NSW GOVERNMENT

Transport Access Program

Niagara Park Station Upgrade

Review of Environmental Factors

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

May 2020

Niagara Park Station Upgrade – Review of Environmental Factors

May 2020

Ref– 6439986

Contents

Document control	
Status:	Approved
Date of issue:	May 2020
Version:	Final
Document Author:	SNC-Lavalin Atkins
Document Reviewer:	Cathy Lestrange, Katie Mackenzie, David Quinn, Ben Groth, Ben Grogan, Sue Robinson, Justin Perrott
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Abbreviations

Term	Meaning
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AS	Australian Standard
ASA	Asset Standards Authority (refer to Definitions)
ASS	Acid Sulfate Soils
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BS	British Standard
CCC	Central Coast Council
CEMP	Construction Environmental Management Plan
CCTV	Closed Circuit Television
CLM Act	*Contaminated Land Management Act 1997* (NSW)
CLMP	Community Liaison Management Plan
CM Act	*Coastal Management Act 2016* (NSW)
CNVMP	Construction Noise and Vibration Management Plan
CNVS	Construction Noise and Vibration Strategy (TFNSW, 2019a)
CTMP	Construction Traffic Management Plan
dB(A)	Decibels using the A-weighted scale measured according to the frequency of the human ear.
D&C	Design & Construct
DCP	Development Control Plan
DDA	*Disability Discrimination Act 1992* (Cwlth)
DoEE	Commonwealth Department of the Environment and Energy
DP&E	(former) NSW Department of Planning and Environment
DPIE	NSW Department of Planning, Industry and Environment
DSAPT	*Disability Standards for Accessible Public Transport (2002)*
ECM	Environmental Controls Map
EMS	Environmental Management System
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000* (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development (refer to Definitions)
FM Act	*Fisheries Management Act 1994* (NSW)

Term	Meaning
Heritage Act	*Heritage Act 1977* (NSW)
ICNG	*Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009).
Infrastructure SEPP	*State Environmental Planning Policy (Infrastructure) 2007* (NSW)
IS rating	Infrastructure Sustainability rating under ISCA rating tool (v 2.0)
ISCA	Infrastructure Sustainability Council of Australia
LEP	Local Environmental Plan
LGA	Local Government Area
MCA	Multi-Criteria analysis
NES	National Environmental Significance (refers to matters of National Environmental Significance under the EPBC Act)
NorBE	Neutral or Beneficial Effect
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
NVIA	Noise and Vibration Impact Assessment
OEH	(former) NSW Office of the Environment and Heritage
PDP	Public Domain Plan
PoEO Act	*Protection of the Environment Operations Act 1997* (NSW)
PMF	Probable Maximum Flood
REF	Review of Environmental Factors (this document)
Roads Act	*Roads Act 1993* (NSW)
RMS	(former) NSW Roads and Maritime Services (now Transport for NSW)
SEPP	State Environmental Planning Policy
SoHI	Statement of Heritage Impact
SHI	State Heritage Inventory
SHR	State Heritage Register
SREP	Sydney Regional Environmental Plan
TfNSW	Transport for NSW
TGSIs	Tactile Ground Surface Indicators
TPZ	Tree Protection Zone
UDP	Urban Design Plan
WARR Act	*Waste Avoidance and Resource Recovery Act 2001* (NSW)
WM Act	*Water Management Act 2000* (NSW)
WMP	Waste Management Plan

Definitions

Term	Meaning
Asset Standards Authority	The ASA is an independent body within TfNSW, responsible for engineering governance, assurance of design safety, and ensuring the integrity of transport and infrastructure assets.
Average Recurrence Interval	The ARI is the likelihood of occurrence, expressed in terms of the long-term average number of years, between flood events as large as or larger than the design flood event. For example, floods with a discharge as large as or larger than the 100-year ARI flood will occur on average once every 100-years.
Concept design	The concept design is the preliminary design presented in this REF, which would be refined by the Construction Contractor (should the Proposal proceed) to a design suitable for construction (subject to TfNSW acceptance).
Construction contractor	The entity appointed by TfNSW to undertake the construction of the Proposal. The Construction Contractor is therefore responsible for all work on the project, both design and construction.
Determining authority	A Minister or public authority on whose behalf an activity is to be carried out or public authority whose approval is required to carry out an activity (under Division 5.1 of the EP&A Act).
Disability Standards for Accessible Public Transport	The *Commonwealth Disability Standards for Accessible Public Transport 2002* (as amended), authorised under the Commonwealth *Disability Discrimination Act 1992* (DDA).
Ecologically Sustainable Development	As defined by clause 7(4) Schedule 2 of the EP&A Regulation.
Feasible	A work practice or abatement measure is feasible if it is capable of being put into practice or of being engineered and is practical to build given project constraints such as safety and maintenance requirements.
Interchange	Transport interchange refers to the area/s where passengers transit between vehicles or between transport modes. It includes the pedestrian pathways and cycle facilities in and around an interchange.
Kiss and ride space	Dedicated limited-time parking space near a public transport mode for picking up or dropping off customers.
Out of hours works	Defined as works undertaken *outside* standard construction hours (i.e. outside of 7am to 6pm Monday to Friday, 8am to 1pm Saturday and no work on Sundays/public holidays).
Probable Maximum Flood	The largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation.
Proponent	A person or body proposing to carry out an activity under Division 5.1 of the EP&A Act.
Proposal	The construction and operation of the Niagara Park Station Upgrade Project.
Rail possession / shutdown	Shutdown is the term used by railway building/maintenance contractors to indicate that they have taken possession of the track (usually a section of track) for a specified period, where no trains operate for a specified time. This is necessary to ensure the safety of workers and rail users.

Term	Meaning
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.
Sensitive receivers	Land uses which are sensitive to potential noise, air and visual impacts, such as residential dwellings, schools and hospitals.
Vegetation Offset Guide (TfNSW, 2019b)	The TfNSW guide that applies where there is vegetation clearing proposed, and where the impact of the proposed clearing is not deemed 'significant' for the purposes of Section 5.5 of the EP&A Act.

Executive summary

Overview

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

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

As part of the Transport Access Program, the Proposal would aim to provide a station precinct that is accessible for everyone including people with a disability, limited mobility, parents/carers with prams, and customers with luggage.

This Review of Environmental Factors (REF) has been prepared to assess all matters affecting or likely to affect the environment by reason of the construction and operation of the Proposal under the provisions of Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Description of the Proposal

The key features of the proposal are summarised as follows:

- install three new lifts (and lift landings) connecting from the existing footbridge to the two commuter car parks and the platform
- provide an accessible parking space and a kiss and ride space within each of the two commuter car parks
- provide a new pedestrian crossing across the western commuter car park to connect to the existing path to Niagara Park Shopping Centre
- provide a new accessible path from the station to the bus stop on Railway Crescent near Washington Avenue
- relocate seating and carry out localised platform regrading to provide accessible paths of travel along the platform
- provide five new bicycle parking hoops
- upgrade lighting, close circuit television (CCTV), public address system, and Opal card readers.

Subject to approval, construction is expected to commence in Q3 2020 and take around 12 to 18 months to complete. A detailed description of the Proposal is provided in Chapter 3 of this REF, while an overview of the Proposal is shown in Figure ES-1-1 and Figure ES-1-2.

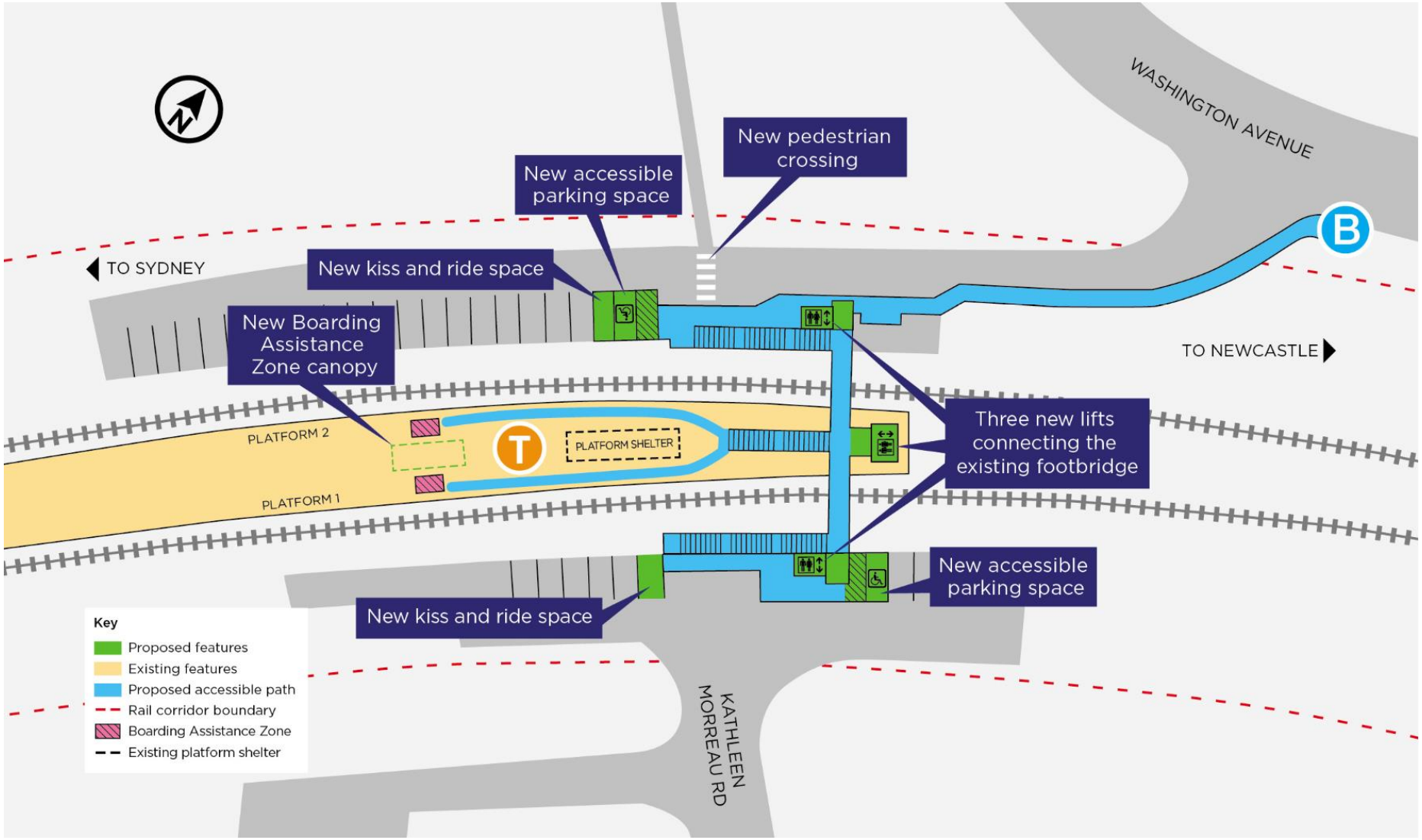

Figure ES-1-1 Key features of the Proposal (subject to detailed design)

Figure ES-1-2 Photomontage of the Proposal (subject to detailed design)

Need for the Proposal

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

The station entrances to the platform do not facilitate access for people with reduced mobility, parents/carers with prams or customers with luggage. Currently there are no accessible parking spaces, no accessible waiting spaces, no lift facilities and no accessible path of travel to the bus stop on Railway Crescent.

The Proposal is designed to achieve an enhanced customer experience outcome, deliver improved travel to and between transport modes, encourage greater public transport use and better integrate interchanges with the role and function of town centres.

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

Community and stakeholder consultation

Community consultation activities for the Proposal would be undertaken during the public display period of this REF and the public invited to submit feedback to help TfNSW understand what is important to customers and the community. The REF would be displayed for a period of two weeks. Further information about specific consultation activities is included in Section 5.3 of this REF.

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

In accordance with the requirements of the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP), consultation is required with local councils and/or public authorities in certain circumstances, including where council managed infrastructure is affected. Consultation with Central Coast Council (CCC) will be required under the Infrastructure SEPP and would continue through the detailed design and construction of the Proposal.

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

Should the Proposal proceed to construction, the community would be kept informed throughout the duration of the construction period. Figure ES-1-3 shows the planning approval and consultation process for the Proposal.

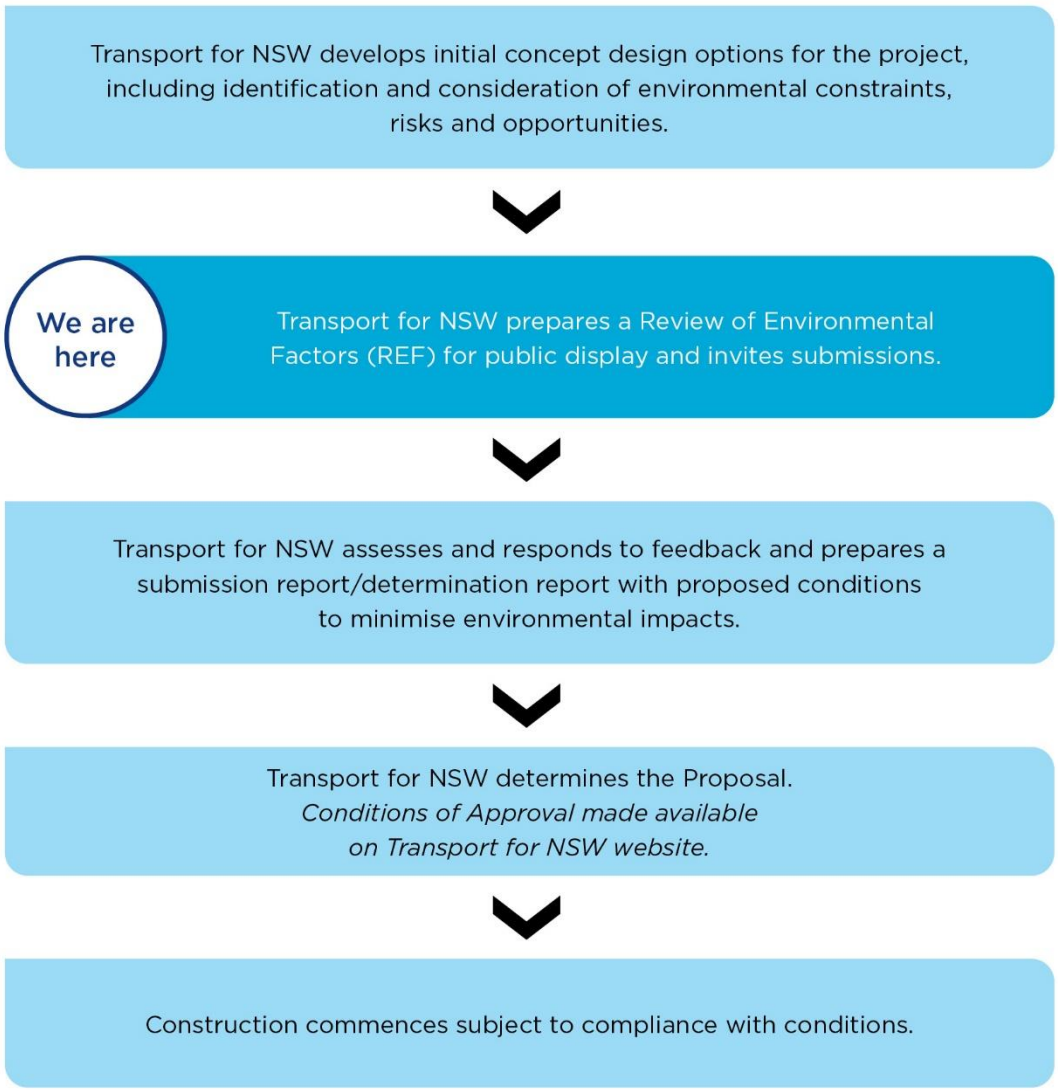

Figure ES-1-3 Planning approval and consultation process for the Proposal

Environmental impact assessment

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

The Proposal would provide the following benefits:

- improved and equitable access to Niagara Park Station for customers resulting from the installation of lift access from both the eastern and western commuter car parks to the footbridge and to the island platform
- provision of a DDA compliant accessible parking space and a formalised kiss and ride space in both the eastern and western commuter car parks
- improved amenity and safety for customers at the station resulting from improved lighting, public address system, card readers, and CCTV
- provision of a DDA compliant accessible pathway linking Niagara Park Station to bus services.

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

- minor temporary changes to vehicle and pedestrian movements to, from and around the station during construction
- up to 14 formal commuter parking spaces to be removed across the commuter car parks at the station to accommodate the new lifts
- moderate temporary impacts to the visual character due to construction activities, including hoardings and the establishment and use of a construction compound
- moderate visual impacts during construction of the Proposal from selected viewpoints due to the proximity of the residential receivers to the station.
- temporary noise and vibration impacts during construction. These impacts were assessed as variable and dependent on the construction stage and hours of work. Impacts would be mitigated through the implementation of a range of mitigate measures proposed in the NVIA (Pulse Acoustic 2020) and the TfNSW *Construction Noise and Vibration Strategy* (CNVS) (TfNSW, 2019a)

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

Conclusion

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

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

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

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

1. Introduction

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

1.1. Overview of the Proposal

1.1.1. Need for the Proposal

The Niagara Park Station Upgrade, the subject of this REF, forms part of the Transport Access Program. This Program is an initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure.

Niagara Park 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 pathways, car parking and stairs to the platform do not facilitate access for people with reduced mobility, parents or carers with prams, or customers with luggage.

The Proposal would provide safe and equitable access to the platforms and to the bus and pedestrian network surrounding the station

The Proposal 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.

The needs and objectives of the Proposal are further discussed in Chapter 2 of this Review of Environmental Factors (REF).

