless approved by the project arborist. The removal of the existing surfaces would be by hand-based tools
    - pruning would not occur for any related work. Crown pruning could be accommodated, however, would conform to the AS 4373 *Pruning of Amenity Trees*, and not misshape the crown nor remove in excess of 10-15 per cent of the existing crown, pending on the species, and vitality. The opportunity for, type and proportion of pruning will be required to be nominated by the project arborist
    - a soil conditioner would be applied immediate over the tree protection zone after removal of pavers. A non-synthetic type of soil conditioner is recommended
    - the existing grade would be retained so that any surface is located on the existing grade. Fill material would provide a texture that is majority river sand and would be installed at a depth no greater than 100mm
    - any exposed woody roots greater than 30mm in diameter would have a foam (closed cell) pad of at least 10mm thickness placed over the root surface and the final surfaces laid over the foam
    - no root pruning would occur without an assessment and consent from the project arborist or council tree officer.
- should the detailed design or construction work (including site establishment) determine the need to remove or trim any additional trees to that assessed in this REF, the contractor would complete the Transport for NSW Tree Removal Application Form and submit it to TfNSW for review and approval
- work within proximity to existing native trees would consider the tree protection zone, which is calculated as a circular area with a radius 12 x the diameter at

breast height of the tree in line with *AS 4970-2009 Protection of Trees on Development Sites.* Any ground disturbance within this area (i.e. for sub-surface utilities and regrading) would require an arborist to undertake further assessment before proceeding

- tree protection measures would be implemented during construction and undertaken in line with AS 4970-2009 *Protection of Trees on Development Sites*, and the Arboricultural Impact Assessment (Allied Tree Consultancy, 2021). These protection measures may include but are not limited to:
  - protective fences
  - stem and ground protection
  - ensuring the soil levels within the tree protection zones remain the same
  - restrictions on materials and activities permitted within the tree protection zones.

Refer to Table 7.1 for a full list of proposed mitigation measures.

6.8 Contamination, landform, geology and soils

6.8.1 Existing environment

The Proposal is situated on the Cumberland Lowlands between the Georges and Parramatta Rivers. This lowland typically underlain by Blacktown landscapes consisting of Ashfield Shale of the Wianamatta Group and featuring laminite and dark grey siltstone and Bringelly Shale which consists of shale, with occasional calcareous claystone, laminite and coal.

St Peters Station is situated within a cutting along a majority of its full length. A review of the Atlas of Australian Soils (CSIRO) indicates that the soil profile in St Peters consists of red and brown chromosols (red and brown Podzolic soils) and yellow chromosols (yellow Podzolic soils) which have a low-moderate erosion hazard.

A review of the NSW EPA Contaminated Land Register on the 17 December 2020 indicated that the Proposal area is not listed as a contaminated site, nor has the site been subject to any regulation under the *Contaminated Land Management Act 1997*.

A review of the DPIE's Acid Sulfate Soils dataset indicated that the Proposal footprint is located within Class 5 acid sulfate soils (ASS). ASS is not typically found in Class 5 areas and therefore the Proposal has a low probably of ASS occurrence.

The AS 4482.1-2005 - *Guide to the investigation and sampling of sites with potentially contaminated soil - Non-volatile and semi-volatile compounds* lists the chemicals used by specific industries. The Standard lists the following chemicals that are commonly associated with railway yards:

- hydrocarbons
- arsenic
- phenolics
- heavy metals
- nitrates and ammonia.

As St Peters Station has been in operation since 1884 and undergone upgrades in the 1900s, it is anticipated that possible contamination from fill materials may be present such as heavy metals and asbestos. Given the age of a number of elements at the station, there is also

potential for asbestos materials, lead paint and Polychlorinated biphenyl (PCBs) to be encountered within the existing building fabric.

6.8.2 Potential impacts

a) Construction phase

Excavation and other earthworks are described in more detail in Section 3.4.4, and if such activities are not adequately managed, could result in the following impacts:

- erosion of exposed soil and any stockpiled materials
- dust generation from excavation and vehicle movements over exposed soil
- an increase in sediment loads entering the stormwater system and/or local runoff.

It is expected that erosion risks would be adequately managed through the implementation of standard measures as outlined in the *'Blue Book' - Managing Urban Stormwater: Soils and Construction* (Landcom, 2004).

Excavation also has the potential to expose contaminants, which if not appropriately managed, can present a health risk to construction workers and the community. The exposure of contaminants could also pose an environmental risk if they were to enter nearby waterways through the stormwater infrastructure.

The Proposal has the potential to disturb asbestos containing material and other hazardous substances (such as lead paint and PCBs) from the proposed work to exiting station buildings.

There is also potential for construction activities to result in the contamination of soil through accidental fuel or chemical spills from construction plant and equipment.

b) Operational phase

There would be no operational risks to geology and soils as a result of the Proposal.

6.8.3 Mitigation measures

As part of the CEMP, a site-specific Erosion and Sediment Control Plan/s would be prepared and implemented in accordance with the '*Blue Book' - Managing Urban Stormwater: Soils and Construction* (Landcom, 2004). The Erosion and Sediment Control Plan would be established prior to the commencement of construction and be updated and managed throughout according to the activities occurring during construction.

An environmental risk assessment would be undertaken prior to construction and would include a section on contamination as per the Transport for NSW Standard Requirements. Measures to mitigate potential impacts from contaminated soil/materials would include an unexpected contamination finds procedure and Waste Management Plan, as part of the CEMP. All waste would be managed in accordance with relevant legislation.

Appropriate mitigation measures would be implemented to manage hazardous substances during demolition work. This would include the identification of hazardous materials from existing registers or identified during construction. Removal of hazardous materials from the structure will be completed by appropriately licensed asbestos/hazardous waste removalists and in accordance with relevant legislation and guidelines.

Refer to Table 7.1 for a full list of proposed mitigation measures.

6.9 Hydrology and water quality

6.9.1 Existing environment

St Peters Station is located in a cutting, and a track drainage system comprises a drain on the northern side of the rail corridor (adjacent to Lord Street). The Proposal area is located approximately 360 metres north-west from the nearest watercourse and riparian land, Sydney Park Wetlands. General overland flow (including stormwater) is in a south-west direction from the station towards the Sydenham Pit and Drainage Pumping Station (approximately 700 metres away).

St Peters Station is situated on the Sydney Basin lower groundwater aquifer and is located adjacent to the upper groundwater aquifer of the Sydney Basin. A search of the Bureau of Meteorology groundwater database indicates that the nearest groundwater monitoring bores to the station are located approximately 470 and 500 metres west of the station. These bores have a measured depth of six metres and nine metres, respectively, which indicates groundwater depth may be less than nine metres. Additionally, there are no groundwater dependent ecosystems in the vicinity of the Proposal area according to the Groundwater Dependent ecosystems Atlas, (BOM, 2021).

There are no areas at or immediately surrounding St Peters Station that are designated as flood planning areas under the Inner West or Sydney LEPs. The closest flood planning area within the storm water catchment is approximately 400 metres south-west of the Proposal.

With the station located on the catchment boundary it can be assumed that the local catchment at and around the station would be small, and mostly draining away from the station. As such, the Proposal area is unlikely to be impacted by mainstream flooding.

6.9.2 Potential impacts

a) Construction phase

Without appropriate safeguards, pollutants (fuel, chemicals or wastewater from accidental spills, and sediment from excavations and stockpiles) could potentially reach nearby stormwater drains.

