

Transport Access Program

Killara Station Upgrade

Determination Report



Artist's impression of the proposed Killara Station Upgrade, subject to detailed design

Contents

Glossary and abbreviations	4
Executive summary.....	5
1. Introduction	8
1.1. Background	8
1.2. Review of Environmental Factors	8
1.3. Determination Report	8
1.4. Description of the Proposed Activity in the REF	10
2. Consultation and assessment of submissions	14
2.1. REF public display	14
2.2. REF submissions	14
2.3. Consideration and response to submissions	15
2.4. Future consultation.....	25
3. Changes to the Proposed Activity	26
3.1. Assessment of design changes	26
4. Consideration of the environmental impacts	33
4.1. NSW Environmental Planning and Assessment Act 1979	33
4.2. NSW Heritage Act 1977	33
4.3. Commonwealth Environment Protection and Biodiversity Conservation Act 1999	33
5. Conditions of Approval.....	34
6. Conclusion.....	35
Determination	36
References	37
Appendix A Review of Environmental Factors	38
Appendix B Conditions of Approval.....	39
Appendix C Addendum Visual Impact Assessment	55
Appendix D Addendum Statement of Heritage Impact	56
Appendix E Addendum Noise and Vibration Impact Assessment	57
Appendix F Addendum Arboricultural Development Impact Assessment Report	58

Document control

Status:	Final
Date of issue:	October 2021
Revision:	Rev 1
Document author:	AECOM
Document reviewers:	Alice Thurgood, Catherine Brady, Natalie Moore, Shane Brady, Louise Bieler, Claire Bailey, Patricia Roubis, Michelle Quinn, Steven Barry, Ben Robilliard, Kandice Wright, Justin Perrott

© Transport for NSW

Figures

Figure 1-1 Planning approval process.....	9
Figure 1-2 Key features of the Proposed Activity as displayed in the REF (indicative only, subject to detailed design).....	12
Figure 1-3 Work areas and compound locations required for the Proposed Activity as displayed in the REF (indicative only, subject to detailed design).....	13
Figure 3-1 Photomontage showing the proposed changes to the existing view from Viewpoint 4.....	28
Figure 3-2 Revised key features of the Proposed Activity (indicative only, subject to detailed design).....	31
Figure 3-3 Revised work areas and compound locations of the Proposed Activity (indicative only, subject to detailed design).....	32

Tables

Table 2-1 Response to community submissions received	15
Table 2-2 Response to other stakeholder submissions received	19
Table 3-1 Assessment of design changes	27

Glossary and abbreviations

Term	Meaning
BAZ	Boarding Assistance Zone
CBD	Central Business District
CCTV	Closed-circuit television
CEMP	Construction Environmental Management Plan
CLP	Community Liaison Plan
Construction Contractor	The Construction Contractor for the Proposed Activity would be appointed by Transport for NSW to undertake the detailed design and construction of the Proposed Activity.
DDA	<i>Disability Discrimination Act 1992</i> (Cwlth)
Detailed design	Detailed design broadly refers to the process that the Construction Contractor undertakes (should the Proposed Activity proceed) to refine the concept design to a design suitable for construction (subject to Transport for NSW acceptance).
Determination Report	This document – a report prepared by Transport for NSW to assess and address certain matters to allow for a determination of the Proposed Activity under, and in accordance with Division 5.1 of the EP&A Act.
DSAPT	<i>Disability Standards for Accessible Public Transport (2002)</i>
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i> (NSW)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth)
Infrastructure SEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i> (NSW)
LEP	Local Environmental Plan
LGA	Local Government Area
NES	Matters of 'National Environmental Significance' under the EPBC Act
NSW	New South Wales
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.
Proposed Activity	The construction and operation of the Killara Station Upgrade
REF	Review of Environmental Factors
SSER	Station Services Equipment Room
SRZ	Structural Root Zone
Tactiles	Tactile Ground Surface Indicators
TPZ	Tree Protection Zone

Executive summary

Overview of Proposed Activity

The Transport Access Program is a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. The program aims to provide:

- stations that are accessible to those with disabilities, are less mobile and parents/carers with prams and customers with luggage
- modern buildings and facilities that meet the needs of a growing population
- modern interchanges that support an integrated network and allow seamless transfers for all customers
- safety improvements including extra lighting, lift alarm, fences and security measures at stations.

Killara Station has been identified for an accessibility upgrade as it does not currently meet key requirements of the *Disability Standards for Accessible Public Transport* (DSAPT) or the Commonwealth *Disability Discrimination Act 1992* (DDA). The proposed upgrade work would include:

- construction of three new lifts to provide access to the station platforms and existing footbridge, including associated lift landings, canopies, throw screens and support structures
- widening of the existing footbridge to accommodate the new lift landing areas
- provision of seating and canopies at existing boarding assistance zones on the platform
- provision of a new pedestrian crossing, a kiss and ride bay with two spaces (including one accessible space), two new accessible parking spaces and new bike hoops on Culworth Avenue
- upgrade of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area
- upgrade of existing footpath along Culworth Avenue to provide an accessible pathway to the station entrance from the kiss and ride bay and accessible parking spaces
- regrading a section of the existing pedestrian footpath along Werona Avenue and provision of a ramp to the existing bus stop
- relocation of existing bike hoops and provision of new bike hoops on Werona Avenue
- reconfiguration of the existing toilet facilities in the station building to provide a family accessible toilet and a unisex ambulant toilet
- ancillary work including platform regrading, minor station building modifications, station power supply upgrade, protection and relocation of services and utilities, new or reinstatement of Tactile Ground Surface Indicators (tactiles) where required, upgrades to stairs, handrails and fencing, new ticketing facilities including additional Opal card readers, improvement to station communication systems (including CCTV cameras) and wayfinding signage.

Transport for NSW, as the Proponent for the Proposed Activity, has undertaken a Review of Environmental Factors (REF) that details the scope of work and environmental impacts associated with the Proposed Activity. The REF was prepared by AECOM on behalf of Transport for NSW in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

Modifications to the Proposed Activity

Since the public display of the REF, the following design changes have been made to the Proposed Activity:

- reconfiguration of the Werona Avenue footpath, including:
 - removal of the existing footpath between the rail corridor and established garden bed
 - modification and extension of the existing kerb line to provide a new footpath between the garden bed and Werona Avenue
 - modification to road line markings
 - formalisation of the garden bed structure
 - minor relocation of the existing traffic lights within the garden bed
 - removal of one parking space on the eastern side of Werona Avenue as a result of the realigned kerb and road line markings
- additional electrical upgrades including:
 - installation of four new power poles and an additional transformer, and associated vegetation removal
 - an underground connection from the new transformer to the station platform
- modifications to the station building to provide a new Station Services Equipment Room (SSER) and reconfigure the staff room and facilities
- expansion of the Werona Avenue lift entrance area, including:
 - reconfiguration of the lift entrance to improve access
 - removal of additional vegetation adjacent to the proposed lift
- replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area
- modifications to the temporary construction compound locations, including:
 - relocation of the main construction compound from the council operated (time limited) side to the commuter side of the car park off Culworth Avenue
 - an additional area for laydown and storage located within the rail corridor to the west of the rail line on the corner of Werona Avenue and Powell Street.

Additionally, three items have been removed from the scope of the Proposed Activity, including:

- the proposed boarding assistance zone (BAZ) canopy at the southern end of the station as coverage from the existing platform canopy is in close proximity
- the proposed pedestrian crossing at Culworth Avenue
- the proposed ramp to the existing bus stop on Werona Avenue.

The impacts associated with the design changes have been considered in accordance with clause 228 of the EP&A Regulation (refer to Chapter 3).

Should further design modifications be required as a result of the detailed design process, these modifications would be assessed to determine consistency with the Conditions of Approval for the Proposed Activity, including significance of impact on the environment. Additional mitigation measures and/or consultation would be undertaken where necessary.

Purpose of this report

The purpose of this Determination Report is for Transport for NSW, as the Proponent of the Killara Station Upgrade, to comply with its obligations under Division 5.1 of the EP&A Act and determine whether or not to proceed with the carrying out of the Proposed Activity. Transport for NSW must make a determination in accordance with the provisions of Division 5.1 of the EP&A Act.

This report also presents a summary of the submissions provided during the public display of the REF, and Transport for NSW's response to the issues and comments raised in these submissions.

Conclusion

Based on the assessments in the REF, consideration of the submissions received and the design changes subsequent to the public display of the REF, it is recommended that the Proposed Activity be approved, subject to the mitigation measures included in the REF and the proposed Conditions of Approval (refer Appendix B). Transport for NSW will continue to liaise with the community and other stakeholders as the Proposed Activity progresses through detailed design and into the construction phase.

1. Introduction

1.1. Background

The Transport Access Program is a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. The program aims to provide:

- stations that are accessible to those with disabilities, are less mobile and parents/carers with prams and customers with luggage
- modern buildings and facilities that meet the needs of a growing population
- modern interchanges that support an integrated network and allow seamless transfers for all customers
- safety improvements including extra lighting, lift alarm, fences and security measures at stations.

Killara Station has been identified for an accessibility upgrade as it does not currently meet key requirements of the *Disability Standards for Accessible Public Transport 2002* (DSAPT) or the Commonwealth *Disability Discrimination Act 1992* (DDA).

The non-compliant station entrances and stairs to the platform do not facilitate access for people with reduced mobility, parents/carers with prams or customers with luggage. There are currently no lift facilities, or accessible interchange facilities including footpaths to and from the station and inadequate Tactile Ground Surface Indicators (tactiles) to stairs, platforms and interchange facilities.

Transport for NSW is the Proponent for the Killara Station Upgrade (referred to as the 'Proposed Activity' for the purposes of this document). Also refer to Section 1.4 for a description of the Proposed Activity.

1.2. Review of Environmental Factors

A Review of Environmental Factors (REF) has been prepared by AECOM on behalf of Transport for NSW in accordance with Sections 5.5 and 5.7 of the *Environmental Planning and Assessment 1979* (EP&A Act), and clause 228 of the *Environmental Planning and Assessment Regulation 2000* (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 Proposed Activity. The REF is included at Appendix A.

The Killara Station Upgrade REF was placed on public display from 30 June to 27 July 2021, with 15 submissions received, 14 from the community and one from Ku-ring-gai Council. Issues raised in these submissions are addressed in Section 2.3.

1.3. Determination Report

Prior to proceeding with the Proposed Activity, the Secretary for Transport for NSW must make a determination in accordance with Division 5.1 of the EP&A Act (refer Figure 1-1).

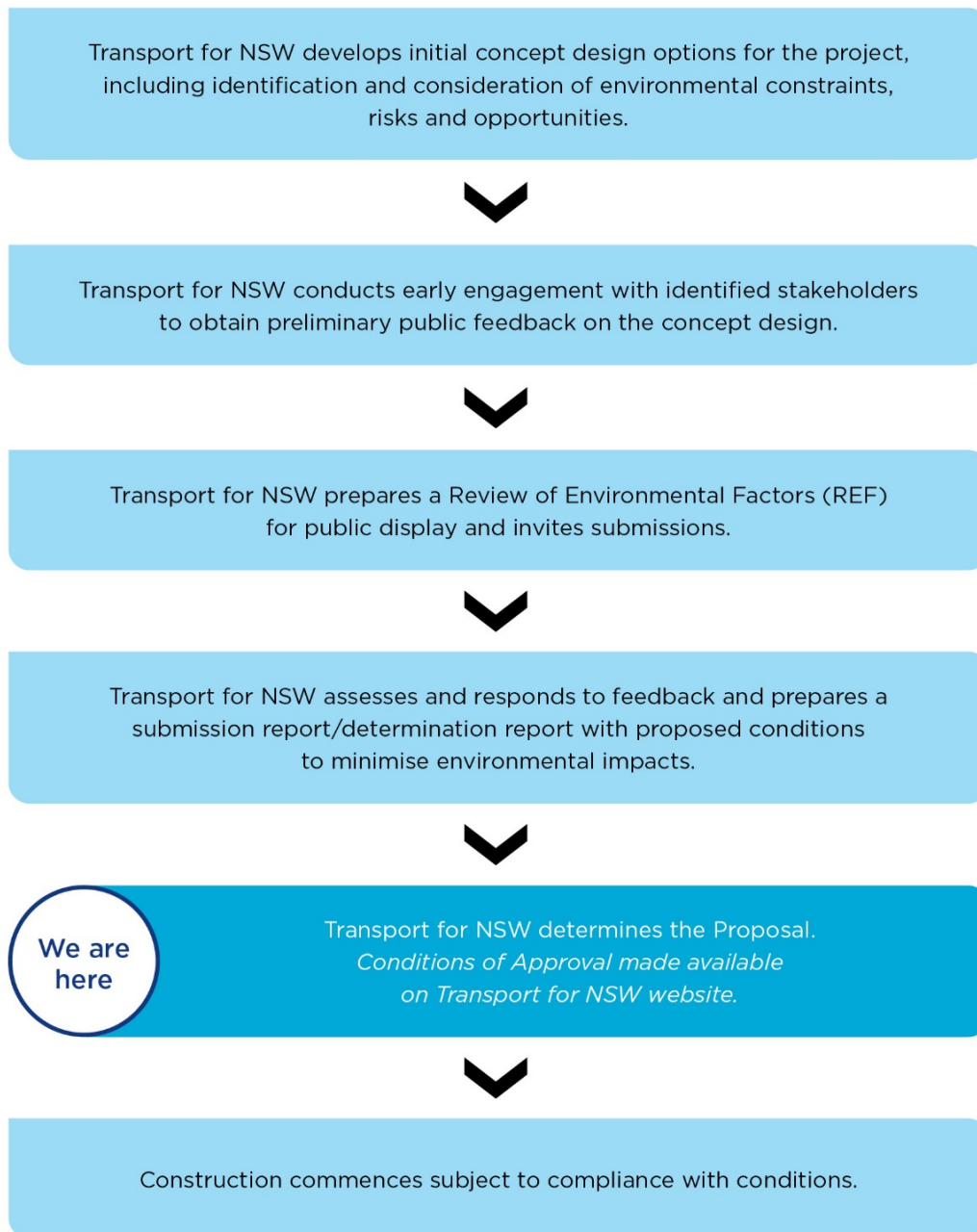


Figure 1-1 Planning approval process

The purpose of this Determination Report is to address the following to allow for a determination of the Proposed Activity:

- present a summary of the submissions received during the public display of the REF and Transport for NSW's response to the issues and comments raised in these submissions
- assess the environmental impacts with respect to the Proposed Activity, which are detailed in the environmental impact assessment (and any proposed modifications, as detailed and assessed in this Determination Report)
- identify mitigation measures to minimise potential environmental impacts
- determine whether potential environmental impacts are likely to be significant
- address whether the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) apply to the Proposed Activity.

This report has been prepared having regard to, among other things, the 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.*

1.4. Description of the Proposed Activity in the REF

The Proposed Activity would involve upgrade work to Killara Station, which is located in the suburb of Killara in the Ku-ring-gai Council local government area (LGA) approximately 16 kilometres north-west of the Sydney Central Business District (CBD). Killara Station consists of a single island platform and is serviced by the T1 North Shore and Western Line and T9 Northern Line. Killara Railway Station Group is listed on the Transport Asset Holding Entity Section 170 Heritage and Conservation Register (s170 register).

The Proposed Activity would provide safe and equitable access to the platforms and to the pedestrian network surrounding the station. Customer facilities and amenities would also be improved. The Proposed Activity would improve accessibility of the station in line with the requirements of the DDA and the DSAPT. The upgrades would provide an improved customer experience for existing and future users of the station.

A detailed description of the Proposed Activity is provided in Chapter 3 of the Killara Station Upgrade REF, and would provide:

- construction of three new lifts to provide access to the station platforms and existing footbridge, including associated lift landings, canopies, throw screens and support structures
- widening of the existing footbridge to accommodate the new lift landing areas

- provision of seating and canopies at existing boarding assistance zones on the platform
- provision of a new pedestrian crossing, a kiss and ride bay with two spaces (including one accessible space), two new accessible parking spaces and new bike hoops on Culworth Avenue
- upgrade of the existing shelter on Culworth Avenue to provide accessible seating and wheelchair waiting area
- upgrade of existing footpath along Culworth Avenue to provide an accessible pathway to the station entrance from the kiss and ride bay and accessible parking spaces
- regrading a section of the existing pedestrian footpath along Werona Avenue and provision of a ramp to the existing bus stop
- relocation of existing bike hoops and provision of new bike hoops on Werona Avenue
- reconfiguration of the existing toilet facilities in the station building to provide a family accessible toilet and a unisex ambulant toilet
- ancillary work including platform regrading, minor station building modifications, station power supply upgrade, protection and relocation of services and utilities, new or reinstatement of tactiles where required, upgrades to stairs, handrails and fencing, new ticketing facilities including additional Opal card readers, improvement to station communication systems (including CCTV cameras) and wayfinding signage.

A schematic outlining the key features of the Proposed Activity assessed in the REF is provided in Figure 1-2. Work areas and compound locations required for the Proposed Activity assessed in the REF are shown in Figure 1-3.

The need for, and benefits of the Proposed Activity are outlined in Chapter 2 of the REF.

Construction is expected to commence in late 2021 and take around 18 months to complete.

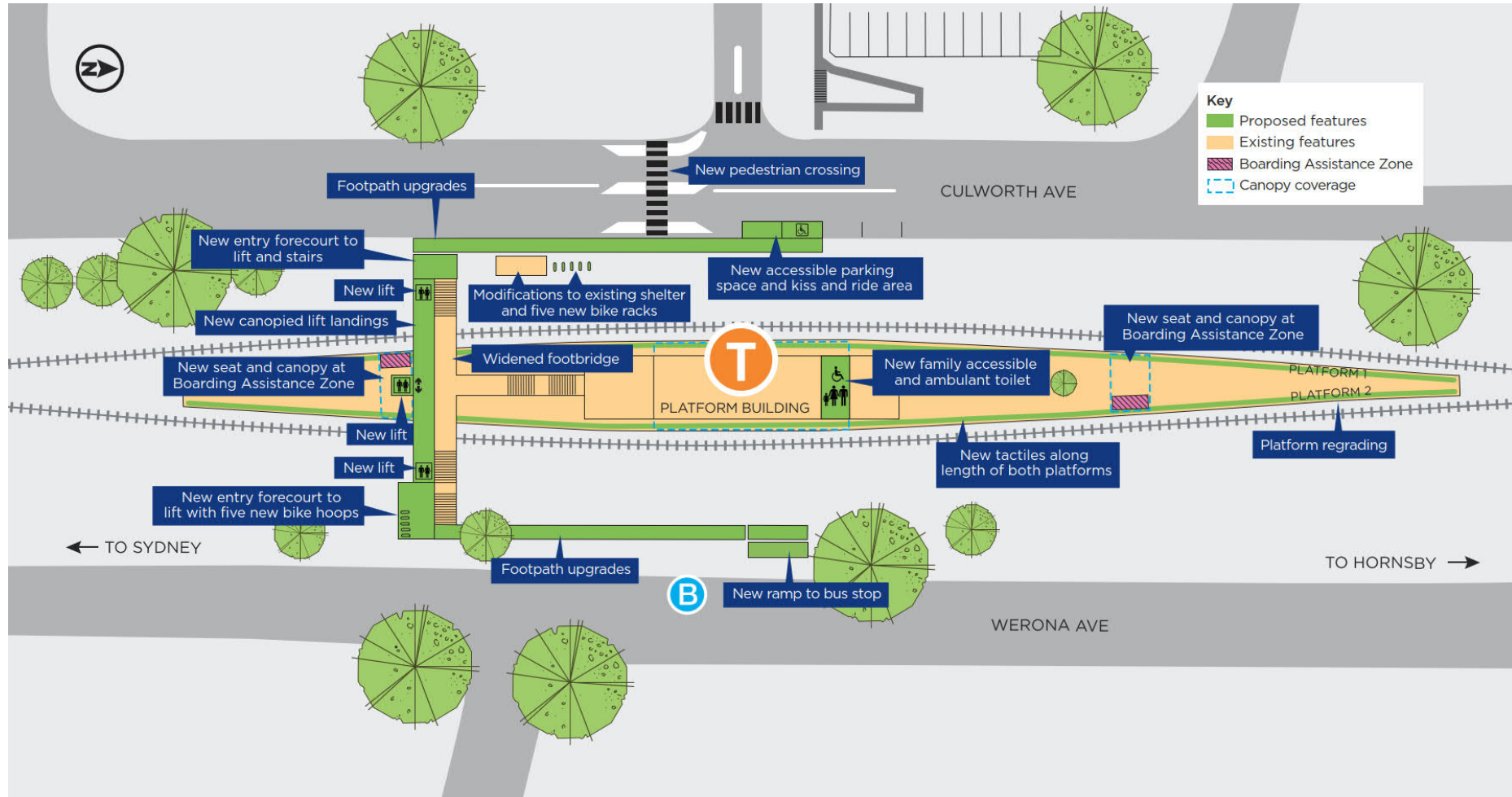


Figure 1-2 Key features of the Proposed Activity as displayed in the REF (indicative only, subject to detailed design)

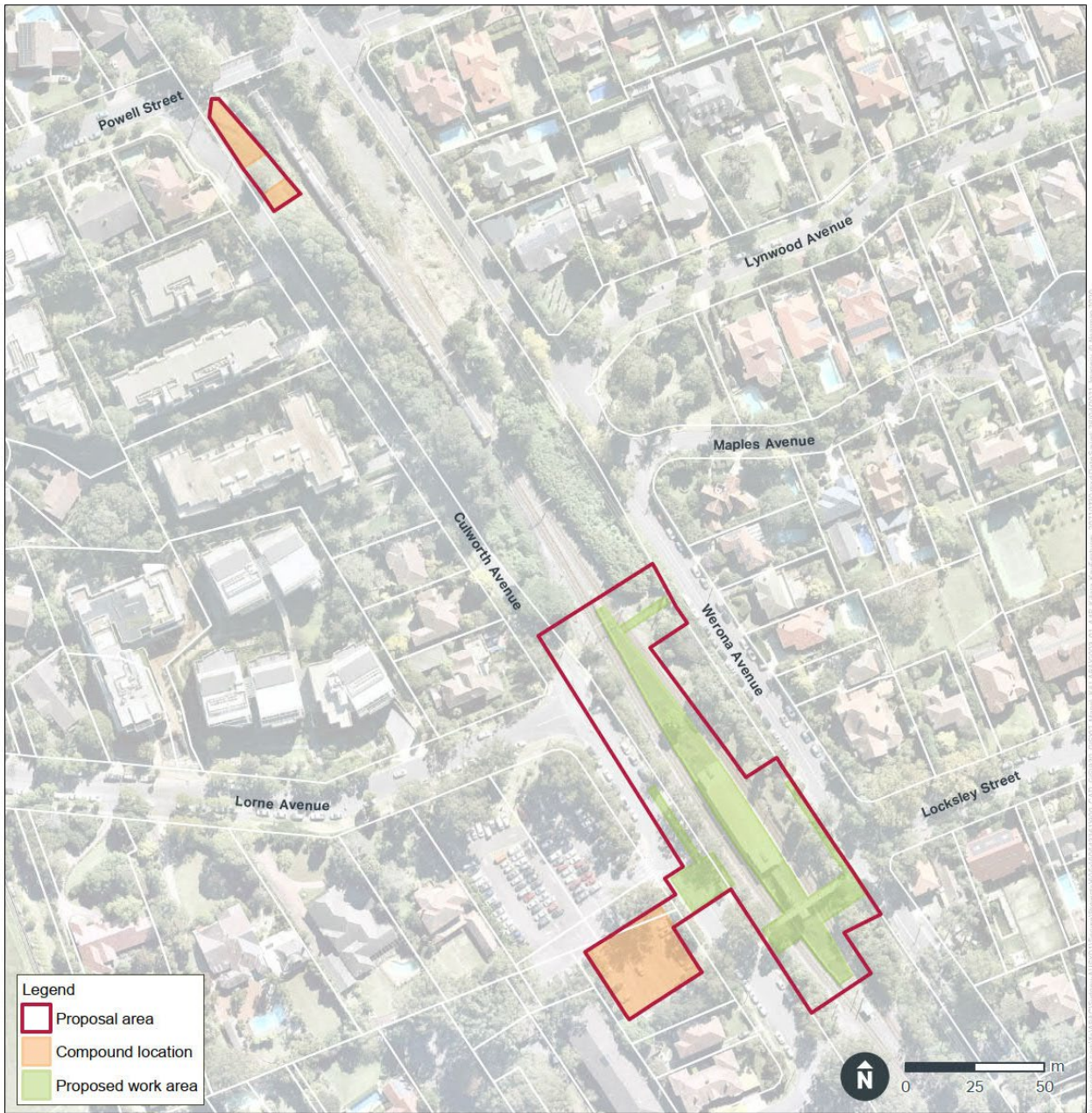


Figure 1-3 Work areas and compound locations required for the Proposed Activity as displayed in the REF (indicative only, subject to detailed design)

2. Consultation and assessment of submissions

2.1. REF public display

The Killara Station Upgrade REF was placed on public display from 30 June to 27 July 2021 on the [Transport for NSW corporate website](https://www.transport.nsw.gov.au/projects/current-projects/killara-station-upgrade)¹ and Transport for NSW's [Killara Station Upgrade Digital REF](https://tfnsw.ee.alytics.com/killara-station-upgrade/home)². It was also advertised on the [NSW Have our Say Website](https://www.nsw.gov.au/have-your-say)³. Under normal circumstances, printed copies of the REF would have been available at various locations, however, due to the COVID-19 restrictions, the REF was available online in digital format only with printed copies available on request. No printed copies of the REF were requested.