1.1.2. Key features of the Proposal

The key features of the Proposal are summarised as follows:

- installation of three new lifts (and lift landings) connecting the existing footbridge to the two commuter car parks and the platform
- introduction of an accessible parking space and a new kiss and ride space within each of the two commuter car parks
- introduction of a new accessible path through the western commuter car park to the bus stop on Railway Crescent
- installation of pedestrian crossing markings from the proposed accessible path across the western commuter car park to link with the existing path to Niagara Park Shopping Centre
- provision of five new bicycle parking hoops
- modifications to the platform including relocation and provision of additional fencing and, localised platform resurfacing works
- upgrades to stairs, nosings (non-slip angle applied to front edge of stair), and handrails

- lighting and closed-circuit television (CCTV) cameras to provide coverage to meet security standards for new infrastructure
- ancillary work including electrical upgrades to support new infrastructure, installation of platform hearing loops, service relocation, opal card reader relocation, drainage works, wayfinding signage and, relocation of bins and furniture.
- Freestanding canopy over Boarding Assistance Zone (BAZ).

Figure ES-1-1 shows the general layout of key elements of the Proposal based on the strategic concept design. The design would be further refined during the detailed design phase.

Subject to planning approval, construction is expected to commence in Q3 2020 and take around 12 to 18 months to complete.

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

1.2. Location of the Proposal

The Proposal is located in the suburb of Niagara Park, within the Central Coast Council (CCC) Local Government Area (LGA). Niagara Park Station is approximately 86 kilometres from Central Station, Sydney, and about five kilometres north of Gosford Station. Niagara Park is serviced by the Central Coast and Newcastle Line of the Intercity Trains Network. The location of the Proposal and its regional context is shown in Figure 1-1.

Niagara Park Station is accessed from the eastern side of the rail corridor from the Pacific Highway via Kathleen Morreau Road, and from the western side of the rail corridor at the junction of Washington Avenue and Railway Crescent.

The Proposal includes upgrades to Niagara Park Station on land owned by RailCorp, with the station facilities maintained by Sydney Trains, and rail services operated by NSW TrainLink. In addition, the Proposal includes some work within the road reserve at the junction of Washington Avenue and Railway Crescent, which is on CCC land. This proposed work within the road reserve is to facilitate a new footpath providing an accessible path of travel between the existing bus stop on Railway Crescent and the station.

The Proposal Area is shown in Figure 1-2 and includes:

- the rail corridor around Niagara Park Station (including the island platform, shelter, and footbridge)
- the station commuter car parks either side of the rail corridor
- a proposed construction compound area within the rail corridor, to the north of the eastern commuter car park
- the bus stop area, adjacent the commuter car park entry, on Railway Crescent.

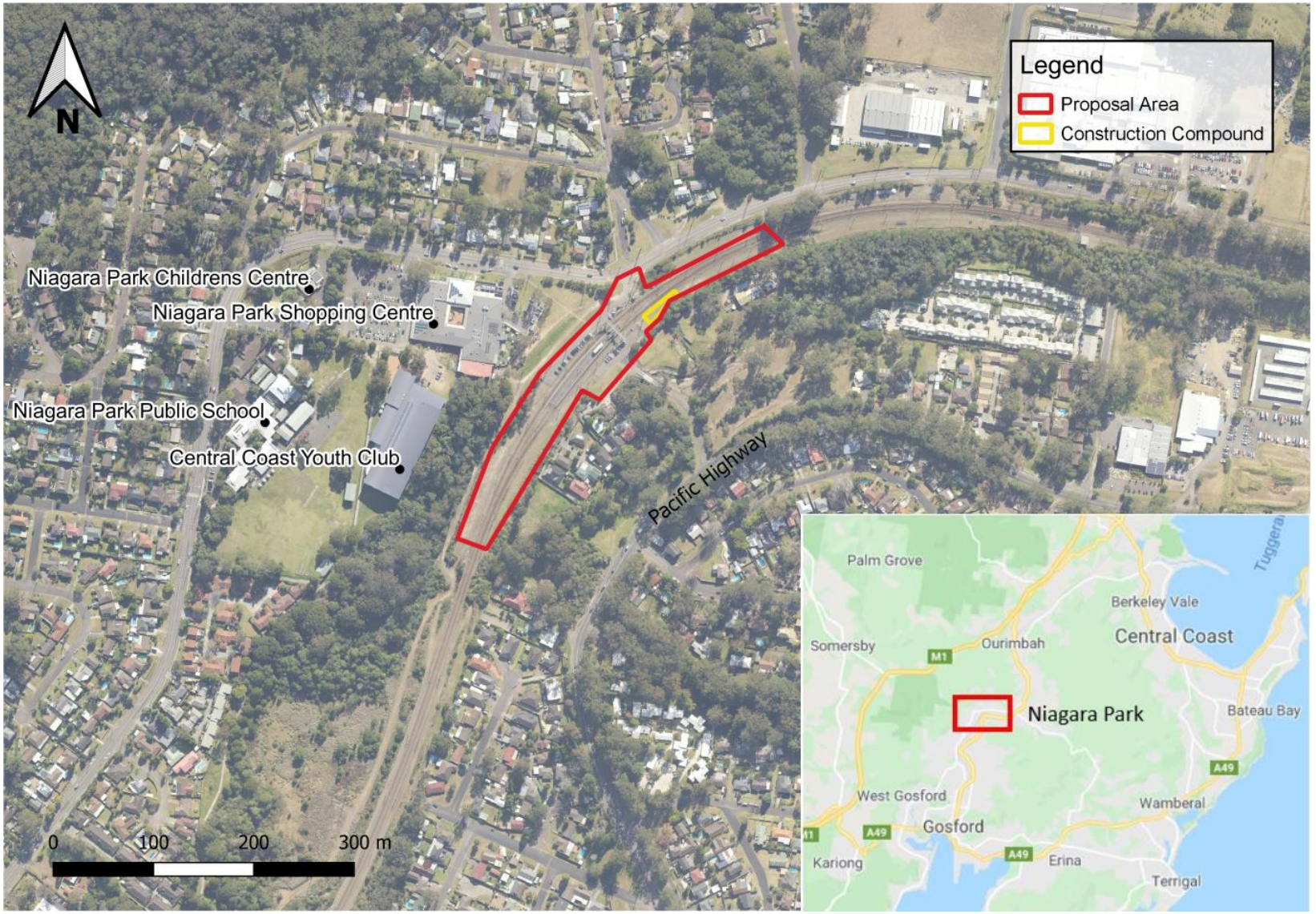

Figure 1-1 Regional and local site context

Figure 1-2 Niagara Park Station and Proposal Area

1.3. Existing infrastructure and land uses

1.3.1. Platforms and stairs

The island platform at Niagara Park Station provides services to Sydney Central (Platform 1) and services to Newcastle (Platform 2).

The platforms are accessed via an existing concrete pedestrian footbridge located at the northern end of the island platform, with stairs to commuter car parks located on both sides of the rail corridor.

The platform contains a canopy shelter, near the foot of the stairs from the footbridge, to provide weather protection for commuters (refer Figure 1-3). There is no station building or toilet facilities.

Figure 1-3 View of from footbridge looking south along the island platform

Figure 1-4 View from the southern end of the island platform looking north to the footbridge

Figure 1-5 View of footbridge from the eastern commuter car park.

1.3.2. Commuter car parks

Commuter car parks are provided on both the eastern and western sides of the rail corridor. The eastern car park is accessed by vehicles from the Pacific Highway via Kathleen Morreau Road. The car park is sealed with 16 car parking spaces at 90 degrees to the rail lines that are formally marked. The landing at the bottom of the footbridge stair is accessed directly from the car park (Refer Figure 1-6).

The western car park is accessed by vehicles from the junction of Washington Avenue and Railway Crescent. A pedestrian path provides access from the Niagara Park Shopping Centre to the western car park. The car park is sealed and has 23 car parking spaces at 90 degrees to the rail lines that are formally marked (Refer Figure 1-7). The landing and footbridge stairs are accessed directly from the car park. A small services compound with security fencing adjoins the entry to the car park (Refer Figure 1-8).

Figure 1-6 View of the eastern commuter car park from the footbridge looking south

1.3.3. Land uses

Under the *Gosford Local Environmental Plan 2014* (Gosford LEP), Niagara Park Station is zoned as SP2 Infrastructure, similarly east of the rail corridor is a designated road reserve corridor also zoned as SP2 Infrastructure. Areas to the north, east and south of the station contain low density residential areas (refer Figure 4-1).

The area west of the station contains Niagara Park Shopping Centre, Niagara Park Stadium indoor sporting centre, Niagara Park Children's Centre, and the Niagara Park Public School and is zoned as a mixture of R2 Low Density Residential and B2 Local Centre. Further to the north-east and east are industrial and commercial centres of the neighbouring suburb of Lisarow.

Figure 1-7 View of the western commuter car park from the footbridge looking south

Figure 1-8 View of the services compound alongside the entry to the western commuter car park (looking north towards Railway Crescent).

1.4. Purpose of this Review of Environmental Factors

This REF has been prepared by SNC-Lavalin Atkins on behalf of TfNSW to assess the potential impacts of the Niagara Park Station Upgrade. For the purposes of these works, TfNSW is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

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

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

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

2. Need for the Proposal

Chapter 2 discusses the need and strategic justification for the Proposal, having regard to the objectives of the Transport Access Program and the specific objectives of the Proposal. This chapter also provides a summary of the options that have been considered during development of the Proposal and a justification for the preferred option.

2.1. Strategic justification

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

The Niagara Park Station Upgrade, the subject of this REF, forms part of the Transport Access Program which is an initiative to provide a better experience for public transport customers by delivering accessible, secure, modern and integrated transport infrastructure. The Proposal would improve accessibility to Niagara Park Station and provide safe and equitable access to the platforms and commuter car parks, in line with DDA legislation and DSAPT requirements.

Table 2-1 identifies key NSW government policies applicable to the Proposal as part of the strategic justification. Further details of the application of NSW Government policies and strategies are discussed in Chapter 4 of this REF.

Table 2-1 Key NSW Government policies and strategies applicable to the Proposal

Policy / Strategy	Overview	How the Proposal aligns
Central Coast Regional Plan 2036 (DPIE, 2016)	The Central Coast Regional Plan 2036 aims to build a strong economy capable of generating jobs, providing greater housing choice, essential infrastructure, lively centres for shopping, entertainment and dining, and protecting the natural environment. It sets the vision of *A healthy natural environment,* *a flourishing economy and well-connected communities* and identifies 4 goals to achieving this.	The Proposal aligns with Goal 3 which seeks *well-connected communities and attractive lifestyles*, and includes *Direction 18: Create places that are inclusive, well designed and offer attractive lifestyles*. Specifically, this direction speaks to making places that are safe and accessible for children, older people and people with a disability. These are goals and directions inherent in the Proposal.
Future Transport Strategy 2056 (TfNSW, 2018a)	*Future Transport 2056* is an update of NSW's *Long-Term Transport Master Plan*. It is a suite of strategies and plans for transport to provide an integrated vision for the state. *Future Transport 2056* identifies 12 customer outcomes for future transport in regional NSW. These outcomes include sustaining and enhancing the liveability of our places and, making services accessible for all customers.	The Transport Access Program is identified in the Strategy as an example of the NSW Government working to improve accessibility of the rail network (outcome 5 of the strategy's vision for transport and outcome 9 of the strategy for future transport in regional NSW). New compliant access paths and lifts would provide a physically accessible and safe network allowing greater choice for people with mobility constraints to access public transport. Greater accessibility would enhance the liveability of the locality.

Policy / Strategy	Overview	How the Proposal aligns
NSW State Infrastructure Strategy 2018-2038 *(NSW Government, 2018)*	The *NSW State Infrastructure Strategy 2018–2038* builds on the NSW Government's major long-term infrastructure plans over the last seven years. The strategy sets out the government's priorities for the next 20 years, and combined with the *Future Transport Strategy 2056*, the *Greater Sydney Region Plan* and the *Regional Development Framework*, brings together infrastructure investment and land-use planning for our cities and regions. Public transport is viewed as critical to urban productivity, expanding employment opportunities by connecting people to jobs, reducing congestion, and supporting delivery of urban renewal.	The Proposal supports investment in rail infrastructure and aligns with the need to continue to provide urban public transport to support increasing population. The Proposal is also consistent with overall aims and objectives of the *Future Transport Strategy 2056* to improve transport infrastructure across NSW.
Building Momentum – State Infrastructure Strategy 2018-2038 (Infrastructure NSW, 2018)	The *State Infrastructure Strategy 2018-2038* makes recommendations for each of NSW's key infrastructure sectors including transport. The strategy identifies the Central Coast as the State's fastest growing corridor and the need to improve passenger rail services to Sydney and Newcastle to allow residents to access a wider variety of jobs and business opportunities in both cities.	The Proposal would provide for increased rail use and improve accessibility to a wider range of customers including the elderly and less mobile.
Disability Inclusion Action Plan 2018-2022 (TfNSW, 2017)	The *Disability Inclusion Action Plan 2018-2022* was developed by TfNSW in parallel with the development of *Future Transport Strategy 2056*, and in consultation with the Accessible Transport Advisory Committee, which is made up of representatives from peak disability and ageing organisations within NSW. The Plan places the needs of the customer at the centre of planning and decision-making for the transport system. This means delivering high quality services to all customers including those with disability. A key action of the Plan is to continue the roll out of the Transport Access Program to increase accessibility to stations on the basis of prioritised need.	The Transport Access Program has been identified in this Plan as a key action to ensure transport networks in Sydney are accessible for all potential Users. The Proposal has been developed in consideration of the objectives outlined in this Plan. The Proposal would assist in achieving the objectives of the Disability Inclusion Action Plan, as it seeks to improve and provide equitable access to public transport facilities.
NSW government's	The NSW government have announced five key policy priorities: • A strong economy	The TAP objectives highlight the importance of infrastructure and place and put the customer at the centre of

Policy / Strategy	Overview	How the Proposal aligns
key policy priorities.	• Highest quality education • Well-connected communities with quality local environments • Putting customers at the centre of everything we do • Breaking the cycle of disadvantage	everything we do. This aligns directly with the priority for well-connected communities with quality local environments.

2.2. Objectives of the Transport Access Program

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 people with disabilities, are less mobile, parents/carers with prams, and customers with luggage
- modern buildings and facilities for all modes that meet the needs of a growing population
- modern interchanges that support an integrated network and allow seamless transfers between transport modes for all customers
- safety improvements including extra lighting, help points, fences and security measures for car parks and interchanges, including stations, bus stops and wharves.

2.3. Objectives of the Proposal

The Proposal seeks to address the objectives of the Transport Access Program initiative and current non-compliances at Niagara Park Station in relation to compliance with DSAPT requirements.

The specific objectives of the Proposal are to:

- provide a station that is accessible for people with a disability, limited mobility, parents/carers with prams and customers with luggage
- improve customer experience and amenity (including better interchange facilities such as a formal kiss and ride space and improved footpaths around the station)
- improve integration with surrounding precinct by providing an accessible path of travel from the station to the new accessible car space, the bus stop on Railway Crescent and kiss and ride space
- improve customer safety (including additional CCTV cameras and lighting as required).

2.4. Options considered

The options for improving access to Niagara Park Station were developed following workshops and assessment by TfNSW and key stakeholders.

Two options, in addition to the ‘do-nothing’ option, were developed to address accessibility needs and desirable upgrades to provide improved customer outcomes. The two options differed only in the proposed location of the lifts and landings providing access from each of

the commuter car parks to the existing footbridge. For both options, the location of the lift between the footbridge and the platforms was identical.

2.4.1. Option 1 and Option 2

- Option 1: Installation of a lift from the western car park and a lift from the eastern car park, each connecting to the rear (northern side), of the existing footbridge. Installation of a lift on the northern side of the footbridge connecting to the island platform.
- Option 2: Installation of a lift from the western car park and a lift from the eastern car park each connecting to the sides (eastern and western sides), of the existing footbridge stairs. Installation of a lift on the northern side of the footbridge connecting to the island platform.

2.4.2. The 'do-nothing' option

Under a 'do-nothing' option, existing access to the island platform, footbridge and car parks would remain the same and there would be no changes to the way the station and surrounding area currently operates.

The NSW Government has identified the need for improving the accessibility of transport interchanges, train stations and commuter car parks across NSW as a priority under the Transport Access Program.

The 'do-nothing' option was not considered a feasible alternative as it would not meet the DDA legislation and DSAPT requirements. A 'do nothing' option would not assist in encouraging the use of public transport or meet the current and anticipated future needs of the Niagara Park community.

2.5. Justification for the preferred option

The design options were assessed in a multi-criteria analysis (MCA) workshop. The MCA included consideration of factors such as accessibility, customer experience, transport integration, urban design and precinct planning, operation and maintenance, infrastructure, deliverability, sustainability, heritage and environmental constraints, to select a preferred option.

Option 2 was selected as the preferred option, receiving the highest scores in the qualitative criteria. Option 2, with the provision of a lift to each of the eastern and western sides of the existing footbridge, provides better connectivity to the precinct and one common equitable direction of travel. Additionally Option 2, which results in the ground level lift entries facing towards the base of the stairs and the platform, provides a safer design outcome aligned with Crime Prevention Through Environmental Design (CPTED) requirements. On this basis, Option 2 was selected as the preferred option and is assessed in this REF.

3. Proposal description

Chapter 3 describes the Proposal and summarises key design parameters and construction methodology. The description of the Proposal is based on a concept design for the preferred option and is subject to detailed design.

3.1. Scope of works

As described in Section 1.1, the Proposal involves an upgrade of Niagara Park Station as part of the Transport Access Program to improve accessibility and amenity for customers.

The scope of work for the Proposal includes:

New lifts to existing footbridge

- installation of three new lifts (and lift landings) connecting to the existing footbridge. Works would include:
    - installation of a lift, attached to the side of the existing stair, connecting the eastern commuter car park to the existing footbridge
    - installation of lift, attached north of the footbridge, connecting the island platform to the existing footbridge
    - installation of a lift, attached to the side of the existing stair, connecting the western commuter car park to the existing footbridge
- retention of the existing footbridge with minor modifications which would include:
    - extensions to the existing footbridge at the eastern end, western end and centrally to provide landings for the installation of three new lifts
    - upgrade works, including removal of a portion of the existing footbridge balustrade to allow for landings to the lifts and replacement of stair treads and handrails.
    - installation of anti-throw screens around the new lifts.

Platform works

- island platform upgrades, including:
    - localised platform regrading to allow for accessible paths of travel
    - line marking for the BAZ
    - installation of a freestanding canopy over the BAZ
    - relocation of furniture to provide compliant accessible paths of travel along the length of the platform
    - relocation of fencing at the northern end of the platform and introduction of new fencing underneath stairway
    - directional tactile ground surface indicators at base of stairs, and required stair upgrades (handrails and nosings).