Activities which would disturb soil during construction work (such as vegetation removal and excavation) have the potential to impact upon local water quality due to erosion and sedimentation. There is also potential to contaminate local water quality and the stormwater network as a result of incidental spills or inadequate fuel and chemical storage practices.

Excavation to a depth of 2.2 metres below platform level is proposed for the new lift footings. While the groundwater level at the Proposal site is unknown, the nearest groundwater bore suggest groundwater is within six metres below ground level and as such excavation for the lift footings may encounter groundwater or result in groundwater contamination.

In an extreme rainfall event, flooding may impact on construction activities. Moderate to heavy wet weather events may cause water flows through the Proposal area which could increase the potential for soil erosion and sedimentation impacts in the cutting and the rail corridor.

Mitigation measures have been provided below to minimise the potential for these impacts.

b) Operational phase

The Proposal would have little impact upon the hydrology in the surrounding area, however, this would be confirmed during the detailed design phase. The detailed design would take stormwater management around new and existing structures into consideration.

6.9.3 Mitigation measures

As noted in Section 6.8.3, Erosion and Sediment Control Plan/s would be prepared and implemented in accordance with the requirements of the 'Blue Book' (*Managing Urban Stormwater: Soils and Construction* (Landcom 2004)) to manage risks to water quality. Other mitigation measures that would be required for construction include regular vehicle and equipment maintenance along with spill kits and spill response procedures.

Dewatering (if required due to intercepting groundwater) would be undertaken in accordance with the Transport for NSW *Water Discharge and Reuse Guideline* (TfNSW, 2019i).

Refer to Table 7.1 for a full list of proposed mitigation measures.

6.10 Air quality

6.10.1 Existing environment

Based on a review of the existing land uses surrounding the Proposal, the existing air quality is characteristic of an urban environment, with some transport emission influences. The Environment, Energy and Science Group of DPIE undertakes air quality monitoring across NSW. Earlwood is the closest monitoring site to the Proposal. A search of the daily regional air quality index for Earlwood on 16 December 2020 showed that the site experienced 'Good' air quality values.

Potentially affected receivers within the vicinity of the site include the following:

- local residents
- users of the surrounding commercial areas
- pedestrians and commuter within the S Peters station precinct.

6.10.2 Potential impacts

a) Construction phase

During construction, air quality impacts would be associated with the generation of dust and emissions from the operation of stationary and moving on-site machinery and associated vehicular traffic. Particulate emissions would be associated with a number of stationary and mobile sources as well as minor potential for wind erosion of areas of exposed soil.

Anticipated sources of dust and dust generating activities include:

- loading and transfer of material from trucks
- trenching and excavation activities associated with lift installation, kerb modifications, services relocation etc
- construction activities associated with station building modifications and platform regrading.

The Proposal would have a minimal impact on air quality as it would not involve extensive excavation or other land disturbance with the potential to generate significant quantities of dust. Appropriate measures would be established to manage dust emissions from demolition work, particularly near adjacent commercial receivers on Lord Street and the King Street, and residential receivers.

The operation of plant, machinery and trucks may also lead to increases in exhaust emissions in the local area, however these impacts would be minor and short-term. The likely airborne dust load generated during a typical construction day would be small and therefore would be unlikely to result in reduced local air quality at the nearest potentially affected receivers, given

the relatively small construction footprint, and with the implementation of proposed control measures.

b) Operational phase

The Proposal is not anticipated to significantly increase customer traffic to and from the station. However, over the long-term there is anticipated to be an increase in patronage at St Peters Station. Increase in patronage at the station is not anticipated to significantly impact air quality in the station area.

Overall impacts of air quality during the operation of the Proposal are considered minimal as the Proposal would not result in a significant change in land use

6.10.3 Mitigation measures

Table 7.1 provides a list of mitigation measures that are proposed to manage air quality issues during construction. They are aimed around maintaining and operating plant and equipment efficiently and implementing measures for dust suppression including watering exposed soil surfaces, covered loads and appropriate management of tracked dirt or mud on vehicles. Such measures would be included in the CEMP to be prepared for the Proposal.

6.11 Waste

During construction of the Proposal, the following waste materials would be generated:

- demolition waste (brick, concrete, steel, asphalt)
- excavated spoil
- building material wastes (including metals, timbers, plastics, packaging, fencing etc)
- surplus building materials
- electrical wiring and conduit waste (from electrical connections and utility relocation)
- green waste (including weeds)
- general waste, including food scraps generated by construction workers.

Waste management would be undertaken in accordance with the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act). A Waste Management Plan would be prepared to identify all potential waste streams associated with the work and outline methods of disposal of waste that cannot be reused or recycled at appropriately licensed facilities along with other onsite management practices such as keeping the area tidy and free of rubbish.

The handling, storage, transport and disposal of asbestos and hazardous waste (including any lead waste) would be in accordance with the requirements of relevant EPA and Safe Work NSW guidelines. Waste management targets in consideration of the Infrastructure Sustainability Rating Scheme – Version 1.2 (ISCA, 2018) would be developed for the Proposal and would include reuse and recycling.

The Proposal would not result in changes to operational waste management.

6.12 Sustainability

The design of the Proposal would be based on the principles of sustainability, including aiming for an excellent rating under the ISCA Infrastructure Sustainability Rating Tool Version 1.2 and

the Transport for NSW Environmental Management System (EMS). These guidelines require a number of mandatory and discretionary initiatives to be applied. Refer to Section 3.3.3 for more information regarding the application of these guidelines.

Further positive impacts in relation to climate change and sustainability associated with the Proposal include encouraging a reduction in private vehicle use and increasing the accessibility of public transport services.

6.13 Climate change

The dynamic nature of our climate system indicates a need to focus attention on how to adapt to the changes in climate and understand the limitation of adaptation. The effects of climate on the Sydney region can be assessed in terms of weather changes, storm intensity, flooding and increased risk of fire.

A high-level climate change risk assessment screening was performed using the Transport for NSW *Climate Risk Assessment Guidelines* (TfNSW, 2017b), and relevant climate data and projections from Adapt NSW and the Bureau of Meteorology as part of the design development of the Proposal.

Climate change could lead to an increase in the intensity of rainfall events, whereby the rainfall expected to occur in a 100-year average recurrence interval flood event would occur more frequently. The climate projections for Metropolitan Sydney in 2030 include an increase in mean temperature of 0.65°C which is expected to rise 1.94°C by 2070. Projections also include an increase in the number of hot days with a maximum temperature of over 40°C and increased annual rainfall and rainfall extremes.

The risk assessment is based on the projected changes in the climate and the estimated design life of Proposal components to assess the likely consequences and likelihood of climate risks occurring. The risk assessment identified nine climate risks responding to each of the climate variables identified for the Proposal. No High or Very High risks were identified. It concluded that:

- the Proposal is not situated on land mapped as bushfire prone. Given the predominantly urban environment of the Proposal area it is considered unlikely that increases in bushfires would impact the Proposal
- increased temperatures have the potential to compromise the structural integrating of surface and above ground materials. The use of heat resilient pavement design and materials, such as pre-cast concrete for the lift shafts, would reduce the likelihood of heat stress on infrastructure
- increased extreme heat days would continue to increase the risk of heat stress on station customers. The use of steel roof materials installed on the lifts would reduce the likelihood of heat-related effects in the lifts. However the lifts may continue to pose a risk to human health in the event of a power outage during an extreme heat event
- extreme rainfall and weather events have the potential to cause direct damage to aboveground structures. The use of precast concrete for the lift shafts would reduce the likelihood of storm-related damage
- extended periods of drought can decrease soil moisture resulting in ground shrinkage and damage to underground infrastructure, compromising serviceability. Excavation for services would be backfilled with pervious materials, reducing offsite runoff and allowing moisture to penetrate the ground
- the provision of additional canopies along the platforms would shelter commuters from extreme heat and rainfall events.