Community consultation activities undertaken for the public display included:

- around 4500 flyers letterbox dropped within the suburb of Killara on 30 June, and 100 flyers available for customers from station staff
- installation of project signage at Killara Station
- geo-targeted social media posts on Facebook
- placement of two advertisements in the North Shore Times on 1 and 15 July outlining the scope of the Proposed Activity, information on where to view the REF and specialist studies on the TfNSW website, along with details on how to make a submission
- display of a Digital REF, including an interactive map, information presented in the REF and an online feedback form for submissions
- creation of a dedicated project webpage on the TfNSW corporate website, including links to a digital portal with an online feedback form for submissions
- a letter outlining the scope of the Proposed Activity, information on where to view the REF and specialist studies on the TfNSW website, along with details on how to make a submission was sent to Ku-ring-gai Council as per the consultation requirements under clause 13 of the *State Environmental Planning Policy (Infrastructure) 2007* (NSW) (Infrastructure SEPP)
- briefings with Ku-ring-gai Council and Sydney Trains.

2.2. REF submissions

A total of 15 submissions were received via letter, email, telephone and online submissions including the posted comments on the project website and submissions on the Digital REF. Community submissions are addressed in Table 2-1, while the submission received from Ku-ring-gai Council is addressed in Table 2-2.

Submissions included feedback on a range of issues in relation to the Proposed Activity. The key issues raised in submissions were:

- support for improving accessibility at Killara Station
- requests that the design be more sympathetic to the heritage character of the station including the heritage gardens and surrounding heritage items

¹ <https://www.transport.nsw.gov.au/projects/current-projects/killara-station-upgrade>

² <https://tfnsw.ee.alytics.com/killara-station-upgrade/home>

³ <https://www.nsw.gov.au/have-your-say>

- requests to investigate pedestrian crossing locations to provide access to the station
- requests to retain trees and vegetation surrounding the station, particularly in relation to the Werona Avenue footpath upgrades.

2.3. Consideration and response to submissions

Community submissions

Issues raised in community submissions and responses are summarised in Table 2-1.

Table 2-1 Response to community submissions received

No.	Submission no.	Issue/s raised	Transport for NSW response
1	General		
1.1	Kill001, Kill003, Kill006, Kill010,	Support for the Proposed Activity and/or for improving accessibility of the station.	Support for the Proposed Activity is noted.
2	Design		
2.1	Kill004, Kill007, Kill008	Concern the design is unsympathetic to the existing heritage character and architecture of the station and surrounding heritage items (particularly on Werona Avenue).	<p>A key consideration of the Proposed Activity is to ensure that the design of the new elements minimises heritage impacts to the station and surrounding context, by respectfully adapting the existing heritage elements of the site whilst improving the station access on both sides.</p> <p>The design of the Proposed Activity includes a variety of measures to minimise impacts and ensure consistency in design to Killara Railway Station Group and the surrounding heritage precincts. This includes the retaining and upgrading, rather than replacing the footbridge; locating the Werona Avenue lift to the south of the existing footbridge stairs to minimise impacts to the heritage garden; reinstating original newel posts, handrails and balustrades, and using complimentary lift canopy and roof structures.</p> <p>Retaining the existing footbridge and adapting it for compliant access helps to minimise the overall scale of the new work within the existing context. Whilst the new canopy increases the height and scale of the existing structures, it is in proportion with the structure and the form and open character of the canopy to the north have been included to minimise the perceived bulk of the new elements.</p> <p>In addition, measures have been included to ensure complimentary landscaping efforts in line with the heritage character of the station. Further details on measures taken to reduce the impact to the heritage aspect of Killara Station are provided in the Statement of Heritage Impact (SoHI) (AECOM, 2021b), the Addendum SoHI (Appendix D), and in the Landscape, Character and Visual Impact</p>

No.	Submission no.	Issue/s raised	Transport for NSW response
			<p>Statement (LCVIA) (AECOM, 2021c) and the Addendum LCVIA (Appendix C).</p> <p>The photomontages presented in the REF are indicative only and subject to detailed design. Design of the station would be further refined and confirmed as part of the detailed design process. This would improve the look and feel of the station, with other examples on the T1 North Shore Line taken into consideration for context. While the design needs to consider the applicable DDA and DSAPT requirements, the process would recognise the context of the s.170 Killara Railway Station Group heritage item and surrounding local heritage items on Werona Avenue, and incorporate measures to ensure that the new infrastructure is sympathetic to these heritage items and the character of Killara Station.</p>
2.2	Kill011	Request to replace the proposed Culworth Avenue lift with a ramp to minimise environmental impacts and allow accessibility impaired customers to move easily across the railway line when the lifts are out of order.	<p>Design of the Proposed Activity considered provision of a ramp at Culworth Avenue rather than a lift, however this would have resulted in a large amount of vegetation removal west of the footbridge to achieve the appropriate grade required to meet the DDA and DSAPT. Removal of the bus shelter on Culworth Avenue would have also been required.</p> <p>The lift was identified as the preferred option to minimise potential environmental impacts, particularly vegetation removal.</p> <p>Sydney Trains would be responsible for the operation of the lifts, and each station typically manages lift issues based on station risk profiles, with different arrangements in place for lift maintenance, lift breakdown and emergency situations (e.g. providing advanced notification of lift maintenance, or arrangements for alternative access). Information on station lifts can also be accessed on Transport for NSW's Transport Status website https://www.transport.nsw.gov.au/projects/community-engagement/sydney-trains-community/maintenance-and-construction-work, to help customers plan their journey.</p> <p>Processes for lift breakdowns at Killara Station would be developed by Sydney Trains prior to operation of the Proposed Activity.</p> <p>In general, Sydney Trains typically respond to lift breakdowns immediately and a technician would be present on-site within 30 minutes for an emergency situation and within 60 minutes for a non-emergency breakdown.</p>
2.3	Kill011	Request to provide weather protection canopies on the footbridge and stairs.	<p>New canopies would be provided at the new lift landings at the southern end of the station and the northern side boarding assistance zone on the platform. These new canopies would provide weather protection at waiting areas.</p> <p>The focus of the Proposed Activity is to provide equitable access to Killara Station in accordance</p>

No.	Submission no.	Issue/s raised	Transport for NSW response
			with the key requirements of the DDA and DSAPT. Additional canopy coverage and platform shelters are outside of the scope of this accessibility upgrade.
3	Traffic, transport and access		
3.1	Kill004	Request to provide a shelter at the bus stop on Werona Street.	The focus of the Proposed Activity is to provide accessibility upgrades at Killara Station in accordance with the key requirements of the DDA and DSAPT. The Proposed Activity does not include upgrades to the bus stop on Werona Avenue and provision of a shelter at this location is out of scope. This request will be forwarded to Ku-ring-gai Council for their consideration. The Proposed Activity does include upgrading the footpath between the bus stop and station in accordance with the key requirements of the DDA and DSAPT.
3.2	Kill013	Request to provide a bus route(s) servicing Killara Station to improve accessibility to other areas in Sydney and reduce travel times.	The Proposed Activity involves a station upgrade to provide equitable access to Killara Station in accordance with key requirements of the DDA and DSAPT, and the provision of additional bus services is not proposed. However, bus timetables are regularly reviewed by Transport for NSW and this feedback has been passed on to the relevant team within Transport for NSW for consideration.
3.3	Kill006	Request to provide a pedestrian crossing across Arnold Street and Werona Avenue.	<p>The focus of the Proposed Activity is to provide accessibility upgrades at Killara Station in accordance with the key requirements of the DDA and DSAPT. Provision of a pedestrian crossing across Arnold Street and Werona Avenue is out of scope of the Proposed Activity.</p> <p>As part of the detailed design for the Proposed Activity, Transport for NSW is investigating opportunities for pedestrian crossings on Werona Avenue near the station entrance in consultation with Ku-ring-gai Council (refer to Condition of Approval (CoA) 37 in Appendix B).</p>
3.4.	Kill012	Request the proposed Culworth Avenue pedestrian crossing is moved east to be directly adjacent to the station entrance.	<p>The Proposed Activity is focused on accessibility upgrades at the station. Since display of the REF, Transport for NSW has identified through further design development that the proposed pedestrian crossing on Culworth Avenue is no longer required to provide equitable access to the station in accordance with the key requirements of the DDA and DSAPT. As such, this crossing has been removed from the scope of the Proposed Activity.</p> <p>The Proposed Activity would provide accessible parking spaces and kiss-and-ride bays on the northern side of Culworth Avenue adjacent to the station. The footpath on the northern side of Culworth Avenue would also be upgraded in accordance with the key requirements of the DDA and DSAPT.</p>
3.5	Kill012	Request to maintain council (paid) car park as is	Since display of the REF, Transport for NSW has investigated alternative locations for the construction compound for the Proposed Activity.

No.	Submission no.	Issue/s raised	Transport for NSW response
		to provide parking for station users other than commuters.	<p>The construction compound would be relocated to the opposite side of the car park within the commuter car park area. During construction, the council (paid) car park would therefore be available to the community.</p> <p>While there may be a higher demand for parking in the council (paid) car park during construction due to the loss of parking within the commuter car park, during operation this would be alleviated as the commuter car park is returned to its current state and would continue to operate as a user pay facility.</p> <p>Design changes, including the relocated construction compound location, are assessed in Section 3.1.</p>
4. Amenities, safety and security			
4.1	Kill001	Request for lighting to be provided at the commuter car park at night.	The focus of the Proposed Activity is to provide accessibility upgrades at Killara Station in accordance with the key requirements of the DDA and DSAPT. The Proposed Activity does not include upgrades to the commuter car park, including lighting. Upgrades to lighting at the commuter carpark is outside of the scope of the Proposed Activity. The Proposed Activity includes upgrades to lighting at the station, including at both station entrances.
4.2	Kill003, Kill014	Request for commercial and retail facilities such as a café and newsagent to be provided for Killara village and station.	The focus of the Proposed Activity is for accessibility upgrades at Killara Station. Provision of retail and commercial facilities is outside of the scope of the Proposed Activity. This request will be forwarded to Ku-ring-gai Council and Sydney Trains for consideration.
4.3	Kill009	Request to provide a bike cage with secured locks at the station.	The Proposed Activity would include additional bicycle hoops around Killara Station. Bike hoops would be relocated to safer locations and would be covered by CCTV and lighting to provide additional security and passive surveillance.
5. Biodiversity			
5.1	Kill005	Request to retain and protect the ironbark tree at the station entrance on Culworth Avenue.	Transport for NSW acknowledge the significance of this tree to the Killara community. The Proposed Activity has been designed to retain this tree and it would be protected during construction through the establishment Tree Protection Zones (TPZs). Tree protection would be undertaken in line with <i>AS 4970-2009 Protection of Trees on Development Sites</i> and would include exclusion fencing of TPZs.
6. Sustainability			
6.1	Kill004	Request to provide solar panels on the new footbridge canopy for energy use.	Mitigation measure 89 of REF states that detailed design and construction of the Proposed Activity is to be undertaken in accordance with the ISC Infrastructure Sustainability Rating Scheme (v1.2). This would include investigation and consideration of using renewable energy resources onsite as

No.	Submission no.	Issue/s raised	Transport for NSW response
			outlined by the 'Ene-2 Use of Renewable Energy' rating scheme component.
7	Digital REF functionality		
7.1	Kill001	Note the hyperlink "AECOM Environmental Engagement" was broken.	<p>The Killara Digital REF was a pilot Digital REF and Transport for NSW acknowledge a delay between the publishing of the REF document and the Digital REF platform on day one of public exhibition.</p> <p>We will continue to improve our processes to ensure all documents and websites are available at the same time for future digital REFs.</p>
7.2	Kill002	Note no acknowledgement of submission confirmation on the Digital REF.	<p>The Killara Digital REF was a pilot Digital REF and Transport for NSW values feedback and suggestions for improvement. On the basis of this feedback, we have made an update so submitters receive a temporary message pop-up to acknowledge when a submission has been received successfully.</p> <p>We are continuing to seek ways to improve the online digital REF experience for the community and will consider how to expand this feature for future digital REFs.</p>

Other stakeholder submissions

Issues raised by Ku-ring-gai Council in their submissions, along with Transport for NSW's response are summarised in Table 2-1.

Table 2-2 Response to other stakeholder submissions received

Issue no.	Stakeholder	Issue/s raised	Transport for NSW response
1	General		
1.1	Ku-ring-gai Council	Concern with the use of the Council (paid) car park for the construction compound and recommended consideration of alternatives such as the Marian Street Theatre car park or the commuter car park.	<p>Since display of the REF, Transport for NSW has investigated alternative locations for the construction compound for the Proposed Activity in consultation with Council. The construction compound would be relocated to the opposite side of the car park within the commuter car park area. In consultation with Council, Transport for NSW would investigate opportunities to minimise impacts to parking loss within the commuter car park. In addition, the opportunity to provide commuter offset parking would be considered during detailed design including use of the Marian Street Theatre car park (refer to CoA 41 and 42 in Appendix B).</p> <p>Design changes, including the relocated construction compound location, are assessed in Section 3.1.</p>
2	Design		
2.1	Ku-ring-gai Council	Request for additional details for the options development and	The options considered for the Proposed Activity are outlined in Section 2.5 of the REF. This includes discussion on the different features of

Issue no.	Stakeholder	Issue/s raised	Transport for NSW response
		assessment for the Proposed Activity.	<p>each option and why particular options were discounted.</p> <p>Council have been briefed on the Proposed Activity at various stages throughout optioneering and design development. This consultation would remain ongoing throughout the detailed design of the Proposed Activity.</p>
2.2	Ku-ring-gai Council	Request for clarification of the relationship between the original footbridge hut and the existing footbridge kiosk to be demolished.	<p>The out-of-shed (at platform level) was removed in 1934 and made way for a relocated bookstall at footbridge level. There are no further details on the original configuration of the footbridge bookstall. 1994 stair refurbishment drawings show the floor structure of the bookstall/convenience were replaced with a concrete deck at this time.</p> <p>The construction detailing indicates that the structure would have had to have been removed and reassembled at a minimum on the new slab.</p>
2.3	Ku-ring-gai Council	Concern the design would alter the heritage character of Killara Station, particularly from the height and visual dominance of the new canopy on the Culworth Avenue side of the station.	<p>A key consideration of the Proposed Activity is to ensure that the design of the new elements minimises impacts to the heritage features of the station and surrounds, by respecting the heritage elements of the existing structures whilst improving the station access on both sides.</p> <p>The photomontages presented in the REF are indicative only and subject to detailed design. Design of the station would be further refined and confirmed as part of the detailed design process. This would improve the look and feel of the station, with other examples on the T1 North Shore Line taken into consideration for context.</p> <p>While the design needs to consider the applicable DDA and DSAPT requirements, the process would recognise the context of the s.170 Killara Railway Station Group heritage item and surrounding local heritage items, and incorporate measures to ensure that the new infrastructure is sympathetic to these heritage items and the character of Killara Station.</p> <p>These measures would include retention of the original fabric of the footbridge, re-use of the original footbridge balustrade where appropriate, new brickwork to match original where appropriate and other measures to ensure that the provision of the new infrastructure is sympathetic to these heritage items and the surrounding environment.</p> <p>Whilst the new canopy increases the overall height and scale of the existing footbridge, it is in proportion to the footbridge structure, whilst providing the necessary amenity of the TAP upgrade. The simple form and open character of the canopy to the north have been included to minimise the bulk and scale of the canopy. Further refinements to detailing will also</p>

Issue no.	Stakeholder	Issue/s raised	Transport for NSW response
			<p>assist in this matter. Unfortunate earlier modifications to the platform building in flattening out the roof have reduced the overall scale and presence of the station building which also affects the perceived scale of the proposed work in comparison to other similar stations. In addition, the considerable road width on Culworth Avenue and the sloping topography to Werona Avenue means that the canopy structure would not form a background to any significant view where the scale may be perceived as dominant.</p>
2.4	Ku-ring-gai Council	Concern the new footbridge would change the original footbridge composition resulting in adverse impacts on integrity of station complex, particularly from the loss of historic handrails and introduction of new anti-throw screens.	<p>Mitigation measure 48 of the REF requires investigation of the re-use of the original balustrade on the footbridge and that where new supplementary balustrades and handrails are required, these would be designed to be compatible with the retained elements in terms of form, placement and materiality.</p> <p>The Proposed Activity also needs to consider relevant safety requirements including anti-throw screens. The design of the new station features would be further refined and confirmed as part of the detailed design process in consultation with the Transport for NSW Heritage team, to ensure the new infrastructure is sympathetic to the existing heritage context of the station.</p>
2.5	Ku-ring-gai Council	Council considers all prescribed trees (greater than 5m height and trunk diameter greater than 15cm forming part of a heritage item or within a heritage conservation area) "significant".	<p>Transport for NSW notes Council considerations.</p> <p>The design of the Proposed Activity has sought to minimise impacts to vegetation where possible, particularly within the heritage curtilage of Killara Station. Trees required to be removed for the Proposed Activity would be offset as per the requirements of <i>Transport for NSW Vegetation Offset Guide</i> (2019).</p>
2.6	Ku-ring-gai Council	Request for further details regarding the regrading of the Culworth Avenue station entrance and the interface between the station entrance, kiss and ride bay and accessible parking spaces. Suggest investigating relocating the accessible parking to be closer to lifts.	<p>Consultation with Ku-ring-gai Council would be ongoing during design development, including confirmation of specific design details for regrading Culworth Avenue and new interchange infrastructure.</p> <p>The Culworth Avenue station entrance would be upgraded to provide an accessible pathway to the station from the proposed accessible car spaces and kiss-and-ride bays. Initial investigations identified that the gradient of the road is not suitable to provide accessible car spaces where the current location of the kiss-and-ride bays are proposed.</p> <p>Details regarding specific grades to achieve DDA and DSAPT compliant grades, kerb ramp locations and the opportunity to further investigate the proposed locations of kiss-and-</p>

Issue no.	Stakeholder	Issue/s raised	Transport for NSW response
			ride spaces and accessible car space would be confirmed during detailed design.
2.7	Ku-ring-gai Council	Request for further information regarding the proposed lighting on the footbridge. Council generally supports investigation of re-instating the original lighting as a positive heritage outcome.	Transport for NSW acknowledge Council's support for re-instating the original lighting at the station. Lighting details would be confirmed during detailed design following the investigation of re-instating the original heritage lighting on the footbridge. Detailed design would recognise the context of the s.170 Killara Railway Station Group heritage item and the surrounding area, and incorporate measures to ensure that the provision of the new infrastructure is sympathetic to these heritage items and the surrounding environment.
2.8	Ku-ring-gai Council	Request for more information regarding new/upgraded fencing.	The Proposed Activity would be subject to further detailed design, including the proposed design for new fencing. The majority of fencing would not be impacted, with new or upgraded fencing to be located in discreet locations near new infrastructure, in line with Sydney Trains safety and security requirements. Design details for fencing would be confirmed in consultation with the relevant stakeholder (i.e. Sydney Trains within the rail corridor or Council on council managed land).
3	Traffic, transport and access		
3.1	Ku-ring-gai Council	Request to investigate provision of a pedestrian crossing across Locksley Street at Werona Avenue while retaining the large tree on the corner of these streets.	The focus of the Proposed Activity is for accessibility upgrades at the station to comply with the DDA and DSAPT requirements. The provision of a pedestrian crossing across Locksley Street is out of scope of the Proposed Activity. However, Transport for NSW is investigating opportunities for pedestrian crossings on Werona Avenue near the station entrance in consultation with Ku-ring-gai Council separately to the Proposed Activity (refer to CoA 37 in Appendix B). The large tree on the corner of Locksley Street at Werona Avenue would not be affected by the Proposed Activity.
3.2	Ku-ring-gai Council	Request for more information on the pedestrian footpath and ramp on Werona Avenue.	Since display of the REF, ongoing design development has resulted in a change to the proposed Werona Avenue interchange upgrades (as described and assessed in Section 3.1). Under this change, the Werona Avenue footpath would be modified and extended from the existing kerb line to provide a new footpath between the garden bed and Werona Avenue to provide an accessible path to the bus stop. As such, provision of a ramp is no longer required has been removed from this scope.

Issue no.	Stakeholder	Issue/s raised	Transport for NSW response
			The new design would alleviate impacts on the tree roots and garden beds within the rail corridor.
4 Landscape and visual amenity			
4.1	Ku-ring-gai Council	Request to justify the visual impact rating of Viewpoint 3 from 18 Culworth Avenue as 'Neutral', given that sensitivity and magnitude are both 'moderate'.	<p>The methodology for the visual impact assessment is outlined in Section 2.3 of the LCVIA (AECOM, 2021c). This describes how qualitative assessment ratings are determined considering sensitivity and magnitude of the Proposed Activity in this location. The description of the impact being of 'Neutral' effect indicates that the impact is not predicted to be of 'Adverse' effect.</p> <p>The overall visual rating for Viewpoint 3 is Moderate (Neutral); being a 'Moderate' impact, while the quality of the change would be 'Neutral'.</p>
4.2	Ku-ring-gai Council	Concern that the photomontages do not accurately reflect the extent of vegetation clearance and that visual impacts from vegetation clearance would be greater than shown in photomontages.	<p>The photomontages presented in the REF are indicative only and subject to detailed design. The Proposed Activity has been designed to avoid removal of vegetation as far as practical. The extent of proposed vegetation removal would be confirmed during detailed design and trees required to be removed for the Proposed Activity would be offset as per the requirements of <i>Transport for NSW Vegetation Offset Guide</i> (2019).</p>
5 Biodiversity			
5.1	Ku-ring-gai Council	Request to retain as much vegetation as possible, including the garden beds on Werona Avenue.	<p>The design of the Proposed Activity has sought to minimise impacts to vegetation where possible. Since display of the REF, ongoing design development has resulted in a change to the proposed Werona Avenue interchange upgrades (as described and assessed in Section 3.1).</p> <p>Under this change, the Werona Avenue footpath would be modified and extended from the existing kerb line to provide a new footpath between the garden bed and Werona Avenue to provide an accessible path to the existing bus stop. As such, no vegetation removal is proposed from within the garden bed with the exception of Tree 12 which has a poor form and shape, with significant deadwood and dieback due to significant line clearance pruning.</p> <p>The extent of vegetation removal would be confirmed during detailed design and trees required to be removed for the Proposed Activity would be offset as per the requirements of <i>Transport for NSW Vegetation Offset Guide</i> (2019). Where vegetation removal and offsetting are proposed on council land, these activities would be undertaken in consultation with Council.</p>

Issue no.	Stakeholder	Issue/s raised	Transport for NSW response
5.2	Ku-ring-gai Council	Council has no objection to removing Tree 1.	Noted.
5.3	Ku-ring-gai Council	Suggest retention of Tree 2, 3, 4 and 15 if possible, but not in lieu of changing design.	<p>The removal of Tree 2, 3, and 4 is required to facilitate installation of the new lift on Werona Avenue. Removal of Tree 15 is required to facilitate installation of the new lift on Culworth Avenue. Opportunities to retain vegetation including trees would continue during detailed design.</p> <p>Trees required to be removed for the Proposed Activity would be offset as per the requirements of <i>Transport for NSW Vegetation Offset Guide</i> (2019).</p>
5.4	Ku-ring-gai Council	Encourage the use of asphalt/bitumen and recycled brick/stone/paving in lieu of concrete for the Werona Avenue footpath upgrade to minimise potential tree root impacts. Request clarification regarding potential grade changes within these TPZ and structural root zone (SRZ).	<p>Since display of the REF, ongoing design development has resulted in a change to the proposed upgrade of the Werona Avenue footpath (as described and assessed in Section 3.1).</p> <p>Under this change, the existing asphalt on the Werona Avenue footpath would be removed and reinstated with mulch to form part of the existing garden bed outside the rail corridor. This would alleviate potential impacts to adjacent tree roots. Tree 12 (<i>Cedrus deodara</i>) would need to be removed under this change, however Tree 12 has a poor form and habit with significant deadwood and dieback due to significant line clearance pruning.</p>
5.5	Ku-ring-gai Council	Council has no objection to removing Tree 14 and notes the species is more likely Grey Ironbark rather than Mugga Ironbark.	Noted.
5.6	Ku-ring-gai Council	Request clarification regarding protection of Tree 16 during works and materials to be used. Council also note Tree 16 is likely to be more like Grey Ironbark rather than Mugga Ironbark.	<p>Tree 16 would be protected using TPZs during construction. Tree protection would be undertaken in line with AS 4970-2009 Protection of Trees on Development Sites and would include exclusion fencing of TPZs.</p> <p>Opportunities to use materials such as asphalt, bitumen and recycled bricks in lieu of concrete for regrading work would be investigated during detailed design. The extent of regrading work within the TPZ and SRZ of Tree 16 would be confirmed during detailed design.</p>
5.7	Ku-ring-gai Council	Note the assessment of Tree 16 being subject to potential decay and is making further	Investigations being undertaken by Council are noted.