Western commuter car park

- introduction of an accessible parking space and a new kiss and ride space within the commuter car park. This would require the removal of three formalised car parking spaces
- provision of an accessible path from the DDA space and existing stair to the bus stop on Railway Crescent. The approximate location of this path is shown in Figure 3-2 and Figure 3-3. This would require the removal of two more car parking spaces
- introduction of pedestrian crossing markings from the base of the stairs across the commuter car park to connect to the existing path to Niagara Park Shopping Centre (refer Figure 3-1)
- introduction of 'Give Way' signage and marking at the entry and exit point of the car park
- creation of a seated resting area north of the footbridge along the access path of travel from the bus stop to the station
- removal of redundant infrastructure including guard rails and kerbs to provide accessible parking spaces and paths of travel

Eastern commuter car park

- introduction of an accessible parking space and a new kiss and ride space within the commuter car park. This would require the removal of nine formalised car parking spaces
- localised regrading to create an accessible path of travel from the base of the stairs to the lift and the accessible parking space
- removal of redundant infrastructure including guard rails.

Ancillary works

- upgrades to lighting and closed-circuit television (CCTV) cameras to provide coverage to meet security standards for new infrastructure
- upgrades to the public address system, including relocating existing speakers and extending the system to the new lift areas
- installation of platform hearing loops, new opal card readers and relocation of existing Opal card reader relocation
- installation of wayfinding signage and other signage to identify accessible features
- new or re-installation of Tactile Ground Surface Indicators (TGSIs)
- upgrades to stairs, nosings (non-slip angle applied to front edge of stair), and handrails
- protection or relocation of services and utilities
- provision of five bicycle hoops with capacity for 10 bicycles
- electricity upgrades for new infrastructure, including relocation of 11kV overhead lines to accommodate lift in eastern commuter car park.

Figure 3-1 shows the general location of key elements of the Proposal.

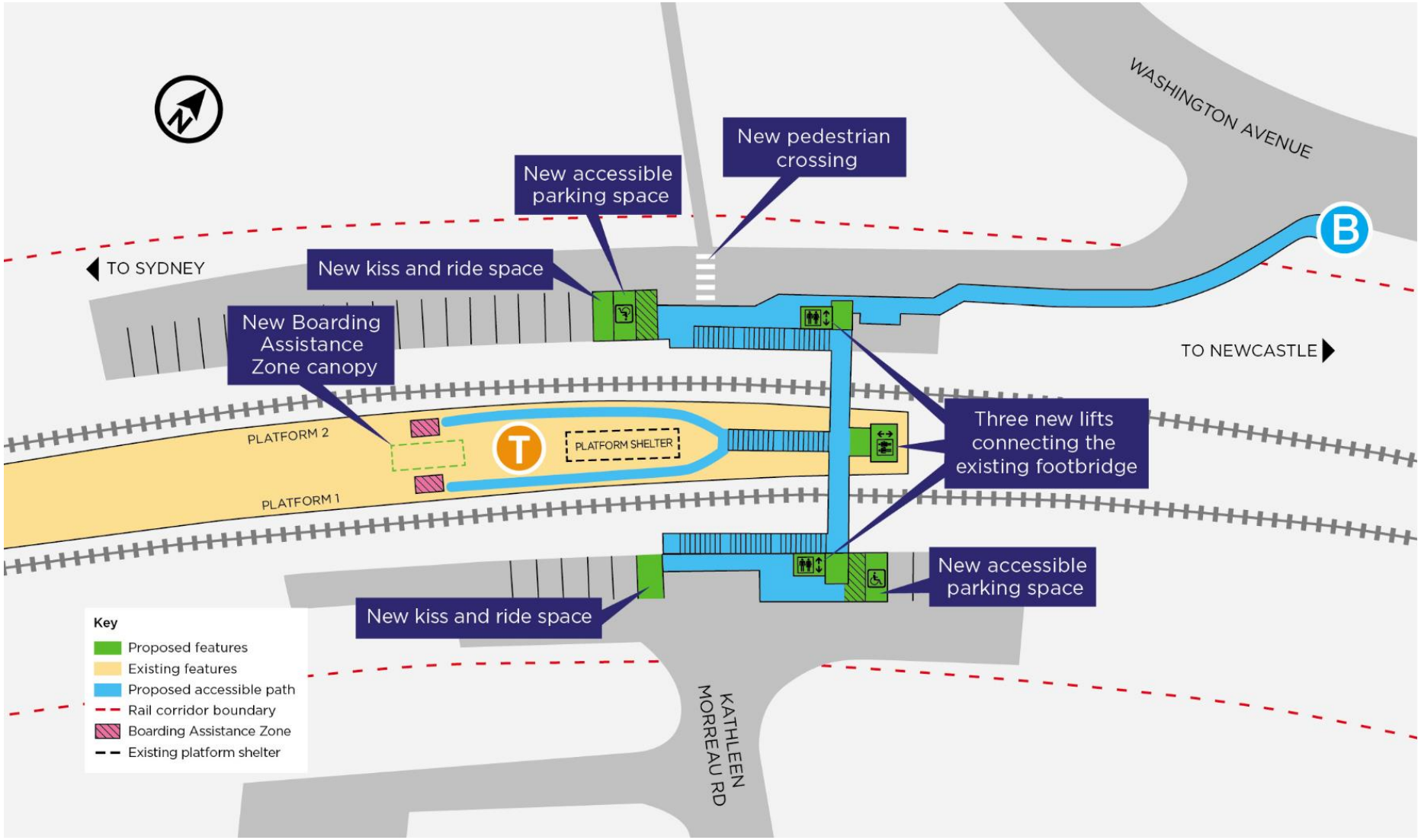

Figure 3-1 Key features of the Proposal (indicative, subject to detailed design)

Figure 3-2 This image shows the approximate location of the proposed accessible path (shaded red) from the western commuter car park to the bus stop

Figure 3-3 This image shows the approximate location of the proposed accessible path (shaded red) in the western commuter car park (the approximate lift position shaded blue)

3.1.1. Materials and finishes

Materials and finishes for the Proposal have been selected based on the criteria of durability, low maintenance and cost effectiveness, to minimise visual impacts, and to be aesthetically pleasing. Consideration has also been given to lifecycle impacts. The lifecycle impacts of a material are calculated by looking at the environmental impacts of materials from the point of extraction, through to transportation, use, operation and end of life.

Availability and constructability are also important criteria to ensure that materials can be readily sourced, and that the structures can be built with ease and efficiency. Materials are also selected for their application based on their suitability for meeting design requirements.

Subject to detailed design, the Proposal would include the following:

- lift shaft – concrete (natural grey in colour)
- lift door, control button and indicator – polished stainless steel.
- lift glazing – clear glass
- lift canopy over waiting areas – metal sheet roofing (dark charcoal grey in colour)
- lift ventilation louvre – horizontal storm proof louvre, (dark charcoal grey in colour)
- lift roof – metal roof sheeting (dark charcoal grey in colour)
- footbridge landing extensions – concrete base, with stainless steel balustrades
- platform regrading – asphalt or concrete (as per existing), materials to match existing and achieve compliance
- footpaths – concrete with non-slip textured finish.

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

3.2. Design development

3.2.1. Engineering and environmental constraints

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

Existing structures: the accessibility, placement and integrity of existing structures (such as the station island platform and the footbridge) were considered in the scoping design report and during the development of the concept design plans.

Asset Standards Authority (ASA), Sydney Trains and NSW TrainLink requirements: modifications to existing structures and new structures within the rail corridor must be designed and constructed with consideration of train impacts, structural clearances to the track, and safe working provisions.

Extension of the existing footbridge, installation of the new lifts, construction of the new DSAPT compliant paths, and upgrades to stairs is required to be undertaken in a way that allows the station to continue to operate during construction.

Construction access: Construction access is a constraint for the Proposal due to working in a live rail corridor environment. The Proposal may involve additional night works (beyond planned track possessions) to complete works restricted by the need to provide public access during train operations.

The impacts of these construction access constraints, and appropriate mitigation measures, are addressed in Sections 6.1 and 6.3.

Public access: Public access is to be maintained throughout construction of the station upgrade, excluding rail shutdown periods. Maintaining pedestrian entry to the station during construction requires careful consideration, in particular, to address the construction of the footbridge extensions and lift installations.

3.2.2. Design standards

The Proposal would be designed having regard to the following design standards:

- *Disability Standards for Accessible Public Transport 2002* (issued under the *Commonwealth Disability Discrimination Act 1992*)
- National Construction Code
- relevant Australian Standards
- Asset Standards Authority standards
- Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) Rating Scheme (v1.2)
- TfNSW Urban Design Guidelines
- Guidelines for the Development of Public Transport Interchange Facilities (Ministry of Transport, 2008).
- Crime Prevention Through Environmental Design (CPTED) principles
- other TfNSW policies and guidelines
- relevant council standards.

3.2.3. Sustainability in design

The Proposal is targeting a rating of ‘Excellent’ using the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) Rating Scheme (v1.2). The rating scheme provides an independent and consistent methodology for the application and evaluation of sustainability outcomes in infrastructure projects. The sustainability outcomes address environmental, social, economic and governance aspects.

The IS Rating Scheme is grouped into six key themes:

- management and governance
- using resources
- emissions, pollution and waste

- ecology
- people and place
- innovation.

These sustainability themes are divided into 15 performance categories, against which the Proposal would be independently assessed and assigned a rating level. The Proposal is targeting an 'Excellent' under IS Rating Scheme version 1.2.

3.3. Construction activities

3.3.1. Work methodology

Subject to approval, construction is expected to commence in Q3 2020 and take around 12 to 18 months to complete. The construction methodology would be further developed during the detailed design of the Proposal by the nominated Construction Contractor in consultation with TfNSW.

The proposed construction activities for the Proposal are identified in Table 3-1. This staging is indicative and is based on the current concept design and may change once the detailed design methodology is finalised. The staging is also dependent on the Contractor's preferred methodology, program and sequencing of work.

Table 3-1 Indicative construction staging for key activities

Stage	Activities	Timeframe[1]
Stage 1 – site establishment and enabling works	• establish site compound (erect fencing, site offices, amenities and plant/material storage areas) • remove guardrails to allow for construction of new accessible paths, and lifts • relocate/upgrade services/utilities where required • install safety barriers and hoarding around the nominated work zones and establish pedestrian paths for use during construction.	Standard hours
Stage 2 – electrical and communications	• install conduits, pits, transformer, cabling, and new distribution board.	Standard hours
Stage 3 – construction work	• excavate for lift pits • form, install reinforcing, and pour lift pits • install lift towers and lighting • excavate and install new paths • introduction of an accessible parking space and a new kiss and ride space in each commuter car park • introduction of a new BAZ canopy.	Standard hours 48 hr rail shutdown Out-of-Hours Work Period 1 (OOHW 1)[1] Out-of-Hours Work Period 2 (OOHW 2)[1]
Stage 4 – installation and finishing	• stair and balustrade modifications • install of lift components	Standard hours 48 hr rail shutdown OOHW1

Stage	Activities	Timeframe[1]
	• fencing to accessible paths and to prevent access under stairways • relocate and install new furniture • line marking, painting, wayfinding signage, tactile ground surface indicators (TGSIs) • platform regrading	OOHW2
Stage 5 - testing and commissioning	• test all new systems • commission the lifts • defect resolution.	Standard hours
Stage 6 – demobilisation	• remove all construction hoardings/temporary fencing • remove site compound and clear site • remove environmental, safety and traffic controls.	Standard hours

Note 1 - Work outside of standard construction hours is defined as Out-of-Hours Work (OOHW) and can be divided into two periods of sensitivity. OOHW Period 1 is defined as Monday to Saturday 6:00pm to 10:00pm, Saturday 7:00am to 8:00am and 1:00pm to 10:00pm, and Sunday and public holidays 8:00am to 6:00pm. OOHW Period 2 is defined as Monday to Saturday 10:00pm to 7:00am (nights) and Sundays and public holidays 6:00pm to 8:00am (nights).

3.3.2. Plant and equipment

An indicative list of plant and equipment that would be required is provided below. Additional equipment that would likely to be used would be identified during detailed design by the Construction Contractor.

- power tools (e.g. drill, hammer drill, saw, grinder torque and impact wrenches)
- hi-rail plant (e.g. rail mounted elevated work platform, flatbed, hiab, excavators, piling rig, dump trucks)
- trucks (various types and sizes e.g. skip trucks, suction truck, hiab for deliveries)
- demolition saw
- bobcat
- lighting towers
- coring machine
- forklift
- water cart
- jack hammer
- hydraulic/rock saw
- rattle gun
- mobile crane
- paving machine
- rubber tracked excavators, piling rigs
- elevated work platform, scissor lift
- vibratory roller / compaction plate
- concrete pump and truck
- generator
- nail gun

3.3.3. Working hours

The Proposal would be undertaken during recommended standard (NSW) Environment Protection Authority (EPA) construction hours, which are as follows:

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

Certain works may need to occur outside recommended standard hours and would include night works and works during routine rail shutdowns. Routine rail shutdowns are scheduled closures that would occur regardless of the Proposal when part of the rail network is temporarily closed for maintenance and trains are not operating. Works required to be carried out during rail shutdown are listed in Table 3-1.

Out of hours works (OOHW) are required for some activities to minimise disruptions to customers, pedestrians, motorists and nearby sensitive receivers; and to ensure the safety of railway workers and operational assets. OOHW and can be divided into two periods of sensitivity. OOHW Period 1 is defined as Monday to Saturday 6:00pm to 10:00pm, Saturday 7:00am to 8:00am and 1:00pm to 10:00pm, and Sunday and public holidays 8:00am to 6:00pm. OOHW Period 2 is defined as Monday to Saturday 10:00pm to 7:00am (nights) and Sundays and public holidays 6:00pm to 8:00am (nights).

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

3.3.4. Earthworks

Excavations and earthworks would generally be required for the following:

- excavation of lift pits
- construction of new accessible paths
- other minor civil work.

Excavated material would be reused onsite where possible or managed in accordance with relevant legislative requirements. It is estimated that about 50-100 cubic metres of excavated material would be generated by path regrading and excavation of the lift pits, and, depending on classification of this excavated material, that most can be reused in path regrading on site.

3.3.5. Source and quantity of materials

The source and quantity of materials would be determined during the detailed design phase of the Proposal and would consider the requirements of the ISCA IS Rating Scheme v1.2. Materials would be sourced from local suppliers where practicable. Reuse of existing and recycled materials would be undertaken where practicable.

3.3.6. Traffic access and vehicle movements

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

- increased construction vehicle traffic, including light and heavy vehicles within the station precinct and local streets
- temporary increased demand for all-day parking for construction staff
- loss of commuter parking during any regrading of car park and marking for the accessible car parking space and kiss and ride space
- temporary detours and disruptions to pedestrian movements in and around the station.

A detailed construction methodology and associated management plans, including a Construction Environmental Management Plan (CEMP), would be developed prior to commencement of the Proposal to manage potential traffic and access impacts.

3.3.7. Ancillary facilities

A temporary construction compound would be needed to accommodate a site office, amenities, laydown and storage area for materials. An area for this main construction compound has been proposed to the north of the eastern commuter car park. The area is currently unused rail corridor land which provides an access path along the rail corridor to an existing substation (refer Figure 1-2, Figure 3-4 and Figure 3-5). Access to the substation would be maintained during construction. Impacts associated with utilising this area have been considered in the environmental impact assessment.

In addition to this temporary construction compound, small temporary compounds would also be set up in both the eastern and western commuter car parks, centred around the proposed lift locations in order to facilitate construction works. Temporary hoarding and fencing would be setup to restrict access to construction workers.

Access for hi-rail construction vehicles during track possessions is proposed from the existing access pad at nearby Ourimbah Station.

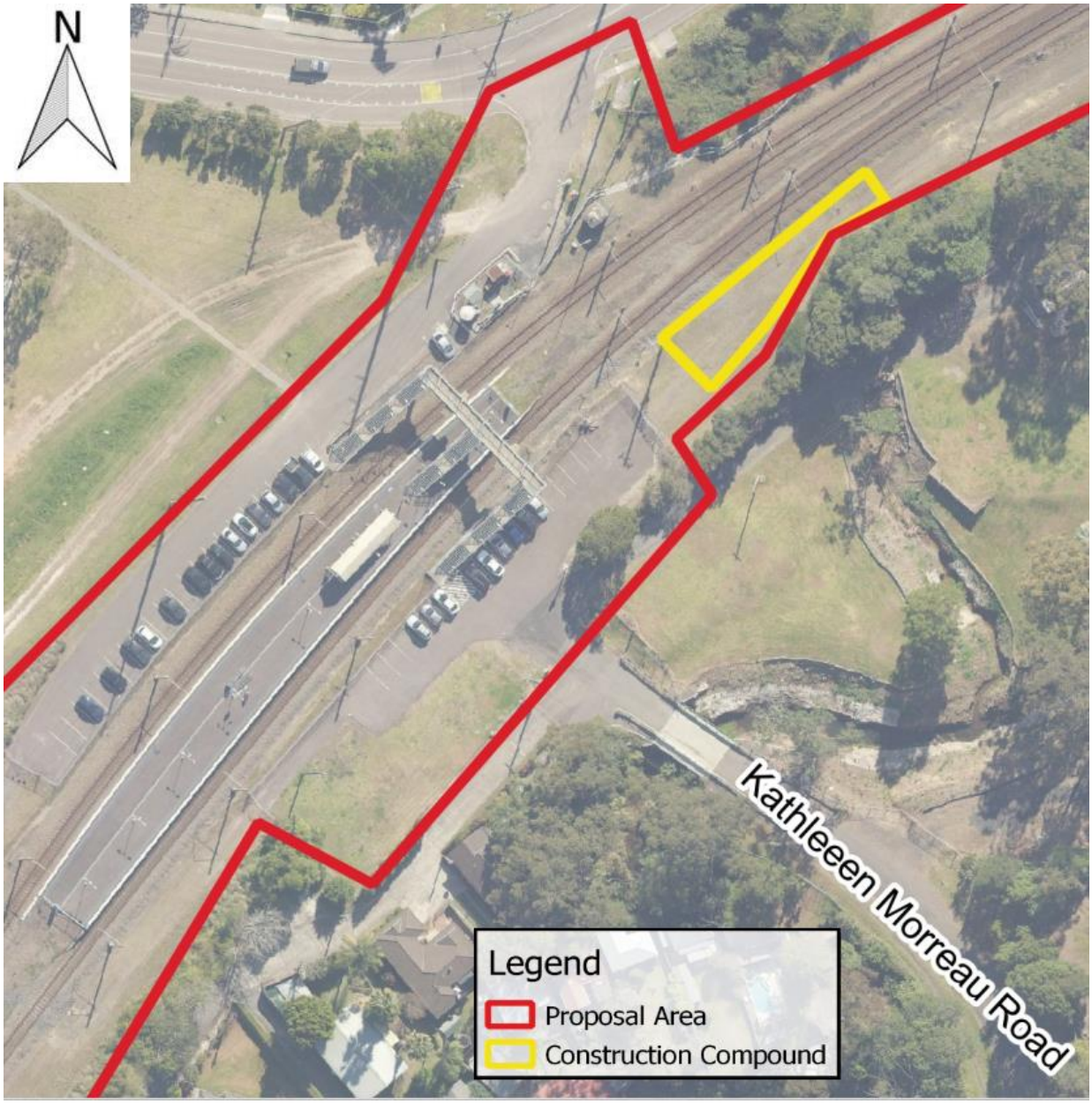

Figure 3-4 Location of proposed temporary construction compound area (yellow).