6.14 Greenhouse gas emissions

An increase in greenhouse gas emissions, primarily carbon dioxide, would be expected during construction of the Proposal due to exhaust emissions from construction machinery and vehicles transporting materials and personnel to and from site.

The detailed design process would undertake a compliant carbon footprinting exercise in accordance with Transport for NSW's *Carbon Estimate and Reporting Tool Manual* (TfNSW, 2019c) or other approved modelling tools. The carbon footprint would to be used to inform decision making in design and construction. Greenhouse gas emissions would also be assessed in accordance with ISCA IS Rating Tool V1.2.

Due to the small scale of the Proposal and the short term temporary nature of the individual construction work, it is considered that greenhouse gas emissions resulting from the construction of the Proposal would be minimal. Furthermore, greenhouse gas emissions generated during construction would be kept to a minimum through the implementation of the standard mitigation measures detailed in Table 7.1.

It is anticipated that, once operational, the Proposal may result in an increase in use of public transport and a relative decrease in use of private motor vehicles by commuters to travel to and from St Peters. A modal shift in transport usage may reduce the amount of fuel consumed by private motor vehicles with a corresponding relative reduction in associated greenhouse gas emissions in the local area.

6.15 Cumulative impacts

Cumulative impacts occur when two or more projects are carried out concurrently and in close proximity to one another. The impacts may be caused by both construction and operational activities and can result in a greater impact to the surrounding area than would be expected if each project was undertaken in isolation. Multiple projects undertaken at a similar time/similar location may also lead to construction fatigue, particularly around noise, traffic and air quality impacts, if not appropriately managed.

A search of the Department of Planning, Industry and Environment's Major Projects Register, Sydney Eastern City Planning Panel Development and Planning Register, Council of the City of Sydney and Inner West Council Development Application Registers on 16 December 2020 identified one major development application listed within proximity to St Peters Station for approval at this time. SSD-10468 is a proposed seven-storey warehouse complex located approximately 800 metres west of St Peters Station. No other pending development applications were identified within close proximity to St Peters Station.

A development at 641-657 King Street is currently under construction and major work is anticipated to be completed by May 2021. The development, DA201700013 is an eight storey mixed use development including retail, residential apartments, basement car parking and associated landscaping. Proposed work for the Proposal is anticipated to commence mid-2021 and therefore is not expected to overlap with construction activities for the 641-647 King Street development.

During construction of the Proposal, the work would be coordinated with any other construction activities in the area. Consultation and liaison would occur with Inner West Council and the City of Sydney, TAHE/Sydney Trains, and any other developers identified, to minimise cumulative construction impacts such as traffic and noise.

Traffic associated with the construction work is not anticipated to have a significant impact on the surrounding road network. Operational traffic and transport impacts would have a minimal impact on the performance of the surrounding road network.

Based on this assessment, it is anticipated that the cumulative impacts would be negligible, provided that consultation with relevant stakeholders and mitigation measures in Chapter 7 are implemented. The potential cumulative impacts associated with the Proposal would be further considered as the design develops and as further information regarding the location and timing of potential developments is released. Environmental management measures would be developed and implemented as appropriate.

7 Environmental management

This chapter of the REF identifies how the environmental impacts of the Proposal would be managed through environmental management plans and mitigation measures. Section 7.2 lists the proposed mitigation measures for the Proposal to minimise the impacts of the Proposal identified in Chapter 6.

7.1 Environmental management plans

A CEMP for the construction phase of the Proposal would be prepared in accordance with the requirements of Transport for NSW's EMS. The CEMP would provide a centralised mechanism through which all potential environmental impacts relevant to the Proposal would be managed and outline a framework of procedures and controls for managing environmental impacts during construction.

The CEMP would incorporate as a minimum all environmental mitigation measures identified below in Section 7.2, any conditions from licences or approvals required by legislation, and a process for demonstrating compliance with such mitigation measures and conditions.

7.2 Mitigation measures

Mitigation measures for the Proposal are listed below in Table 7.1. These proposed measures would minimise the potential adverse impacts of the Proposal identified in Chapter 6.

Table 7.1 Proposed mitigation measures

No.	Mitigation measure
	General
1.	A Construction Environmental Management Plan (CEMP) would be prepared by the Contractor in accordance with the relevant requirements of *Environmental Management Plan Guideline – Guideline for Infrastructure Projects,* NSW Department of Planning, Industry and Environment, 2020) for approval by Transport for NSW, prior to the commencement of construction and following any revisions made throughout construction.
2.	A project risk assessment including environmental aspects and impacts would be undertaken by the Contractor prior to the commencement of construction and documented as part of the CEMP.
3.	An Environmental Controls Map (ECM) would be developed by the Contractor in accordance with Transport for NSW's *Guide to Environmental Controls Map* (TfNSW, 2019d) for approval by Transport for NSW, prior to the commencement of construction and following any revisions made throughout construction.
4.	Prior to the commencement of construction, all contractors would be inducted on the key project environmental risks, procedures, mitigation measures and conditions of approval.
5.	Site inspections to monitor environmental compliance and performance would be undertaken during construction at appropriate intervals.
6.	Service relocation would be undertaken in consultation with the relevant authority. Contractors would mark existing services on the ECM to avoid direct impacts during construction.

No.	Mitigation measure
7.	Any modifications to the Proposal, if approved, would be subject to further assessment and approval by Transport for NSW. This assessment would need to demonstrate that any environmental impacts resulting from the modifications have been minimised.
8.	Relevant approvals would be sought from Sydney Metro Corridor Protection prior to the commencement of excavations for the lift footings within the first and second reserves of the tunnels.
	Traffic and site access
9.	Prior to the commencement of construction, a Traffic Management Plan (TMP) would be prepared as part of the CEMP and would include at a minimum: • ensuring adequate road signage at construction work sites to inform motorists and pedestrians of the work site ahead to ensure that the risk of road accidents and disruption to surrounding land uses is minimised • maximising safety and accessibility for pedestrians and cyclists • ensuring adequate sight lines to allow for safe entry and exit from the site • ensuring access to railway stations, businesses, entertainment premises and residential properties (unless affected property owners have been consulted and appropriate alternative arrangements made) • managing impacts and changes to on and off street parking and requirements for any temporary replacement provision • parking locations for construction workers away from stations and busy residential areas and details of how this will be monitored for compliance • routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses • details for relocating kiss and ride, taxi ranks and rail replacement bus stops if required, including appropriate signage to direct patrons, in consultation with the relevant bus/taxi operators. Particular provisions would also be considered for the accessibility impaired • measures to manage traffic flows around the area affected by the Proposal, including as required regulatory and direction signposting, line marking and variable message signs and all other traffic control devices necessary for the implementation of the TMP. Consultation with the relevant roads authorities would be undertaken during preparation of the construction TMP. The performance of all project traffic arrangements must be monitored during construction.
10.	Communication would be provided to the community and local residents to inform them of changes to parking, pedestrian access and/or traffic conditions including vehicle movements and anticipated effects on the local road network relating to site works.
11.	Road Occupancy Licences for temporary road closures would be obtained, where required.
12.	Further investigation into opportunities for provision of a DDA parking space would be undertaken in coordination with the development at 655 King Street St Peters and the Transport for NSW Sydney Gateway Project.
	Urban design, landscape and visual amenity