Issue no.	Stakeholder	Issue/s raised	Transport for NSW response
		assessments of this tree.	
5.8	Ku-ring-gai Council	Request to provide replacement trees in accordance with the Transport for NSW vegetation offset calculation at locations which screen/soften the new structure from residential areas.	Trees required to be removed for the Proposed Activity would be offset as per the requirements of <i>Transport for NSW Vegetation Offset Guide</i> (2019). This would include confirmation of specific locations for replacement trees. Opportunities to locate replacement trees so they can provide visual screening would also be investigated during detailed design.
6 Hazards			
6.1	Ku-ring-gai Council	Concern the REF did not consider the asbestos 'area of concern' warning signs in the Council (paid) car park on Culworth Avenue.	Observations by Council are noted. Proposed work would not extend into the asbestos areas of concern located in the Council (paid) car park. Mitigation Measure 84 of the REF requires procedures for handling asbestos to be outlined in an Unexpected Finds Protocol. In addition, CoA 23 in Appendix B refers to Asbestos Management and would apply to the Proposed Activity.

2.4. Future consultation

Should Transport for NSW proceed with the Proposed Activity, consultation activities would continue, including consultation with Ku-ring-gai Council regarding design development. In addition, Transport for NSW would notify residents, businesses and community members in the lead up to and during construction. The consultation activities would help to ensure that:

- local council and other stakeholders have an opportunity to provide feedback on the detailed design
- the community and stakeholders are notified in advance of any upcoming work, including changes to pedestrian or traffic access arrangements and out of hours construction activities
- accurate and accessible information is made available
- a timely response is given to issues and concerns raised by the community
- feedback from the community is encouraged.

The [Transport for NSW email address](mailto:projects@transport.nsw.gov.au)⁴ and Transport for NSW Infoline (1800 684 490) would continue to be available during the construction phase. Targeted consultation methods, such as use of letters, notifications, signage and verbal communications, would continue to occur. The [Transport for NSW project website](https://www.transport.nsw.gov.au/projects/current-projects/killara-station-upgrade)⁵ would also include updates on the progress of construction.

⁴ projects@transport.nsw.gov.au

⁵ <https://www.transport.nsw.gov.au/projects/current-projects/killara-station-upgrade>

3. Changes to the Proposed Activity

Further design development has resulted in changes to the design of the Proposed Activity since the Killara Station Upgrade REF was prepared and placed on public display. The revised key features of the Proposed Activity are shown in Figure 3-2. The revised work areas and compound location required for the Proposed Activity are shown in Figure 3-3.

3.1. Assessment of design changes

Further design development, along with consultation with the community and stakeholders, has resulted in a number of changes since the Killara Station Upgrade REF was prepared. These changes are outlined in Table 3-1, along with a discussion of the impacts.

An Addendum Visual Impact Assessment (Appendix C), an Addendum Statement of Heritage Impact (Appendix D), an Addendum Noise and Vibration Impact Assessment (Appendix E), and an Addendum Arboricultural Development Impact Assessment Report (Appendix F), have been prepared to assess the proposed changes.

Unless explicitly stated otherwise in the table below, it is considered that impacts related to other aspects are considered to be consistent with the findings of the REF including with respect to clause 228 of the EP&A Regulation and impacts to matters of NES.

Where additional mitigation measures are required, these have been included as Conditions of Approval in Appendix B.

Table 3-1 Assessment of design changes

Design change	Discussion of impacts
<p>Reconfiguration of the Werona Avenue footpath, including:</p> <ul style="list-style-type: none"> removal of the existing footpath between the rail corridor and established garden bed modification and extension of the existing kerb line to provide a new footpath between the garden bed and Werona Avenue modification to road line markings formalisation of the garden bed structure minor relocation of the existing traffic lights within the garden bed removal of one parking space on the eastern side of Werona Avenue as a result of the realigned kerb and road line markings. 	<p>Potential impacts of the reconfiguration of the Werona Avenue footpath would generally be consistent with those assessed in the REF.</p> <p>Reconfiguration of the footpath would require the removal of one parking space on the eastern side of Werona Avenue as a result of the realigned kerb and line markings. The loss of an additional parking space as part of the Proposed Activity, in addition to the four assessed in the REF is not considered to be a substantial change. New line marking would direct traffic through the Werona Avenue intersection safely.</p> <p>Removal of the existing asphalt footpath and reinstatement with mulch would alleviate existing impacts to tree roots in the rail corridor and garden bed. However, Tree number 12 (<i>Cedrus deodara</i>) would need to be removed. Tree 12 has a poor form and shape with significant deadwood and dieback due to significant line clearance pruning. Tree 12 is unlikely to provide fauna habitat, constitute a significant element of the natural landscape and therefore its removal is not expected to be a significant impact. Tree 12 would be offset as per the requirements of <i>Transport for NSW Vegetation Offset Guide</i> (2019).</p> <p>The overall visual impact ratings from views towards the reconfigured footpath would be consistent with the findings of the REF. Descriptions for landscape character zone 4 and viewpoint 4 and 5, as well as the photomontage showing the proposed changes to the existing view from Viewpoint 4 have been updated to include the proposed change. The updated photomontage is shown in Figure 3-1.</p> <p>Three additional mitigation measures have been recommended to minimise visual impacts related to vegetation and planting along Werona Avenue (refer to CoA 38 in Appendix B). The first measure recommends that landscaping efforts between the existing garden bed and the station garden to be of complimentary nature to the existing heritage garden within the station. The second measure recommends that planting of shrubs and groundcovers within the garden bed between the fenced station and the proposed footpath on Werona Avenue be graded from short to taller shrubs towards the fence to reduce prominence of the station fencing. The third measure recommends that replacement of Tree number 12 should consider appropriate species selection with regard to the heritage character of the station and the surrounding landscape.</p>

Design change

Discussion of impacts

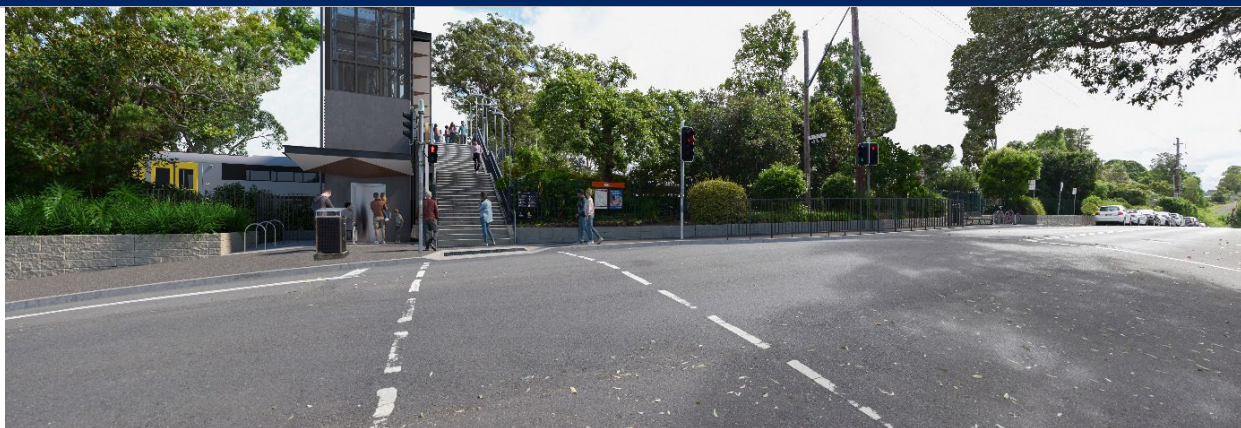


Figure 3-1 Photomontage showing the proposed changes to the existing view from Viewpoint 4

Refer to Appendix C and F for detailed consideration of the visual and arboricultural impacts of this design change.

Additional electrical upgrades including:

- installation of four new power poles and an additional transformer, and associated vegetation removal
- an underground connection from the new transformer to the station platform.

The proposed electrical upgrades would result in potential additional heritage and biodiversity impacts to those assessed in the REF.

The installation of new electrical infrastructure at the northern end of the station, away from the formal station heritage gardens would not have a direct impact to heritage fabric, or indirect impacts to the visual setting of the station. The new power poles and additional transformer would be visible from the station platform, however they would not visually dominate the station.

The route of the new services would pass under the formal edging of the heritage garden and would be underbored to prevent damage to the garden. Trenching for the new services is proposed in order to retain the existing garden edging, and all areas affected by trenching works would be reinstated upon completion of construction. This change would have a temporary impact to the formal heritage garden during construction, however is unlikely to have an impact to the heritage significance of the station as there would be no permanent impact to the garden, station building or platforms. CoA 39 in Appendix B would ensure that excavations for underground services minimise impacts to the heritage garden.

There would be additional vegetation removal in the area around the transformer affecting some bamboo and some small shrubs located within the rail corridor. Of this vegetation, *Sweet pittosporum* is the only native species, although extremely common in the Sydney basin and can become weedy. Vegetation would have a low likelihood of providing habitat for fauna. Therefore, this is not considered a significant impact.

Refer to Appendix D for detailed consideration of the potential heritage impacts of this design change.

Modifications to the station building to provide a new SSER

The modifications to the station building would result in potential additional heritage impacts to those assessed in the REF.

Design change	Discussion of impacts
and reconfigure the staff room and facilities.	<p>Removal of the metal ceiling within the station building considered to be of original fabric would have a moderate negative heritage impact. The impact of replacing the original metal ceiling would be mitigated through replacement with a similar profile metal ceiling (refer to CoA 40 in Appendix B).</p> <p>The removal of the partition walls and reopening of the door would have minor positive heritage impacts. The removal of modern partition walls within the station building would restore the building back to the original layout of each room. The reopening of the door and currently boarded over window would both remove non-significant material and restore the use of original layout items.</p> <p>Refer to Appendix D for detailed consideration of potential heritage impacts of this design change.</p>
<p>Expansion of the Werona Avenue lift entrance area, including:</p> <ul style="list-style-type: none"> reconfiguration of the lift entrance to improve access removal of additional vegetation adjacent to the proposed lift. 	<p>The expansion of the Werona Avenue lift entrance area would not result in additional potential impacts to those assessed in the REF.</p> <p>The descriptions for landscape character zone 1 and 4, and viewpoint 4 have been updated to include the expansion of the Werona Avenue lift entrance. However, the overall significance and visual impact ratings have not changed.</p> <p>Minor vegetation removal would be required at the Werona Avenue lift area and would be limited to one Pitto sp. shrub. The minor additional vegetation removal on the southern side of the footbridge is not considered to impact on the heritage gardens or any landscape character of the station. In addition, it is not considered to result in any significant impact to threatened fauna or their habitat.</p> <p>No additional mitigation measures are required for this design change.</p> <p>Refer to Appendix C for detailed consideration of potential landscape and visual impacts of this design changes.</p>
Replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area.	<p>The replacement of the existing bus shelter on Culworth Avenue, which was previously assessed as an upgrade in the REF, would not introduce additional environmental impacts to those assessed in the REF.</p> <p>The replacement would be an improved outcome for customers. While the previous design would have continued to provide a sheltered waiting area, the replacement would be DDA and DSAPT compliant.</p>
<p>Modifications to the temporary construction compound locations, including (Figure 3-3):</p> <ul style="list-style-type: none"> relocation of the main construction compound from the council operated (time limited) side to the commuter side of the car park off Culworth Avenue an additional area for laydown and storage 	<p>The relocation of the main construction compound to the opposite side of the car park (the free commuter car park) may increase the demand for parking in the council (paid) car park during construction and may temporarily affect parking availability. During operation, the commuter car park would be returned to its current state and become available for commuters. The number of parking spaces that would be temporarily unavailable during construction would be similar to that assessed in the REF. Opportunities to minimise impacts to parking loss and the provision of offset parking would be considered during detailed design (refer to CoA 41 and 42).</p> <p>The relocated construction compound would have a reduced number of residential receivers with direct views to the compound, resulting in a slight positive impact.</p> <p>It is likely that the same number of noise sensitive receivers would be impacted, with the compound moved 50 metres to the north. Receivers on Lorne Avenue are anticipated to be slightly more impacted while receivers on the corner of Culworth</p>

Design change	Discussion of impacts
located within the rail corridor to the west of the rail line on the corner of Werona Avenue and Powell Street.	<p>Avenue and Marian Street would be less impacted. The existing mitigation measures proposed in the Noise and Vibration Impact Assessment (NVIA) would be appropriate to manage this change (AECOM, 2021a).</p> <p>The additional laydown and storage area located within the rail corridor to the west of the rail line would affect the severity of noise and vibration impact on some receivers at times. Noise impacts to three residential receivers on Powell Street, Werona Avenue and Lynwood Avenue would be 'highly noise affected' at times during site establishment and enabling work (work package stage 1) (Appendix E). This would be for short and infrequent periods of time. Mitigation measures outlined in the NVIA would sufficiently manage potential noise impacts associated with this activity. No additional mitigation measures are required for this design change, however existing mitigation measures regarding notifications should include these additional receivers on Powell Street, Werona Avenue and Lynwood Avenue.</p> <p>Refer to Appendix C and E for detailed consideration of the potential visual and noise impacts of this design change.</p>
Removal of the proposed BAZ canopy at the southern end of the station as coverage from the existing platform canopy is in close proximity.	<p>The removal of the BAZ canopy would not introduce additional environmental impacts to those assessed in the REF. Coverage at the BAZ would be provided by the existing platform canopy.</p>
Removal of the Culworth Avenue pedestrian crossing.	<p>The removal of the Culworth Avenue pedestrian crossing would not introduce additional environmental impacts to those assessed in the REF.</p>
Removal of the proposed ramp to the existing bus stop on Werona Avenue.	<p>The removal of the proposed ramp to the existing bus stop on Werona Avenue would not introduce additional environmental impacts to those assessed in the REF.</p>

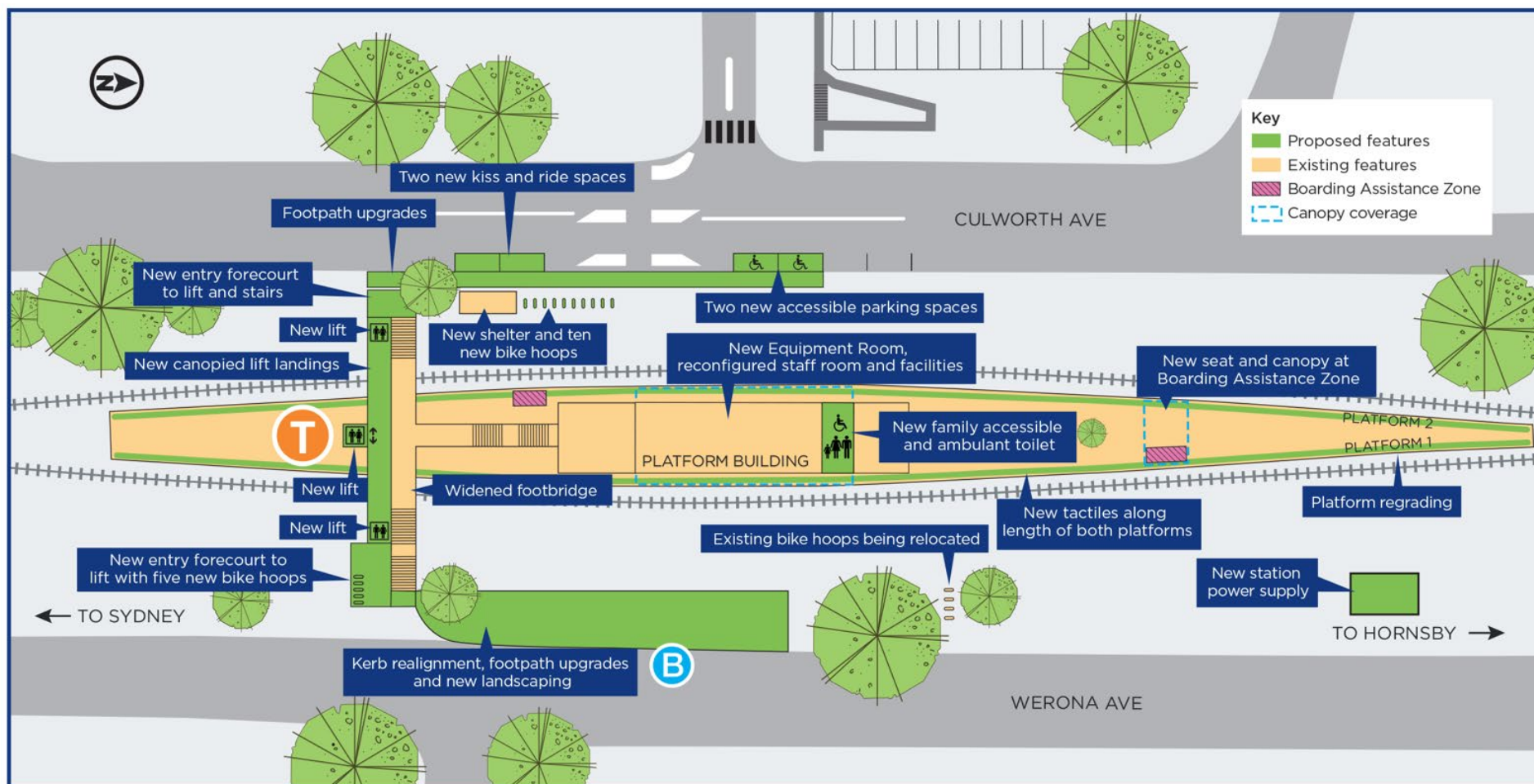


Figure 3-2 Revised key features of the Proposed Activity (indicative only, subject to detailed design)



Figure 3-3 Revised work areas and compound locations of the Proposed Activity (indicative only, subject to detailed design)

4. Consideration of the environmental impacts

4.1. NSW Environmental Planning and Assessment Act 1979

The REF addresses the requirements of Section 5.5 of the EP&A Act. In considering the Proposed Activity, all matters affecting or likely to affect the environment are addressed in the REF and the Determination Report and associated documentation.

In accordance with the checklist of matters pursuant to clause 228(3) of the EP&A Regulation, an assessment is provided in Chapter 6 and Appendix B of the REF and Chapter 3 of this Determination Report.

In respect of the Proposed Activity an assessment has been carried out regarding potential impacts on critical habitat, threatened species, populations or ecological communities or their habitats, under Section 5.7 of the EP&A Act.

The likely significance of the environmental impacts of the Proposed Activity has been assessed in accordance with the then NSW Department of Planning's 1995 best practice guideline *Is an EIS Required?*⁶ It is concluded that the Proposed Activity is not likely to significantly affect the environment (including critical habitat) or threatened species, populations of ecological communities, or their habitats. Accordingly, an environmental impact statement (EIS) under Division 5.2 of the EP&A Act is not required.

4.2. NSW Heritage Act 1977

The Proposed Activity would be undertaken within the curtilage of the Killara Railway Station Group, which is listed on the Transport Asset Holding Entity Section 170 Heritage and Conservation Register and the heritage schedule of the Ku-ring-gai LEP.

The potential heritage impacts of the Proposed Activity have been assessed in Section 6.5 of the REF, Chapter 3 of this Determination Report, the Statement of Heritage Impact (AECOM, 2021b and Addendum Statement of Heritage Impact (Appendix D).

4.3. Commonwealth Environment Protection and Biodiversity Conservation Act 1999

As part of the consideration of the Proposed Activity, all matters of national environmental significance (NES) and any impacts on Commonwealth land for the purposes of the EPBC Act have been assessed. In relation to NES matters, this evaluation has been undertaken in accordance with Commonwealth Administrative Guidelines on determining whether an action has, will have, or is likely to have a significant impact. A summary of the evaluation is provided in Appendix A of the REF.

It is considered that the Proposed Activity described in the REF is not likely to have a significant impact on any Commonwealth land and is not likely to have a significant impact on any matters of NES.

⁶ Refer to the National Library of Australia's 'Trove' website
<http://trove.nla.gov.au/work/7003034?selectedversion=NBD11474648>

5. Conditions of Approval

If approved, the Proposed Activity would proceed subject to the Conditions of Approval included at Appendix B.

6. Conclusion

Having regard to the assessment in the REF, consideration of the submissions received and the design changes subsequent to the public display of the REF, it can be concluded that the Proposed Activity is not likely to significantly affect the environment (including critical habitat) or threatened species, populations of ecological communities, or their habitats.

Consequently, an EIS is not required to be prepared under Division 5.2 of the EP&A Act.

It is also considered that the Proposed Activity does not trigger any approvals under Part 3 of the EPBC Act.

The environmental impact assessment (REF and Determination Report) is recommended to be approved subject to the proposed mitigation and environmental management measures included in the Conditions of Approval (refer to Appendix B).

Determination

KILLARA STATION UPGRADE

APPROVAL

I, Justin Perrott, as delegate of the Secretary, Transport for NSW:

1. Have examined and considered the Proposed Activity in the *Killara Station Upgrade Review of Environmental Factors* (June 2021) and the *Killara Station Upgrade Determination Report* (October 2021) in accordance with Section 5.5 of the NSW *Environmental Planning and Assessment Act 1979*.
2. Determine on behalf of Transport for NSW (the Proponent) that the Proposed Activity may be carried out in accordance with the Conditions of Approval in this Determination Report (October 2021), consistent with the Proposed Activity described in the *Killara Station Upgrade Review of Environmental Factors* (June 2021).



Justin Perrott
Director Environment & Sustainability (Rail Development & Delivery)
Environment and Sustainability
Safety, Environment and Regulation Division
Transport for NSW

Date: 18 October 2021

References

AECOM, 2021a, *Noise and Vibration Assessment* – Killara Station Upgrade

AECOM, 2021b, *Statement of Heritage Impact* - Killara Station Upgrade

AECOM, 2021c, *Landscape, Character and Visual Impact Assessment* – Killara Station Upgrade

Transport for NSW, 2019, *Vegetation Offset Guide*, DMS-SD-087

Appendix A Review of Environmental Factors

Please refer to the Transport for NSW website to access the Killara Station Upgrade REF:
<https://www.transport.nsw.gov.au/projects/current-projects/killara-station-upgrade>

Appendix B Conditions of Approval

CONDITIONS OF APPROVAL

Killara Station Upgrade

Note: these Conditions of Approval must be read in conjunction with the final mitigation measures in the Killara Station Upgrade Review of Environmental Factors.