Figure 3-5 Proposed construction compound area to the left of the rail lines, with existing access from the northern end of the eastern commuter car park

3.3.8. Public utility adjustments

A dial before you dig (DBYD) investigation was completed during the concept design development. Implications from the proposed scope of works were identified for an existing gas line and an existing CCC water main, both of which traverse the rail corridor (Figure 3-6). Other underground services impacted within the Proposal are include low voltage lines, communications, Station data and CCTV.

An upgrade of the Ausgrid power supplies to the station would be required to service the new lifts. The works would include an upgrade of the distribution boards from single to three phase power, the installation of a new transformer or substation, low voltage cable installations to connect both sides of the station, and upgrades to circuit breakers, switches and wiring to support a three-phase power supply.

The proposed lift locations would impact existing underground low voltage cables that would need to be relocated.

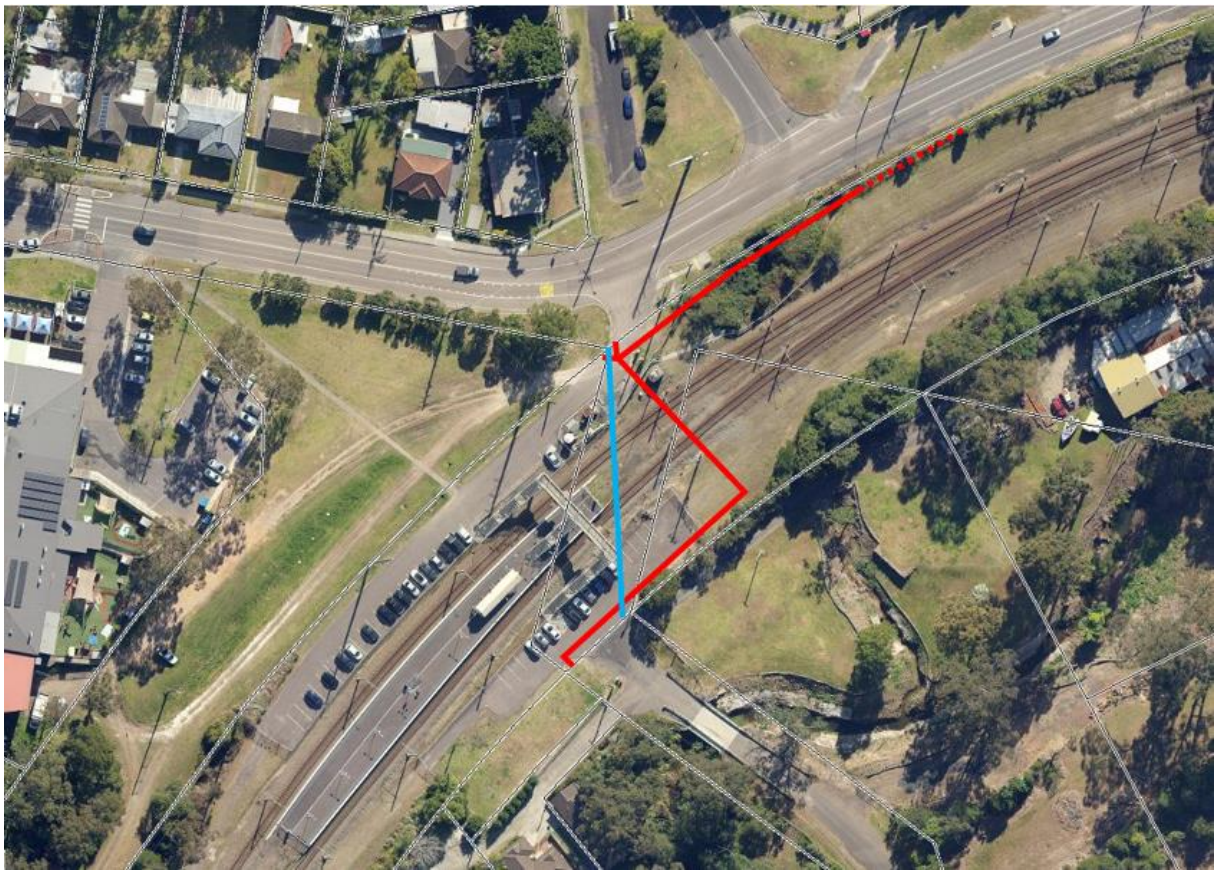

Figure 3-6 Arial image depicting the approximate locations of the Jemena gas line (red) and CCC water main (blue) where they cross the rail corridor.

Relocation of communications cables, drainage and stormwater would be required for the regrading of the platforms and construction of the new paths.

The proposed location of Lift 3 is beneath existing 11kV overhead electricity lines, which traverse the eastern commuter car park (Figure 3-7). These high voltage electricity lines will be realigned to accommodate the new lift as part of the Proposal.

Figure 3-7 high voltage electricity lines cross the proposed Lift 3 location and would need to be realigned.

3.4. Property acquisition

TfNSW does not propose to acquire any property as part of the Proposal.

The works in the Washington Drive and Railway Crescent road reserves to provide the accessible path to the existing bus stop would be carried out pursuant to the exemption from Section 138 of the *Roads Act 1993* provided in Clause 5 of Schedule 2 of the *Roads Act 1993*.

3.5. Operation and maintenance

The future operation and maintenance of the upgraded station would be subject to discussions with Sydney Trains, NSW TrainLink, TfNSW and CCC.

Operation of the train services would remain with NSW TrainLink, while maintenance of the station assets within the rail corridor, including access paths, station facilities and the lifts would be the responsibility of Sydney Trains.

4. Statutory considerations

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

4.1. Commonwealth legislation

4.1.1. Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places - defined in the EPBC Act as 'matters of National Environmental Significance'. The EPBC Act requires the assessment of whether the Proposal is likely to significantly impact on matters of NES or Commonwealth land. These matters are considered in full in Appendix A.

The Proposal would require removal of any trees or any vegetation listed under the EPBC Act.

No matters of National Environmental Significance or Commonwealth land are identified as being impacted by the Proposal. Therefore, a referral to the Commonwealth Minister for the Environment is not required.

4.1.2. Other Commonwealth legislation

Table 4-1 discusses other relevant Commonwealth legislation applicable to the Proposal.

Table 4-1 Other Commonwealth legislation applicable to the Proposal

Applicable legislation	Considerations
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	There is an obligation on a person who discovers anything which he or she has reasonable grounds to suspect are Aboriginal remains to report that discovery to the Minister, giving particulars of the remains and their location. There are no known sites at this location. However, if unexpected archaeological items or items of Aboriginal heritage significance are discovered during the construction of the Proposal, all works would cease, and appropriate advice sought as per the TfNSW *Unexpected Heritage Finds Guideline* (TfNSW, 2019c).
Disability Discrimination Act 1992 (DDA Act)	This Act aims to eliminate as far as possible, discrimination against persons on the ground of disability in areas including access to premises and the provision of facilities, services and land. The Proposal would be designed having regard to the requirements of this Act.

4.2. NSW legislation and regulations

4.2.1. Transport Administration Act 1988

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

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

2A Objects of Act

…

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

b) to promote the integration of the transport system,

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

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

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

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

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

…

(a) ***Environmental sustainability***
To promote the delivery of transport services in an environmentally sustainable manner.

(b) ***Social benefits***
To contribute to the delivery of social benefits for customers, including greater inclusiveness, accessibility and quality of life.

4.2.2. Environmental Planning and Assessment Act 1979

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

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

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

4.2.3. Other NSW legislation and regulations

Table 4-2 provides a list of other relevant legislation applicable to the Proposal.

Table 4-2 Other NSW legislation applicable to the Proposal

Applicable legislation	Considerations
Biodiversity Conservation Act 2016 (BC Act)	Under Section 2.4 of the BC Act it is an offence to damage the habitat of a threatened species or threatened ecological community, as listed in Schedule 1 and 2 of the Act. The Proposal would not require removal of any trees or vegetation, nor affect any threatened flora species. The Proposal was considered highly unlikely to result in significant impacts to any threatened species (Refer to Section 6.6).
Biosecurity Act 2015	Clause 22 requires any person who deals with a biosecurity matter has a duty to ensure that in so far as is reasonably practicable, the potential biosecurity risk is prevented, eliminated or minimised. Appropriate management methods would be implemented during construction if declared noxious weeds in the CCC LGA are identified (refer to Section 6.6).
Contaminated Land Management Act 1997 (CLM Act)	The CLM Act regulates significantly contaminated land through requirements for notification to the EPA, investigation, remediation and recovery of costs from the person responsible The NSW Environment Protection Authority (EPA) must be notified by the property owner in writing of any contamination identified within the Proposal site in accordance with the requirements of Section 60 of the Act. The site has not been declared as a contaminated site under the CLM Act (refer to Section 6.8).
Heritage Act 1977 (Heritage Act)	Sections 57 and 60 require approval for works which may have an impact upon items listed on the State Heritage Register. Sections 139 and 140 require similarly require approval where relics are likely to be exposed. For any works which may have an impact upon items listed on a Section 170 heritage and conservation register maintained by a government agency, notification to the Heritage Division may be required. There are no items of state or local heritage significance within the Proposal site or in the vicinity (refer Section 6.5).
Protection of the Environment Operations Act 1997 (PoEO Act)	The Proposal does not involve a 'scheduled activity' under Schedule 1 of the PoEO Act. Accordingly, an Environment Protection Licence (EPL) is not required for the Proposal. However, in accordance with Part 5.7 of the PoEO Act, TfNSW would notify the EPA of any pollution incidents that occur onsite. This would be managed in the CEMP to be prepared and implemented by the Construction Contractor.
Roads Act 1993 (Roads Act)	Section 138 of the Roads Act requires consent from the relevant road authority for the carrying out of work in, on or over a public road. However, clause 5(1) in Schedule 2 of the Roads Act states that public authorities do not require approval for works on unclassified roads.

Applicable legislation	Considerations
	The Proposal would involve work within the road reserve of Washington Avenue and Railway Crescent which is an Unclassified Regional Road under the control of CCC. Consent under the Roads Act is not required. However, a Road Occupancy Licence/s would be obtained from CCC for the work to install a new pedestrian path to the existing bus stop (refer to Section 6.1).
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	TfNSW would carry out the Proposal having regard to the requirements of the WARR Act. A site-specific Waste Management Plan would be prepared.
Water Management Act 2000 (WM Act)	Approval under the WM Act is required for certain types of developments and activities that are carried out in or near a river, lake or estuary, or may intersect groundwater. Under Section 91F of the WM Act, it is an offence to carry out an activity that would interfere with an aquifer unless a controlled activity approval has been issued. The Proposal is not considered to give rise to any activities that will adversely impact surface waterbodies or groundwater.

4.2.4. Key State Environmental Planning Policies

State Environmental Planning Policy (Infrastructure) 2007

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

The Infrastructure SEPP prevails over all other environmental planning instruments except where there is an inconsistency with *State Environmental Planning Policy (State Significant Precincts) 2005* or certain provisions of *State Environmental Planning Policy (Coastal Management) 2018*.

Division 15, Clause 79 of the Infrastructure SEPP allows for the development of 'rail infrastructure facilities' by or on behalf of a public authority without consent on any land (i.e. assessable under Part 5 of the EP&A Act). Clause 78 defines '*rail infrastructure facilities' as*

> *including elements such as 'railway stations, station platforms and areas in a station complex that commuters use to get access to the platforms', 'public amenities for commuters', 'associated public transport facilities for railway stations', 'cuttings', 'fences', 'bridges', 'pedestrian and cycleway facilities*'.

Consequently, development consent is not required for the Proposal which is classified as a rail infrastructure facility, however the environmental impacts of the Proposal have been assessed under the provisions of Part 5, Division 5.1 of the EP&A Act.

Clause 13 outlines requirements for consultation with councils, where development impacts on council related infrastructure or services. This is discussed further in Section 5.2.

State Environmental Planning Policy 55 – Remediation of Land

State Environmental Planning Policy No.55 — Remediation of Land (SEPP 55) provides a State-wide approach to the remediation of contaminated land for the purpose of minimising the risk of harm to the health of humans and the environment. While consent for the Proposal

is not required, the provisions of SEPP 55 have still been considered in the preparation of this REF.

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

4.2.5. Gosford Local Environmental Plan 2014

The Proposal is located within the Central Coast LGA. The *Gosford Local Environmental Plan 2014* (Gosford LEP) remains the in-force LEP for the LGA.

The Infrastructure SEPP prevails over all other environmental planning instruments (such as LEPs) except where there is an inconsistency with *State Environmental Planning Policy (State Significant Precincts) 2005* or certain provisions of *State Environmental Planning Policy (Coastal Management) 2018*. However, despite the Infrastructure SEPP prevailing, during the preparation of this REF, consistency of the Proposal with the provisions of Gosford LEP was considered (refer Table 4-3).

The rail corridor is zoned SP2 (Rail Infrastructure Facility), and the road reserve and Washington Avenue and Railway Crescent to the west area also zoned SP2 (Road), refer Figure 4-1.

Table 4-3 Relevant provisions of the Gosford LEP 2014

Provision description	Relevance to the Proposal
Clause 1.2 – Aims of the Plan	The aims of the Gosford LEP include: • to promote the efficient and equitable provision of public services, infrastructure and amenities, • to promote design principles in all development to improve the safety, accessibility, health and wellbeing of residents and visitors
Part 2 – Zone objectives and land use table	Under the Gosford LEP the station and the associated rail corridor is zoned SP2 Infrastructure (Rail Infrastructure Facility). The objectives of the zone include to provide for infrastructure and related uses, and to ensure development is compatible with the desired future character of the zone.
Clause 7.1 – Acid Sulfate Soils	The objective of this clause is to ensure development does not disturb, expose or drain ASS and cause environmental damage. In the accompanying ASS maps, the Proposal area is identified as Class 5 Works in Class 5 areas within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the water table is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land require development consent. The Proposal is exempt from the requirement for development under the ISEPP. Regardless, the Proposal is not located within 500m of adjacent Class 1, 2, 3, or 4 land nor is likely to lower the water table.
Clause 7.2 – Flood Planning	The objectives include: • to minimise the flood risk to life and property associated with the use of land.

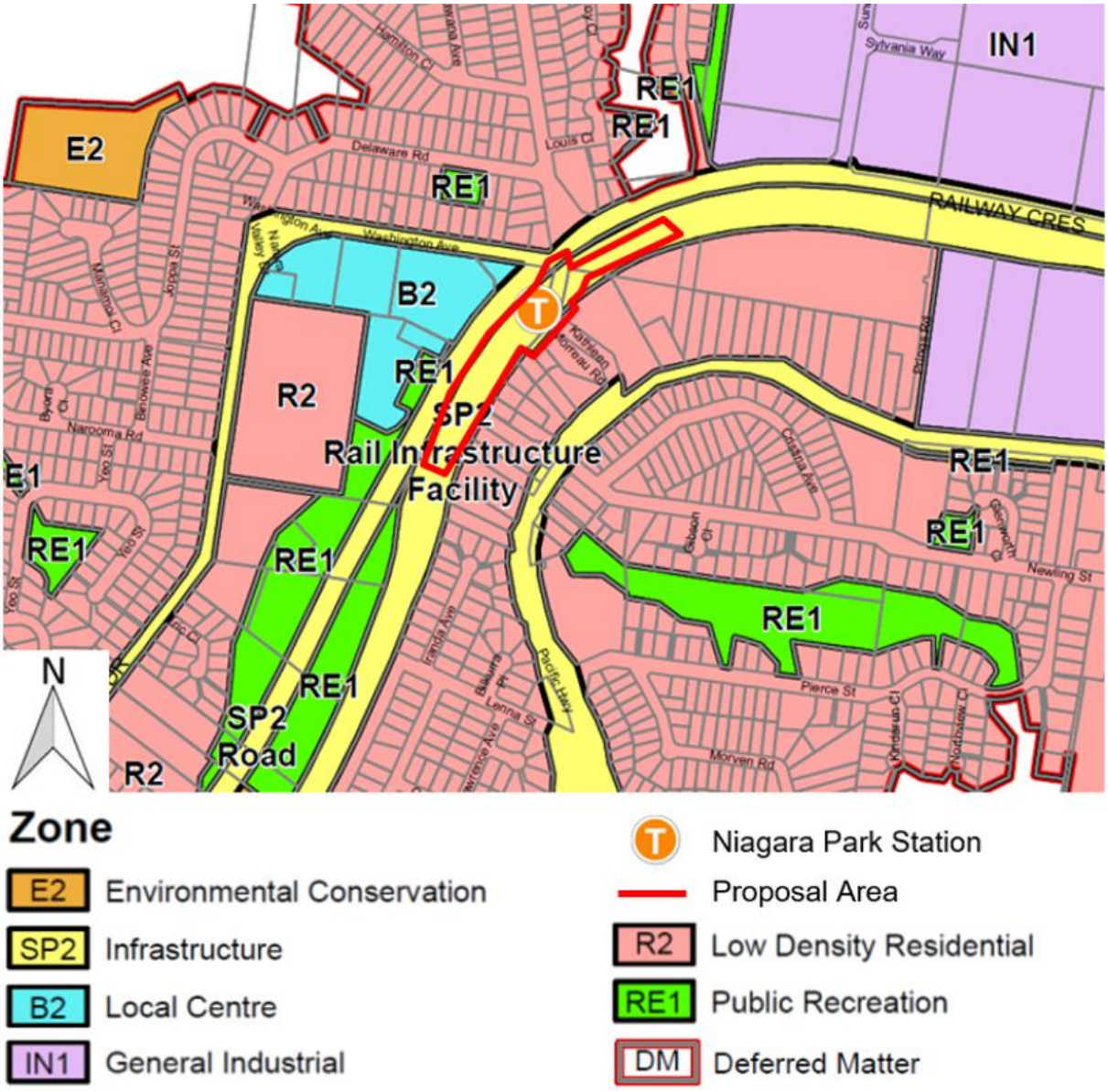

Figure 4-1 Gosford LEP zoning map (Source Gosford LEP 2014, Sheet LZN_014C)

4.3. Ecologically sustainable development

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

- the precautionary principle – If there are threats of serious or irreversible damage, a lack of full scientific uncertainty should not be used as a reason for postponing measures to prevent environmental degradation

- intergenerational equity – the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations
- conservation of biological diversity and ecological integrity – the diversity of genes, species, populations and their communities, as well as the ecosystems and habitats they belong to, should be maintained or improved to ensure their survival
- improved valuation, pricing and incentive mechanisms – environmental factors should be included in the valuation of assets and services.