No.	Mitigation measure

13.	An Urban and Landscape Design Plan (ULDP) would be prepared by the Contractor, in consultation with the Inner West council, and submitted to Transport for NSW for endorsement by the Precincts and Urban Design team, prior to finalisation of the detailed design. The UDP, at a minimum, would address the following:
	• the appropriateness of the proposed design with respect to the existing surrounding landscape, built form, behaviours and use-patterns (including consideration of Crime Prevention Through Environmental Design principles). This is to include but not be limited to:
	  ○ site analysis
	  ○ vision and objectives for the infrastructure
	  ○ strategies that apply to ISCA approved guidelines in accordance with Urb-1 (ISCA V 1.2).
	• connectivity with surrounding local and regional movement networks including street networks, other transport modes and active transport networks. Existing and proposed paths of travel for pedestrians and bicycles should be shown
	• integration with surrounding local and regional open space and or landscape networks. Existing and proposed open space infrastructure/landscape elements should be shown
	• integration with surrounding streetscape including street trees, entries, vehicle cross overs etc
	• integration with surrounding built form (existing or desired future) including building height, scale, bulk, massing and land-use
	• design detail that is sensitive to the amenity and character of heritage items located within or adjacent to the Proposal.

14.	A Public Domain Plan (PDP) would be prepared by the Contractor, in consultation with the relevant council, and submitted to Transport for NSW for endorsement by the Precincts and Urban Design team, prior to finalisation of the detailed design. The PDP, at a minimum, would address the following: • materials, finishes, colour schemes and maintenance procedures including graffiti control for new walls, barriers and fences • location and design of pedestrian and bicycle pathways, street furniture including relocated bus and taxi facilities, bicycle storage (where relevant), telephones and lighting equipment • landscape treatments and street tree planting to integrate with surrounding streetscape • opportunities for public art created by local artists to be incorporated, where considered appropriate, into the Proposal • total water management principles to be integrated into the design where considered appropriate • design measures included to meet ISCA v1.2 • identification of design and landscaping aspects that will be open for stakeholder input, as required. Consultant with key stakeholders such as the 655 King Street developer, TfNSW Gateway projects and Principal Bike Route Project would be undertaken during the preparation of the PDP.
15.	Vegetation offsetting would be undertaken in accordance with Transport for NSW's *Vegetation Offset Guide* (TfNSW, 2019l). Locally native species, such as Blueberry Ash (*Elaeocarpus reticulatus*), would be planted where offsetting is required. Offset planting would be considered for any trees impacted within the laydown area along Lord Street.

No.	Mitigation measure
16.	All permanent lighting would be designed and installed in accordance with the requirements of standards relevant to *AS 1158 Road Lighting* and *AS 4282 Controlling the Obtrusive Effects of Outdoor Lighting.*
17.	The detailed design of the Proposal would comply with Crime Prevention Through Environmental Design principles.
18.	Worksite compounds would be screened with shade cloth (or similar material, where necessary) to minimise visual impacts from key viewing locations.
19.	Temporary hoardings, barriers, traffic management and signage would be removed when no longer required.
20.	During construction, graffiti would be removed in accordance with Transport for NSW's Standard Requirements.
21.	Light spill from the construction area into adjacent visually sensitive properties would be minimised by directing construction lighting into the construction areas and ensuring the site is not over-lit. This includes the sensitive placement and specification of lighting to minimise any potential increase in light pollution.
22.	The site would be kept tidy and well maintained, including removal of all rubbish at regular intervals. There should be no storage of materials beyond the construction boundaries. Storage should occur off-site considering the location of sensitive receptors, utilise rail corridor storage space where possible.
	Noise and vibration
23.	Prior to commencement of work, a Construction Noise and Vibration Management Plan (CNVMP) would be prepared and implemented in accordance with the requirements of the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009), *Construction Noise and Vibration Strategy* (TfNSW, 2019a) and the Noise and Vibration Impact Assessment for the Proposal (SLR, 2021b). The CNVMP would take into consideration measures for reducing the source noise levels of construction equipment by construction planning and equipment selection where practicable.

No.	Mitigation measure
24.	The CNVMP would outline measures to reduce the noise impact from construction activities. Reasonable and feasible noise mitigation measures which would be considered, include: • regularly training workers and contractors (such as at the site induction and toolbox talks) on the importance of minimising noise emissions and how to use equipment in ways to minimise noise • avoiding any unnecessary noise when carrying out manual operations and when operating plant • ensuring spoil is placed and not dropped into awaiting trucks • avoiding/limiting simultaneous operation of noisy plant and equipment within discernible range of a sensitive receiver where practicable • switching off any equipment not in use for extended periods e.g. heavy vehicles engines would be switched off whilst being unloaded • avoiding deliveries at night/evenings wherever practicable • no idling of delivery trucks • keeping truck drivers informed of designated vehicle routes, parking locations and acceptable delivery hours for the site • minimising talking loudly; no swearing or unnecessary shouting, or loud stereos/radios onsite; no dropping of materials from height where practicable, no throwing of metal items and slamming of doors.
25.	The CNVMP would include measures to reduce the construction noise and vibration impacts from mechanical activities. Reasonable and feasible noise mitigation options which would be considered, include: • maximising the offset distance between noisy plant and adjacent sensitive receivers and determining safe working distances • using the most suitable equipment necessary for the construction work at any one time • directing noise-emitting plant away from sensitive receivers • regularly inspecting and maintaining plant to avoid increased noise levels from rattling hatches, loose fittings etc • implementation of a noise monitoring program • using non-tonal reversing/movement alarms such as broadband (non-tonal) alarms or ambient noise-sensing alarms for all plant used regularly onsite (greater than one day), and for any out of hours work • use of quieter and less vibration emitting construction methods where feasible and reasonable.
26.	Work would generally be carried out during standard construction hours (i.e. 7.00 am to 6.00 pm Monday to Friday; 8.00 am to 1.00 pm Saturdays). Any work outside these hours may be undertaken if approved by Transport for NSW and the community is notified prior to the work commencing. An Out of Hours Work application form would need to be prepared by the Contractor and submitted to the Transport for NSW Environment and Planning Manager for any work outside normal hours. High noise and vibration generating activities may only be carried out in continuous blocks, not exceeding three hours each, with a minimum respite period of one hour between each block.
27.	As per the *Construction Noise and Vibration Strategy* (TfNSW, 2019a), construction activities with special audible characteristics (high noise impact, intensive vibration, impulsive or tonal noise emissions) would be limited to standard hours, starting no earlier than 8am; and to continuous blocks not exceeding three hours each with a minimum respite from those activities and work of not less than one hour between each block, unless otherwise approved by Transport for NSW.