Schedule of acronyms and definitions used:

Acronym	Definition
AFC	Approved For Construction
CECR	Construction Environmental Compliance Report
CEMP	Construction Environmental Management Plan
CLP	Community Liaison Plan
CoA	Condition of Approval
dBA	Decibels (A-weighted scale)
DES	TfNSW Director Environment & Sustainability (Rail Development & Delivery) (or nominated delegate)
ECM	Environmental Controls Map
EIA	Environmental Impact Assessment
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPL	Environment Protection Licence issued by the Environmental Protection Authority under the <i>Protection of the Environment Operations Act 1997</i> .
EMR	Environmental Management Representative
EMS	Environmental Management System
ISC	Infrastructure Sustainability Council
ISO	International Standards Organisation
OOHWP	Out of Hours Work Protocol
RBL	Rating Background Level
TAHE	Transport Asset Holding Entity
TfNSW	Transport for NSW
TMP	Traffic Management Plan
UDLP	Urban Design and Landscaping Plan

Term	Definition
Construction	Includes all work in respect of the Project, other than survey, acquisitions, fencing, investigative drilling or excavation, building/road dilapidation surveys, or other activities determined by the Transport for NSW Director Environment & Sustainability (Rail Development & Delivery) (or nominated delegate)(DES) to have minimal environmental impact such as minor access roads, minor adjustments to services/utilities, establishing temporary construction compounds (in accordance with this approval), or minor clearing (except where threatened species, populations or ecological communities would be affected, unless otherwise agreed by the DES).
Contamination	The presence in, on or under land of a substance at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment.
Designated Works	Includes tunnelling, blasting, piling, excavation or bulk fill or any vibratory impact work including jack hammering and compaction, for Construction.
Emergency Work	Includes work to avoid loss of life, damage to external property, utilities and infrastructure, prevent immediate harm to the environment, contamination of land or damage to a heritage (Aboriginal or non-Aboriginal) item.
Environmental Impact Assessment (EIA)	The documents listed in Condition 1 of this approval.
Environmental Management Representative (EMR)	An independent environmental representative appointed to the Project or a delegate nominated by Transport for NSW.
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.
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, places of worship/religious facilities (e.g. churches), and other noise sensitive receivers identified in the Environmental Impact Assessment.
Project	The construction and operation of the Killara Station Upgrade as described in the Environmental Impact Assessment.
Proponent	A person or body proposing to carry out an activity under Division 5.1 of the EP&A Act – in the case of the Project, Transport for NSW.
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.

CoA	Condition
	General
1.	<p>Terms of Approval</p> <p>The Project shall be carried out generally in accordance with the environmental impact assessment (EIA) for this Project, which comprises the following documents:</p> <ul style="list-style-type: none"> a) <i>Killara Station Upgrade – Review of Environmental Factors</i> (Transport for NSW, June 2021) b) <i>Killara Station Upgrade – Determination Report</i> (Transport for NSW, October 2021) <p>In the event of an inconsistency between these conditions and the EIA, these conditions will prevail to the extent of the inconsistency.</p>
2.	<p>Project Modifications</p> <p>Any modification to the Project as approved in the EIA would be subject to further assessment. This assessment would need to demonstrate that any environmental impacts resulting from the modifications have been minimised. The assessment shall be subject to approval under delegated authority by TfNSW, and any additional requirements from the assessment of the Project modification must be complied with.</p>
3.	<p>Statutory Requirements</p> <p>These conditions do not remove any obligation to obtain all other licences, permits, approvals and land owner consents from all relevant authorities and land owners as required under any other legislation for the Project. The terms and conditions of such licences, permits, approvals and permissions must be complied with at all times.</p>
4.	<p>Construction Environmental Compliance Report</p> <p>A Construction Environmental Compliance Report (CECR) for the Project shall be prepared which addresses the following matters:</p> <ul style="list-style-type: none"> a) compliance with the Construction Environmental Management Plan (CEMP) and these conditions b) compliance with any approvals or licences issued by relevant authorities for the construction of the Project c) implementation and effectiveness of environmental controls (the assessment of effectiveness should be based on a comparison of actual impacts against performance criteria identified in the CEMP) d) environmental monitoring results, presented as a results summary and analysis e) details of the percentage of waste diverted from landfill and the percentage of spoil beneficially reused f) number and details of any complaints, including summary of main areas of complaint, actions taken, responses given and intended strategies to reduce recurring complaints (subject to privacy protection) g) details of any review and amendments to the CEMP resulting from construction during the reporting period h) any other matter as requested by the DES. <p>The CECR shall:</p> <ul style="list-style-type: none"> (i) be submitted to the EMR for review. The EMR is to be given a minimum period of seven days to review and provide any comments to TfNSW in relation to the CECR (ii) be submitted to the DES for approval upon completion of the EMR review period. <p>The first CECR shall report on the first six months of construction and be submitted within six weeks of expiry of that period (or at any other time interval agreed to by the DES). CECRs shall be submitted no later than six months after the date of submission of the preceding CECR (or at other such periods as requested by the DES) for the duration of construction.</p> <p>The final CECR shall detail compliance with all Conditions of Approval, licences and permits required to be obtained under any other legislation for the Project.</p>

CoA Condition

5. Graffiti and Advertising

Hoardings, site sheds, fencing, acoustic walls around the perimeter of the site, and any structures built as part of the Project shall be maintained free of graffiti and advertising not authorised by TfNSW during the construction period. Graffiti and unauthorised advertising shall be removed or covered within the following timeframes:

- a) offensive graffiti will be removed or concealed within 24 hours
- b) highly visible (yet inoffensive) graffiti will be removed or concealed within a week
- c) graffiti that is neither offensive or highly visible will be removed or concealed within a month
- d) any unauthorised advertising material will be removed or concealed within 24 hours.

Communications

6. Community Liaison Plan

A Community Liaison Plan (CLP) shall be prepared and implemented to engage with government agencies, relevant councils, landowners, community members and other relevant stakeholders (such as utility and service providers, bus companies, Taxi Council and businesses). The CLP shall comply with the obligations of these conditions and should include, but not necessarily be limited to:

- a) a comprehensive, project-specific analysis of issues and proposed strategies to manage issues through the duration of the Project
- b) details of the communication tools (traditional and digital) and activities that will be used to inform and engage the community and stakeholders
- c) a program for the implementation of community liaison activities relating to key construction tasks with strategies for minimising impacts and informing the community
- d) policies and procedures for handling community complaints and enquiries, including the Contractor's nominated 24 hour contact for management of complaints and enquiries
- e) analysis of other major projects/influences in the area with the potential to result in cumulative impacts to the community and strategies for managing these.

The CLP shall be prepared to the satisfaction of the Director Place – North Region (or nominated delegate) prior to the commencement of construction and implemented, reviewed and revised as appropriate during the construction of the Project.

7. Community Notification and Liaison

The local community shall be advised of any activities related to the Project with the potential to impact upon them.

Prior to any site activities commencing and throughout the Project duration, the community is to be notified of works to be undertaken, the estimated hours of construction and details of how further information can be obtained (i.e. contact telephone number/email, website, newsletters etc.) including the 24 hour construction response line number.

Construction-specific impacts including information on traffic changes, access changes, detours, services disruptions, public transport changes, high noise generating work activities and work required outside the nominated working hours shall be advised to the local community at least seven days prior to such works being undertaken or other period as agreed to by the Director Place – North Region or as required by the Environment Protection Authority (EPA) (where an Environment Protection Licence (EPL) is in effect).

8. Website

Project information shall be made available to members of the public, either on dedicated pages on the TfNSW/Project website or details provided as to where hard copies of this information may be accessed. Project information to be provided includes:

- a) a copy of the documents referred to under Condition 1 of this approval
- b) a list of environmental management reports that are publicly available
- c) 24 hour contact telephone number for information and complaints.

CoA Condition

All documents uploaded to the website must be compliant with the *Web Content Accessibility Guidelines Version 2.0*.

9. Complaints Management

A 24 hour construction response line number shall be established and maintained for the duration of construction.

Details of all complaints received during construction are to be recorded on a complaints register. A verbal response to phone enquiries on what action is proposed to be undertaken is to be provided to the complainant within two hours during all times construction is being undertaken and within 24 hours during non-construction times (unless the complainant agrees otherwise). A verbal response to written complaints (email/letter) should be provided within 48 hours of receipt of the communication. A detailed written response is to be provided to the complainant within seven calendar days for verbal and/or written complaints.

Information on all complaints received during the previous 24 hours shall be forwarded to the Environmental Management Representative (EMR) each working day.

Environmental Management

10. Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) shall be prepared prior to the commencement of construction which addresses the following matters, as a minimum:

- a) traffic and pedestrian management (in consultation with the relevant roads authority)
- b) noise and vibration management
- c) water and soil management
- d) air quality management (including dust suppression)
- e) Aboriginal and non-Aboriginal heritage management
- f) biodiversity management
- g) storage and use of hazardous materials
- h) contaminated land management (including acid sulphate soils)
- i) weed management
- j) waste management
- k) bushfire risk
- l) environmental incident reporting and management procedures
- m) non-compliance and corrective/preventative action procedures
- n) details of approvals, licences and permits required to be obtained under any other legislation for the Project.

The CEMP shall:

- i. comply with the Conditions of Approval, conditions of any licences, permits or other approvals issued by government authorities for the Project, all relevant legislation and regulations, and accepted best practice management
- ii. comply with the relevant requirements of *Environmental Management Plan Guideline – Guideline for Infrastructure Projects* (NSW Department of Planning Industry and Environment, 2020)
- iii. include a pre-construction environmental compliance matrix for the Project (or such stages of the Project as agreed to by the EMR) that details compliance with all relevant conditions and mitigation measures
- iv. include an Environmental Policy.

In preparing the CEMP the following shall be undertaken:

1. consultation with government agencies and relevant service/utility providers (as required)
2. a copy of the CEMP submitted to the EMR for review
3. a copy of the CEMP submitted to the DES for approval upon completion of the EMR review period

CoA	Condition
-----	-----------

- | | |
|--|--|
| | <ol style="list-style-type: none">4. review and update the CEMP at regular intervals, and in response to any actions identified as part of the EMR's audit of the document5. ensure updates to the CEMP are made within seven days of the completion of the review or receipt of actions identified by any EMR audit of the document, and be submitted to the EMR for approval. |
|--|--|

The CEMP must be approved by the DES prior to the commencement of construction work associated with the Project.

11.	Environment Personnel
------------	------------------------------

Suitably qualified and experienced environmental management personnel shall be available and be responsible for implementing the environmental objectives for the Project, including undertaking regular site inspections, preparation of environmental documentation and ensuring the Project meets the requirements of the Environmental Management System (EMS).

Details of the environmental personnel, including relevant experience, defined responsibilities and resource allocation throughout the project (including time to be spent on-site/off-site) are to be submitted for the approval of the DES, at least 21 days prior to commencement of construction of the Project (or such time as otherwise agreed by the DES).

Any adjustments to environmental resource allocations (on-site or off-site) are to be approved by the DES.

12.	Environmental Management Representative
------------	--

Prior to the commencement of construction, the DES shall appoint an EMR for the duration of the construction period for the Project.

The EMR shall provide advice to the DES in relation to the environmental compliance and performance of the Project. The EMR shall have responsibility for:

- a) considering and advising TfNSW on matters specified in these conditions and compliance with such
- b) reviewing and where required by the DES, providing advice on the Project's induction and training program for all persons involved in the construction activities and monitoring implementation
- c) periodically auditing the Project's environmental activities to evaluate the implementation, effectiveness and level of compliance of on-site construction activities with authority approvals and licences, the CEMP and associated plans and procedures, including carrying out site inspections weekly, or as required by the DES
- d) reporting weekly to TfNSW, or as required by the DES
- e) issuing a recommendation for work to stop immediately, if in the view of the EMR circumstances so require. The stop work recommendation may be limited to specific activities if the EMR can easily identify those activities
- f) requiring reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts
- g) reviewing corrective and preventative actions to ensure the implementation of recommendations made from the audits and site inspections
- h) providing reports to TfNSW on matters relevant to the carrying out of the EMR role as necessary
- i) where required by the DES, providing advice on the content and implementation of the CEMP and Environmental Controls Map (ECM) in accordance with the conditions
- j) reviewing and approving updates to the CEMP.

The EMR shall be available during construction activities to inspect the site(s) and be present on-site as required.

13.	Environmental Controls Map
------------	-----------------------------------

An Environmental Controls Map (ECM) shall be prepared and implemented in accordance with TfNSW's *Guide to Environmental Controls Map* (SD-015) prior to the commencement of

CoA Condition

construction for implementation for the duration of construction. The ECM is to be endorsed by the EMR and may be prepared in stages, as set out in the CEMP.

A copy of the ECM shall be submitted to the EMR for review and endorsement. The EMR is to be given a minimum period of seven days to review and endorse the ECM. Following receipt of the EMR's endorsement, the ECM shall be submitted to the DES for approval, at least 14 days prior to commencement of construction (or such time as is otherwise agreed by the DES).

The ECM shall be prepared as a map – suitably enlarged (e.g. A3 size or larger) for mounting on the wall of a site office and included in site inductions, supported by relevant written information.

Updates to the ECM shall be made within seven days of the completion of the review or receipt of actions identified by any EMR audit of the document and submitted to the EMR for approval.

Hours of Work

14. Standard Construction Hours

Construction activities shall be restricted to the hours of 7:00 am to 6:00 pm (Monday to Friday); 8:00 am to 1:00 pm (Saturday) and at no time on Sundays and public holidays except for the following works which are permitted outside these standard hours:

- a) any works which do not cause noise emissions to be more than 5dBA higher than the rating background level (RBL) at any nearby residential property and/or other noise sensitive receivers
- b) out of hours work identified and assessed in the EIA or the approved Out of Hours Work Protocol (OOHWP)
- c) the delivery of plant, equipment and materials which is required outside these hours as requested by police or other authorities for safety reasons and with suitable notification to the community as agreed by the DES
- d) Emergency Work to avoid the loss of lives, property and/or to prevent environmental harm
- e) any works authorised under the Environmental Planning and Assessment (COVID-19 Development – Infrastructure Construction Work Days No. 2) Order 2020 (whilst the Order is in effect)
- f) any other work as agreed by the DES and considered essential to the Project, or as approved by EPA (where an EPL is in effect).

15. High Noise Generating Activities

Rock breaking or hammering, jack hammering, pile driving, vibratory rolling, cutting of pavement, concrete or steel and any other activities which result in impulsive or tonal noise generation shall not be undertaken for more than three hours, without a minimum one hour respite period unless otherwise agreed to by the DES, or as approved by EPA (where relevant to the issuing of an EPL).

Noise and Vibration

CoA Condition

16. Construction Noise and Vibration

Construction noise and vibration mitigation measures shall be implemented through the CEMP, in accordance with TfNSW's *Construction Noise and Vibration Strategy* (ST-157) and the EPA's *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). The mitigation measures shall include, but not limited to:

- a) details of construction activities and an indicative schedule for construction works
- b) identification of construction activities that have the potential to generate noise and/or vibration impacts on surrounding land uses, particularly sensitive noise receivers
- c) detail what reasonable and feasible actions and measures shall be implemented to minimise noise impacts (including those identified in the EIA)
- d) procedures for notifying sensitive receivers of construction activities that are likely to affect their noise and vibration amenity, as well as procedures for dealing with and responding to noise and vibration complaints
- e) an Out of Hours Work Protocol (OOHWP) for the assessment, management and approval of works outside the standard construction hours identified in Condition 14 of this approval, including a risk assessment process which deems the out of hours activities to be of low, medium or high environmental risk, is to be developed. All out of hours works are subject to approval by the EMR and/or DES or as approved by EPA (where relevant to the issuing of an EPL). The OOHWP should be consistent with the TfNSW *Construction Noise and Vibration Strategy* (ST-157)
- f) a description of how the effectiveness of actions and measures shall be monitored during the proposed works, identification of the frequency of monitoring, the locations at which monitoring shall take place, recording and reporting of monitoring results and if any exceedance is detected, the manner in which any non-compliance shall be rectified.

17. Vibration Criteria

Vibration (other than from blasting) resulting from construction and received at any structure outside of the Project shall be limited to:

- a. 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*
- b. 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 6841:1992 *Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)*.

These limits apply unless otherwise approved by the DES through the CEMP.

18. Non-Tonal Reversing Beepers

Non-tonal reversing beepers (or an equivalent mechanism) shall be fitted and used on all construction vehicles and mobile plant regularly used on-site (i.e. greater than one day) and for any out of hours work.

19. Piling

Wherever practical, piling activities shall be completed using non-percussive piles. If percussive piles are proposed to be used, approval of the DES shall be obtained prior to commencement of piling activities.

20. Noise Impacts on Educational Facilities

Potentially affected pre-schools, schools, universities and any other affected permanent educational institutions shall be consulted in relation to noise mitigation measures to identify any noise sensitive periods (e.g. exam periods). As much as reasonably practicable noise intensive construction works in the vicinity of affected educational buildings are to be minimised.

CoA Condition

Traffic and Transport

16. Traffic Management Plan

A construction Traffic Management Plan (TMP) shall be prepared as part of the CEMP which addresses, as a minimum, the following matters:

- a) 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
- b) maximising safety and accessibility for pedestrians and cyclists
- c) ensuring adequate sight lines to allow for safe entry and exit from the site
- d) ensuring access to the railway station, businesses, entertainment premises and residential properties (unless affected property owners have been consulted and appropriate alternative arrangements made)
- e) managing impacts and changes to on and off street parking and requirements for any temporary replacement provision
- f) parking locations for construction workers away from stations and busy residential areas and details of how this will be monitored for compliance
- g) routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses
- h) details for relocating kiss-and-ride, accessible parking spaces and rail replacement bus stops if required, including appropriate signage to direct customers, in consultation with the relevant bus operator. Particular provisions should also be considered for the accessibility impaired
- i) measures to manage traffic flows around the area affected by the Project, 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 authority must be undertaken during the preparation of the TMP, as required. The performance of all Project traffic arrangements must be monitored during construction.

17. Road Condition Reports

Prior to construction commencement, road condition surveys and reports on the condition of roads and footpaths to be affected by construction shall be prepared. Any damage resulting from the construction of the Project, aside from that resulting from normal wear and tear, shall be repaired at the Proponent's expense.

18. Road Safety Audit

A Road Safety Audit shall be undertaken as part of the detailed design process and on completion of construction. The Road Safety Audit shall include but not be limited to detailed assessment of sight distances for vehicles traveling along the reconfigured Werona Avenue and at the exit and entry point for the commuter car park off Culworth Avenue where the proposed construction compound is proposed, and mitigation measures proposed. The Road Safety Audit is to be submitted to and accepted by TfNSW. The findings of the Road Safety Audit shall be provided to Ku-ring-gai Council for information.

Urban Design and Landscaping

19. Urban Design and Landscaping Plan

An Urban Design and Landscaping Plan (UDLP) for the Project shall be prepared and submitted to TfNSW for endorsement by the Precincts and Urban Design Team. The UDLP is to address the fundamental design principles as outlined in *'Around the Tracks' – urban design for heavy and light rail* (TfNSW, Interim 2016). At a minimum, the UDLP shall:

- a) demonstrate a robust understanding of the Project site through a comprehensive site analysis to inform the design direction, demonstrate connectivity with street networks, transport modes, active transport options, and pedestrian distances

CoA Condition

- b) identify opportunities and challenges
- c) establish site-specific principles to guide and test design options
- d) demonstrate how the preferred design option responds to the design principles established in 'Around the Tracks', including consideration of Crime Prevention through Environmental Design Principles.

The UDLP is to include the Public Domain Plan for the chosen option and shall provide analysis of the:

- i. landscape design approach including design of pedestrian and bicycle pathways, street furniture, interchange facilities, new planting and opportunities for public art
- ii. materials schedule including materials and finishes for proposed built works, colour schemes, paving and lighting types for public domain, fencing and landscaping
- iii. an Artist's Impression or Photomontage to communicate the proposed changes to the precinct.

The following design guidelines are available to assist and inform the UDLP for the Project:

- TAP Urban Design Plan Guidelines (TfNSW, Draft 2018)
- Commuter Car Parks Urban Design Guidelines (TfNSW, Interim 2017)
- Managing Heritage Issues in Rail Projects Guidelines (TfNSW, Interim 2016)
- Creativity Guidelines for Transport Systems (TfNSW, Interim 2016)
- Water Sensitive Urban Design Guideline SD-106 (TfNSW, 2017).

The Urban Design Plan and Landscaping Plan shall be:

- I. prepared prior to concept design and finalised
- II. prepared in consultation with Local Council and relevant stakeholders
- III. prepared by a registered Architect and/or Landscape Architect

Flora and Fauna

20. Removal of Trees or Vegetation

Separate approval, in accordance with TfNSW's *Removal or Trimming of Vegetation Application* (FT-078), is required for the trimming, cutting, pruning or removal of trees or vegetation where the impact has not already been identified in the EIA for the Project. The trimming, cutting, pruning or removal of trees or vegetation shall be undertaken in accordance with the conditions of that approval.

21. Replanting Program

All cleared vegetation shall be offset in accordance with TfNSW's *Vegetation Offset Guide* (ST-149). All vegetation planted on-site is to consist of locally endemic native species, unless otherwise agreed by the DES, following consultation with the relevant council, where relevant, and/or the owner of the land upon which the vegetation is to be planted.

CoA	Condition
-----	-----------

Contamination and Hazardous Materials	
--	--

22. Unidentified Contamination (Other Than Asbestos)

If previously unidentified contamination (excluding asbestos) is discovered during construction, work in the affected area must cease immediately, and an investigation must be undertaken and report prepared to determine the nature, extent and degree of any contamination. The level of reporting must be appropriate for the identified contamination in accordance with relevant EPA guidelines, including the *Guidelines for Consultants Reporting on Contaminated Sites* (Office of Environment and Heritage, 2011).

A copy of any contamination report shall be submitted to the EMR for review. The EMR is to be given a minimum period of seven days to review.

A revised copy of the report shall be submitted to the DES for consideration upon completion of the EMR review period. The DES shall determine whether consultation with the relevant council and/or EPA is required prior to continuation of construction works within the affected area.

Note: *In circumstances where both previously unidentified asbestos contamination and other contamination are discovered within a common area, nothing in these conditions shall prevent the preparation of a single investigation report to satisfy the requirements of both Condition 22 and Condition 23.*

23. Asbestos Management

If previously unidentified asbestos contamination is discovered during construction, work in the affected area must cease immediately, and an investigation must be undertaken and a report prepared to determine the nature, extent and degree of the asbestos contamination. The level of reporting must be appropriate for the identified contamination in accordance with relevant EPA, Safe Work Australia and SafeWork NSW guidelines and include the proposed methodology for the remediation of the asbestos contamination. Remediation activities must not take place until receipt of the investigation report.

Works may only recommence upon receipt of a validation report from a suitably qualified contamination specialist that the remediation activities have been undertaken in accordance with the investigation report and remediation methodology.

Note: *In circumstances where both previously unidentified asbestos contamination and other contamination are discovered within a common area, nothing in these conditions shall prevent the preparation of a single investigation report to satisfy the requirements of both Condition 22 and Condition 23.*

24. Storage and Use of Hazardous Materials

Construction hazard and risk issues associated with the use and storage of hazardous materials shall be addressed through risk management measures, which shall be developed prior to construction as part of the overall CEMP, in accordance with relevant EPA guidelines, TfNSW's *Chemical Storage and Spill Response Guidelines* (SD-066) and Australian and ISO standards. These measures shall include:

- a) the storage of hazardous materials, and refuelling/maintenance of construction plant and equipment are to be undertaken in clearly marked designated areas designed to contain spills and leaks
- b) spill kits, appropriate for the type and volume of hazardous materials stored or in use, to be readily available and accessible to construction workers. Kits are to be kept at hazardous materials storage locations, in site compounds and on specific construction vehicles. Where a spill to a watercourse is identified as a risk, spill kits are to be kept in close proximity to potential discharge points in support of preventative controls
- c) all hazardous materials spills and leaks to be reported to site managers and actions to be immediately taken to remedy spills and leaks
- d) training in the use of spill kits to be given to all personnel involved in the storage, distribution or use of hazardous materials.

CoA Condition

25. Hazardous Materials Survey

A Hazardous Materials Survey in accordance with AS 2601 (2001) *Demolition of Structures* shall be undertaken by an appropriately qualified environmental scientist prior to the demolition of parts of the existing station footbridge for the new lifts and the station building internal retaining walls

Subsequent removal of any hazardous material is to be undertaken in accordance with applicable EPA, SafeWork NSW and Safe Work Australia guidelines.

Erosion and Sediment Control

26. Erosion and Sediment Control

Soil and water management measures shall be prepared, implemented and maintained as part of the CEMP for the mitigation of water quality impacts during construction of the Project. The management measures shall be prepared in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1 4th Edition* (Landcom, 2004).

Heritage Management

27. Aboriginal and Non-Aboriginal Heritage

If previously unidentified Aboriginal or non-Aboriginal heritage/archaeological items are uncovered during construction works, the procedures contained in the TfNSW *Unexpected Heritage Finds Guideline* (SD-115) shall be followed and all works in the vicinity of the find shall cease. The EMR shall be immediately notified to co-ordinate a response, which may include seeking appropriate advice from a suitably qualified and experienced Heritage Architect (in consultation with Heritage NSW, and/or the Energy, Environment and Science Group of the Department of Planning, Industry and Environment, as applicable). Works in the vicinity of the find shall not re-commence until clearance has been received from TfNSW and/or the Heritage Architect.