The principles of ESD have been adopted by TfNSW throughout the development and assessment of the Niagara Park Station Upgrade proposal. Section 3.2.3 summarises how sustainability has been considered in the design development of the Proposal. Section 6.13 includes an assessment of the Proposal on sustainability, and Section 7.2 lists mitigation measures to ensure ESD principles are incorporated during the construction phase of the Proposal.

5. Community and stakeholder consultation

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

5.1. Stakeholder consultation during concept design

As part of the design development for the Proposal, meetings and workshops were held to ensure that key stakeholders were involved in the collaborative design process. Key stakeholders included:

- TfNSW
- Sydney Trains
- NSW TrainLink

Workshops and meetings undertaken during design development included:

- constructability workshops
- safety in design workshops with relevant TfNSW and Sydney Trains representatives
- multi-criteria analysis workshops with relevant TfNSW representatives
- design and scope development workshops
- risk management workshops

5.2. Consultation requirements under the Infrastructure SEPP

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

Table 5-1 provides details of consultation requirements under the Infrastructure SEPP for the Proposal.

Table 5-1 Infrastructure SEPP consultation requirements

Clause	Clause particulars	Relevance to the Proposal
Clause 13 Consultation with Councils – development with impacts on council related	Consultation is required where the Proposal would result in: • substantial impact on stormwater management services • generating traffic that would place a local road system under strain	The Proposal includes the introduction of a new pedestrian path within the road reserve of Railway Crescent connecting the existing bus stop to the station. The works would involve excavation and disruption to pedestrian movement.

Clause	Clause particulars	Relevance to the Proposal
infrastructure and services	• involve connection to or impact on a council owned sewerage system • involve connection to and substantial use of council owned water supply • significantly disrupt pedestrian or vehicle movement • involve significant excavation to a road surface or footpath for which Council has responsibility.	The Proposal includes excavation for the lift pits adjacent to a Council water main that could be impacted. TfNSW would consult council throughout public display, detailed design, and construction.
Clause 14 **Consultation with Councils – development with impacts on local heritage**	Consultation is required where the Proposal would result in: • has a 'not minor or inconsequential impact' on local heritage item (if not also a State heritage item) • substantially impact on a heritage conservation area.	There are no heritage items located within proximity to the works therefore consultation under Clause 14 of the Infrastructure SEPP is not required.
Clause 15	Where railway station works: • impact on land that is susceptible to flooding by the probable maximum flood event (PMF). • Public authority must not carry out works unless they have given written notice to council for the area and taken into account any response received within 21 days after the notice.	The Proposal area involves land susceptible to flooding by the PMF (refer Section 6.9). Notice of the proposed works must be given to CCC, and any response received within 21 days of the notice taken into account for the Proposal.
Clause 15A **Consultation with Councils – development with impacts on certain land within the coastal zone**	Consultation is required where the Proposal would result in: • impact on land within a coastal vulnerability area and is inconsistent with certified coastal management program that applies to that land.	The Proposal is not within a coastal vulnerability area. Accordingly, consultation with Central Coast Council is not required under clause 15A of the Infrastructure SEPP.
Clause 15AA	Where railway station works: • impact on flood liable land - written notice must be given (together with a scope of works) to the State Emergency Services and taken into consideration any response to the notice received from the State Emergency Service within 21 days after the notice is given.	The Proposal area involves flood liable land (refer Section 6.9). Notice of the proposed works must be given to State Emergency Services, and any response received within 21 days of the notice taken into account for the Proposal.
Clause 16 **Consultation with public authorities**	For specified development which includes development that is undertaken adjacent to land reserved under the *National Parks and Wildlife Act 1974*, consultation with the DPIE	The Proposal is not located adjacent to land reserved under the *National Parks and Wildlife Act 1974*. Accordingly, consultation with the DPIE Energy, Environment and

Clause	Clause particulars	Relevance to the Proposal
other than Councils	Energy, Environment and Science Group is required. Consultation with other agencies is required when specified by the Infrastructure SEPP.	Science Group on this matter is not required.

5.3. Consultation strategy

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

The objectives of the consultation strategy are to:

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

5.3.1. Public display

Transport for NSW supports the Government's response to Coronavirus and continues to work closely with NSW Health and other government agencies, as well as external operators state-wide to ensure the safety of customers and help prevent the spread of Coronavirus.

As transport is an essential service, the delivery of vital infrastructure programs is continuing while ensuring the safety of our staff, customers and the community.

An important part of this is engaging with the local community so we can better understand their needs and deliver improved customer and community outcomes. Given these circumstances, the REF display strategy adopts a range of online and non-face-to-face consultation mechanisms, including:

- targeted consultation with local businesses, schools and other community groups through phone calls, emails and online briefings
- distribution of a project newsletter outlining the Proposal and inviting feedback on the REF to the local community

- advertisement of the REF public display in local newspapers with a link to the TfNSW website that includes a summary of the Proposal and information on how to provide feedback
- installation of project signage at the station
- consultation with council/s, Sydney Trains, NSW TrainLink and other non-community stakeholders
- geographically targeted social media advertising via Facebook to inform locals of the proposal and invite their feedback online.

Community consultation activities for the Proposal would be undertaken during the public display of this REF. The REF would be displayed for a period of approximately two weeks. The display period of the REF is Wednesday 20 May to 5pm Tuesday 2 June 2020.

The REF would be placed on public display on the TfNSW website[1], NSW Government Have Your Say website[2].

Further information on the Proposal may be requested by contacting the Project Infoline (1800 684 490) or by email: projects@transport.nsw.gov.au.

Feedback can be sent to:

- Email: projects@transport.nsw.gov.au
- Mail:

  Transport Access Program – Niagara Park Station Upgrade

  Associate Director Environmental Impact Assessment
  Transport for NSW
  Locked Bag 6501
  St Leonards NSW 2065

Or submitted to:

- NSW Government HaveYourSay website: https://www.nsw.gov.au/niagara-park-station-upgrade/

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

[1] https://www.transport.nsw.gov.au/niagarapark
[2] https://www.nsw.gov.au/niagara-park-station-upgrade

5.4. Aboriginal community involvement

An Aboriginal Heritage Information Management System (AHIMS) search was undertaken for the area covered by the Proposal plus a 200-metre radius on 5 December 2019. No Aboriginal sites were identified in or near the Proposal site.

The extensive landscape modification that has occurred across the Proposal area suggests that intact evidence of Aboriginal land use is unlikely to occur within the boundaries of the Proposal area. Similarly, the high level of disturbance would suggest that the archaeological potential of the area is low. Therefore, it was not considered necessary to undertake specific Aboriginal consultation.

5.5. Ongoing consultation

At the conclusion of the public display period for this REF, TfNSW would acknowledge receipt of feedback from each respondent. The issues raised by the respondents would be considered by TfNSW before determining whether to proceed with the Proposal (refer Figure ES-1-3).

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

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

6. Environmental impact assessment

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

Project-specific mitigation measures are discussed in each of the sub-sections, while a full list of mitigation measures for the Proposal is provided in Section 7.2.

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

6.1. Traffic, transport and access

The assessment of potential impacts to traffic, transport and access included a desktop analysis and site inspection.

6.1.1. Existing environment

A detailed description of the existing infrastructure at Niagara Park Station, including the island platform, car parks and entrances, is included in Section 1.3.

Surrounding road network

As discussed in Section 1.2, Niagara Park Station is located between Washington Avenue/Railway Crescent on the west and Pacific Highway on the east. Washington Avenue/Railway Crescent provides direct vehicle access on the western side while access to the station on the eastern side from the Pacific Highway is via Kathleen Morreau Road.

Pacific Highway is a major State arterial road and a designated 25 metre B-double route. Washington Avenue/Railway Crescent is an unclassified regional road, while and Kathleen Morreau Road is part of the local road network.

Parking

Niagara Park Station is supported by existing asphalt commuter car parks located on both sides of the station. Both car parks are sealed and there is a total capacity of 39 car parks (23 spaces in the west and 16 spaces in the east). There are no existing accessible parking spaces or any formal kiss and ride spaces.

Car parking is unrestricted on Washington Avenue/Railway Crescent and on Kathleen Morreau Road. However, Kathleen Morreau Road is very narrow, and the shoulders are not paved, making parking difficult. During the assessment it was observed that parking in both commuter car parks was almost fully utilised.

The surrounding road network and parking around Niagara Park station is shown in Figure 6-1.

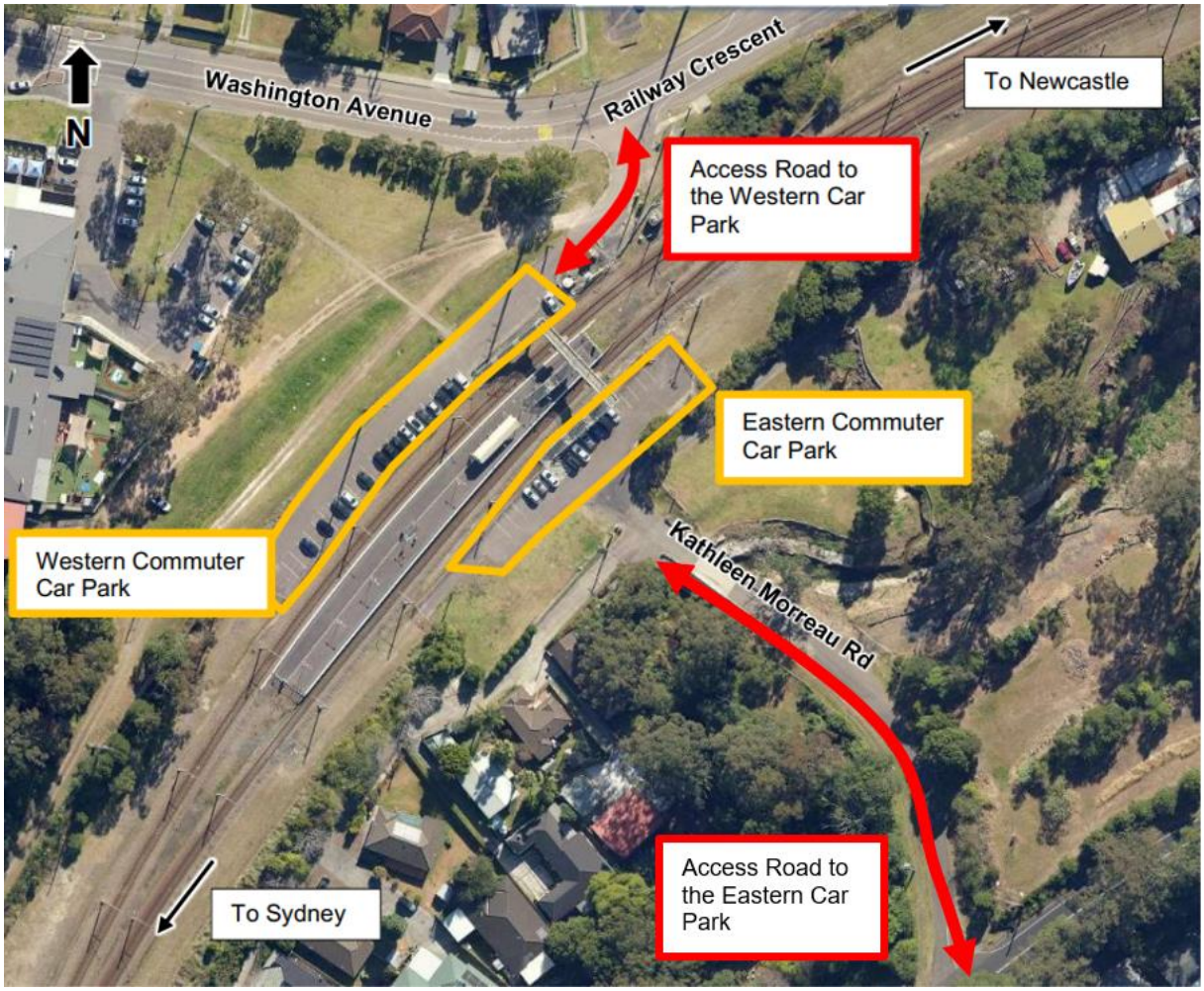

Figure 6-1 Surrounding road network and parking

Station platforms and access

Niagara Park Station is a single island platform with the eastern side of the platform (Platform 1) providing services south to Sydney and the western side of the platform (Platform 2) providing services north through to Newcastle.

The island platform is currently accessed by customers via stairs and a footbridge from both the western and eastern commuter car parks. Niagara Park Station is currently not accessible as per DDA and DSAPT requirements, as elements of the station are below current standards.

Public transport

Rail

Niagara Park Station is on the CCN Central Coast & Newcastle Line which provides services north to Newcastle and south to Central Station in Sydney. During weekday peak hours, in the mornings, up to two trains per hour stop in the southbound direction and up to two trains

per hour in the northbound direction. In the evenings up to four northbound trains per hour stop and up to two southbound trains stop per hour[3].

Bus

There is a southbound bus stop on Railway Crescent, immediately north of the commuter car park entrance, and northbound stops on Washington Avenue and Railway Crescent, which serve Niagara Park Station. The stops service Route 36 (Westfield Tuggerah to Gosford via Niagara Park). This bus route generally offers an hourly service both on weekdays and weekends.

Taxi

There is no formal taxi rank at the station.

Pedestrian and cycling infrastructure

From the western side of the station, pedestrians can access the station via a paved footpath that cuts across an open field from the adjacent Niagara Park Shopping Centre located on Washington Avenue. Pedestrians can also access the station from the bus stop on Railway Crescent via the access road to the western commuter car park. From the Pacific Highway, pedestrians can access the station via an unpaved footpath along Kathleen Morreau Road. This is shown in Figure 6-2 below. Figure 6-3 shows the condition of the existing pedestrian infrastructure to the station.

[3] Central Coast & Newcastle Line Timetable, 21 Feb 2020, TfNSW

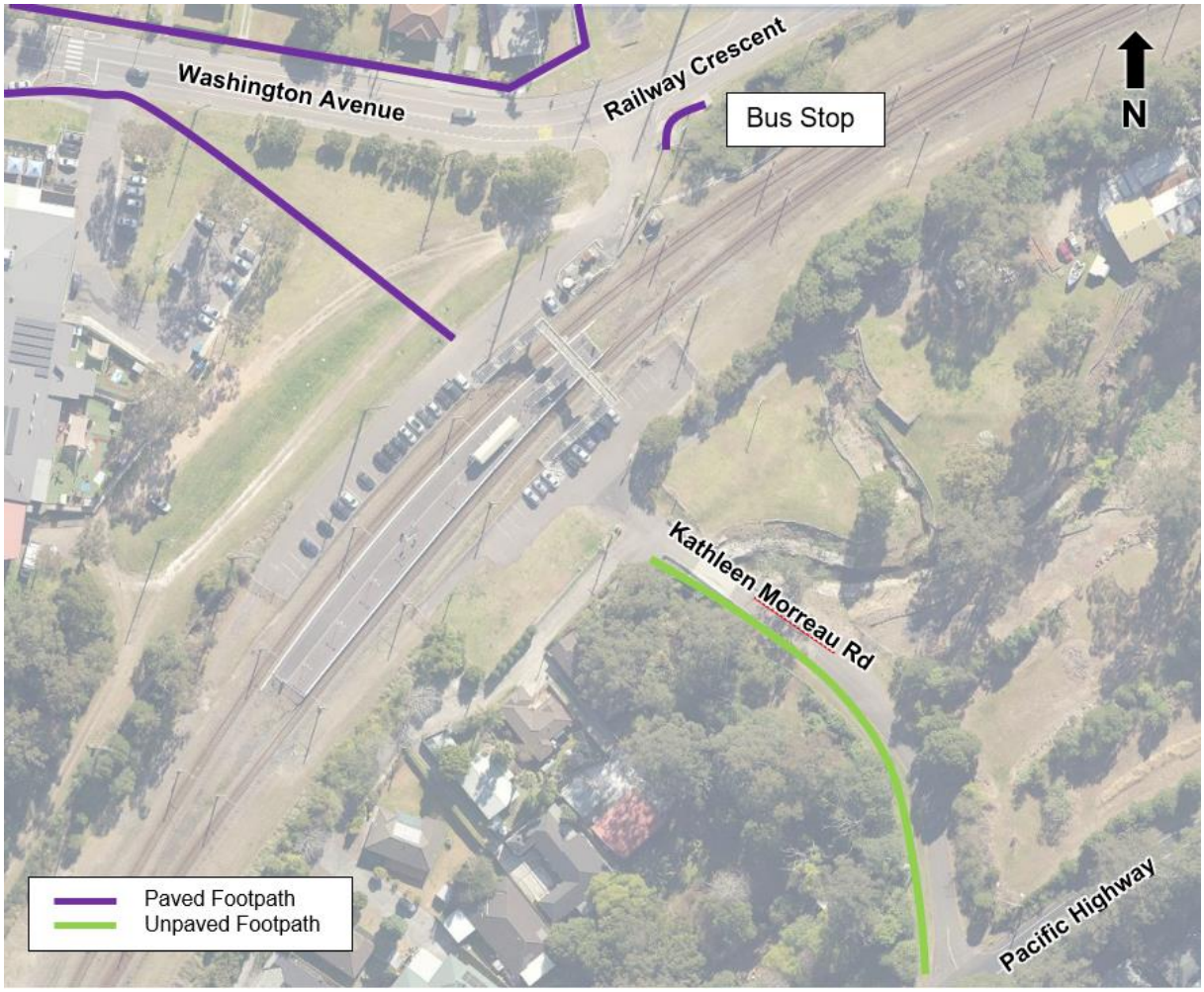

Figure 6-2 Pedestrian infrastructure around the Niagara Park station

Paved footpath through the open field from the station to Niagara Park Shopping Centre

Unpaved footpath along Kathleen Morreau Road to Pacific Highway

Access to the bus stop via the western commuter car park access road

Figure 6-3 Condition of existing pedestrian infrastructure to the station

There are currently no bicycle parking facilities at Niagara Park Station and no direct cycle paths into the station precinct. However, in the recently released Central Council Bike Plan 2019-2029 (CCC, 2019a), sections of road on the Pacific Highway and Railway Crescent near the station were identified as regional shared paths in the Level 1 Priority Project List and Level 2 Priority Project List, respectively[4].