No.	Mitigation measure
28.	Work would be conducted behind temporary hoardings/screens wherever practicable. The installation of construction hoarding would take into consideration the location of residential receivers to ensure that 'line of sight' is broken, where feasible.
29.	To avoid structural impacts as a result of vibration or direct contact with structures, the proposed work would be undertaken in accordance with the safe work distances outlined in the Noise and Vibration Assessment (SLR, 2021b) and attended vibration monitoring or vibration trials would be undertaken where these distances are required to be challenged.
30.	Vibration (other than from blasting) resulting from construction and received at any structure outside of the project would be managed in accordance with: • for structural damage vibration –British Standard BS 7385-2:1993 Evaluation and measurement for vibration in buildings Part 2 and German Standard DIN 4150:Part 3 – 1999: Structural Vibration in Buildings: Effects on Structures • for human exposure to vibration the acceptable vibration - values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006) which includes British Standard BS 6472-2:1992 *Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz).*
31.	Property conditions surveys would be completed prior to piling, excavation of bulk fill or any vibratory work including jack hammering and compaction for all buildings/structures/roads with a plan distance of 50 metres from the work and all heritage listed buildings and other sensitive structures within 150 metres of the works (unless otherwise determined following additional assessment they are not likely to be adversely affected).
32.	Affected pre-schools, schools, universities and other identified sensitive receivers would be consulted in relation to noise mitigation measures to identify any noise sensitive periods, e.g. exam periods. As much as reasonably possible noise intensive construction work in the vicinity of affected educational buildings are to be minimised.
33.	Work would be conducted behind temporary hoardings/screens wherever practicable. The installation of construction hoarding would take into consideration the location of residential receivers to ensure that 'line of sight' is broken, where feasible.
34.	Verification monitoring of noise and/or vibration during construction would be conducted at the affected receivers or a nominated representation location.
35.	Alternative accommodation would be provided for residents living in close proximity to construction works should construction result in unreasonably high noise impacts. Alternative accommodation would be considered where reasonable and feasible
36.	Alternative construction methodology would be undertaken where the proposed construction methodology has a high risk of causing structural damage to buildings near the Proposal area
	Aboriginal heritage
37.	All construction staff would undergo an induction in the recognition of Aboriginal cultural heritage material. This training would include information such as the importance of Aboriginal cultural heritage material and places to the Indigenous community, as well as the legal implications of removal, disturbance and damage to any Aboriginal cultural heritage material and sites.

No.	Mitigation measure
38.	If unforeseen Aboriginal objects are uncovered during construction, the procedures contained in Transport for NSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2019b) would be followed, and work within the vicinity of the find would cease immediately. The Contractor would immediately notify the TfNSW Project Manager and Transport for NSW Environment and Planning Manager so they can assist in co-ordinating next steps which are likely to involve consultation with an Aboriginal heritage consultant, Heritage NSW and the Local Aboriginal Land Council. If human remains are found, work would cease, the site would be secured, and the NSW Police and Heritage NSW notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit would be obtained prior to works recommencing at the location.
	Non-Aboriginal heritage
39.	A heritage induction would be provided to workers prior to construction, informing them of the location of known heritage items and guidelines to follow if unanticipated heritage items or deposits are located during construction.
40.	In the event that any unanticipated archaeological deposits are identified within the project site during construction, the procedures contained in Transport for NSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2019b) would be followed, and work within the vicinity of the find would cease immediately. The Contractor would immediately notify the Transport for NSW Project Manager and the Transport for NSW Environment and Planning Manager so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and DPIE EES. Where required, further archaeological work and/or consents would be obtained for any unanticipated archaeological deposits prior to work recommencing at the location.

No.	Mitigation measure

41.	The detailed design would be developed in consultation with a heritage architect and should aim to make the design more neutral and reference the station building, as well as reduce overall contrast. In particular, the detailed design should take into the consideration the following:
	• recommendation measures advised by GML during the SDR phase to be implemented in the detailed design to mitigate potential heritage impacts including:
	  ○ ensure canopy and canopy structural members are reduced in size and are of a sympathetic design and materiality to the heritage footbridge and heritage platform building
	  ○ avoid fixing elements to the footbridge of the heritage platform building. New canopies and structures should be independently supported to minimise direct and potential indirect impacts to these elements
	  ○ avoid extensions to the overhead booking office structure onto the footbridge concourse to maintain historic views of the platforms from the concourse as far as practicable
	  ○ new canopies should follow the rake of early/original awnings where in proximity to the platform building
	  ○ incorporate heritage interpretation into the design of May Lane and the footpath/plaza to King Street.
	• where appropriate, the detailed design should also respond to existing and significant architectural detail, such as the architectural detailing of the station building, or the footbridge
	• interface of new structures with old, including joints and columns, should attempt to reduce physical impact to heritage fabric as well as be structurally sympathetic and unobtrusive
	• modifications to the exterior of the overhead booking office should tie in with existing form and fabric to minimise visual impact and, where possible, maintain historic views over the platforms from the concourse
	• canopies should be designed in accordance with the Sydney Trains Canopies and Shelters Design Guide for Heritage Stations (2016)
	• canopy column placement should be rationalised in front of heritage structures to reduce visual impact. In particular, columns along the northern façade of the platform building should be placed in front of solid walls, and avoid obscuring architectural features such as windows and doors
	• materials and finishes should be of a more neutral palette rather than high contract to o minimise visual impact.

42.	Work should be undertaken by suitably experienced tradespersons with experience in undertaking works on State Heritage items.
43.	Prior to work commencing, contractors would be briefed as to the sensitive nature of the project area and informed of any recommended mitigation measures or controls required.
44.	Non-Aboriginal heritage awareness training would be provided for all contractors and personnel prior to commencement of construction to outline the identification of potential heritage items and associated procedures to be implemented in the event of the discovery of non-Aboriginal heritage materials, features or deposits (that is, unexpected finds), or the discovery of human remains.
45.	To avoid impact to significant fabric during the construction of the Proposal, measures as determined in consultation with a suitably qualified heritage architect, would be put in place to protect significant fabric of the footbridge from accidental impact during construction, including installation of lifts, canopies, the family accessible toilet and stair upgrades.

No.	Mitigation measure
46.	Measures, as determined in consultation with a suitably qualified heritage architect, would be put in place to protect significant fabric of the platform building from accidental impact during the construction including the installation of canopies, regrading of platforms and installation of utilities in the platform building.
47.	Measures, as determined in consultation with a suitably qualified heritage architect, would be put in place to protect significant fabric on the platform during the proposed regrading and resurfacing. The platform surface should be reinstated on completion
48.	New services would be installed in accordance with the *Sydney Trains Heritage Technical Note: Installation of New Electrical and Data Services at Heritage Sites* (2017). The exact location of services is not yet confirmed. Installation of services would be planned in consultation with an appropriate specialist such as a heritage architect or archaeologist and aim to minimise impact to significant fabric and potential archaeological resources. Where practicable, services would be installed within the existing conduit to minimise the cumulative impact to significant fabric.
49.	A photographic archival record of St Peters Railway Station would be prepared prior to, and at the completion of, construction in accordance with the NSW Heritage Office (former) publication *How to prepare archival records of heritage items and Photographic Recording of Heritage Items using Film or Digital Capture*. Copies of the archival record should be provided to Heritage NSW, Sydney Trains Heritage and the local library
50.	If any archaeological resources are identified, they would be recorded by a suitably qualified archaeologist in accordance with Heritage NSW standards including *How to Prepare Archival Records of Heritage Items and Photographic Recording of Heritage Items Using Film and Digital Capture*; however, no further archaeological management is required.
51.	If archaeological resources not identified in the assessment of archaeological potential are identified, the Transport for NSW Unexpected Finds Procedure should be implemented
52.	The addition of components such as seating, lighting and signage would be consistent with the Sydney Trains and NSW TrainLink *Station Component Guide* (2017) and to the existing seating, lighting and signage at the station
53.	If the proposed work, or Proposal area, is modified to those discussed in this report, additional heritage advice may be required to appropriately manage and mitigate any potential impacts caused by these changes.
	Socio-economic
54.	Sustainability criteria for the Proposal would be established to encourage the Contractor to purchase goods and services locally, helping to ensure the local community benefits from the construction of the Proposal.
55.	Feedback through the submissions process would be encouraged to facilitate opportunities for the community and stakeholders to have input into the project, where practicable.
56.	A Community Liaison Plan would be prepared prior to construction to identify all potential stakeholders and best practice methods for consultation with these groups during construction. The plan would also encourage feedback and facilitate opportunities for the community and stakeholders to have input into the project, where practicable.
57.	Contact details for a 24-hour construction response line, Project Infoline and email address would be provided for ongoing stakeholder contact throughout the construction phase.