28. Protection of heritage items listed on the TAHE Section 170 Conservation Register

Design and construction of the Project within the curtilage of the Section 170 listed 'Killara Railway Station Group' must be undertaken in accordance with the recommendations made in the Statement of Heritage Impact (AECOM, 2021b) and the Addendum Statement of Heritage Impact (Appendix D).

29. Heritage Architect

A suitably qualified and experienced Heritage Architect who is independent of the design and construction team's personnel shall be engaged to the satisfaction of the DES. The Heritage Architect shall provide ongoing heritage, design and conservation advice throughout detailed design and any subsequent relevant design modifications to ensure that the final design adheres to the recommendations of the heritage assessments provided in the EIA.

The Heritage Architect involvement and reporting shall include, but not be limited to:

- attendance at design meetings and/or heritage meetings to provide iterative heritage advice to actively inform design development
- targeted historical research to inform the iterative advice as required (to be documented as part of the below summary)
- summary of the iterative heritage advice provided which should capture (as a minimum):
 - the optioneering process undertaken as part of the design development, including heritage pros & cons
 - discussion on why particular heritage sensitive solutions might be discounted
 - discussion of the relevant detailed design stage
 - recommendations for next steps to further mitigate heritage impacts

A progress draft of the above is to be provided at each detailed design stage. A final copy of the summary report is to be provided to TfNSW no later than 1 week after final submission. The summary report is to also include:

- a) confirmation of the extent of involvement of the Heritage Architect in the detailed design process at the completion of Approved for Construction (AFC) design stage

CoA Condition

- b) identification and assessment of any changes to, and/or additional to the scope of work from those identified in the EIA which would affect heritage significance
- c) a description of the impacts, and recommended mitigation measures relating to any new or amended scope of work identified in (b) above including the requirement for additional heritage approvals for consultation
- d) confirmation that the detailed design is compliant with the requirements of the EIA.

30. Heritage Interpretation Plan

If required by the recommendations of the SoHI (AECOM, 2021a) or the Addendum SoHI (Appendix D) heritage interpretation shall be planned and integrated into the detailed design of the Project. The heritage interpretation planning shall be prepared by the Heritage Architect (and sub-consultants as required i.e. graphics) with reference to *Sydney Trains Heritage Interpretation Guidelines*. The heritage interpretation planning shall be captured in a Heritage Interpretation Plan (HIP) that is to be issued as a progress report at each stage of detailed design.

The HIP is to be submitted to the DES for approval at least 14 days prior to the commencement of construction of the Project (or such time as is otherwise agreed by the DES).

31. Photographic Archival Recording

Archival recording of 'Killara Railway Station Group' shall be undertaken in accordance with the Heritage NSW guidelines prior to works commencing. The archival recording shall be reviewed and endorsed by the EMR prior to submission to Heritage NSW or other government body.

Digital copies of the archival recording are to be provided to Ku-ring-gai Council and the TfNSW Heritage team for future reference.

Lighting

32. Lighting Scheme

A lighting scheme for the construction and operation of the Project is to be developed by a suitably qualified lighting designer and prepared in accordance with *AS 1158 Lighting for Roads and Public Spaces* and *AS 4282 Control of the Obtrusive Effects of Outdoor Lighting*. The lighting scheme shall address the following as relevant:

- a. consideration of lighting demands of different areas
- b. strategic placement of lighting fixtures to maximise ground coverage
- c. use of LED lighting
- d. minimising light spill by directing lighting into the station, carpark and onto the pathways
- e. control systems for lighting that dim or switch-off lights settings according to the amount of daylight the zone is receiving
- f. motion sensors to control low traffic areas
- g. allowing the lighting system to use low light or switch off light settings while meeting relevant lighting Standards requirements, and
- h. ensuring security and warning lighting is not directed at neighbouring properties.

Property

33. Property Condition Surveys

Subject to landowner agreement, property condition surveys shall be completed prior to piling, excavation or bulk fill or any vibratory impact works including jack hammering and compaction (Designated Works) in the vicinity of the following buildings/structures:

- a) all buildings/structures/roads within a plan distance of 50 metres from the edge of the Designated Works
- b) all heritage listed buildings and other sensitive structures within 150 metres from the edge of the Designated Works.

CoA Condition

Property condition surveys need not be undertaken if a risk assessment indicates that selected buildings/structures/roads identified in (a) and (b) will not be affected as determined by a qualified geotechnical and construction engineering expert with appropriate registration on the National Professional Engineers Register prior to commencement of Designated Works.

Selected potentially sensitive buildings and/or structures shall first be surveyed prior to the commencement of the Designated Works and again immediately upon completion of the Designated Works.

All owners of assets to be surveyed, as defined above, are to be advised (at least 14 days prior to the first survey) of the scope and methodology of the survey, and the process for making a claim regarding property damage.

A copy of the survey(s) shall be given to each affected owner. A register of all properties surveyed shall be maintained.

Any damage to buildings, structures, lawns, trees, sheds, gardens, etc. as a result of construction activity direct and indirect (i.e. including vibration and groundwater changes) shall be rectified at no cost to the owner(s).

Sustainability

34. Infrastructure Sustainability Council (ISC) Ratings

The Project shall be registered with the Infrastructure Sustainability Council (ISC Council), and shall aim to achieve a minimum 'Infrastructure Sustainability Rating Tool' (v1.2/) 'Excellent' rating with an overall score of 65 for 'Design' and 'As-Built' components of the Project.

35. Sustainability Officer

A suitably qualified and experienced Sustainability Officer shall be appointed who is responsible for implementing the sustainability objectives for the Project, in line with the Program's overarching Sustainability Strategic Management Plan.

Details of the Sustainability Officer including defined responsibilities, duration and resource allocation throughout the appointment are to be submitted to the satisfaction of the Director - Sustainability prior to the preparation of the Sustainability Management Plan.

36. Sustainability Management Plan

A Sustainability Management Plan (SMP) which details the approach to managing sustainability requirements and opportunities during design and construction shall be prepared. The SMP shall include the following as a minimum:

- a) a completed electronic checklist demonstrating compliance with the Infrastructure Sustainability Council (ISC) scorecard demonstrating credits targeted to meet an Infrastructure Sustainability Rating Scheme (v1.2) of 'Excellent' rating for the 'Design' and 'As-Built' phases of the Project.
- b) a statement outlining the Construction Contactor's own corporate sustainability policies, obligations, goals, targets and commitments
- c) a description of the processes and methodologies for encouraging and identifying innovative sustainability outcomes on the Project, and the areas targeted for innovative sustainable solutions to be explored and/or implemented on the Project
- d) the approach to the identification of opportunities to reduce carbon emissions, energy use and embodied lifecycle impacts of the Project. This should include a summary of initiatives proposed for implementation to meet energy and carbon management objectives and targets
- e) the approach to sustainable procurement including how procurement processes have taken in to account the principles of ISO 20400: 2017 – Sustainable Procurement in the selection of all materials, products and services
- f) a description of the processes, standards and procedures for undertaking climate change risk assessments and strategies for mitigation of risks associated with climate change and extreme weather events.
- g) a copy of the SMP shall be submitted to the Director - Sustainability at least 30 days prior to the commencement of construction, for approval (or such time as is otherwise agreed by the Director – Sustainability).

CoA	Condition
Site Specific Conditions	
37.	<p>Pedestrian crossings</p> <p>As part of the detailed design for the Proposed Activity, Transport for NSW shall investigate opportunities for pedestrian crossings on Werona Avenue near the station entrance in consultation with Ku-ring-gai Council.</p>
38.	<p>Werona Avenue footpath design changes</p> <p>In addition to the mitigation measures outlined in the LCVIA (AECOM, 2021c), the following measures are recommended to minimise visual impacts during the design development process:</p> <ul style="list-style-type: none"> landscaping between the existing garden bed and the station garden would include shrubs complimentary to the existing heritage garden within the station planting within the garden bed on Werona Avenue between the fenced station heritage garden and the proposed footpath would include shrubs and groundcovers that grade from the lowest ground covers at the edge of the bed near the footpath to taller shrubs, to reduce the visual prominence of the fencing surrounding the station replacement of the street tree proposed for removal within the road verge would be considered during detailed design. Species selection would reflect the heritage character of the station and the surrounding landscape.
39.	<p>Electrical Upgrades</p> <p>The proposed low voltage services in the vicinity of the formal garden must be installed via controlled underbore below the extant garden edging at the northern end of the garden area to ensure the garden edging does not collapse during the works. At the completion of trenching works through the garden area, the site is to be back filled to match the surrounding ground levels, and grass reinstated over the top of the site.</p>
40.	<p>Metal ceiling replacement</p> <p>A 'like for like' replacement of the metal ceiling should be investigated as part of the detailed design process to minimise the impact of its removal.</p>
41.	<p>Construction compound</p> <p>To minimise impacts on commuter car parking, the size of the construction compound within the Culworth Avenue commuter car park shall be reduced whenever possible throughout the duration of construction.</p>
42.	<p>Offset commuter car parking</p> <p>Prior to the establishment of the construction compound and throughout the duration of construction, opportunities to provide offset commuter car parking shall be investigated and implemented in consultation with Council. This should include offset parking within the Council owned Marian Street Theatre car park.</p>

Appendix C Addendum Visual Impact Assessment

Transport Access Program 3: Killara Station Upgrade

Landscape Character and Visual Impact Assessment Addendum

26-Oct-2021
Killara Station Upgrade

Prepared by

AECOM Australia Pty Ltd
Level 21, 420 George Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia
T +61 2 8934 0000 F +61 2 8934 0001 www.aecom.com
ABN 20 093 846 925

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Table of Contents

1.0	Introduction	1
1.1	Background	1
1.2	Purpose of this addendum report	1
1.3	Description of the amended Proposed Activity	1
2.0	Methodology	3
3.0	Landscape character impact assessment	4
3.1	LCZ 1: Rail Corridor	4
3.2	LCZ 4: Low Density Residential	5
4.0	Visual impact assessment	6
4.1	Visibility of the amended Proposed Activity	6
4.2	Assessment of construction activity	6
4.3	Assessment of amended Proposed Activity at operation	7
4.3.1	Representative viewpoints	7
5.0	Mitigation measures and conclusion	11
5.1	Mitigation measures	11
5.2	Conclusion	11
	References	12

List of Tables

Table 3-1	LCZ 1: Rail Corridor - Landscape Character Impact Assessment	4
Table 3-2	LCZ 4: Low Density Residential - Landscape Character Impact Assessment	5
Table 4-1	Viewpoint 4 - Visual Impact Assessment	7
Table 4-2	Viewpoint 5 - Visual Impact Assessment	9

List of Figures

Figure 1-1	Amended Proposed Activity construction area (Source: AECOM) (indicative only, subject to detailed design)	2
Figure 4-1	Existing view from Viewpoint 4 looking west from the southern corner of the intersection of Werona Avenue and Locksley Street (Source: AECOM)	9
Figure 4-2	Photomontage showing the proposed changes to the existing view from Viewpoint 4 (Source: AECOM)	9
Figure 4-3	The existing view from Viewpoint 5 looking south west towards the station (Source: AECOM)	10

1.0 Introduction

1.1 Background

The Transport Access Program is a NSW Government initiative run by Transport for NSW to provide accessible, modern, secure and integrated transport infrastructure across NSW. The Killara Station Upgrade (the amended Proposed Activity) forms part of the Transport Access Program and involves an accessibility upgrade of Killara Station to improve accessibility and amenities for customers. The amended Proposed Activity is located at Killara Station on the T1 North Shore Line, approximately 12 kms north-west of the Sydney Central Business District (CBD).

1.2 Purpose of this addendum report

AECOM Australia Pty Ltd (AECOM) has prepared a Review of Environmental Factors (REF) for the Proposal (AECOM, 2021a), including a Landscape Character and Visual Impact Assessment (LCVIA) (AECOM, 2021b).

Since public display of the REF, ongoing design development and construction planning has resulted in minor design changes to the Proposal assessed in the REF. This report is an addendum to the LCVIA to assess the minor design changes made to the amended Proposed Activity. This addendum should be read in conjunction with the LCVIA.

1.3 Description of the amended Proposed Activity

The Proposal assessed as part of the LCVIA is described in Chapter 3.0 of the LCVIA.

Since public display of the REF, ongoing design development and construction planning has resulted in the following design changes to the amended Proposed Activity:

- reconfiguration of the Werona Avenue footpath, including:
 - removal of the existing footpath between the rail corridor and established garden bed
 - modification and extension of the existing kerb to provide a new footpath between the garden bed and Werona Avenue
 - modification to road line markings
 - formalisation of the garden bed structure and removal of one tree
 - minor relocation of the existing traffic lights within the garden bed
 - removal of one parking space on the eastern side of Werona Avenue as a result of the realigned kerb and road line markings
- additional electrical upgrades including
 - installation of four new power poles and an additional transformer, and associated vegetation removal
 - an underground connection from the new transformer to the station platform
- modifications to the station building to provide a new Station Services Equipment Room (SSER) and reconfigure the staff room and facilities
- expansion of the Werona Avenue lift entrance area, including:
 - reconfiguration of the lift entrance to improve access
 - removal of additional vegetation adjacent to the proposed lift
- replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area
- modifications to the temporary construction compound locations, including (Figure 1-1):

- relocation of the main construction compound from the council operated (time limited) side to the commuter side of the car park off Culworth Avenue
- an additional area for laydown and storage located within the rail corridor to the west of the rail line on the corner of Werona Avenue and Powell Street.

Additionally, three items have been removed from the scope of the amended Proposed Activity, including:

- the proposed boarding assistance zone (BAZ) canopy at the southern end of the station as coverage from the existing platform canopy is in close proximity
- the proposed pedestrian crossing at Culworth Avenue
- the proposed ramp to the existing bus stop on Werona Avenue.



Figure 1-1 Amended Proposed Activity construction area (Source: AECOM) (indicative only, subject to detailed design)

2.0 Methodology

This LCVIA has been undertaken in accordance with the *Environmental Impacts Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment EIA-N04* (Transport for NSW, 2020), with more detailed guidance taken from *Guidelines for Landscape and Visual Impact Assessment, Third Edition* (2013), developed by the Landscape Institute and Institute for Environmental Management, UK (GLVIA3). GLVIA3 is widely recognised as comprising an example of ‘best practice’ in this field. This report provides an assessment of the amended Proposed Activity at operation, with a brief discussion of changes experienced during construction, using the methodology described in Chapter 2 of the LCVIA.

This addendum assesses the changes to landscape character and views from the surrounding area due to design changes outlined in Section 1.3. Any Landscape Character Zones (LCZs) or viewpoints that are expected to receive an altered effect due to the changes are reassessed in this addendum report, including changes to photomontages that present the amended Proposed Activity. Those that remain unchanged have not been reassessed as the findings of the LCVIA are still applicable.

For information regarding the existing environment, including a description of LCZs, refer Chapter 4.0 of the LCVIA.

3.0 Landscape character impact assessment

This section provides an assessment of changed landscape character impacts for the relevant LCZ during operation of the amended Proposed Activity. The amended Proposed Activity has the potential to affect the assessment result for LCZ 1 and 4, reassessed below.

3.1 LCZ 1: Rail Corridor

The potential effects of change on LCZ 1 due to the amended Proposed Activity are described in Table 3-1.

Table 3-1 LCZ 1: Rail Corridor - Landscape Character Impact Assessment

LCZ 1 – Rail Corridor
<p>Anticipated change</p> <p>Key visible changes associated with the design changes include:</p> <ul style="list-style-type: none"> • expansion of the Werona Avenue lift entrance area, including the reconfiguration of the lift entrance and the removal of additional vegetation adjacent to the proposed lift • additional electrical upgrades including an additional transformer, installation of four new power poles and associated vegetation removal • modifications to the station building to provide a new SSER • the proposed BAZ canopy at the southern end of the station would no longer be provided as the existing platform canopy is in close proximity.
<p>Sensitivity to change</p> <p>The sensitivity of LCZ 1 remains Moderate.</p>
<p>Magnitude of change</p> <p>Alteration of the magnitude of change for LCZ 1 is influenced by:</p> <ul style="list-style-type: none"> • the overall scale and materiality of the amended Proposed Activity does not differ from that of the original Proposal • the changes would be still be limited to the station and immediate surrounds, with the influence of the amended Proposed Activity limited to within about 50 metres from the proposed lifts • only a small proportion of the overall LCZ would be affected by the amended Proposed Activity • the duration of the amended Proposed Activity would be long-term, with low potential for reversibility. <p>Given the above, the magnitude of anticipated change is considered to remain Moderate.</p>
<p>Significance of landscape character effect</p> <p>Using the landscape character grading matrix, the rating of the impact on landscape character due to the amended Proposed Activity remains Moderate. The amended Proposed Activity comprises the upgrade of existing rail infrastructure within a rail corridor. The amended Proposed Activity is consistent with the original design intent and would not increase the impact of the amended Proposed Activity to the LCZ.</p>

3.2 LCZ 4: Low Density Residential

The potential effects of change on LCZ 4: Low Density Residential are described in Table 3-2.

Table 3-2 LCZ 4: Low Density Residential - Landscape Character Impact Assessment

LCZ 4 – Low Density Residential
<p>Anticipated change</p> <p>Key visible changes associated with the design changes include:</p> <ul style="list-style-type: none"> • reconfiguration of the Werona Avenue footpath, including: <ul style="list-style-type: none"> ○ removal of the existing footpath between the rail corridor and established garden bed ○ modification and extension of the existing kerb to provide a new footpath between the garden bed and Werona Avenue ○ modification to road line markings ○ formalisation of the garden bed structure and removal of one tree ○ minor relocation of the existing traffic lights within the garden bed ○ removal of one parking space on the eastern side of Werona Avenue • expansion of the Werona Avenue lift entrance area, including: <ul style="list-style-type: none"> ○ reconfiguration of the lift entrance to improve access ○ removal of additional vegetation adjacent to the proposed lift • replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area • the proposed pedestrian crossing at Culworth Avenue and proposed ramp to the existing bus stop on Werona Avenue would no longer be provided.
<p>Sensitivity to change</p> <p>The sensitivity of LCZ 4 remains Moderate.</p>
<p>Alteration of the magnitude of change for LCZ 4 is influenced by:</p> <ul style="list-style-type: none"> • the changes to Werona Avenue verge and footpath and the replacement of the shelter on Culworth Avenue would not increase the overall scale of the amended Proposed Activity within this LCZ due to the localised changes in relation to the size of the overall LCZ • removal of vegetation on the road verge would visually open up the station slightly more than the original Proposal, but not enough to effect overall character • the geographical extent of the changes are still very small, limited to the footpath and rail corridor edge directly adjacent to the station. <p>Given the above, the magnitude of anticipated change would remain Low.</p>
<p>Significance of landscape character effect</p> <p>Using the landscape character grading matrix the rating of the impact on landscape character would remain Moderate to Low. The amended Proposed Activity comprises the upgrade of rail infrastructure within the adjacent rail corridor and minor changes within the road corridors either side of the station. Works within the road corridors comprise the replacement or upgrade of existing infrastructure, including changes to footpaths, garden bed, kerb and gutters and road furniture. There would be no additional impacts to landscape character due to the amended Proposed Activity.</p>

4.0 Visual impact assessment

4.1 Visibility of the amended Proposed Activity

Visible changes resulting from the design changes include:

- reconfiguration of the Werona Avenue footpath, including:
 - removal of the existing footpath between the rail corridor and established garden bed
 - modification and extension of the existing kerb to provide a new footpath between the garden bed and Werona Avenue
 - modification to road line markings
 - formalisation of the garden bed structure and removal of one tree
 - minor relocation of the existing traffic lights within the garden bed
 - removal of one parking space on the eastern side of Werona Avenue
- expansion of the Werona Avenue lift entrance area, including:
 - reconfiguration of the lift entrance to improve access
 - removal of additional vegetation adjacent to the proposed lift
- replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area
- the proposed pedestrian crossing on Culworth Avenue and proposed ramp to the existing bus stop on Werona Avenue would no longer be provided.

Changes within the station area (including modifications to the station building to provide a new SSER and the installation of electrical infrastructure) would be difficult to see from areas beyond the rail corridor due to changes in landform, surrounding built form and planting.

There are no additional areas where the amended Proposed Activity would be seen from and therefore the position and number of viewpoints assessed in the LCVIA remain applicable. The visual receivers of the amended Proposed Activity also remain unchanged.

4.2 Assessment of construction activity

During construction, visible construction elements that would be expected to be seen for the amended Proposed Activity would be similar to those assessed in the LCVIA. The exception includes the following modifications to the temporary construction compound locations:

- relocation of the main construction compound from the council operated (time limited) side to the commuter side of the car park off Culworth Avenue
- an additional area for laydown and storage located within the rail corridor to the west of the rail line on the corner of Werona Avenue and Powell Street.

The change of the position of the construction compound within the car park on Culworth Avenue would reduce the number of residential neighbours backing directly onto the construction compound. Where in the original Proposal the construction compound would be located adjacent to two apartment blocks, the amended Proposed Activity locates the construction compound adjacent to one detached residential home, with the other three sides of the compound flanked by Culworth Avenue, Lorne Avenue and the southern end of the car park. While the detached home to the south west of the proposed construction compound is a heritage item, there would be an overall reduction of the most sensitive visual receivers, which are the surrounding residents.

There would be no change to the view from Powell Avenue due to the additional laydown area on the corner of Powell and Werona Avenue within the rail corridor. The additional laydown area on the eastern side of the rail corridor would be visible to passers-by on Werona Avenue and on trains within the rail corridor. However it is unlikely that residents on Werona Avenue near the additional proposed

laydown area would be able to see the laydown area from within their dwelling due to tall vegetative screening and fencing on the boundary of these properties fronting Werona Avenue.

Overall, views to the construction compound and laydown area and other construction activities associated with the amended Proposed Activity are considered to remain relatively minor and temporary in nature. They would be consistent with similar temporary construction work sites and activities, and transitory over a period of about 18 months until completion of the amended Proposed Activity. A majority of the receivers would have a low sensitivity to the changes (being passers-by and rail commuters) and there would be a low number of receivers with a higher sensitivity (residents in surrounding houses) to the changes.

4.3 Assessment of amended Proposed Activity at operation

4.3.1 Representative viewpoints

The LCVIA included an assessment at operation of the amended Proposed Activity from five (5) viewpoints:

- Viewpoint 1: Culworth Avenue and Lorne Avenue
- Viewpoint 2: Culworth Avenue Council Car Park
- Viewpoint 3: 18 Culworth Avenue
- Viewpoint 4: Werona Avenue and Locksley Street
- Viewpoint 5: 25 Werona Avenue.

There would be no additional changes with visual prominence to the view seen from Viewpoints 1, 2 and 3 as changes to the . The amended Proposed Activity would potentially result in changes to the view seen from Viewpoints 4 and 5, reassessed below.

4.3.1.1 Viewpoint 4: Werona Avenue and Locksley Street

This viewpoint was selected to assess changes to the view from the intersection of Werona Avenue and Locksley Street, positioned directly adjacent to the entry to Killara Station on Werona Avenue. The visual impact assessment of this viewpoint is provided in Table 4-1 . The existing view from this viewpoint is shown in Figure 4-1 .

Table 4-1 Viewpoint 4 - Visual Impact Assessment

Viewpoint 4: Werona Avenue and Locksley Street
<p>Anticipated change to view</p> <p>The key changes associated with the design changes comprise:</p> <ul style="list-style-type: none"> • reconfiguration of the Werona Avenue footpath, including: <ul style="list-style-type: none"> ○ removal of the existing footpath between the rail corridor and garden bed ○ modification and extension of the existing kerb to provide a new footpath between the garden bed and Werona Avenue ○ modification to road line markings ○ formalisation of the garden bed structure and removal of one tree ○ minor relocation of the existing traffic lights within the garden bed ○ removal of one parking space on the eastern side of Werona Avenue • expansion of the Werona Avenue lift entrance area, including: <ul style="list-style-type: none"> ○ reconfiguration of the lift entrance to improve access ○ removal of additional vegetation adjacent to the proposed lift. • the proposed ramp to the existing bus stop on Werona Avenue would no longer be provided.

Changes within the station platform and rail corridor at ground level would not be seen from this location.

Figure 4-2 shows the amended Proposed Activity viewed from this location.

Sensitivity

The sensitivity of visual receivers at this location would remain Moderate.