6.1.2. Potential impacts

Construction phase

The construction compound is proposed to be located on vacant land owned by RailCorp adjacent to the southbound tracks to Sydney and north of the eastern commuter car park. Figure 3-4 shows the location of the construction compound, which would be utilised for the

[4] Central Coast Council Bike Plan, 2019-2029, Appendix A: Prioritised list of projects.

duration of the Proposal. Construction vehicles would access the compound through the eastern car park via Kathleen Morreau Road.

Customer and public access impacts

Construction activities are anticipated to impact pedestrian and road users due to temporary restricted access to most of the construction areas. Impacts would vary during the construction program as the works progress, however access to the station would be maintained at all times outside of rail shutdowns and work would be scheduled to minimise impacts to highly trafficable areas where practicable.

Approval from TfNSW would be required for any out of hours work and the affected community would be notified as outlined in a Community Liaison Management Plan and the CNVS (TfNSW, 2019a), of any closures or alternate access arrangements.

Road network and construction traffic

The construction traffic generated by the Proposal would primarily be light vehicles from workers moving to and from site, as well as heavy vehicles for periodic delivery and removal of materials, construction plant and equipment. Truck movements as a result of the Proposal are not expected to significantly increase local traffic volumes and are unlikely to impact the performance of the surrounding road network and intersections. During the construction phase vehicle types may include pickup trucks, flatbed trucks (some featuring loader cranes), excavators, skip trucks, concrete trucks, forklifts, and skid loaders.

In addition, hi-rail vehicles would access the site from the Ourimbah Station hi-rail access pad. The hi-rail plant may include a rail-mounted elevated work platform, flatbed trucks, Hiab crane trucks, excavators, pilling rigs and dump trucks.

Construction vehicular access from the local road network to the construction compound would be via the eastern commuter car park from Pacific Highway via Kathleen Morreau Road.

Parking

Construction workers may contribute to a minor increase in demand for on-street parking. Workers would be expected to park on the local road network in proximity to the station during the construction period as on-site parking is limited. Construction workers would only be permitted to park within the commuter car parks during rail shutdowns when the car parks are not required by customers. Construction workers would be encouraged to use alternate transport options such as public transport to access the site. Parking for construction vehicles would be addressed in the Construction Traffic Management Plan.

Access to the construction compound site via the eastern commuter car park would mean that there would be some minor temporary disruptions to normal operations for commuter parking to allow for the movement of large construction vehicles. These disruptions would occur over the duration of the construction period. During these movements of construction vehicles the three northern spaces within the eastern commuter car park may be temporarily impacted.

Additionally, in both commuter car parks the number of parking spaces would be permanently reduced from the commencement of the proposed construction works to provide for additional construction compounds centred around the proposed lifts and the proposed accessible parking spaces and path installations. In the eastern commuter car park, eight spaces would become unavailable. In the western commuter car park, five spaces would become unavailable. This loss of car parking spaces would be permanent and would require

customers to utilise parking outside the station. There is untimed on-street parking on many of the surrounding streets, and despite the inconvenience is not considered to provide a substantive adverse impact on commuter parking.

Pedestrian and cyclists

Construction work is expected to have a minor impact on the pedestrian and cycle network. It is expected that there may be temporary disruptions to pedestrian and bicycle access as a result of the following construction activities:

- construction of the new accessible footpath from the existing bus stop on Railway Crescent would impede customer access from the bus to the train station via the western commuter car park access road
- regrading and resurfacing of the footpaths at the station entry from the western and eastern commuter car parks would impede customer access to the footbridge to access the platforms
- upgrading the existing stairs and footbridge, which would impede customer access to the platforms during construction.

While disruptions are expected, any closures would be temporary, with safe and suitable detours provided to ensure access is maintained as a part of the construction management plans to be implemented during the construction period.

Public transport

The bus stop on Railway Crescent would not need to be relocated during construction, however, passengers would be detoured around the construction zone to gain access to and from the station.

Train services would not be affected during construction excluding scheduled rail shutdowns.

Emergency vehicle access

Access for emergency vehicles would be maintained at the construction site at all times. Emergency services would be advised of all planned changes to traffic arrangements prior to applying the changes.

Operational phase

Pedestrians

The Proposal would improve pedestrian movements within, as well as to and from Niagara Park Station due to the installation of lifts to the platforms and new accessible path to the bus stop. This would allow for an accessible path of travel to and from the station platforms, bus stop and accessible parking spaces.

Road network and traffic

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

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

Parking

The Proposal would result in the removal of up to five formal car parking spaces in the western commuter car park and remove the ability for informal parallel parking to occur alongside the western edge of the stairs to the footbridge. The Proposal would provide one new accessible parking space and one new kiss and ride space.

In the eastern commuter car park up to nine formal car parking spaces would be removed and one new accessible car parking space and one new kiss and ride space provided. The car parks would be removed to provide for the installation of the western lift, the creation of one accessible car park, a new kiss and ride space, and an accessible path linking all these facilities.

The Proposal would remove about 14 car parking spaces across both commuter car parks, and require that commuter car parking be found elsewhere in the locality. Given that there is untimed on-street parking in the area around the station, the permanent reduction of 14 car parking spaces would have a minor impact on commuter car parking operations.

Public transport, pedestrian and cyclist infrastructure

The Proposal does not include changes to existing bus/rail services and would not impact on the operation of public transport in the vicinity of Niagara Park Station.

Five bike hoops with a capacity to lock ten bicycles within the western commuter car park would be provided as part of the Proposal. This would provide a benefit for customers to "Bike and Ride" at Niagara Park Station, which is not currently possible due to no formal bicycle parking infrastructure.

6.1.3. Mitigation measures

The following mitigation measures are recommended to be implemented to minimise impacts during the construction of the Proposal.

- prior to the commencement of construction, a Construction Traffic Management Plan (CTMP) would be prepared as part of the Construction Environmental Management Plan
- communication would be provided to the community and local residents via notifications and signage to inform them of changes to parking, pedestrian access and/or traffic conditions including vehicle movements and anticipated effects on the local road network relating to site work
- Road Occupancy Licences for temporary road closures would be obtained, where required.
- Vehicle and pedestrian access would be maintained throughout construction to ensure that pedestrian connectivity is not impacted as a part of the work and that suitable and safe paths are provided. In particular, a temporary alternate pedestrian path of travel from the bus stop on Railway Crescent to the station entrance on the western commuter car park would need to be provided when the accessible footpath along the western commuter car park access road is being constructed
- fencing and barriers would be installed around the construction site and construction zones to ensure safe and easy navigation of pedestrians and cyclists
- opportunities to minimise impacts to parking and pedestrian movements through scheduling of construction activities would be investigated.

Refer to Section 7.2 for a complete list of mitigation measures.

6.2. Landscape and visual amenity

A Landscape and Visual Impact Assessment Technical Paper (Envisage, 2020) was prepared for the Proposal and forms part of this REF. The findings of the assessment are summarised in this section.

The assessment included desktop analysis and a site inspection on 5 February 2020.

The assessment has been carried out in accordance with the TfNSW (former Road and Maritime Services) *Guideline for Landscape Character and Visual Impact Assessment*, *Environmental Impact Assessment Practice Note EIA-N04*, December 2018, in which two discrete assessments were conducted:

- landscape character assessment
- visual impact assessment

The method to measure impacts in both assessments is based on the combination of sensitivity and magnitude of the impact to produce a combined impact rating of negligible, low, moderate-low, moderate, moderate-high and high (refer to Figure 6-4).

		Magnitude			
		High	**Moderate**	**Low**	**Negligible**
Sensitivity	**High**	High	Moderate-high	Moderate	Negligible
	Moderate	Moderate-high	Moderate	Moderate – Low	Negligible
	Low	Moderate	Moderate – Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Figure 6-4 TfNSW (former Roads and Maritime Services) impact grading matrix

6.2.1. Existing environment

Existing landscape character

Dense vegetation over ridges, within reserves and private properties, and along road reserves provide a lush green backdrop and attractive, leafy setting for the station.

Immediately around the station to the west, the landscape is quite open, with wide areas of grass, roads and car parking. Within this context, the height and bulk of the footbridge and stairs is easily recognisable. Smaller-scale commercial and residential properties hug the fringes of the open landscape around the station.

Within the railway corridor is a cluster of infrastructure elements, including the rail lines, station, platform, footbridge, lighting, stanchions, fencing and small sheds.

The Gosford Development Control Plan 2013 (Gosford DCP) includes an existing character statement for the Niagara Park Transit Corridor as follows:

Stations and over-bridges provide significant gathering places for the community, but they generally demonstrate poor levels of urban design, consideration of commuter amenity, and they fail to contribute to the identity of valley suburbs.

The landscape character of the station is assessed as having a **low** sensitivity as:

- the station stairs and infrastructure within the railway corridor are not visually appealing elements within the landscape, however, the wider landscape setting is moderately attractive
- the scenic quality of the wider landscape setting could be damaged by insensitive, incompatible development (such as large, bulky development which affected the open nature of the area and visibility to vegetated slopes)
- the landscape character of the station does not feature scenic elements or qualities that are susceptible to change.

Visual receivers and viewpoints

Niagara Park Station has a limited visual catchment due to the elevated steep landform, dense vegetation, street trees and buildings screening through views. Direct views of the Proposal area are generally only possible from close proximity (generally within 150 metres), and some small areas at approximately 500 metres. The approximate viewing area (or viewshed) from which the Proposal area can be viewed is shown in Figure 6-5.

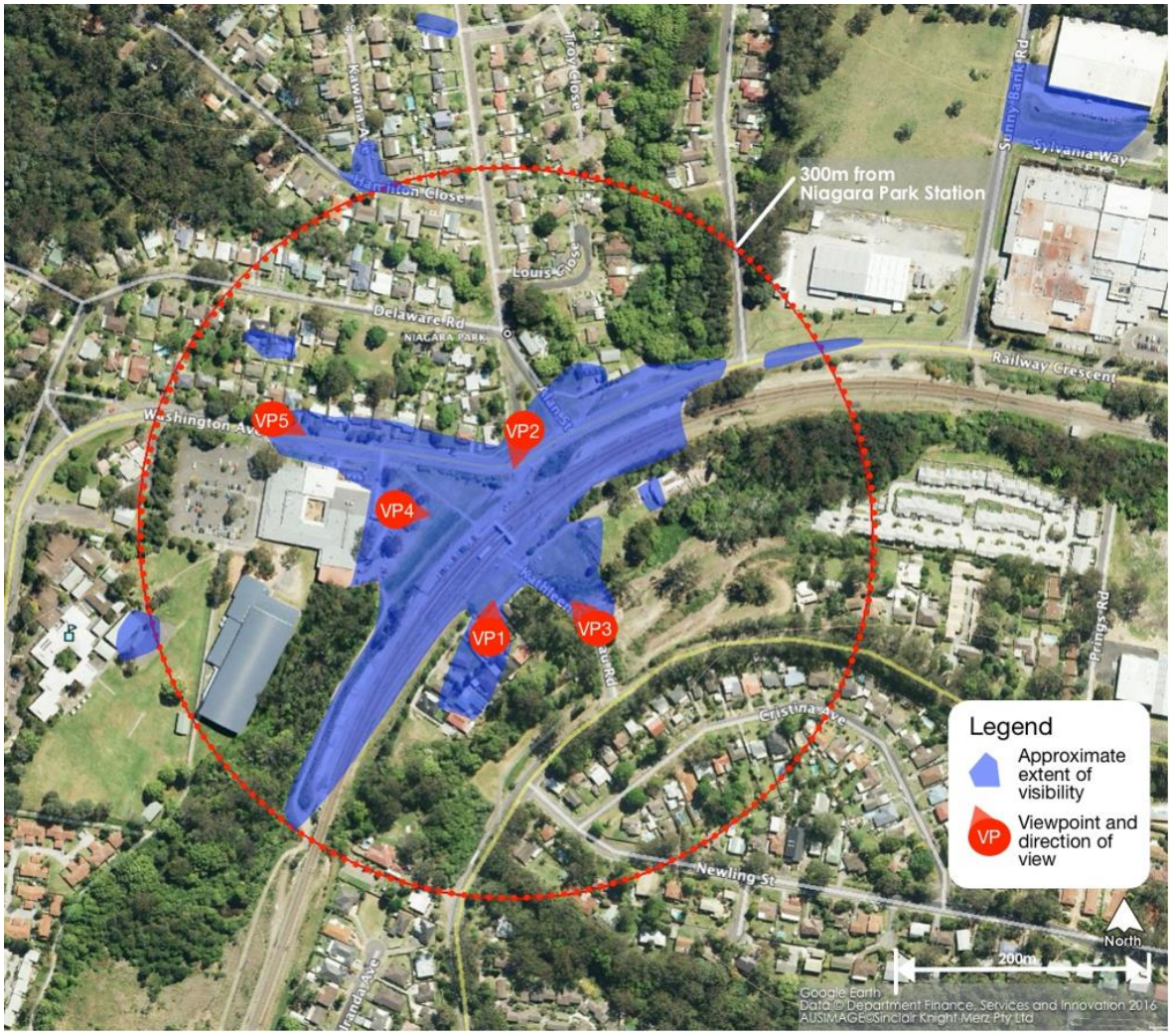

Figure 6-5 Approximate area from which the Proposal area can be viewed (Source: Envisage, 2020)

Visual receivers are individuals or groups of people whose views may be affected by the Proposal. These include users of residential dwellings, commercial premises, recreational spaces, and users of the station, roads and other public spaces. Five viewpoint locations have been identified as part of the visual impact assessment and these are described in Table 6-1 and shown in Figure 6-5 above.

Table 6-1 Identified viewpoints

Viewpoint	Description and sensitivity
VP1: View from residences south of the station	Located approximately 40m south-east of the eastern station entrance, comprising detached single level homes. Viewers are in close proximity, the station is visually dominant, but not an attractive feature. Vegetation and buildings within this residential cluster screen views. The viewpoint provides opportunity for prolonged viewing. Sensitivity to views of the Proposal is considered **moderate**.

Viewpoint	Description and sensitivity
VP2: View from Residences north of the station	Located approximately 60m north of the Proposal area, comprising detached single level homes. Viewers are in close proximity, the station is visually dominant, but not an attractive feature. Road side vegetation provides some screening of views. The viewpoint provides opportunity for prolonged viewing. Sensitivity to views of the Proposal is considered **moderate**.
VP3: View from Kathleen Morreau Road	Between approximately 12m and 100m east of the Proposal area. Views for public road users accessing residences and the station. The viewpoint provides public views for a relatively small number of viewers. The site occupies a small proportion of the overall view. Viewers do not have prolonged views. Sensitivity to views of the Proposal is considered **low**.
VP4: Views from Local Shops	The shops are located approximately 90m west, and a small car park approximately 50m west, of the western entrance to the station. Temporary views for customers to the shops. The site occupies a relatively large proportion of the available view, and the station pylons and stairs are easily recognisable. However, the grey colour of the footbridge makes them receded against the background vegetation and overall, they are not particularly visually prominent. Sensitivity to views of the Proposal is considered **low**.
VP5: Views from Washington Avenue	Private views from residences to the north of Washington Avenue and public views of road users on Washington Avenue. The site occupies a relatively small proportion of the available view. The station is not visually prominent, partially screened by trees. Views toward the station are affected by traffic in the foreground and the shopping centre buildings and advertising. Sensitivity to views of the Proposal is considered **low**.

6.2.2. Potential impacts

Construction phase

Landscape character

The construction activities and elements likely to be introduced into the visual environment include:

- fencing, hoarding and signage
- ground disturbance
- formwork and scaffolding
- cranes and other large plant and equipment
- construction compound including site office and amenities, storage of materials and equipment, site assembly of components, and parking of vehicles.

Although temporary, construction would be a prominent feature over a moderately large area and dominate the local character of the immediate area.

During construction the magnitude of change on the landscape character would be **moderate**. Combined with the **low** sensitivity to change, the overall landscape character impact during construction is assessed as **moderate-low**.

Visual impact

The impacts on the viewpoints in Figure 6-5 are assessed on the basis of sensitivity and magnitude of change using the impact grading matrix previously discussed. The visual impacts anticipated during construction are described in Table 6-2.