No.	Mitigation measure
58.	The community would be kept informed of construction progress, activities and impacts in accordance with the Community Liaison Plan to be developed prior to construction.
	Biodiversity
59.	Construction of the Proposal must be undertaken in accordance with Transport for NSW's *Vegetation Management (Protection and Removal) Guideline* (TfNSW, 2019e) and Transport for NSW's *Fauna Management Guideline* (TfNSW, 2019f).
60.	All workers would be provided with an environmental induction prior to commencing work onsite. This induction would include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity.
61.	Disturbance of vegetation would be limited to the minimum amount necessary to construct the Proposal. Trees nominated to be retained in the Flora and Fauna Assessment (RPS, 2021c) and Arboricultural Impact Assessment (Allied Trees, 2021) would be protected through temporary protection measures discussed below.
62.	Tree Protection Zones (TPZs) would be established around trees to be retained and protected, including Trees 1, 4, 5, 6 and 23, as nominated in the Arboricultural Impact Assessment (Allied Trees, 2021). Tree protection would be implemented during construction and undertaken in line with *AS 4970-2009 Protection of Trees on Development Sites* and would include but not be limited to:. • protective fences surrounding TPZs • stem and ground protection • ensuring the soil levels within the TPZ remain the same • restrictions on materials and activities permitted within the TPZ.
63.	In the event of any tree to be retained becoming damaged during construction, the Contractor would immediately notify the Transport for NSW Project Manager and Transport for NSW Environment and Planning Manager to coordinate the response which may include contacting an arborist to inspect and provide advice on remedial action, where possible.
64.	Should the detailed design or onsite work determine the need to remove or trim any additional trees, which have not been identified in the REF, the Contractor would be required to complete TfNSW's Tree Removal Application Form and submit it to TfNSW for approval.
65.	For new landscaping work, mulching and watering would be undertaken until plants are established.
66.	Weed control measures, consistent with Transport for NSW's *Weed Management and Disposal Guideline* (TfNSW, 2019g), would be developed and implemented as part of the CEMP to manage the potential dispersal and establishment of weeds during the construction phase of the project. This would include the management and disposal of weeds in accordance with the *Biosecurity Act 2015.*
67.	Vegetation offsetting would be undertaken in accordance with Transport for NSW's *Vegetation Offset Guide* (TfNSW, 2019). Locally native species, such as Blueberry Ash (*Elaeocarpus reticulatus*), would be planted where offsetting is required.
	Soils and water

No.	Mitigation measure
68.	Prior to commencement of work, a site-specific Erosion and Sediment Control Plan would be prepared, implemented and maintained in accordance with the 'Blue Book' *Managing Urban Stormwater: Soils and Construction Guidelines* (Landcom, 2004) and updated throughout construction so it remains relevant to the activities. The Erosion and Sediment Control Plan measures would be implemented prior to commencement of work and maintained throughout construction.
69.	Erosion and sediment control measures would be established prior to any clearing, grubbing and site establishment activities and would be maintained and regularly inspected (particularly following rainfall events) to ensure their ongoing functionality. Erosion and sediment control measures would be maintained and left in place until the work is complete and areas are stabilised.
70.	Vehicles and machinery would be properly maintained and routinely inspected to minimise the risk of fuel/oil leaks. Construction plant, vehicles and equipment would also be refuelled offsite, or in a designated refuelling area.
71.	All fuels, chemicals and hazardous liquids would be stored away from drainage lines, within an impervious bunded area in accordance with Australian Standards, EPA Guidelines and Transport for NSW's *Chemical Storage and Spill Response Guidelines* (TfNSW, 2019h).
72.	Adequate water quality and hazardous materials procedures (including spill management procedures, use of spill kits and procedures for refuelling and maintaining construction vehicles/equipment) would be implemented in accordance with relevant EPA guidelines and the Transport for NSW *Chemical Storage and Spill Response Guidelines* (TfNSW, 2019h) during the construction phase. All staff would be made aware of the location of the spill kits and be trained in how to use the kits in the case of a spill.
73.	In the event of a pollution incident, work would cease in the immediate vicinity and the Contractor would immediately notify the Transport for NSW Project Manager and Transport for NSW Environment and Planning Manager. The EPA would be notified by Transport for NSW if required, in accordance with Part 5.7 of the POEO Act.
74.	The existing drainage systems would remain operational throughout the construction phase.
75.	Should groundwater be encountered during excavation work, groundwater would be managed in accordance with the requirements of the *Waste Classification Guidelines* (EPA, 2014) and Transport for NSW's *Water Discharge and Reuse Guideline* (TfNSW, 2019i).
	Air quality
76.	Air quality management and monitoring for the Proposal would be undertaken in accordance with Transport for NSW's *Air Quality Management Guideline* (TfNSW, 2019j).
77.	Methods for management of emissions would be incorporated into project inductions, training and pre-start/toolbox talks.
78.	Plant and machinery would be regularly checked and maintained in a proper and efficient condition. Plant and machinery would be switched off when not in use, and not left idling.
79.	Vehicle and machinery movements during construction would be restricted to designated areas and sealed/compacted surfaces where practicable.

No.	Mitigation measure
80.	To minimise the generation of dust from construction activities, the following measures would be implemented: • apply water (or alternate measures) to exposed surfaces (e.g. unpaved roads, stockpiles, hardstand areas and other exposed surfaces) • cover stockpiles when not in use • appropriately cover loads on trucks transporting material to and from the construction site and securely fix tailgates of road transport trucks prior to loading and immediately after unloading • prevent mud and dirt being tracked onto sealed road surfaces.
	Waste and contamination
81.	The CEMP (or separate Waste Management Plan, if necessary) must address waste management and would at a minimum: • identify all potential waste streams associated with the work and outline methods of disposal of waste that cannot be reused or recycled at appropriately licensed facilities • detail other onsite management practices such as keeping areas free of rubbish • specify controls and containment procedures for hazardous waste and asbestos waste • outline the reporting regime for collating construction waste data.
82.	An appropriate Unexpected Finds Protocol, considering asbestos containing materials and other potential contaminants, would be included in the CEMP. Procedures for handling asbestos containing materials, including licensed contractor involvement as required, record keeping, site personnel awareness and waste disposal to be undertaken in accordance with WorkCover requirements.
83.	All excavated spoil suitable for reuse would be reused on site and distributed as agreed with Transport for NSW and the construction contractor. The reuse of excavated material would be further reviewed and confirmed during construction.
84.	All spoil to be removed from site would be tested to confirm the presence of any contamination. Any contaminated spoil would be disposed of at an appropriately licensed facility.
85.	All spoil and waste must be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying waste (*EPA, 2014) prior to disposal.
86.	Any concrete washout would be established and maintained in accordance with Transport for NSW's *Concrete Washout Guideline* – draft (TfNSW, 2019k) with details included in the CEMP and location marked on the ECM.
	Sustainability, climate change and greenhouse gases
87.	Detailed design and construction of the Proposal is to be undertaken in accordance with the ISCA Infrastructure Sustainability Rating Scheme (v1.2).
88.	The detailed design process would undertake a compliant carbon footprinting exercise in accordance with Transport for NSW's *Carbon Estimate and Reporting Tool Manual* (Transport for NSW, 2019c) or other approved modelling tools. The carbon footprint would to be used to inform decision making in design and construction.
	Cumulative impacts

No.	Mitigation measure
89.	The potential cumulative impacts associated with the Proposal would be further considered as the design develops and as further information regarding the location and timing of potential developments is released. Environmental management measures would be developed in the CEMP and implemented as appropriate.