Magnitude of change

From this viewpoint, contributing factors to the magnitude of change arising from the amended Proposed Activity include:

- the size and scale of the proposed changes (including the lift and changes to the footpath and garden areas) remain similar, however, vegetation would be removed from around them, making them more visually prominent
- the change to the footpath would increase the width of the street verge within the view, however, the road pavement and intersection would remain similar in scale and character
- the removal of the tree within the street verge would allow views through to the station, with the heritage garden beds the most visually prominent element in the middle to background
- the changes would still be seen from close proximity and in a high amount of detail
- overall, the changes would still comprise the modernisation of rail infrastructure within an existing rail corridor.

Due to the above, the magnitude of change for this viewpoint would remain Moderate.

Overall rating

Overall, the change in the view seen by receivers from this viewpoint would remain Moderate (adverse).

The changes to the view from this viewpoint due to the amended Proposed Activity are considered appropriate given the proportional scale of the proposed lift (the largest additional structure seen within the view) in relation to the surrounding vegetation. The scale of the lift has not changed due to the revised design. The removal of vegetation within the rail corridor and street verge would increase the visual prominence of the rail infrastructure when viewed from this location, however, not enough to result in an increase in the visual impact rating from Moderate.

The 'adverse' qualitative rating is due to the high quality of the view due to the heritage listed station and the gardens which make up an important element within the listing. The increase in visual prominence of the station would result in an adverse outcome within the view, and the change in design to the amended Proposed Activity would not alter this rating.



Figure 4-1 Existing view from Viewpoint 4 looking west from the southern corner of the intersection of Werona Avenue and Locksley Street (Source: AECOM)



Figure 4-2 Photomontage showing the proposed changes to the existing view from Viewpoint 4 (Source: AECOM)

4.3.1.2 Viewpoint 5: 25 Werona Avenue

This viewpoint was selected to assess changes to the view from the footpath outside of 25 Werona Avenue, looking south west towards the station entrance. The visual impact assessment of this viewpoint is in Table 4-2. The existing view from this viewpoint is shown in Figure 4-3.

Table 4-2 Viewpoint 5 - Visual Impact Assessment

Viewpoint 5: 25 Werona Avenue
<p>Anticipated change to view</p> <p>The key changes associated with the design changes comprise:</p> <ul style="list-style-type: none"> reconfiguration of the Werona Avenue footpath, including: <ul style="list-style-type: none"> modification and extension of the existing kerb to provide a new footpath between the garden bed and Werona Avenue modification to road line markings formalisation of the garden bed structure and removal of one tree minor relocation of the existing traffic lights within the garden bed removal of one parking space on the eastern side of Werona Avenue the proposed ramp to the existing bus stop on Werona Avenue would no longer be provided. <p>Changes within the station platform and rail corridor at ground level would not be seen from this location.</p>

Sensitivity

The sensitivity of visual receivers at this location remain Moderate.

Magnitude of change

From this viewpoint, contributing factors to the magnitude of change arising from the amended Proposed Activity include:

- the size and scale of the change seen from this viewpoint is likely to be minor, considering the most visible elements would be the changes to the bus stop, footpath and ramp on Werona Avenue, which would comprise a replacement of similar elements
- the removal of one tree within the verge would result in the loss of an element within the view
- the largest proposed elements would be predominantly screened from view and seen from an oblique angle along the street
- the changes would occur to a moderate proportion of the overall view, but comprise small changes within it
- the visually important elements within the view (namely the well-maintained shrubbery opposite the viewpoint on Werona Avenue and the gardens on the eastern edge of the station) would be preserved and protected
- the duration of the changes would be long term with no chance of reversibility, however, any landscaping that was reinstated on the western verge of Werona Avenue near the upgraded footpath would reduce the visual prominence of the changes to this area over time.

Due to the above, the magnitude of change for this viewpoint has been assessed as Low.

Overall rating

Overall, the change in the view seen by receivers from this viewpoint would remain Moderate to Low (neutral).

Overall, the changes seen from this location would comprise the upgrade of a footpath, minor changes within the road (including the removal of a parking space) and the removal of a tree. The lift may be seen in the background of the view due to the removal of the tree, however, the design changes to the amended Proposed Activity are not enough to change the rating of visual impact from this location.



Figure 4-3 The existing view from Viewpoint 5 looking south west towards the station (Source: AECOM)

5.0 Mitigation measures and conclusion

5.1 Mitigation measures

In addition to the mitigation measures outlined in the LCVIA, the following measures are recommended to minimise visual impacts during the design development process:

- landscaping between the existing garden bed and the station garden would include shrubs complimentary to the existing heritage garden within the station
- planting within the garden bed on Werona Avenue between the fenced station heritage garden and the proposed footpath would include shrubs and groundcovers that grade from the lowest ground covers at the edge of the bed near the footpath to taller shrubs, to reduce the visual prominence of the fencing surrounding the station
- replacement of the street tree proposed for removal within the road verge would be considered during detailed design. Species selection would reflect the heritage character of the station and the surrounding landscape.

5.2 Conclusion

There would be no additional impact on the landscape character or to views from the surrounding area due to the amended Proposed Activity. Overall, there would be no significant effect on either landscape character or on views and visual amenity as a result of the amended Proposed Activity (i.e. there were no ratings of High (adverse), or Moderate–High (adverse)).

References

AECOM. *Transport Access Program 3: Killara Station Upgrade. Review of Environmental Factors*, 2021a

AECOM. *Transport Access Program 3: Killara Station Upgrade. Landscape Character and Visual Impact Assessment*, 2021b

Appendix D Addendum Statement of Heritage Impact

Transport Access Program: 3 Killara Station

Statement of Heritage Impact Addendum

26 Oct 2021
Killara Station Upgrade

Transport Access Program 3: Killara Station

Statement of Heritage Impact Addendum

Client: Transport for New South Wales

Prepared by

AECOM Australia Pty Ltd

Level 21, 420 George Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia
T +61 2 8934 0000 F +61 2 8934 0001 www.aecom.com
ABN 20 093 846 925

8 October 2021

Job No.: 60597833

AECOM in Australia and New Zealand is certified to the latest version of ISO9001, ISO14001, AS/NZS4801 and OHSAS18001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Table of Contents

1.0	Introduction	1
1.1	Background	1
1.2	Purpose of this addendum report	1
1.3	Description of the amended Proposed Activity	1
2.0	Additional heritage assessment	3
2.1	Assessment of design changes	3
2.1.1	Electrical upgrades	7
2.1.2	Station building modifications	8
2.1.3	Werona Avenue footpath reconfiguration	13
2.1.4	Extension of the Werona Avenue lift entrance area	14
2.2	Heritage significance assessment	15
3.0	Statement of heritage impact	21
3.1	Introduction	21
3.2	Process questions	21
3.2.1	Minor partial demolition (station building modifications)	21
3.2.2	New Services (electrical upgrades)	22
3.2.3	Tree removal (Werona Avenue lift entrance)	23
3.3	Statement of heritage impact	23
4.0	Recommendations	25
	References	26

List of Plates

Plate 1	Proposed location of four new power poles and transformer (red arrow). Note the location of the extant garden edging located on the right side of photograph (blue arrow) (view to east)	7
Plate 2	View of the formal garden and proposed location of the new LV cable trench (red line) (view to south east)	8
Plate 3	View of the formal garden and the proposed trench location (red line) in relation to the existing plantings (view to east)	8
Plate 4	Existing kitchenette to be removed	9
Plate 5	Modern toilet addition to the existing Staff Room	9
Plate 6	View inside the middle (smaller) Communications Room. Note the partition wall is on the right side of photograph (view to west)	10
Plate 7	Internal view of the middle (smaller) Communications Room (view to east)	11
Plate 8	View from the door inside the larger Communications and Storage Room (view to north east)	11
Plate 9	View from the Communications Room into the storage room. A new door and floor would be placed in this room (view to north)	12
Plate 10	View into the modern female (left) and male (right) toilets with the modern partition wall in the centre (view to south)	12
Plate 11	Views of the ceiling inside the station building. Penetrations were made recently to repair electrical faults in the ceiling	13
Plate 12	View of the Werona Avenue footpath that would be reconfigured (view to north)	14
Plate 13	Location of minor vegetation removal for the installation of the new lift on Werona Avenue (view to east)	14

List of Tables

Table 2-1	Assessment of impacts to heritage significance of the Killara Railway Station Group (Heritage NSW, 2009)	15
Table 3-1	Summary of the nature of the direct and indirect impacts	23

List of Figures

Figure 2-1	Proposed electrical upgrades	4
Figure 2-2	Station building demolition plan	5
Figure 2-3	Proposed station building layout	6
Figure 2-4	Vending machine proposed for relocation	7

1.0 Introduction

1.1 Background

The Transport Access Program is a NSW Government initiative run by Transport for NSW to provide accessible, modern, secure and integrated transport infrastructure across NSW. The Killara Station Upgrade (the amended Proposed Activity) forms part of the Transport Access Program and involves an accessibility upgrade of Killara Station to improve accessibility and amenities for customers. The amended Proposed Activity is located at Killara Station on the T1 North Shore Line, approximately 12 kms north-west of the Sydney Central Business District (CBD).

1.2 Purpose of this addendum report

AECOM Australia Pty Ltd (AECOM) has prepared a Review of Environmental Factors (REF) for the Proposal (AECOM, 2021a), including a Statement of Heritage Impact (SoHI) (AECOM, 2021b).

Since public display of the REF, ongoing design development and construction planning has resulted in minor design changes to the Proposal assessed in the REF. This report is an addendum to the SoHI to assess the minor design changes made to the amended Proposed Activity.

This addendum should be read in conjunction with the SoHI.

1.3 Description of the amended Proposed Activity

The Proposal assessed as part of the SoHI is described in Section 6.4 of the SoHI.

Since public display of the REF, ongoing design development and construction planning has resulted in the following design changes to the amended Proposed Activity:

- reconfiguration of the Werona Avenue footpath, including:
 - removal of the existing footpath between the rail corridor and established garden bed
 - modification and extension of the existing kerb to provide a new footpath between the garden bed and Werona Avenue
 - modification to road line markings
 - formalisation of the garden bed structure and removal of one tree
 - minor relocation of the existing traffic lights within the garden bed
 - removal of one parking space on the eastern side of Werona Avenue as a result of the realigned kerb and road line markings
- additional electrical upgrades including:
 - installation of four new power poles and an additional transformer, and associated vegetation removal
 - an underground connection from the new transformer to the station platform
- modifications to the station building to provide a new Station Services Equipment Room (SSER) and reconfigure the staff room and facilities
- expansion of the Werona Avenue lift entrance area, including:
 - reconfiguration of the lift entrance to improve access
 - removal of additional vegetation adjacent to the proposed lift
- replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area
- modifications to the temporary construction compound locations, including:

- relocation of the main construction compound from the council operated (time limited) side to the commuter side of the car park off Culworth Avenue
- an additional area for laydown and storage located within the rail corridor to the west of the rail line on the corner of Werona Avenue and Powell Street.

Additionally, three items have been removed from the scope of the amended Proposed Activity, including:

- the proposed boarding assistance zone (BAZ) canopy at the southern end of the station as coverage from the existing platform canopy is in close proximity
- the proposed pedestrian crossing at Culworth Avenue
- the proposed ramp to the existing bus stop on Werona Avenue.

2.0 Additional heritage assessment

2.1 Assessment of design changes

Killara Station has been identified by Sydney Trains as holding local significance and is listed on the Transport Asset Holding Entity (TAHE) Section 170 Heritage and Conservation Register.

Other registered heritage items and conservation areas surrounding the station are listed in Table 2-1 and Table 2-2 of the SoHI. These items would not be further affected by the amended Proposed Activity.

Associated with the design changes described in Section 1.3, the following work is proposed within the boundary of the station and heritage curtilage. These design changes are relevant to the SoHI and have been assessed further in this addendum:

- reconfiguration of the Werona Avenue footpath
- additional electrical upgrades (Figure 2-1)
- modifications to the station building (Figure 2-2 and Figure 2-3) including:
 - two plaster board walls would be removed; one which was installed in the 1990s to form an ad-hoc communications room, and one which was installed to create a toilet for station staff
 - the vending machine on Platform 2 would be relocated and the door reinstated to the communications room (Figure 2-4 and Figure 2-2).
- expansion of the Werona Avenue lift entrance area.

The design changes located outside the boundary of the station and heritage curtilage which do not present potential changed impacts and have therefore not been considered further in the SoHI include:

- replacement of the existing shelter on Culworth Avenue
- modifications to the temporary construction compound locations
- removal of the following items from the scope:
 - the proposed boarding assistance zone (BAZ) canopy at the southern end of the station
 - the proposed pedestrian crossing at Culworth Avenue
 - the proposed ramp to the existing bus stop on Werona Avenue.

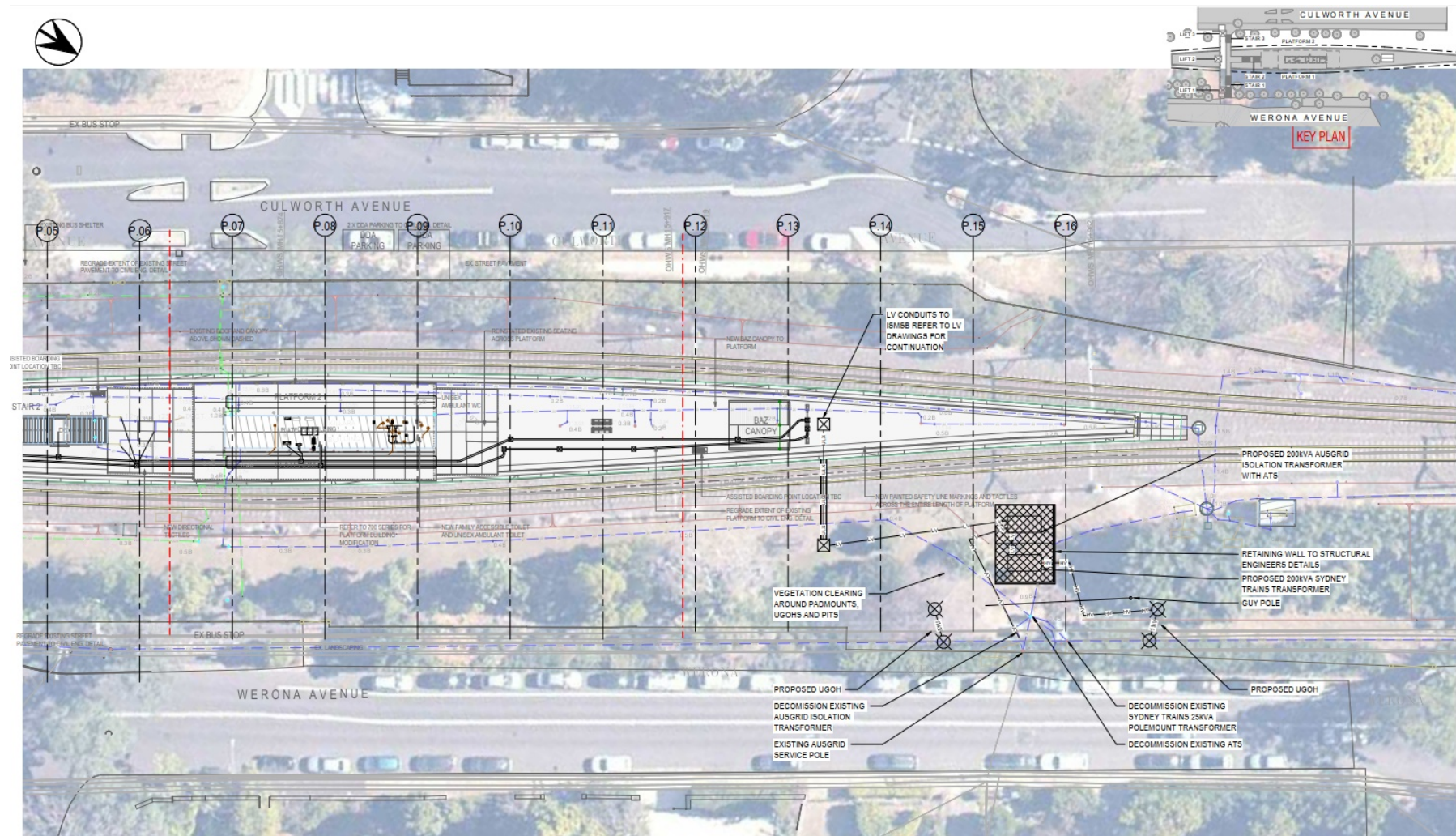
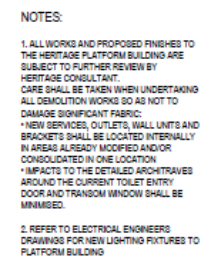


Figure 2-1 Proposed electrical upgrades



1. ALL WORKS AND PROPOSED FINISHES TO THE HERITAGE PLATFORM BUILDING ARE SUBJECT TO FURTHER REVIEW BY HERITAGE CONSULTANT.
CASES MAY BE TAKEN WHEN UNDERTAKING ALL DEMOLITION WORKS SO AS NOT TO DAMAGE SIGNIFICANT FABRIC:
 - NEW SERVICES, OUTLETS, WALL UNITS AND BRACKETS SHALL BE LOCATED INTERNALLY IN AREAS ALREADY MOVED AND/OR COORDINED IN THE LOCATION
 - IMPACTS TO THE DETAILLED ARCHITECTURES AROUND THE CURRENT TOILET ENTRY DOOR AND TRANSOM WINDOW SHALL BE MINIMISED.
2. REFER TO ELECTRICAL ENGINEERS DRAWINGS FOR NEW LIGHTING FIXTURES TO PLATFORM BUILDING

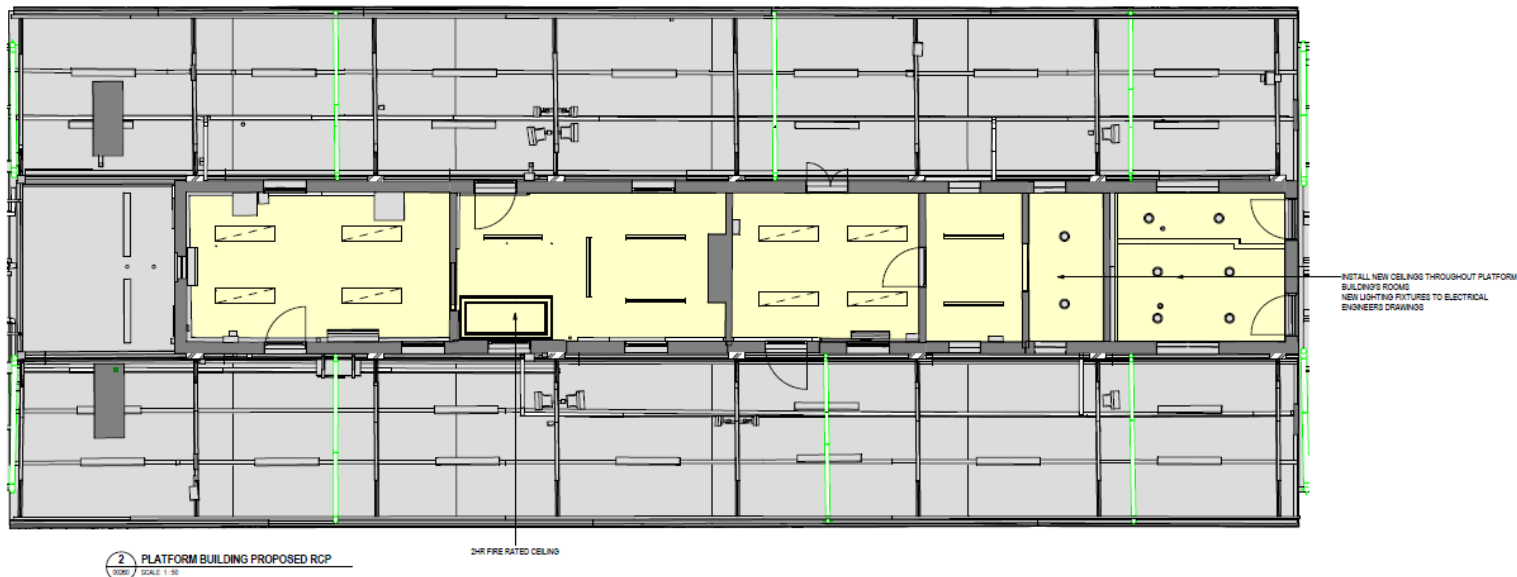
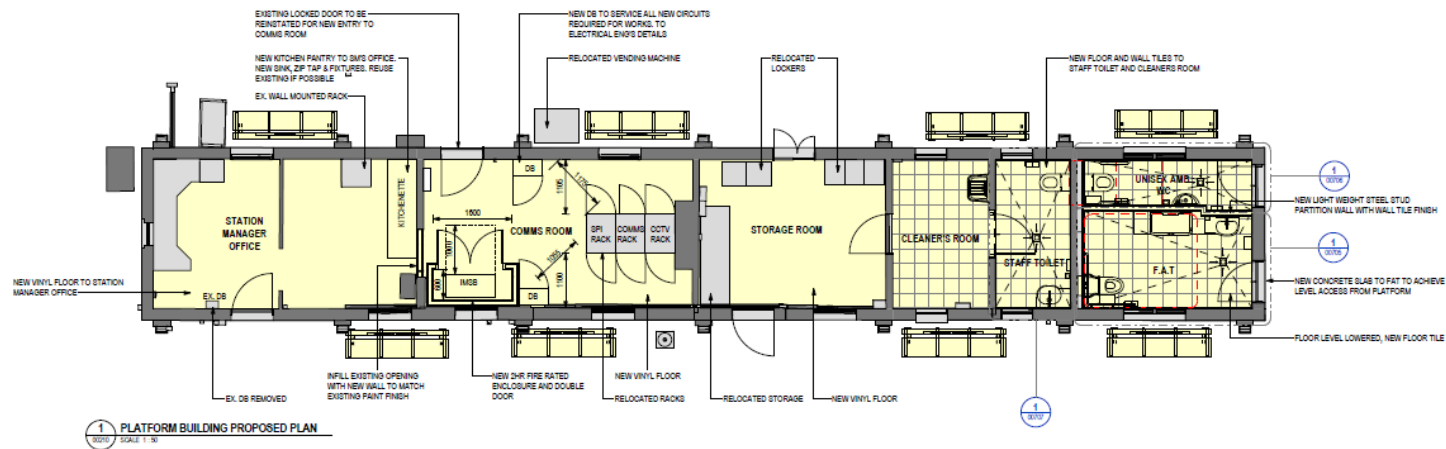


Figure 2-3 Proposed station building layout

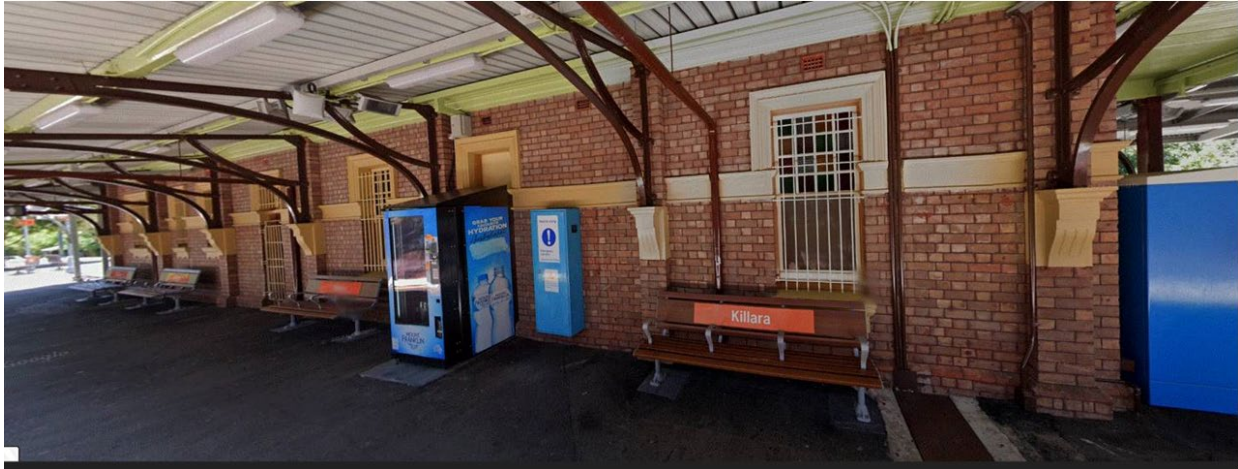


Figure 2-4 Vending machine proposed for relocation

2.1.1 Electrical upgrades

Four new power poles and an additional transformer would be placed at the north eastern end of Killara Station, to the north of the heritage garden area. The power poles and transformer would be placed away from the location of the formal gardens. The separation distance of the new power poles to the station and gardens is shown in Figure 2-1). The new poles would replace two existing poles in the same area and are not likely to change existing views to the station. The new transformer would be placed away from the formal garden area, however minor vegetation removal would be required (outside the formal garden area). The additional transformer would be a new visible feature at the station.