Table 6-2 Summary of visual impact during construction

Viewpoint	Summary of impact	Overall impact
VP1: View from residences south of the station	Sensitivity of these visual receivers is considered moderate due to their close proximity and the station's visual prominence to this viewpoint. The magnitude of change during construction is considered **moderate** overall. Tall mobile equipment, fencing and construction activity would be an immediately apparent part of the scene. Views would be unavoidable for residents accessing their homes. Construction would be temporary.	**Moderate**
VP2: View from Residences north of the station	Sensitivity to views of the Proposal considered moderate. The magnitude of change to views during construction is considered **moderate** as construction activity would be an immediate part of the scene, viewed across Railway Crescent/Washington Avenue. Tall mobile equipment would be seen above vegetation within the road reserve. Construction would be temporary.	**Moderate**
VP3: View from Kathleen Morreau Road	Sensitivity to views of the Proposal considered **low**. The magnitude of change to views during construction is considered **low** as construction activity would be partially screened by vegetation and be lower than the ridge in the background. The Proposal area is only temporarily in the line of sight for a distance of approximately 90m when travelling west. Construction would be temporary.	**Low**
VP4: Views from Local Shops	Sensitivity to views of the Proposal considered **low**. The magnitude of change to views during construction is considered **low** as construction activity would be visible, but not greatly contrast infrastructure within the railway corridor. Construction would be temporary.	**Low**
VP5: Views from Washington Avenue	Sensitivity to views of the Proposal considered **low**. The magnitude of change to views during construction is considered **low** as construction activity would appear in the background and may be missed by the casual observer.	**Low**

Operation phase

Landscape character

Following construction, the new elements would be visible in the landscape but would be generally similar in scale and visually more appealing than existing built elements (refer

Figure ES-1-2). The works are within the rail corridor and would only affect a minor proportion of the landscape, with no impact on the vegetated reserves or ridges that provide a green backdrop to the station. It is considered that overall the Proposal would have a **low** magnitude of change on the landscape character.

Visual impact

Once completed, the main Proposal elements that would be visible from surrounding viewpoints are the new lift shafts and landings, BAZ canopy, and the new path from the station to the bus stop on Railway Crescent. Table 6-3 provides a summary of impacts on the assessed viewpoints during operation.

Table 6-3 Summary of visual impact during operation

Viewpoint	Summary of impact	Overall impact
VP1: View from residences south of the station	Sensitivity of these visual receivers is considered **moderate**. The magnitude of change following construction is assessed as **low**. The lift shafts would be prominent, exceeding the height of the floor of the footbridge by approximately 6m. However, the lift shafts would partially conceal the existing pylons and generally be more visually appealing than the existing pylons and stairs. The BAZ canopy would be relatively compatible with the existing character and scale of the station.	**Moderate-low**
VP2: View from Residences north of the station	Sensitivity of these visual receivers is considered **moderate**. The magnitude of change following construction is assessed as **low**. The three proposed lift shafts would be visible, exceeding the height of the footbridge floor by approximately 6m, and the western lift would appear taller than background vegetation. However, the lift shafts would partially screen the pylons and stairs and reduce visual clutter.	**Moderate-low**
VP3: View from Kathleen Morreau Road	Sensitivity of these visual receivers is considered **low**. The magnitude of change following construction is assessed as **low**. The proposed eastern lift shaft would be in view, exceeding the height of the footbridge floor by approximately 6m. However, the eastern lift shaft would screen the pylon and a portion of the stairs. The lift shaft would be lower in height than vegetation in the background.	**Low**
VP4: Views from Local Shops	Sensitivity of these visual receivers is considered **low**. The magnitude of change following construction is assessed as **low**. The three proposed lifts would be visible, exceeding the height of the footbridge floor by approximately 6m. The lift shafts would be lower than the tree canopy height in the background. The lift shafts would partially screen the pylons and stairs and the new BAZ canopy would be compatible with the character of the existing station.	**Low**
VP5: Views from Washington Avenue	Sensitivity of these visual receivers is considered **low**. The magnitude of change following construction is assessed as **low**. A relatively small proportion of the Proposal would be in view. The lift shafts would be partially screened by existing trees.	**Low**

6.2.3. Mitigation measures

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

The detailed design of the Proposal is to be undertaken with reference to the recommendations included in the Landscape and Visual Impact Assessment (Envisage, 2020), and include:

- preparing an Urban Design Plan, which will inform the detailed design, to address the integration with the surrounding built form
- preparing a Public Domain Plan to address materials, colours, landscaping, fencing and pavement treatments to complement and link with the existing public domain
- designing and installing all lighting in accordance with the requirements of *AS4282 Control of the Obtrusive Effects of Outdoor Lighting*
- removing graffiti if it occurs at the construction site in accordance with TfNSW standard requirements
- during detailed design investigate opportunities to minimise permanent new fencing
- and adopt a dark recessive colour for new fencing (e.g..charcoal, dark grey)
- selecting appropriate materials and colours for the proposed lift shafts that respond to the background colour tones of the existing landscape
- selecting a dark or grey-based colour for the BAZ canopy and powder coated metal roof sheeting of the lift shafts.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.3. Noise and vibration

A Noise and Vibration Impact Assessment (NVIA) Technical Paper has been prepared for the Proposal (Pulse Acoustic, 2020). The assessment included:

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

6.3.1. Existing environment

Sensitive receivers and noise catchment areas

The Proposal is located on an active railway corridor and as such the environment of the surrounding areas are characterised by railway noise and vibration throughout the day. Additional noise sources include typical suburban intermittent traffic noise along local roads and noise from the shopping centre, school and childcare centre.

Two Noise Catchment Areas (NCAs) were identified for the assessment and are shown in Figure 6-6.

NCA 1 includes the area to the western side of the rail lines and consists of low-density residential dwellings and a number of non-residential receivers close to the station (Niagara Park Shopping Centre, The Little Miracles childcare centre, Niagara Park Public School, and recreational facilities).

NCA 2 includes the eastern side of the rail lines and consists mainly of low-density residential dwellings.

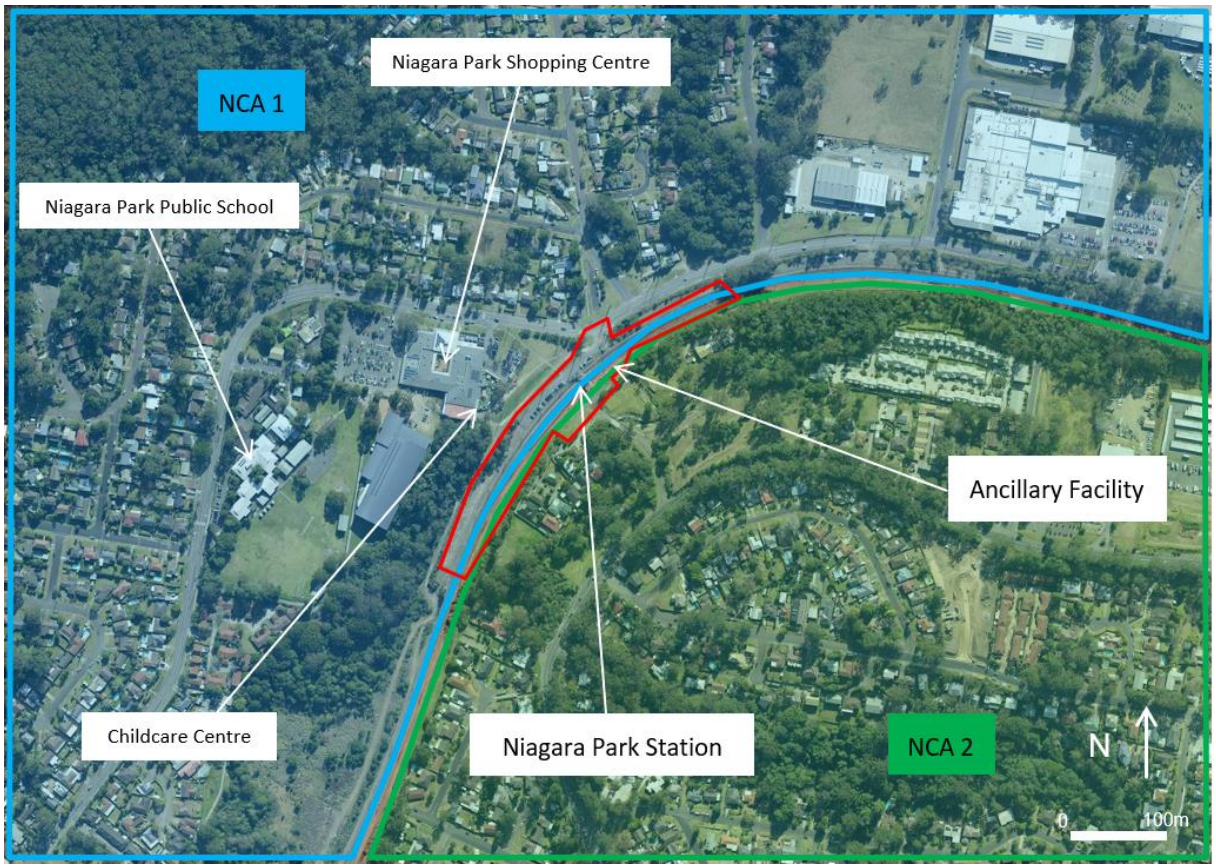

Figure 6-6 Location of Noise Catchment Areas (NCAs). The Proposal Area is identified by the red line (Source: Pulse Acoustic, 2020)

Background noise levels

Existing noise levels (prior to construction of the Proposal) were measured to determine background noise levels and establish operational and construction noise criteria for

sensitive receivers close to the Proposal. Locations were selected to be representative of receivers that would experience potential noise impacts from construction activity.

Unattended monitoring was conducted from Monday 17 February 2020 to Wednesday 26 February 2020 at two of the closest residential receivers to Niagara Park Station (Location A and Location B) as shown in Figure 6-7.

Figure 6-7 Noise monitoring locations

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

The results of the unattended noise monitoring for the two locations are provided in Table 6-4. The measurements confirm road traffic noise and environmental noise is quieter during the night period than the day and evening periods.

Table 6-4 Unattended noise monitoring results – background noise levels

	Daytime 7:00am to 6:00pm	Evening 6:00pm to 10:00pm	Night-time 10:00pm to 7:00am
Location A			
L_{A90}[1]	46 dB(A)	41 dB(A)	33 dB(A)
Location B			
L_{A90}[1]	47 dB(A)	43 dB(A)	38 dB(A)

Note 1 – The L_{A90} noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration) and referred to as the Rating Background Level (RBL), which is used to determine Noise Management Levels (NMLs) and Intrusiveness Criterion for the Proposal.

Noise and vibration assessment criteria

Construction noise criteria

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

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm
- Sundays and public holidays: no works.

Noise management levels (NMLs) have been determined for receivers as per the procedures in the ICNG. The ICNG prescribes set noise management levels for non-residential receivers such as commercial, schools and active recreation areas.

Table 6-5, provides the construction noise management levels (NMLs) for the Proposal. The NVIA Technical Paper (Pulse Acoustic, 2020) provides a summary of all other criteria relevant to the Proposal. The Little Miracles Childcare Centre at 16 Washington Avenue is classified as an Education Classroom.

Table 6-5 Adopted construction Noise Management Levels (NMLs)

Receiver	Standard Hours – (RBL+10dB)	Out of Hours (RBL+5dB)[1]		
	Daytime[2]	Daytime[2]	Evening[2]	Night[2]
Residential – NCA 1	56	51	46	38
Residential – NCA 2	57	52	48	43
Commercial	70	70	70	70
Industrial	75	75	75	75
Education Classroom[3]	55	55	N/A	N/A
Active Recreation	65	65	65	65

Note 1 - NML's for commercial, educational (classroom) and active recreation facilities are taken from the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009) (ICNG).

Note 2 - Standard day period hours are 7am to 6pm Monday to Friday and 8am to 1pm Saturday. OOHW day period hours are 7am-8am and 1pm-6pm Saturday and 8am-6pm on Sunday. OOHW evening period hours are 6pm-10pm Monday to Saturday. OOHW night period hours are 10pm-7am Monday to Saturday and 6pm-8am on Sunday.

Note 3 – Education Classroom criteria includes both schools and childcare centres

In addition, a 'highly noise affected' level of 75 dB(A) for residential receivers represents the point above which the ICNG indicates there may be strong community reaction to noise.

Where works exceed the NMLs, all reasonable and feasible measures (such as equipment selection and location, construction scheduling and respite periods) should be implemented to reduce noise levels as far as practicable.

Sleep disturbance

Sleep disturbance criteria have also been established for residential receivers which are based on the *NSW Roads Noise Policy* (RNP) (DECCW, 2011). Based on the Policy, the adopted sleep disturbance criterion at residential properties for noise emissions generated by short term events occurring during the night-time period is an internal noise level of 50 dB L_{Amax}.

As a guide, the difference between the internal noise level and the external noise level is typically 10 dB with windows open for adequate ventilation. Therefore, the proposed noise screening criterion for sleep disturbance is 60 dB L_{Amax} external noise level at residential properties.

Road noise

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

Construction vibration criteria

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

- human comfort – vibration in which the occupants or users of the building are inconvenienced or possibly disturbed
- effects on building contents – where vibration can cause damage to fixtures, fittings and other non-building related objects
- effects on building structures – where vibration can compromise the integrity of the building or structure itself.

Human comfort

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

Effects on building structures

Structural damage vibration limits are based on British Standard *BS7385: Part 2-1993 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration* (BSI 1993).

Safe working distances

From BS 7385 and the CNVS (TfNSW, 2019a), the safe working distances for items of vibration intensive equipment are outlined in Table 6-6.

Table 6-6 Recommended minimum working distances from vibration intensive plant

Scenario	Minimum Distance (Cosmetic Damage)	Minimum Distance (Human Response)
Jackhammer (handheld)	1 m (nominal)	Avoid contact with structure
Small Hydraulic Hammer (300kg)	2 m	7 m
Medium Hydraulic Hammer (900kg)	7 m	23 m
Piling Rig – Bored ≤800mm	2 m	N/A
Piling Rig – Hammer	15 m	50 m
Vibratory Roller (1-2 tonne)	5 m	20 m
Vibratory Roller (2-4 tonne)	6 m	15 m - 20 m

Operational noise criteria

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

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

The NPI sets out procedures for establishing the project intrusiveness $L_{Aeq(15minute)}$ and project amenity $L_{Aeq(period)}$ noise levels, where the lower (i.e. more stringent) is then adopted as the Project Trigger Noise Level (PTNL). Applicable PTNLs for all noise sensitive receivers are provided in the NVIA report (Pulse, 2020).

6.3.2. Potential impacts

Construction phase

The potential for noise and vibration impacts on sensitive receivers would typically depend on:

- the type of equipment and number of simultaneously operating plant items
- topography and the presence of any other physical barriers
- proximity to sensitive receivers
- hours/duration of construction work
- the prevailing background noise level
- ground conditions.

While much of the work is expected to take place during standard construction hours, construction work would also take place during weekend rail shutdowns and involve night work.

To assess the potential impacts from the proposed works, the construction phases described in Section 3.3.1 were used to develop indicative construction scenarios comprising typical

plant and equipment. The scenarios developed were:

- Scenario 1: site establishment and enabling works
- Scenario 2: electrical and communications
- Scenario 3: construction works (footbridge, stairs, lifts and path works)
- Scenario 4: installation finishing works
- Scenario 5: testing and commissioning
- Scenario 6: demobilisation.

Construction noise

A 3D computer model is then used to predict the noise levels for each NCA resulting from the above scenarios. Worst-case noise level predictions have been made based on worst-case impacts for each work scenario. The predictions are provided in the NVIA (Pulse, 2020).

A summary of predicted noise impacts for the works scenarios is provided in Table 6-7 below. Overall, no exceedances of the highly noise affected criteria are predicted during any noise generating scenario. A significant number of residential receivers would be affected by exceedance of NMLs during OOHW periods for the construction works and the installation and finishing scenarios, for which mitigation measures would need to be adopted.

During standard construction hours, there are predicted exceedances of the NMLs at residential receivers in both NCA1 and NCA2, and in particular for those residents adjacent the eastern commuter carpark. These exceedances if continuous and for long durations are likely to generate adverse community reaction. Mitigation measures would need to be adopted to reduce and restrict the generation of construction noise generate by the Proposal during standard working hours.

Table 6-7 Summary of predicted noise impacts from works scenarios

Works scenario	Summary of predictions	Timing of works [1]
Scenario 1: site establishment and enabling works	No exceedance of the NMLs	Standard hours
Scenario 2: electrical and communications	No exceedance of the NMLs in NCA 1. Exceedance at a single residential receiver in NCA 2 by up to 1 dB. No exceedance at non-residential receivers	Standard hours
Scenario 3: construction work	Exceedance of standard hours NMLs in NCA 1 and NCA 2. The maximum exceedance up to 7 dB above the NML in NCA 2. Exceedance of OOHW period 2 NMLs in NCA 1 and NCA 2. The maximum exceedance up to 22 dB above the NML in NCA 1. No exceedance at non-residential receivers	Standard hours 48 hr rail shutdown OOHW1 OOHW2

Works scenario	Summary of predictions	Timing of works [1]
Scenario 4: installation and finishing	Exceedance of standard hours NMLs in NCA 1 and NCA 2. The maximum exceedance up to 8 dB above the NML in NCA 2. Exceedance of OOHW period 2 NMLs in NCA 1 and NCA 2. The maximum exceedance up to 22 dB above the NML in NCA 1. No exceedance at non-residential receivers	Standard hours 48 hr rail shutdown OOHW1 OOHW2
Scenario 5: testing and commissioning	No exceedance of NMLs	Standard hours
Scenario 6: demobilisation	No exceedance of NMLs	Standard hours

Note 1 - Work outside of standard construction hours is defined as Out-of-Hours Work (OOHW) and can be divided into two periods of sensitivity. OOHW Period 1 is defined as Monday to Saturday 6:00pm to 10:00pm (evenings), Saturday 7:00am to 8:00am and 1:00pm to 10:00pm (day & evening) and Sunday and public holidays 8:00am to 6:00pm (days). OOHW Period 2 is defined as Monday to Saturday 10:00pm to 7:00am (nights) and Sundays and public holidays 6:00pm to 8:00am (nights).