8 Conclusion

This REF has been prepared in accordance with the provisions of Section 5.5 of the EP&A Act, taking into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the Proposal.

The Proposal would provide the following benefits:

- improve accessibility to and around the station by providing two new lifts, lift landings and lift canopies to the eastern side of Platform 1/2 and Platform 3/4 connecting to the existing footbridge, one kiss and ride area on Goodsell Street and two kiss and ride areas on Lord Street
- improve customer amenity by installing new canopies on the platforms and stairs on Platform 3/4 and a standalone canopy at the western end of Platform 1 to provide weather protection at BAZ, and accommodating a new family accessible toilet in the concourse building
- improve customer safety by modifying existing footbridge safety screens at new lift interface locations, improving station lighting and CCTV, platform regrading and installing new tactiles along the platforms, and regrading footpaths at the station entrances from Lord Street, King Street and Goodsell Street
- improve customer experience by upgrading customer information and communication systems, adjusting wayfinding signage and landscaping work.

The likely key impacts of the Proposal are as follows:

- temporary changes to pedestrian and cyclist movements along Goodsell Street and Lord Street during construction work
- temporary changes to traffic movements and availability of parking as a result of upgrade work and presence of construction vehicles on Lord Street, King Street and Concord Street, and the delivery of construction plant and materials
- temporary change to the visual environment during construction phase due to fencing and hoarding, road barriers and signage, formwork and scaffolding, cranes and other construction equipment, site office and amenities, and night lighting
- temporary noise and vibration emissions during construction, which are predicted above 75 dBA $L_{Aeq(15minute)}$ at residential receivers directly adjacent St Peters Station (along Goodsell Street and Lord Street) during the operation of noise intensive equipment
- minor adverse direct impact and moderate adverse visual impact on the heritage significance of St Peters Station associated with the addition of two new lifts, proposed canopies and stair upgrades.

This REF has considered and assessed these impacts in accordance with clause 228 of the EP&A Regulation and the requirements of the EPBC Act (refer to Chapter 6, Appendix A and Appendix B). Based on the assessment contained in this REF, it is considered that the Proposal is not likely to have a significant impact upon the environment or any threatened species, populations or communities. Accordingly, an EIS is not required, nor is the approval of the Minister for Planning and Public Spaces.

The Proposal would also take into account the principles of ESD and sustainability (refer to Section 3.3.3 and Section 4.3). These would be considered during the detailed design,

construction and operational phases of the Proposal. This would ensure the Proposal is delivered to maximum benefit to the community, is cost effective and minimises any adverse impacts on the environment.

References

Allied Tree Consultancy, 2021, *Arboricultural Impact Assessment Report*, Sydney

AGIC, 2011, *Guidelines for Climate Change Adaptation,* Australian Green Infrastructure Council (now Infrastructure Sustainability Council of Australia), Sydney

Aurecon, 2018, *TAP3 St Peters Station Scoping Design Report*, Sydney

Bureau of Meteorology, 2021, *Australian Groundwater Explorer,* http://www.bom.gov.au/water/groundwater/explorer/map.shtml, accessed 21 January 2021

Bureau of Meteorology, 2021, *Groundwater Dependent Ecosystems Atlas*, http://www.bom.gov.au/water/groundwater/gde/map.shtml, accessed 21 January 2021

Council of the City of Sydney, 2017, *Sustainable Sydney 2030*, Sydney

Council of the City of Sydney, 2020, *City Plan 2036*, Sydney

Department of Environment and Climate Change, 2009*, Interim Construction Noise Guideline*, Sydney

Department of Environment and Conservation, 2006, *Assessing Vibration: A Technical Guideline*, Sydney

Department of Environment, Climate Change and Water, 2011*, NSW Road Noise Policy*, Sydney

Department of the Environment and Heritage, 2006, *Climate Change Impacts and Risk Management; A Guide for Business and Government,* Australian Greenhouse Office, Canberra

Department of Planning, Industry and Environment, 2020, *Environmental Management Plan Guideline – Guideline for Infrastructure Projects*, Sydney

Department of Planning and Environment, 2014, *A Plan for Growing Sydney*, Sydney

DesignInc, 2020, *TAP 3 – St Peters Station Architecture Design Report*, Sydney

EPA, 2014, *Waste Classification Guidelines*, Sydney

EPA, 2017, *Noise Policy for Industry,* Sydney

Greater Sydney Commission, 2018a, *A Metropolis of Three Cities – Greater Sydney Region Plan*. NSW Government, Sydney

Greater Sydney Commission, 2018b, *Eastern City District Plan,* NSW Government, Sydney

Infrastructure NSW, 2018, *Building Momentum -State Infrastructure Strategy 2018-2038,* Sydney

Inner West Council, 2018, *Our Inner West*, Sydney

Landcom, 2004, *Managing Urban Stormwater: Soils and Construction, Volume - 4th Edition*, Sydney

Ministry of Transport, 2008, *Guidelines for the Development of Public Transport Interchange Facilities*, Sydney

NSW Government, 2015, *State Priorities – NSW: Making It Happen*, Sydney

NSW Government, 2016, *NSW Rail Footbridges Heritage Conservation Strategy*, NSW Government Architect's Office, 2016

NSW Heritage Office & Department of Urban Affairs and Planning, (1996, revised 2002) *NSW Heritage Manual*, Sydney

NSW Heritage Office, 1998, *How to Prepare Archival Records of Heritage Item*, Sydney

NSW Heritage Office, 2001, *Assessing Significance for Historical Archaeological Sites and 'Relics',* Department of Planning, Sydney

NSW Heritage Office, 2002, *Conservation Management Documents – Guidelines on Conservation Management Plans and Other Management Documents*, Sydney

NSW Heritage Office, 2005, *Interpreting Heritage Places and Items Guidelines*, Sydney

OEH, 2010, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW South Wales,* Sydney

OEH, 2011, *Guidelines for Consultants Reporting on Contaminated Sites*, Sydney

OEH, 2016*, NSW Guide to Surveying Threatened Plants*

RailCorp, 2010, *Engineering Standard: Stations and Buildings – Station Design Standard Requirements: ESB 003 – Station Functional Spaces*

RPS 2021a, *St Peters Station Upgrade – Landscape Character and Visual Impact Assessment*, Townsville

RPS 2021b, *St Peters Station Upgrade – Statement of Heritage Impact*, Sydney

RPS, 2021c, *St Peters Station Upgrade Flora and Fauna Assessment Report*, Newcastle

SLR, 2021a, *St Peters Station Upgrade – Traffic, Transport and Access Assessment*, Sydney

SLR, 2021b, *St Peters Station Upgrade – Noise and Vibration Impact Assessment*, Sydney

Sydney Trains, 2016, *Moveable Heritage Disposal Policy*, Sydney Trains, Sydney

Sydney Trains, 2015, *Movable Heritage Management Strategy 2015-2017*, Sydney Trains, Sydney

TfNSW (former RMS)*,* 2018, *Guideline for Landscape Character and Visual Impact Assessment Practice Note,* Sydney.