A low voltage (LV) cable would be placed in a subsurface context on an alignment heading south underneath the heritage garden area. The northern extant garden edging would be retained, with the proposed LV cable being underbored underneath this edging. A trench would then be excavated through the garden for approximately 15 metres, where a pit would be excavated for a right-angled crossing of the LV cable underneath the rail line toward the station platform. The excavation of the trench and pit in the formal garden area would directly impact the garden, however, the area is grassed, and no formal plantings would be impacted by the work. Once completed, the garden area would be backfilled and landscaped with grass to reflect its current condition (Plate 1, Plate 2 and Plate 3).



Plate 1 Proposed location of four new power poles and transformer (red arrow). Note the location of the extant garden edging located on the right side of photograph (blue arrow) (view to east)



Plate 2 View of the formal garden and proposed location of the new LV cable trench (red line) (view to south east)



Plate 3 View of the formal garden and the proposed trench location (red line) in relation to the existing plantings (view to east)

2.1.2 Station building modifications

The proposed station building modifications would remove the modern upgrades and walls present within the existing station building. Within the Station Mangers Office, an existing table would be removed and a new kitchenette would be installed, relocating the existing kitchenette from the adjacent Staff Room. There is the potential for additional services to be run to this area, however, existing services would be reused where possible.

In the adjacent Staff Room, the modern Staff Toilet and associated partition wall would be removed, along with the modern kitchenette (Plate 4 and Plate 5). An original door located on the western side of the station building would be reinstated. This door has previously been boarded up, however, the door and transom window are believed to be present behind the false covering wall. The construction in this room includes the new communications racks and a double door fire rated enclosure. These new items would not impact the existing walls (Figure 2-3).



Plate 4 Existing kitchenette to be removed

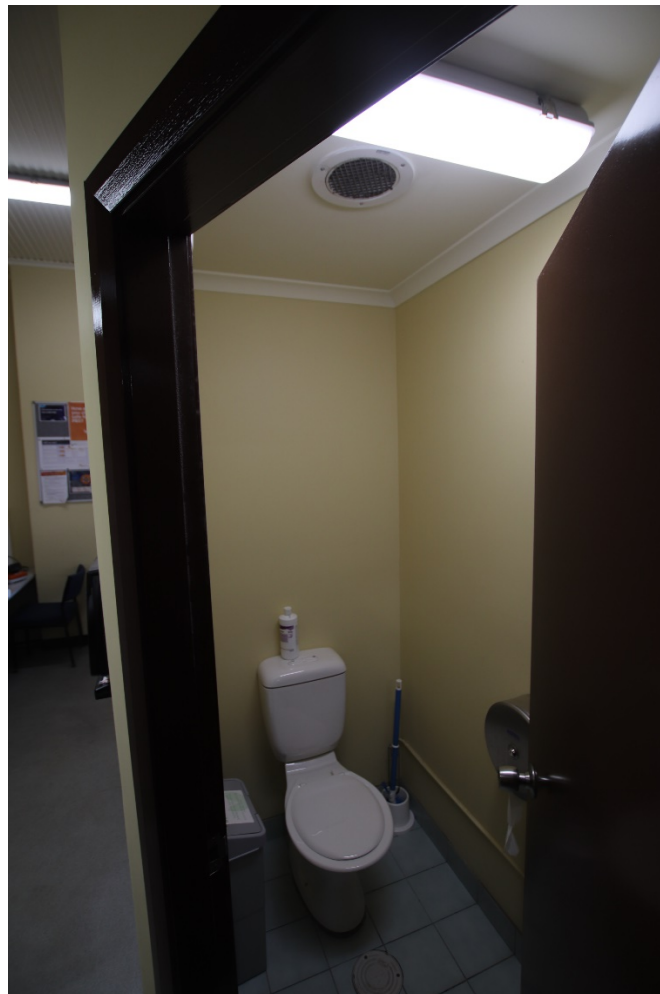


Plate 5 Modern toilet addition to the existing Staff Room

The two rooms to the north immediately after the Staff Room are the two Communications Rooms. The first is a smaller room accessed from an original door on the eastern side of the building. The room has a modern partition wall on the northern side, that divides the two Communications Rooms. This wall is proposed to be removed (Plate 6 and Plate 7). The second Communications Room currently consists of three smaller rooms, that includes two storage areas and the current communications racks (Plate 8) (Figure 2-2).

The proposed design would remove the modern partition wall and reinstall a door to the former Communications Room, and this would become a Cleaners Room. A second door would be installed into a new Staff Toilet, which is currently a storage area (Plate 9). The removal of the modern wall would not have an impact to the heritage fabric inside the station building. The new Staff Toilet would require the existing floor to be raised up to make a level entry way. A door would be added to the existing fenestration and the floor in the current storage room would be raised to be level with the surrounding rooms (Figure 2-3).

There are no records as to why there is a step down into the current storage area, however, raising the floor is likely to have a minor impact to the significance of the station building. It is presumed that services to the new Staff Toilet would be through the floor of the station building. If so, this impact is considered to be minor as the original layout of the station building would be retained, and new services laid discretely through the floor of the station. All existing external door and transom windows would remain and would not be impacted (Figure 2-3).



Plate 6 View inside the middle (smaller) Communications Room. Note the partition wall is on the right side of photograph (view to west)



Plate 7 Internal view of the middle (smaller) Communications Room (view to east)



Plate 8 View from the door inside the larger Communications and Storage Room (view to north east)



Plate 9 View from the Communications Room into the storage room. A new door and floor would be placed in this room (view to north)

The proposed reconfiguration of the existing toilets at the northern end of the station building are not likely to have an impact to the heritage significance associated with the station building. Both the existing male and female toilets are modern upgrades. The dividing wall between both toilets is a modern wall and its relocation is not considered to have a heritage impact (Plate 10 and Figure 2-3).



Plate 10 View into the modern female (left) and male (right) toilets with the modern partition wall in the centre (view to south)

Additionally, the existing metal ceiling in the station building is proposed to be removed. This ceiling is believed to be the original metal style used for this station, and this modification has the potential to impact on original fabric (Plate 11). Penetrations and repairs to sections of the ceilings have been made previously, and the metal ceiling has been removed and replaced with Gyproc in the upgraded toilets (Plate 10).



Plate 11 Views of the ceiling inside the station building. Penetrations were made recently to repair electrical faults in the ceiling

2.1.3 Werona Avenue footpath reconfiguration

The proposed reconfiguration of the Werona Avenue footpath is outside the Killara Station heritage curtilage (Plate 12). This work is required to improve access to the station. The works are not expected to have any direct impact to heritage significance associated with the station. One tree from the existing garden bed along the Werona Avenue footpath would be removed – a mature *Cedrus deodara* that has a poor form and habit with significant deadwood and dieback due to significant line clearance pruning. This tree does not form part of the heritage garden. There is not considered to be any additional indirect impacts from the removal of this tree as it is outside of the heritage curtilage associated with the station, and the remaining vegetation within the garden bed and rail corridor in this area would be retained.



Plate 12 View of the Werona Avenue footpath that would be reconfigured (view to north)

2.1.4 Extension of the Werona Avenue lift entrance area

The proposed works include minor vegetation removal of one *Pittosporum* sp. Shrub on the southern side of the footbridge in the location of the new lift (Plate 13). The additional footprint is required to allow future access to the lift for maintenance and was a result of design development since the preparation of the REF. This vegetation is located within the heritage curtilage associated with the station, and its removal would have an impact to the aesthetic heritage significance associated with the station. Vegetation removal in this area, however, is likely to only have a minor impact as the remainder of the trees to the south of the footbridge would be retained.



Plate 13 Location of minor vegetation removal for the installation of the new lift on Werona Avenue (view to east)

2.2 Heritage significance assessment

Potential impacts to the heritage significance of Killara Station as a result of the design changes are summarised in Table 2-1.

Table 2-1 Assessment of impacts to heritage significance of the Killara Railway Station Group (Heritage NSW, 2009)

Criterion	Significance	Action
Historical significance SHR criteria (a)	Killara Railway Station has historical significance as one of a number of stations that demonstrate the significant impact of the railway in facilitating settlement in the northern suburbs of Sydney. The gardens at Killara Station also have a long been a key feature of the station and were featured on the cover of Sydney metropolitan railway timetables for many years.	<p>Electrical upgrades</p> <p>The proposed electrical upgrades at Killara assessed under this addendum are not expected to have an impact to the heritage significance under this criterion. The removal of existing poles and installation of four new poles and an additional transformer would be located to the north of the heritage gardens, in an area already disturbed to provide access to the rail corridor. The route of the new services would pass under the formal edging of the garden, however, would be underbored to prevent damage. The cabling route would then be trenched through the garden area for approximately 15 metres, however, this area is only grassed, and no plantings would be impacted. A pit would be dug at the end of the trench that would facilitate the cable being trenched via an under rail line crossing beneath the current track and onto the platform. This impact would be mitigated by filling and regrassing the area to match the surrounding area.</p>

Criterion	Significance	Action
		<p><i>Station building modifications</i></p> <p>As previously assessed in the SoHI, the amended Proposed Activity includes the reconfiguration of the existing male and female toilets to a family accessible toilet and a unisex ambulant toilet. Both existing toilets appear to have been upgraded in 1993, with all interior walls, floor, ceiling, and door being upgraded. The internal fixings are also modern. Given the extensive remodelling of the toilets in 1993, it is unlikely that the reconfiguration of the internal areas would impact on historically significant fabric.</p> <p>Recent design changes include the removal of modern walls and fittings in the station building, that would ultimately return it to the original layout, with new items not impacting the existing walls. Work in the Station Managers Office includes a new kitchenette. In the adjacent staff room, the existing modern toilet and kitchenette would be removed, and the room converted to the new Communications Room. The existing communications rooms are separated by a modern partition wall which would be removed, and the larger room would accommodate a proposed Cleaners Room and Staff Toilet. The only impact to this room would be the raising of the floor in the existing Cleaners Room, as it is stepped down, and installation of the new services to the toilet. All of these works are expected to have a minor impact to the aesthetics and heritage fabric associated with the station building.</p> <p>In addition, the existing metal ceiling is proposed to be removed. This work is not expected to have an impact to the historical significance as outlined in this criterion.</p>
		<p><i>Werona Avenue footpath reconfiguration</i></p> <p>The work outside, but immediately adjacent to the heritage curtilage of the station would not have an impact to the heritage significance associated with Killara Station under this criterion.</p>
		<p><i>Werona Avenue lift entrance</i></p> <p>The proposed additional works would result in minor vegetation removal within the heritage curtilage area at the station. This vegetation, however, is located along the railway boundary and is not associated with the formal gardens. The removal would not have an impact to the heritage significance associated with Killara Station under this criterion.</p>

Criterion	Significance	Action
Aesthetic significance SHR criteria (c)	<p>The garden is a largely intact typical railway/municipal ornamental garden, one of the most important railway station gardens in the region. It has significance due to its rich collection of historic exotic plantings and is held in high regard by the local community. The garden contributes strongly to the significance of the station group, providing a setting that evokes a past practice of station garden design. The railway station building has aesthetic qualities as an example of early 20th century railway station design with fabric and details typical of this period and similar to other rail buildings of the late 19th /early 20th century in Sydney and on the North Shore line in particular. The aesthetic significance of the station building has been compromised, however, by major changes to the roof structure and later changes internally. The Killara Station precinct has aesthetic significance for its contribution to the characteristic nature of the North Shore line – one of homogenous station design and landscaping. With the former Killara Post Office and treed setting, Killara railway station contributes to a small but significant heritage precinct.</p>	<p>Electrical upgrades</p> <p>The proposed electrical upgrades at Killara Station assessed under this addendum are expected to have no impact to the aesthetic heritage significance under this criterion. The placement of the additional transformer and four new power poles at the northern end of the garden would not have a direct impact to the gardens.</p> <p>The works have been designed to avoid impacts to the northern extant garden edging through the use of underboring. Trenching would occur within the formal garden. However, the route is currently grassed, and no other vegetation would be affected. The trenched area would be remediated at the end of trenching works by backfilling and regrassing the area. The works are expected to be temporary and have no long-term impact.</p>
		<p>Station building modifications</p> <p>As previously assessed in the SoHI, the reconfiguration of the internal male and female toilets would not have an impact to the aesthetic significance associated with the station. Both toilets were recently renovated, and there are no original fixtures remaining in either toilet.</p> <p>The internal building works are expected to have an overall minor impact to the aesthetic significance associated with the station as the works would mostly remove the modern internal partition walls and toilet, and new works are not expected to impact on internal wall layouts. The replacement of the original metal ceiling would have an impact to the internal aesthetics of the station building. Overall, the proposed internal works are expected to have a minor impact to the aesthetic significance associated with the station buildings and station overall.</p> <p>A positive outcome to the aesthetic significance is the proposed reopening of an original door at the station. The door, including the transom window, were boarded up under previous works, with the original door and window expected to be present underneath.</p>
		<p>Werona Avenue footpath reconfiguration</p> <p>The works outside, but immediately adjacent to the heritage curtilage of the station would not have an impact to the heritage significance associated with Killara Station under this criterion.</p>

Criterion	Significance	Action
		<p>Werona Avenue lift entrance</p> <p>The proposed additional works would result in minor vegetation removal within the heritage curtilage area at the station. This vegetation however, is located along the railway boundary and is not associated with the formal gardens. This vegetation removal would have a minor impact to the overall aesthetics and the heritage significance associated with Killara Station under this criterion as the surrounding trees within the railway boundary would be retained along this side of the station.</p>
Social significance SHR criteria (d)	<p>Killara station is considered to have social significance at a local level. Killara railway station possesses a largely intact railway/municipal ornamental garden on its eastern side and is one of the most important railway station gardens within the metropolitan network. The garden is a strong source of pride in the local community and has a strong association with the once famous Railway Stations Garden Competition. The garden also featured on the cover of Sydney metropolitan railway timetables for many years. The location of the former Killara Post Office at the corner of Locksley St and Werona Avenue opposite the garden reinforces the civic nature of this precinct.</p>	<p>Electrical upgrades</p> <p>The proposed electrical upgrades at Killara Station are to supply the new lifts, which in turn, are to provide equitable access to the station. The additional electrical upgrades are not considered to have an impact to the heritage significance associate with the station under this criterion.</p>
		<p>Station building modifications</p> <p>As previously assessed in the SoHI, the proposed reconfiguration of the current male and female toilet fittings and fixtures and reconfiguration to a family accessible toilet and unisex ambulant toilet would not have a negative adverse impact on the social significance associated with this station as the proposed alterations would make the toilets more accessible. It is anticipated that the construction of the family accessible toilet would have a positive impact on the local community by providing essential amenities and equitable access.</p> <p>The additional works proposed to the station building would not have an impact to the heritage significance under this criterion.</p>
		<p>Werona Avenue footpath reconfiguration</p> <p>The works outside, but immediately adjacent to the heritage curtilage of the station would not have an impact to the heritage significance associated with Killara Station under this criterion.</p>

Criterion	Significance	Action
		<p><i>Werona Avenue lift entrance</i></p> <p>The proposed additional works would result in minor vegetation removal within the heritage curtilage area at the station. This vegetation, however, is located along the railway boundary and is not associated with the formal gardens. This removal is not expected to have an impact to the social significance of the station. The formal garden area would be preserved and the existing vegetation along the boundary of the rail corridor would be retained.</p>
Rarity SHR criteria (f)	<p>Killara Station is considered to be rare at a local level. The station possesses a largely intact garden on its eastern side, which is one of the most impressive in the region with the exception of the Wahroonga Station garden. The civic pride which was once associated with the coming of the railways and the station as a major landscape and social element within the community is evident in the garden at Killara station, one of the very few on the metropolitan network to remain. The station contributes to the overall character of the Northern line.</p>	<p><i>Electrical upgrades</i></p> <p>The proposed electrical upgrades at Killara assessed under this addendum are expected to have no impact to the rarity of the station, associated with the formal gardens. The placement of the additional transformer and four new power poles at the northern end of the garden would have no direct impact to the gardens. Direct impacts to the gardens have been minimised to the grassed areas only, and underboring of the cable would be carried out to ensure no impacts to the garden edging.</p>
		<p><i>Station building modifications</i></p> <p>The proposed internal modifications to the station building, including the current male and female toilet, reconfiguration of the Station Master's room, Staff, Cleaners and Communications Rooms would not have an impact to the rarity of the station under this criterion. The replacement of the original metal ceiling is likely to have an impact on a surviving original element. This impact, however, is only likely to be minor against this specific criterion and could be mitigated further with the use of a similar metal ceiling profile for the new ceiling.</p>
		<p><i>Werona Avenue footpath reconfiguration</i></p> <p>The works outside, but immediately adjacent to the heritage curtilage of the station would not have an impact to the heritage significance associated with Killara Station under this criterion.</p>

Criterion	Significance	Action
		<p>Werona Avenue lift entrance</p> <p>The proposed additional works would result in minor vegetation removal within the heritage curtilage area at the station. This vegetation, however, is located along the railway boundary and is not associated with the formal gardens. This removal is not likely to have an impact to the rarity of the Killara Station under this criterion.</p>
Representativeness SHR criteria (g)	Killara Railway Station has representative significance at a local level. The garden represents the practice of railway station gardening that was once common throughout the network. It is an excellent example of its type due to its integrity and grouping with the original station building, platforms, and footbridge. The footbridge has identified as an item of moderate heritage significance in the comparative analysis from the 2016 'Railway Footbridges Heritage Conservation Strategy'.	<p>Electrical upgrades</p> <p>The proposed additional electrical works at Killara Station would have a temporary impact to the formal garden but are unlikely to have an impact to the heritage significance under this criterion. There are not expected to be any permanent impacts to the garden, station building or platforms.</p>
		<p>Station building modifications</p> <p>The proposed internal modifications to the station building, including the current male and female toilet, reconfiguration of the Station Master's room, Staff, Cleaners and Communications Rooms would not have an impact to representativeness of the station under this criterion.</p> <p>The replacement of the original metal ceiling would have an impact on a surviving original fabric associated with the construction of the station. This impact, however, is only likely to be minor against this specific criterion and could be mitigated further with the use of a similar metal ceiling profile for the new ceiling.</p>
		<p>Werona Avenue footpath reconfiguration</p> <p>The works outside, but immediately adjacent to the heritage curtilage of the station would not have an impact to the heritage significance associated with Killara Station under this criterion.</p>
		<p>Werona Avenue lift entrance</p> <p>The proposed minor vegetation removal within the heritage curtilage area at the station is not likely to have an impact to the heritage significance under this criterion.</p>

3.0 Statement of heritage impact

3.1 Introduction

The objective of this addendum is to evaluate and explain how the proposed development, rehabilitation or land use change would affect the heritage value of the site and/or place. This section contains a Statement of Heritage Impact to address both impacts to heritage and how the heritage value of the site/place can be conserved or maintained, or preferably enhanced by the amended Proposed Action.

This report has been prepared in accordance with the NSW Heritage Office & Department of Urban Affairs and Planning *NSW Heritage Manual* (1996) and NSW Heritage Office *Statements of Heritage Impact* (NSW Heritage Office & Department of Urban Affairs & Planning, 2002). The guidelines pose a series of questions as prompts to aid in the consideration of impacts based on the type of proposal. The design changes include minor alterations to the Proposal assessed in the SoHI including electrical upgrades, minor alterations to the station building and changes to the station interchange arrangements. The guideline suggests the following questions be used to direct discussion in relation to these two modification types:

Minor partial demolition (station building upgrade)

- is the demolition essential for the heritage item to function?
- are important features of the item affected by the demolition (e.g. fireplaces in buildings)?
- is the resolution to partially demolish sympathetic to the heritage significance of the item?
- if the partial demolition is a result of the condition of the fabric, is it certain that the fabric cannot be repaired?

Minor additions (electrical upgrades)

- how is the impact of the addition on the heritage significance of the item to be minimised?
- can the additional area be located within an existing structure? If no, why not?
- will the additions visually dominate the heritage item?
- is the addition sited on any known, or potentially significant archaeological deposits? If so, have alternative positions for the additions been considered?
- are the additions sympathetic to the heritage item? In what way (e.g. form, proportions, design)?

Tree removal or replacement (Werona Avenue lift entrance)

- does the tree contribute to the heritage significance of the item or landscape?
- why is the tree being removed?
- has the advice of a tree surgeon or horticultural specialist been obtained?
- is the tree being replaced? Why? With the same or a different species?

These questions are addressed below, based on the impacts to the heritage significance of the station, as outlined in Section 2.2.

3.2 Process questions

3.2.1 Minor partial demolition (station building modifications)

Is the demolition essential for the heritage item to function?

The reconfiguration of the existing male and female toilet is essential to provide accessibility compliant facilities at the station. Both toilets were upgraded recently (1993) and modifications to the internal layout are not expected to have an impact to the heritage significance associated with the station.

The removal of modern partition walls and toilet, and the reconfiguration of the station building room uses are not expected to impact on the heritage significance associated with the station. The reconfiguration of the internal room uses is expanding the functionality of the station building for the modern requirements.

The replacement of the current metal ceiling is to replace the aging material and to provide additional ceiling space for services to be placed. The removal of the current ceiling is likely to preclude it from being reused, however, a like for like metal ceiling should be investigated to be reinstated as the new ceiling as part of these works.

Are important features of the item affected by the demolition (e.g. fireplaces in buildings)?

There are no internal features associated with the current male and female toilets that are considered to be important. The current fixtures and fittings were installed recently and are all modern. Important original features such as windows would not be impacted.

The removal of the internal partition walls and modern toilet are not considered important features. The metal ceiling is believed to be original fabric associated with the time the station building was constructed.

Is the resolution to partially demolish sympathetic to the heritage significance of the item?

The removal of the modern internal partition walls would result in the original configuration (size) of the rooms within the station building being restored to their original layout. The reopening of the original door and transom window that has been covered over would remove modern, non-significant, material, and contribute to the restoration of the original layout of the station.

If the partial demolition is a result of the condition of the fabric, is it certain that the fabric cannot be repaired?

The demolition of the internal modern partition walls is not a result of the condition of the fabric, but to provide necessary space within each room for their reconfiguration. Removal of the current metal ceiling is both to replace the aging material, but also to provide additional roof space for services. Replacing the ceiling with a 'like for like' metal ceiling should be investigated as an option for the new ceiling for the station building.

3.2.2 New Services (electrical upgrades)

How is the impact of the addition on the heritage significance of the item to be minimised?

The additional transformer would be located on the northern side of the formal gardens, in an area used to access the rail corridor. Direct impacts to the gardens have been minimised to the grassed areas only, and underboring of the cable would be carried out to ensure no impacts to the garden edging.

Are any of the existing services of heritage significance? In what way? Are they affected by the new work?

The installation of new electrical services (poles and transformer) are all new, and no existing services would be removed. There are no existing services that would be affected by the work.

Will the additions visually dominate the heritage item?

The location of the transformer has been chosen to be positioned away from the known heritage items and fabric associated with the station, and in a position where all associated poles and cabling would not impact on associated heritage fabric. The transformer would be visible from the station platform, however, its location is not considered to visually dominate the station.

Are any known or potential archaeological deposits (underground and under floor) affected by the proposed new services?

There are no known historical archaeological deposits present in the location of the new poles or transformer. The proposed route of the cabling from the transformer to the station platform would pass through the location of the formal gardens, however there are not expected to be relics or other deposits present in this area.

3.2.3 Tree removal (Werona Avenue lift entrance)

Does the tree contribute to the heritage significance of the item or landscape?

No tree removal is required. The removal of one Pitto sp. shrub on Werona Avenue is located within the heritage curtilage associated with the Killara Station heritage listing, however, this vegetation is not considered to contribute to the heritage significance or landscape associated with the station.

Why is the tree being removed?

No tree removal is required. One shrub, a Pitto sp., is required to be removed for the construction of the new lift on Werona Avenue.

Has the advice of a tree surgeon or horticultural specialist been obtained?

The vegetation proposed to be removed does not fall within the definition of a 'tree' as defined by *AS4970-2009 Protection of Trees on Development Sites* and therefore no specialist advice has been sought.

Is the tree being replaced? Why? With the same or a different species?

No tree would be removed, only one Pitto sp. shrub. The new lift well would be placed in this location. The remainder of the existing trees along the rail boundary would be retained, continuing the tree lined view from Werona Avenue towards the station.