TfNSW, 2017a, *Disability Action Plan 2018-2022*, Sydney

TfNSW, 2018a, *Future Transport 2056*, TfNSW, Sydney

TfNSW, 2019a, *Construction Noise and Vibration Strategy*, Sydney

TfNSW, 2019b, *Unexpected Heritage Finds Guideline*, Sydney

TfNSW, 2019c, *Carbon Estimate and Reporting Tool Manual*, Sydney

TfNSW, 2019d, *Guide to Environmental Controls Map*, Sydney

TfNSW, 2019e, *Vegetation Management (Protection and Removal) Guideline*, Sydney

TfNSW, 2019f, *Fauna Management Guideline*, Sydney

TfNSW, 2019g, *Weed Management and Disposal Guide*, Sydney

TfNSW, 2019h, *Chemical Storage and Spill Response Guidelines*, Sydney

TfNSW, 2019i, *Water Discharge and Reuse Guideline*, Sydney

TfNSW, 2019j, *Air Quality Management Guideline*, Sydney

TfNSW, 2019k, *Concrete Washout Guideline - draft*, Sydney

TfNSW, 2019l, *Vegetation Offset Guide*, Sydney

Appendix A Consideration of matters of National Environmental Significance

The table below demonstrates Transport for NSW's consideration of the matters of NES under the EPBC Act to be considered in order to determine whether the Proposal should be referred to Commonwealth Department of the Environment.

Matters of NES	Impacts
Any impact on a World Heritage property? There are no World Heritage properties in the vicinity of the Proposal.	Nil
Any impact on a National Heritage place? There are no National Heritage places in the vicinity of the Proposal.	Nil
Any impact on a wetland of international importance? There are no wetlands of international importance in the vicinity of the Proposal.	Nil
Any impact on a listed threatened species or communities? Three threatened flora species were observed within the Proposal area: • Narrow-leaved Black Peppermint (*Eucalyptus nicholii*) – Vulnerable under BC Act and EPBC Act • Wallangarra White Gum (*Eucalyptus scoparia*) – Endangered under BC Act and Vulnerable under EPBC Act • Yellow Gum (*Eucalyptus leucoxylon subsp. Pruinose*) – Vulnerable under BC Act. These trees are planted outside of its natural range of occurrence (i.e. new England Tablelands and Riverina) and do not form part of a viable population.	Negligible
Any impacts on listed migratory species? Due to the lack of suitable habitat, it is unlikely that the Proposal would significantly affect any listed migratory species.	Negligible
Does the Proposal involve a nuclear action (including uranium mining)? The Proposal does not involve a nuclear action.	Nil
Any impact on a Commonwealth marine area? There are no Commonwealth marine areas in the vicinity of the Proposal	Nil
Does the Proposal involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources? The Proposal is for a transport facility and does not relate to coal seam gas or mining.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land? The Proposal would not be undertaken on or near any Commonwealth land.	Nil

Appendix B Consideration of clause 228

The table below demonstrates Transport for NSW's consideration of the specific factors of clause 228 of the EP&A Regulation in determining whether the Proposal would have a significant impact on the environment.

Factor	Impacts
(a) Any environmental impact on a community? There would be some temporary impacts to the community during construction, particularly in relation to noise, traffic, access and visual amenity. Mitigation measures outlined in Section 7.2 would be implemented to manage and minimise adverse impacts	Minor adverse
(b) Any transformation of a locality? The Proposal would include the introduction of new visible elements to the station precinct (including a new lifts and canopies) which would have a visual impact, including to the heritage setting, but which are consistent with a railway facility and would not lead to a major transformation of the locality. In addition, a range of design mitigation has been progressed to minimise impacts.	Minor adverse
(c) Any environmental impact on the ecosystem of the locality? The Proposal does not include the removal of any existing vegetation. Up to five trees may require protection as a result of work within the tree protection zone. The indirect impacts on these trees are not considered to have an impact on the overall ecological values of the areas as it would not result in the loss of a naturally occurring Plant Community Type. Offset plantings of 16 trees would be carried out as per the *TfNSW Vegetation Offset Guide* (TfNSW, 2019l).	Minor adverse
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? The Proposal would include the introduction of new visible elements to the station precinct (including two new lifts, lift canopies and platform canopies) which would have a visual impact but not a major impact on the landscape character of the locality	Moderate adverse

Factor	Impacts
(e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? The Proposal would be a positive contribution to the area as it provides equitable access to the station platform and improves amenity of the station for all customers. The station is listed in the Marrickville LEP and on the State Heritage Register and RailCorp's Section 170 Heritage and Conservation Register. The Proposal would result in some impacts to some parts of the station that are heritage listed. Impacts to heritage would be minimised through the implementation of the mitigation measures provided in the SoHI and REF. A desktop archaeological assessment has been undertaken which determined that there is a moderate - high risk of encountering archaeological items/deposits within the Proposal area. Further assessment of the potential archaeological impacts would be required if ground disturbing work is proposed for any areas not already assessed as part of the SoHI and REF.	Acceptable heritage impact
(f) Any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? The Proposal would not have any impact on habit of protected fauna.	Nil
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The Proposal is unlikely to have any impact on endangering any species of animal, plant or other form of like, whether living on land, in water or in the air. No threatened flora or fauna species or ecological communities were observed within the Proposal area.	Minor
(h) Any long-term effects on the environment? The Proposal is unlikely to have any long-term effects on the environment.	Negligible
(i) Any degradation of the quality of the environment? The Proposal is unlikely to have any degradation of the quality of the environment.	Nil
(j) Any risk to the safety of the environment? The Proposal is unlikely to cause any pollution or safety risks to the environment provided the recommended mitigation measures are implemented. Specific management measures would be implemented to manage asbestos and other hazardous materials that may be encountered during construction or demolition work.	Minor adverse
(k) Any reduction in the range of beneficial uses of the environment? The Proposal is unlikely to have any reduction in the range of beneficial uses of the environment.	Nil
(l) Any pollution of the environment? The Proposal is unlikely to cause any pollution of the environment provided the recommended mitigation measures are implemented.	Negligible

Factor	Impacts
(m) Any environmental problems associated with the disposal of waste? The Proposal is unlikely to cause any environmental problems associated with the disposal of waste. All waste would be managed and disposed of with a site-specific Waste Management Plan prepared as part of the Construction Environmental Management Plan. Mitigation measures would be implemented to ensure waste is reduced, reused or recycled where practicable.	Minor
(n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The Proposal is unlikely to increase demands on resources that are, or are likely to become, in short supply.	Nil
(o) Any cumulative environmental effect with other existing or likely future activities? Cumulative effects of the Proposal are described in Section 6.15, Where feasible, environmental management measures would be co-ordinated to reduce any cumulative construction impacts. The Proposal is unlikely to have any significant adverse long-term impacts.	Negligible
(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The Proposal would not affect or be affected by any coastal processes or hazards.	Nil