3.3 Statement of heritage impact

The potential impacts to the Killara Railway Station Group have been assessed against the criteria outlined in the NSW Heritage Division guidelines (NSW Heritage Office & Department of Urban Affairs & Planning, 2002). The impacts of the design changes have been graded against the significance of the station as outlined in Table 3-1.

Table 3-1 Summary of the nature of the direct and indirect impacts

Impact Type	Impact
Major negative impacts (substantially affects fabric or values of State significance)	None.
Moderate negative impacts (irreversible loss of fabric or values of local significance; minor impacts on State significance)	The removal of the metal ceiling within the station building, as the material is considered to be original fabric. This impact can be mitigated through the use of a similar profile metal ceiling being used for the new ceiling works.
Minor negative impacts (reversible loss of local significance fabric or where mitigation retrieves some value of significance; loss of fabric not of significance but which supports or buffers local significance values)	None.
Negligible or no impacts (does not affect heritage values either negatively or positively)	<p>The installation of the new power poles and additional transformer at the northern end of the station, away from the formal garden area would not have a direct impact to heritage fabric, or indirect impacts to the visual setting of the station. Trenching for the new cable is proposed to be carried out to retain the existing garden edging, and all trenching works would be grassed over and not visible during operation.</p> <p>The removal of the Pitto sp., shrub on the southern side of the footbridge is not considered to impact on the gardens or any landscape character of the station.</p>

Impact Type	Impact
Minor positive impacts (enhances access to, understanding or conservation of fabric or values of local significance)	<p>The removal of the modern partition walls within the station building restores the rooms to the original layout of each room. The new works would also preserve this layout.</p> <p>The reopening of the door and transom window currently boarded over, would have a positive outcome as the removal of the non-significant material and reuse of the door contributes to the restoration of the original layout of the station building.</p>
Major positive impacts (enhances access to, understanding or conservation of fabric or values of state significance)	None.

4.0 Recommendations

Based on the findings of this addendum report, existing recommendations made in the SoHI are adequate to manage the potential heritage impacts of the design changes. One additional recommendation has been made with regards to the proposed electrical upgrades.

Recommendation 13 – Electrical upgrades

The proposed low voltage services in the vicinity of the formal garden must be installed via controlled underbore below the extant garden edging at the northern end of the garden area to ensure the garden edging does not collapse during the works.

If unexpected finds are encountered during trenching works, the works must stop and the procedure outlined in Recommendation 12 of the SoHI would be followed.

At the completion of trenching works through the garden area, the site is to be back filled to match the surrounding ground levels, and grass reinstated over the top of the site.

All existing recommendations outlined in the SoHI must be followed.

Recommendation 14 – Metal ceiling replacement

A 'like for like' replacement would be investigated as part of the detailed design process for the metal ceiling replacement in the station building to minimise the impact of its removal.

References

AECOM. *Transport Access Program 3: Killara Station Upgrade. Review of Environmental Factors*, 2021a

AECOM. *Transport Access Program 3: Killara Station Upgrade. Statement of Heritage Impact*, 2021b

Heritage NSW. (2009). Waitara Railway Station Group. Retrieved from
<https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4802058>

NSW Heritage Office & Department of Urban Affairs & Planning. (2002). *Statements of Heritage Impact*. Retrieved from Heritage Office & Department of Urban Affairs & Planning website:
<https://www.environment.nsw.gov.au/Heritage/publications/index.htm#S-U>

NSW Heritage Office, & NSW Department of Urban Affairs and Planning. (1996). *NSW Heritage Manual*. Retrieved from Heritage Office & Department of Urban Affairs & Planning website:
http://www.heritage.nsw.gov.au/03_index.htm#M-O

Appendix E Addendum Noise and Vibration Impact Assessment

Transport Access Program 3: Killara Station Upgrade

Noise and Vibration Impact Assessment Addendum

26 Oct 2021
Doc No. 60643261 RPNV 04 A

Transport Access Program 3: Killara Station Upgrade

Noise and Vibration Impact Assessment Addendum

Client: Transport for New South Wales

ABN: 18 804 239 602

Prepared by

AECOM Australia Pty Ltd

Level 21, 420 George Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia

T +61 2 8934 0000 F +61 2 8934 0001 www.aecom.com

ABN 20 093 846 925

Job No.: 60643261

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Table of Contents

1.0	Introduction	1
1.1	Background information	1
1.2	Purpose of this addendum report	1
1.3	Description of the amended Proposed Activity	1
2.0	Construction noise and vibration criteria	3
3.0	Construction noise assessment	4
3.1	Work packages and scheduling	4
3.2	Construction noise assessment	4
3.3	Construction vibration assessment	6
4.0	Operation noise impact assessment	7
5.0	Conclusion	8
	References	9

List of Figures

Figure 1-1	Amended Proposed Activity construction area (Source: AECOM) (indicative only, subject to detailed design)	2
------------	---	---

List of Tables

Table 3-1	Consistency assessment of design changes	4
-----------	--	---

1.0 Introduction

1.1 Background information

The Transport Access Program is a NSW Government initiative run by Transport for NSW to provide accessible, modern, secure and integrated transport infrastructure across NSW. The Killara Station Upgrade (the amended Proposed Activity) forms part of the Transport Access Program and involves an accessibility upgrade of Killara Station to improve accessibility and amenities for customers. The amended Proposed Activity is located at Killara Station on the T1 North Shore Line, approximately 12 kilometres north west of the Sydney Central Business District (CBD).

1.2 Purpose of this addendum report

AECOM Australia Pty Ltd (AECOM) has prepared a Review of Environmental Factors (REF) for the Killara Station Upgrade (AECOM, 2021a), including a Noise and Vibration Impact Assessment (NVIA) (AECOM, 2021b).

Since public display of the REF, ongoing design development and construction planning has resulted in minor design changes to the Proposal assessed in the REF. This report is an addendum to the NVIA to assess the minor design changes made to the amended Proposed Activity. This addendum should be read in conjunction with the NVIA.

1.3 Description of the amended Proposed Activity

The Proposal assessed as part of the NVIA is described in Section 1.3 of the NVIA.

Since public display of the REF, ongoing design development and construction planning has resulted in the following design changes to the amended Proposed Activity:

- reconfiguration of the Werona Avenue footpath, including
 - removal of the existing footpath between the rail corridor and established garden bed
 - modification and extension of the existing kerb line to provide a new footpath between the garden bed and Werona Avenue
 - modification to road line markings
 - formalisation of the garden bed structure
 - minor relocation of the existing traffic lights within the garden bed
 - removal of one parking space on the eastern side of Werona Avenue as a result of the realigned kerb and road line markings
- additional electrical upgrades including:
 - installation of four new power poles and an additional transformer, and associated vegetation removal
 - an underground connection from the new transformer to the station platform
- modifications to the station building to provide a new Station Services Equipment Room (SSER) and reconfigure the staff room and facilities
- expansion of the Werona Avenue lift entrance area, including:
 - reconfiguration of the lift entrance to improve access
 - removal of additional vegetation adjacent to the proposed lift
- replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area
- modifications to the temporary construction compound locations, including (refer to Figure 1-1):

- relocation of the main construction compound from the council operated (time limited) side to the commuter side of the car park off Culworth Avenue
- an additional area for laydown and storage located within the rail corridor to the west of the rail line on the corner of Werona Avenue and Powell Street

Additionally, three items have been removed from the scope of the amended Proposed Activity, including:

- the proposed boarding assistance zone (BAZ) canopy at the southern end of the station as coverage from the existing platform canopy is in close proximity
- the proposed pedestrian crossing at Culworth Avenue
- the proposed ramp to the existing bus stop on Werona Avenue.



Figure 1-1 Amended Proposed Activity construction area (Source: AECOM) (indicative only, subject to detailed design)

2.0 Construction noise and vibration criteria

Construction noise and vibration criteria were presented in the NVIA and are unchanged.

Refer to Chapter 2.0 of the NVIA for a description of the existing acoustic environment around Killara Station.

3.0 Construction noise assessment

3.1 Work packages and scheduling

In consultation with Transport for NSW and as outlined in Table 17 of the NVIA, five distinct work packages, each consisting of a number of construction activities, were assumed for the amended Proposed Activity and assessed within the NVIA. These work packages were as follows:

1. Site establishment and enabling work
2. New lifts and platform upgrades
3. Interchange work
4. Station building reconfiguration work
5. Demobilisation, testing and commissioning

All work packages were assessed with the exception of Work package 5 – Demobilisation, testing and commissioning as it is expected to be a relatively low noise impact activity.

Noise from activities within the construction compounds has been assumed to be minor in comparison to the noise generated by the worst case work packages assessed.

Works to be undertaken as a result of the proposed changes would be completed in standard construction hours and out-of-hours work where appropriate such as in Work package 3 for the electrical upgrades. The construction noise assessment of the proposed design changes takes into consideration both standard and out-of-hours work impacts.

3.2 Construction noise assessment

The proposed design changes listed in Section 1.3 relevant for construction work have been reviewed with reference to those assessed in the NVIA. Table 3-1 provides an assessment of whether the design changes are consistent with the work packages assessed in the NVIA and identifies if additional mitigation measures are required.

Table 3-1 Consistency assessment of design changes

Proposed design change	Consistency with work assessed in NVIA	Mitigation measures
Reconfiguration of the Werona Avenue footpath	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the NVIA Work package stage 3 there are no significant changes to the location, type of work or equipment no additional receivers beyond those identified in the REF are anticipated to be impacted. 	Mitigation measures outlined in the NVIA would sufficiently manage potential noise impacts associated with this activity. No additional mitigation measures are required.
Electrical upgrades including an additional transformer to that assessed in the REF	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the NVIA Work package stage 3 there are no significant changes to the location, type of work or equipment no additional receivers beyond those identified in the REF are anticipated to be impacted. 	Mitigation measures outlined in the NVIA would sufficiently manage potential noise impacts associated with this activity. No additional mitigation measures are required.
Modifications to the station building to provide a new SSER and reconfigure the staff room	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the NVIA Work package stage 4 there are no significant changes to the location, type of work or equipment 	Mitigation measures outlined in the NVIA would sufficiently manage potential noise impacts associated with this activity. No additional mitigation measures are required.

Proposed design change	Consistency with work assessed in NVIA	Mitigation measures
	<ul style="list-style-type: none"> no additional receivers beyond those identified in the REF are anticipated to be impacted. 	
Expansion of the Werona Avenue lift entrance area	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the NVIA Work package stage 3 there are no significant changes to the location, type of work or equipment no additional receivers beyond those identified in the REF are anticipated to be impacted. 	Mitigation measures outlined in the NVIA would sufficiently manage potential noise impacts associated with this activity. No additional mitigation measures are required.
Replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the NVIA Work package stage 3 there are no significant changes to the location, type of work or equipment no additional receivers beyond those identified in the REF are anticipated to be impacted. 	Mitigation measures outlined in the NVIA would sufficiently manage potential noise impacts associated with this activity. No additional mitigation measures are required.
Modifications to the temporary construction compound locations	<ul style="list-style-type: none"> the main construction compound has been relocated from the council operated (time limited) side to the unpaid commuter side of the car park off Culworth Avenue. This represents a shift in the work location of around 50 metres to the north there are no significant changes to the type of work or equipment receivers on Lorne Avenue are anticipated to be slightly more impacted while receivers on the corner of Culworth Avenue and Marian Street would be less impacted. 	It is likely that the same number of noise sensitive receivers would be impacted and by similar noise levels as were reported in the NVIA. Mitigation measures outlined in the NVIA would sufficiently manage potential noise impacts associated with this activity. No additional mitigation measures are required.
	<ul style="list-style-type: none"> an additional area for laydown and storage located within the rail corridor to the west of the rail line on the corner of Werona Avenue and Powell Street would be used. Currently an area for laydown and storage is proposed in the same area but to the east of the rail line there are no significant changes to the type of work or equipment representative receiver numbers 11 and 17 located at 2 Lynwood Avenue and 23 Powell Street respectively, in addition to new representative receivers at 35 Werona Avenue would be 	<p>The residential receivers on Powell Street, Werona Avenue and Lynwood Avenue would experience noise levels up to 10 dB(A) higher than currently indicated in the NVIA during the Work package stage 1, at times experiencing noise levels over 75 dB(A).</p> <p>Given this is expected to be experienced for short and infrequent periods of time, mitigation measures outlined in the NVIA would sufficiently manage potential noise impacts associated with this activity. No additional mitigation measures are required, however notifications as detailed in section 5.8.3 of the NVIA</p>

Proposed design change	Consistency with work assessed in NVIA	Mitigation measures
	'highly affected'. They would be slightly more impacted than outlined in the NVIA and would at times experience noise levels over 75dB(A).	should include receivers located on Powell Street, to the east of Werona Avenue.

3.3 Construction vibration assessment

There no changes to the use of vibration intensive equipment from the NVIA and therefore no additional impacts are anticipated.

4.0 Operation noise impact assessment

The NVIA found that the operational noise environment is expected to remain largely unchanged during operation of the amended Proposed Activity. The proposed design changes would not change this outcome. As outlined in the NVIA, operational noise emissions shall be addressed during the detailed design phase in order to comply with operational noise criteria as per the Noise Policy for Industry (NPfI), if required.

5.0 Conclusion

A construction and operational Noise and Vibration Impact Assessment was completed for the Killara Station Upgrade (the amended Proposed Activity). Nearby noise and vibration sensitive receivers were identified. Attended and unattended noise measurements were completed to characterise the existing noise environment. The measured noise levels were used to establish operational noise criteria and construction NMLs. Construction noise and vibration impacts were assessed at representative residential receivers surrounding the amended Proposed Activity. Impacts were also assessed at four representative nearby non-residential sensitive receivers.

Since public display of the REF, ongoing design development and construction planning has resulted in minor design changes to the amended Proposed Activity. These changes have been reviewed in this addendum with consideration of the work previously assessed in the NVIA. The proposed design changes are consistent with those previously assessed in the NVIA and the mitigation measures outlined in the NVIA are appropriate.

As detailed in section 5.8.3 of the NVIA, notifications should be updated to include receivers located on Powell Street, Werona Avenue and Lynwood Avenue. Due to the design changes these receivers would be 'highly affected' and would experience noise levels up to 10 dB(A) higher than currently indicated in the NVIA. These potential impacts would be managed by mitigation measures outlined in the NVIA and no additional mitigation measures are required to manage the potential noise impacts of the design changes.

References

AECOM, 2021a, Transport Access Program 3: Killara Station Upgrade, *Review of Environmental Factors*

AECOM, 2021b, Transport Access Program 3: Killara Station Upgrade, *Noise and Vibration Impact Assessment*

Appendix F Addendum Arboricultural Development Impact Assessment Report

Birds Tree Consultancy

Consulting Arborist AQF5 • Horticultural Consultancy • Project Management •
Resistograph Testing



ARBORICULTURAL DEVELOPMENT IMPACT ASSESSMENT REPORT

Transport Access Program - Killara Station NSW

ADDENDUM REPORT – DESIGN REVISION
26 October 2021

Prepared for
Transport for NSW

Prepared by

Birds Tree Consultancy

Glenn Bird Grad Cert Arboriculture Uni Melb (AQF8) Dip. Hort (Arboriculture) (AQF5)

PO Box 6048 DURAL NSW 2158

PH 0438 892 634

glenn@birdstrees.com.au

www.birdstrees.com.au

ABN 31 105 006 657



Contents

Contents.....	2
1.0 Introduction	3
1.1 Background.....	3
1.1 Purpose of this addendum report	3
1.2 Description of the amended Proposed Activity.....	3
2.0 Impact of design changes	4
2.1 Tree Protection Zone	4
2.2 Structural Root Zone	5
3.0 Recommendations	5
4.0 Tree Protection Measures	5
5.0 References.....	6
6.0 Disclaimer	6
Appendix A – Revised Tree Location Plan	7

1.0 Introduction

1.1 Background

Transport for New South Wales is proposing to upgrade Killara Station to improve customer experience around the station and improve accessibility and amenities for customers (the amended Proposed Action). Transport for NSW is the government agency responsible for the delivery of major transport infrastructure projects in NSW and is the proponent for the amended Proposed Activity.

The amended Proposed Activity forms part of the Transport for NSW Transport Access Program, a NSW Government Initiative to provide a better experience for public transport customers by delivering accessible, modern secure and integrated transport infrastructure across NSW.

1.1 Purpose of this addendum report

A Review of Environmental Factors (REF) has been prepared for the Killara Station Upgrade (AECOM, 2021a), including an Arboricultural Development Impact Assessment Report (Birds Tree Consultancy, 2021b).

Since public display of the REF, ongoing design development and construction planning has resulted in minor design changes to the Proposal assessed in the REF. This report is an addendum to the Arboricultural Development Impact Assessment Report to assess the minor design changes made to the Proposal (the amended Proposed Activity). This addendum should be read in conjunction with the Arboricultural Development Impact Assessment Report. The methodology for this assessment is defined in the Arboricultural Development Impact Assessment Report

1.2 Description of the amended Proposed Activity

The Proposal assessed as part of the Arboricultural Development Impact Assessment Report is described in Chapter 3.0 of the REF.

Since the public display of the REF, ongoing design development and construction planning has resulted in the following design changes to the Proposal:

- reconfiguration of the Werona Avenue footpath, including:
 - removal of the existing footpath between the rail corridor and established garden bed
 - modification and extension of the existing kerb to provide a new footpath between the garden bed and Werona Avenue
 - modification to road line markings
 - formalisation of the garden bed structure and removal of one tree
 - minor relocation of the existing traffic lights within the garden bed
 - removal of one parking space on the eastern side of Werona Avenue as a result of the realigned kerb and road line markings
- additional electrical upgrades including:
 - installation of four new power poles and an additional transformer, and associated vegetation removal
 - an underground connection from the new transformer to the station platform
- modifications to the station building to provide a new Station Services Equipment Room (SSER) and reconfigure the staff room and facilities
- expansion of the Werona Avenue lift entrance area, including:

- reconfiguration of the lift entrance to improve access
- removal of additional vegetation adjacent to the proposed lift
- replacement of the existing shelter on Culworth Avenue to provide accessible seating and a wheelchair waiting area
- modifications to the temporary construction compound locations, including:
 - relocation of the main construction compound from the council operated (time limited) side to the commuter side of the car park off Culworth Avenue
 - an additional area for laydown and storage located within the rail corridor to the west of the rail line on the corner of Werona Avenue and Powell Street.

Additionally, three items have been removed from the scope of the amended Proposed Activity, including:

- the proposed boarding assistance zone (BAZ) canopy at the southern end of the station as coverage from the existing platform canopy is in close proximity
- the proposed pedestrian crossing at Culworth Avenue
- the proposed ramp to the existing bus stop on Werona Avenue.

The key features of the amended Proposed Activity are shown in Figure 1.

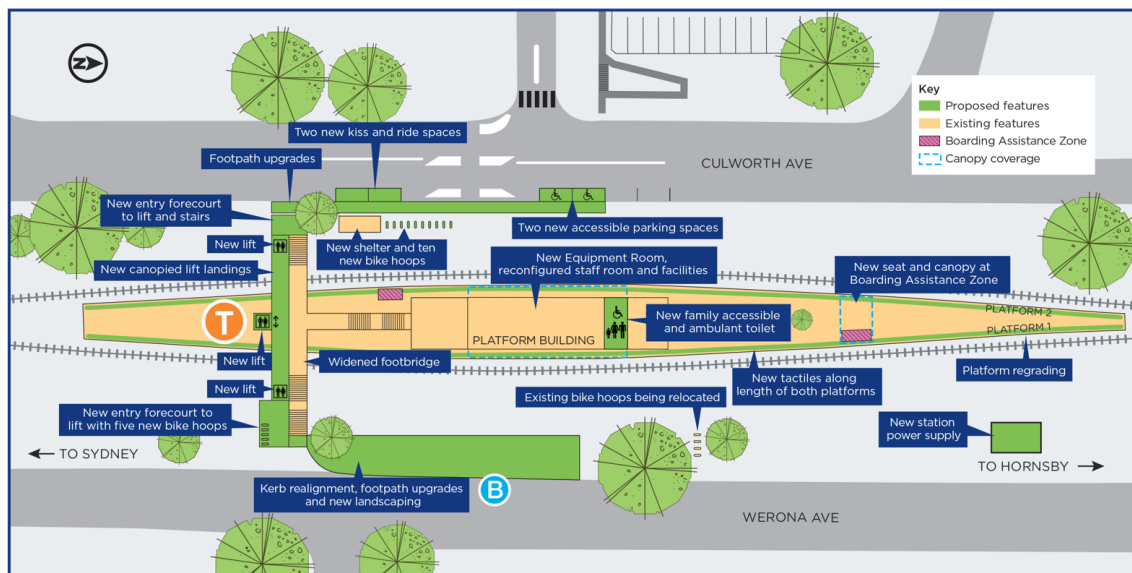


Figure 1 – Key features of the amended Proposed Activity

2.0 Impact of design changes

As a result of the design changes, specifically for the reconfiguration of the Werona Avenue footpath, one additional tree would be required to be removed that wasn't considered in the Arboricultural Development Impact Assessment Report (Tree 12). Assessment of the removal of this tree is provided below.

Minor vegetation removal would be required at the Werona Avenue lift area and would be limited to a single Pitto sp. Shrub. The vegetation proposed to be removed does not fall within the definition of a 'tree' as defined by *AS4970-2009 Protection of Trees on Development Sites* and therefore has not been considered in this report.

2.1 Tree Protection Zone

The Tree Protection Zone (TPZ) has been defined for Tree 12 in order to define the encroachment of the amended Proposed Activity in accordance with *AS4970-2009*. The TPZ required has been taken as a circular area with a radius 12 x the diameter at breast height of the tree. This requirement is in line with Australian Standard *AS 4970-2009 Protection of Trees on Development*

Sites. This standard defines a maximum of 10% encroachment to be minimal encroachment. Any encroachment over 10% requires the site arborist to give consideration as to the viability of the tree due to the amended Proposed Activity. The TPZ is identified in Table 4.

2.2 Structural Root Zone

The Structural Root Zone (SRZ) is defined by AS4970-2009 as the area of root development required for the structural stability of the tree. The SRZ is required to be assessed only when an encroachment greater than 10% is considered. The SRZ for Tree 12 is identified in Table 4.

Table 4 – TPZ and SRZ – Impact Assessment for Tree 12

Tree no.	Species	TPZ Radius (m)	Encroachment (%)	SRZ Radius (m)	Impact Assessment
12.	<i>Cedrus deodara</i>	6.36	100	2.67	The TPZ of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites would be totally encroached by the amended Proposed Activity. This tree would not be viable to be retained.

3.0 Recommendations

As a result of the minor design changes, one additional tree would be required to be removed to facilitate reconfiguration of the Werona Avenue footpath – Tree 12. Tree 12 has a poor form and habit with significant deadwood and dieback due to significant line clearance pruning.

The TPZ and SRZ of Tree 12 is encroached by a total encroachment as defined by AS4970-2009 Protection of Trees on Development Sites by the proposed reconfiguration of the Werona Avenue footpath. This tree would not be viable to be retained and would be required to be removed to facilitate the amended Proposed Activity.

The impact of the proposed design changes are summarised in Table 5.

Table 5 – Tree retention summary

Tree no.	Species	Recommendations	Comments
12.	<i>Cedrus deodara</i>	Remove	Not viable to be retained due to encroachment of amended Proposed Activity.

4.0 Tree Protection Measures

The tree protection measures outlined in the Arboricultural Development Impact Assessment Addendum Report would sufficiently manage the additional tree impacts of the minor design changes (removal of Tree 12). No additional tree protection measures would be required.

5.0 References

AS4970-2009 Protection of Trees on Development Sites: Standards Australia

6.0 Disclaimer

This Appraisal has been prepared for the exclusive use of the Client and Birds Tree Consultancy. Birds Tree Consultancy accepts no responsibility for its use by other persons. The Client acknowledges that this Appraisal, and any opinions, advice or recommendations expressed or given in it, are based on the information supplied by the Client and on the data inspections, measurements and analysis carried out or obtained Birds Tree Consultancy and referred to in the Appraisal. The Client should rely on the Appraisal, and on its contents, only to that extent.

Every effort has been made in this report to include, assess and address all defects, structural weaknesses, instabilities and the like of the subject trees. All inspections were made from ground level using only visual means and no intrusive or destructive means of inspection were used. For many structural defects such as decay and inclusions, internal inspection is required by means of Resistograph or similar. No such investigation has been made in this case. Trees are living organisms and are subject to failure through a variety of causes not able to be identified by means of this inspection and report.