Cumulative noise impacts

Cumulative noise impacts warrant assessment where more than one works scenario operates at the same time and in the same location such that the same receiver is impacted by noise from more than one works scenario. Generally, the proposed works are scheduled in consecutive phases which are dependent on rail shutdowns, therefore cumulative noise impacts are not anticipated. Cumulative impacts from other projects are discussed in section 6.16

Construction road traffic noise

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

Construction vibration

The use of vibration intensive equipment is proposed. The construction equipment that are potential sources of vibration include plate compactors, hydraulic hammers, vibratory roller and handheld jackhammer.

Piling works carried out using non-vibration intensive bored piling, would reduce the potential impacts on surrounding properties.

Human comfort

In relation to human comfort (response), the minimum working distances in Table 6-6 relate to continuous vibration and apply to residential receivers. For most construction activities, vibration emissions are intermittent in nature and for this reason, higher vibration levels, occurring over shorter periods are accepted, as discussed in *Assessing Vibration – A Technical Guideline* (DEC, 2006).

Human comfort is unlikely to be significantly affected due to the buffer distances provided. The nearest residential receiver is approximately 50 metres from the proposed lift position within the eastern commuter car park.

Impacts on structures

Damage to any structures on surrounding properties is unlikely given the buffer distances provided from the proposed works. Works would be carried out in accordance with the minimum working distances in Table 6-6.

Operation phase

Operational noise

The Proposal would not increase operations on the rail line, and not result in any increase in rail noise.

Any potential increase in road traffic and road traffic noise as a result of the Proposal is expected to be minimal and predicted to comply with the RNP.

Operational equipment is expected to include lift motor and lift air conditioner. It is predicted that the sound power levels of such equipment would be low. Therefore, operational noise impacts at neighbouring receivers are predicted to readily comply with the operational noise criteria.

Operational vibration

The operational noise sources do not contain any significant sources of vibration. No further assessment or mitigation measures are necessary.

6.3.3. Mitigation measures

Specific mitigation measures outlined in the NVIA (Pulse Acoustics, 2020) include:

- a Construction Noise and Vibration Management Plan (CNVMP) would be prepared to determine specific mitigation measures for construction activities
- to avoid structural impacts as a result of vibration or direct contact with structures, the proposed work would be undertaken in accordance with the safe work distances outlined in the NVIA (Pulse Acoustics, 2020)
- if works are required within the minimum buffer distances, mitigation measures (including site specific vibration monitoring and dilapidation surveys) would be implemented to ensure no impact to relevant structures.

The NVIA (Pulse Acoustic, 2020) provides details of additional mitigation measures, in accordance with the matrix contained in the CNVS (TfNSW, 2019a), which are recommended for OOHW works. Mitigation measures recommended include project notification, verification monitoring, specific notifications, respite periods, project specific respite offers, and duration reductions. These mitigation measures would be addressed in the CNVMP for specific noise generating works and equipment and, where relevant, incorporated into applications for OOHW.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.4. Aboriginal heritage

An assessment was undertaken for the Proposal in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* guidelines recommended to be followed by the Department of Planning, Industry and Environment (DPIE). The assessment involved desktop review of information and observations from site inspection.

6.4.1. Existing environment

A search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken for the area covered by the Proposal (including a buffer area centred on Niagara Park Station of 200 metres) on 5 December 2019. No registered Aboriginal heritage sites were located within the area.

Certain landscape features, such as nearby waterways, sand dune systems, ridge tops, ridge lines, headlands, cliff faces and rock caves / shelters, can indicate the likely presence of Aboriginal objects. An unnamed creek is located approximately 55 metres south of the station however the extensive landscape modification and high level of disturbance that has occurred across the Proposal area suggests that the presence of culturally sensitive buried items is unlikely within the boundaries of the Proposal.

The site inspection undertaken on 5 February 2020 did not identify any items of potential Aboriginal heritage value.

6.4.2. Potential impacts

Construction phase

Construction of the Proposal would involve some ground disturbance for the following activities:

- the foundations and pits for the new lift shafts would require excavation up to a maximum depth of about two and a half metres
- the new accessible path from the bus stop on Railway Crescent to the station lift and stairs in the Eastern/Railway Crescent commuter car park.

Ground disturbing activities have the potential to impact Aboriginal heritage sites, if present. However the ground disturbance is confined to existing modified and developed land.

As no Aboriginal sites, objects or places, or areas of potential Aboriginal archaeological sensitivity were identified within the Proposal area or immediate surrounds during the inspection or research of the area, these ground disturbing activities are unlikely to impact any Aboriginal heritage items. Therefore, the Proposal's impact on Aboriginal heritage during the construction phase is considered negligible.

Operation phase

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

6.4.3. Mitigation measures

All construction staff would undergo an induction in the recognition of Aboriginal cultural heritage material.

If previously unidentified Aboriginal heritage objects are uncovered during construction, in accordance with TfNSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2019c), work would cease in the vicinity of the find and the TfNSW Project Manager and TfNSW Environment and Planning Manager would be notified immediately to assist in co-ordinating next steps which are likely to involve consultation with an archaeologist, DPIE and the Local Aboriginal Land Council/s.

If human remains are found, work would cease, the site would be secured and the NSW Police and DPIE would be notified.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.5. Non-Aboriginal heritage

A search of the State Heritage Inventory, which includes listings by the Minister for the Environment, the Heritage Council of NSW, Local Councils and the State government agencies was undertaken for the area covered by the Proposal. No items of heritage significance were identified in, or within close proximity of the Proposal area. The closest listed item of heritage significance is the Railway Dams and Environs, off Reeves Street, Narara (Item 118, Gosford LEP 2014), about 1.4 kilometres to the south of the station.

6.5.1. Existing environment

The railway station on the Central Coast & Newcastle Line (formerly the Main North Line) opened in October 1902 and was originally named Tundula Station before being renamed Niagara Park on 27 November 1902.

The current station comprises a single raised island platform with a shelter of steel post and corrugated steel roof construction, and a concrete footbridge linking commuter car parks on each side of the rail corridor to the platform via stairs.

The site inspection undertaken on 5 February 2020 did not identify any items of potential heritage value.

6.5.2. Potential impacts

Construction phase

The Niagara Park Station platform, shelter and surrounds have not been identified as having any heritage significance and as such the proposed works to the station would not have any heritage impact.

Operation phase

The operation of the Proposal would not impact upon non-Aboriginal heritage.

6.5.3. Mitigation measures

No specific heritage mitigation measures are considered necessary. In the event of any unanticipated archaeological finds during construction, the procedures contained in TfNSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2019c) would be followed.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.6. Biodiversity

A desktop ecological assessment was undertaken to identify biodiversity values that may be of relevance to the Proposal including a review of the following databases for records relevant to the Proposal and locality (i.e. within a one-kilometre radius of the Proposal):

- NSW National Parks and Wildlife Services wildlife atlas database, Biodiversity Conservation Act 2016 (BSC Act) listed species (NSW OEH, 2016)
- Australian Government Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) protected matters search tool (Australian Government Department of the Environment, 2016).

A site inspection was completed on 5 February 2020 to identify any native vegetation and significant habitat for native fauna. The findings of the site inspection and desktop assessment are summarised in this section.

6.6.1. Existing environment

The surrounding environment contains residential, commercial, recreational and educational properties and facilities with mown exotic grasses, gardens, and interspersed pockets of mixed exotic and native tree species.

The Proposal area is highly modified and has been subjected to disturbance and clearing since the introduction of the rail corridor, development of surrounding infrastructure and land uses. The Proposal area is comprised of the existing rail corridor, with significant paved and hardstand areas, including the island platform, shelter and footbridge, commuter car parks, and storage areas within the proposed construction compound. The Proposal area contains very minimal vegetation and does not provide any area of habitat connectivity.

Flora

The Proposal area includes the following vegetation:

- mown exotic grass within, and at the edges of the rail corridor
- mown exotic grass adjacent to both commuter car parks
- small and medium sized exotic and native trees along the edge of the proposed construction compound
- small to medium sized exotics alongside the eastern commuter car park and the existing bus stop on Railway Crescent.

Aquatic

An unnamed natural water course occurs to the south east of the Proposal area, with a bridge on Kathleen Morreau Road crossing it before entry to the commuter car park.

Protected Biodiversity

Database records relevant to the Proposal and locality (i.e. within a one-kilometre radius of the Proposal) were reviewed in January 2020. The EPBC Act Protected Matters Report included two threatened ecological communities, 42 listed threatened species and 17 listed migratory species as potentially occurring in the locality of the Proposal area.

6.6.2. Potential impacts

Construction phase

As the majority of the work to construct the Proposal would take place within a highly modified environment, vegetation removal would be extremely minor and limited to the removal of weeds and small areas of exotic grasses near the bus stop and the edges of the western commuter car park. The Proposal would not remove any trees and would not remove or modify any stands of native vegetation or important habitat for native fauna.

The Proposal area is flat to very gently sloping and would not be expected to give rise to any significant erosion or sediment runoff issues during construction that could impact water quality and aquatic environments. It is anticipated that erosion and sediment runoff would be adequately managed through the implementation of standard erosion control measures (refer Section 6.9.3).

The most likely indirect impact arising from the Proposal is the introduction, establishment and spread of weeds within the Proposal area and to adjoining areas of vegetation. Weed establishment and spread generally results from soil disturbance and excavation as well as use of equipment that may carry weed propagules. The removal and disposal of weeds would be managed in accordance with TfNSW guidelines.

Environmental impacts are anticipated to be minor and would not be expected to result in adverse impacts to the ecosystems of the locality. Therefore, the Proposal is highly unlikely to result in any significant impact on any threatened biota listed under the BC Act or the EPBC Act.

Operation phase

No operational impacts to biodiversity are anticipated from the Proposal.

6.6.3. Mitigation measures

Mitigation measures to minimise impacts of the proposed works on biodiversity values include:

- erosion control measures would include areas adjacent to the construction compound as “no-go areas” to limit the extent of ground disturbance and protect vegetation around the site. Work areas would be flagged and clearly marked by temporary fencing. Site inductions are to be provided to ensure all site workers and visitors are aware of no-access area

- weed removal, management and disposal must be undertaken in accordance with the TfNSW Weed Management and Disposal Guideline (TfNSW, 2019d). Due to the presence of weeds, no vegetation is to be reused as mulch
- opportunities for low maintenance soft landscaping within the Proposal area would be explored through the preparation of the Public Domain Plan and Urban Design Plan.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.7. Socio-economic impacts

6.7.1. Existing environment

Niagara Park Station is located in a low-density residential area, adjacent the small commercial centre, indoor sporting facilities and public primary school.

Existing facilities for rail customers include a shelter, seating, an Opal card reader, help point, and rubbish bins. Lighting is provided in both car parks and throughout the island platform. There are currently no formally designated accessible parking spaces, no kiss and ride spaces or taxi ranks.

A review of the Australian Bureau of Statistics Census 2016 data (ABS, 2016) was undertaken for the joint area of Niagara Park-Lisarow. The area of Niagara Park and the neighbouring Lisarow had a population of 8,201 people, with about 65 per cent of working age. People aged 65 years and over made up about 14 per cent of the population.

Of the 3,910 people over the age of 15 in the workforce, on the day of the 2016 Census, 9.8 per cent of employed people used public transport (train, bus, ferry, tram/light rail) as at least one of their methods of travel to work, whereas 72 per cent used car (either as driver or as passenger).

As a result of a disability, long term health condition (lasting six months or more) or old age, 5.5 per cent of residents within the Niagara Park-Lisarow area reported at Census time the need for assistance.

Travel demands based on May 2017 Opal data provide an average total of weekday commuter arrivals and departures of 284 trips. TfNSW Performance and Analytics modelling forecasts this to increase to 354 average weekday trips by 2036 (Aurecon, 2018).

6.7.2. Potential impacts

Construction phase

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

- temporary access changes to, through and around the station
- temporary disruptions to local traffic movements near the station
- temporary loss of some parking spaces in the commuter car parks during construction (refer to section 6.1)

- more traffic including truck movements delivering site materials, plant and equipment and removing waste
- minor increase in economic activity in the area due to patronage from construction staff
- construction visual impacts, noise, vibration and dust (refer to sections 6.2, 6.3 and 6.12).

Station access would be maintained at all times during construction including pedestrian access to both sides of the station. Temporary pedestrian diversions would be placed around the construction areas.

Vehicle access to the station commuter car parks would be retained during construction, however there would be temporary disruptions and unavailability of some parking spaces.

The TfNSW Social Procurement and Workforce Strategy outlines specific targets for a socially sustainable inclusive workforce. These requirements would be incorporated into contracts for the construction phase and would have positive impacts on the economic, social and environmental well-being of the LGA.

Operation phase

The Proposal would provide positive socio-economic benefits to Niagara Park and the wider area including:

- improved accessibility for Niagara Park Station customers due to the provision of new lifts, accessible paths to the station and accessible parking
- improved customer amenity, security and facilities at the station including improved wayfinding, CCTV and lighting, and a new kiss and ride spaces
- increased active transport facilities – provision of bike hoops
- potential increased use of public transport to and from Niagara Park.

The Proposal may promote a modal shift in transport and would enable increased use of the station by members of the community with a disability, limited mobility, parents/carers with prams, and customers with luggage. However the Proposal will result in a reduction in commuter parking (refer section 6.1).

The Proposal would support and promote the CCC Disability Inclusion Action Plan 2017-2021 (CCC, 2019b), positively impacting its key objective of enabling people with disabilities to better access mainstream services, facilities and open spaces in the LGA.

6.7.3. Mitigation measures

A number of mitigation measures to minimise potential impacts on the amenity (e.g. traffic, visual, noise, dust) for the community are addressed in Sections 6.1, 6.2, 6.3, 6.12. Additional mitigation measures with a particular focus on keeping the community informed are recommended, including:

- development of a Community Liaison Management Plan (by the Construction Contractor prior to construction) which would outline methods for consultation with stakeholders during construction. The plan would also encourage feedback

and facilitate opportunities for the community and stakeholders to have input where possible

- informing the community of construction progress, activities and impacts in accordance with the Community Liaison Management Plan
- consideration of any local events in Niagara Park during the construction period
- providing contact details for a Project Infoline, a Construction Hotline (24-hour construction response line) and email address to enable ongoing stakeholder contact throughout the construction phase.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.8. Contamination, geology and soils

Information to describe the existing landform, geology and soils of the Proposal area was obtained from the NSW Government's Spatial Information Exchange (Department of Finance, Services and Innovations 2019) and eSPADE (DPIE 2019) and CCC (2018) online mapping services.

6.8.1. Existing environment

Landform and geology and soils

Niagara Park Station is located at an elevation of about 16 metres above Australian Height Datum (AHD). The land around the railway station is relatively flat, with the station sitting in a very shallow basin.

The underlying geology of the area is Quaternary sediments—gravel, sand, silt and clay, overlain by the Yarramalong soil landscape on the Gosford-Lake Macquarie 1:100,000 Sheets.

The Proposal area is mapped as Class 5 (low probability of occurrence) of Acid Sulfate Soils (ASS) in the Gosford LEP ASS map.

Contaminated land and hazardous materials

A preliminary contamination assessment of the Proposal area has been conducted (Cardno, 2020). The assessment found that within a one-kilometre radius of the Proposal area there have been no notices issued by the EPA in relation to contaminated sites under the *Contaminated Land Management Act 1997*. A search of the list of contaminated sites notified to the EPA, within a one-kilometre radius, identified one site, approximately 943 metres to the east of the Proposal area. There were no sites within a one-kilometre radius with an active or formerly active licence under the *Protection of the Environmental Operations Act 1997* (PoEO Act).

The rail line was opened in 1887 and the Niagara Park railway station was established in 1902. The predominant land use of the immediate area surrounding the station, is low density residential development, with some discrete commercial retail and educational facilities.

As part of the preliminary contamination assessment a borehole was advanced to a depth of 5.5 metres below ground level and 8 soil samples taken. The borehole encountered groundwater at a depth of 4.4 metres. The soil sampling analysis returned no Contaminants

of Potential Concern (CoPC). However, the soil sampling did indicate low levels of oxidisable sulfur and slightly elevated acidity.

The preliminary contamination assessment review of historical data and intrusive investigation identified no CoPC within the Proposal area. However, the assessment highlighted the limited nature of the intrusive investigations and the risk of encountering contaminants due to historical rail-related activities.

6.8.2. Potential impacts

Construction phase

Soil erosion and sedimentation

Excavation and earthworks needed to construct the Proposal are described in Section 3.3.4. The Proposal involves minimal excavation, but if unmanaged the Proposal could result in the following nuisance and impacts:

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

The Proposal area is flat to very gently sloping and would not be expected to give rise to any significant erosion or sediment runoff issues. It is expected that these risks would be adequately managed through the implementation of standard measures as outlined in the 'Blue Book' - *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004).

Contaminated land and hazardous materials

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

Elevated levels of oxidisable sulphur in soils and their exposure to air during excavation can lead to elevated acidity that could damage station foundations and structures.

The Proposal has the potential to disturb asbestos containing material and other hazardous substances from historical rail-rated activities. There is also potential for construction activities to result in the contamination of soil through accidental fuel or chemical spills from construction plant and equipment.

Operation phase

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

6.8.3. Mitigation measures

Mitigation measures are recommended, including:

- as part of the CEMP, a site-specific erosion and sediment control plan would be prepared and implemented prior to the commencement of construction. It would be maintained throughout the construction period until disturbed areas have stabilised. Standard erosion control measures as outlined in the 'Blue Book' would be applied.
- further investigations of acid sulfate soils should be undertaken during construction.
- in the event of any unexpected finds during excavation works, the removal of any hazardous material would be undertaken in accordance with applicable EPA and SafeWork NSW guidelines.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.9. Hydrology and water quality

6.9.1. Existing environment

An unnamed natural water course occurs to the south east of the Proposal area, with a bridge on Kathleen Morreau Road crossing it before entry to the commuter car park.

Water runoff in the Proposal area is generally from north to south via the unnamed creek draining into Narara Creek approximately two kilometres to the south-west, then passing through Gosford and into the bay of Brisbane Water.

The CCC Online Mapping tool identifies the Proposal area, with the exception of the island platform, as within a Flood Planning Area and some of the Proposal area subject to a Probable Maximum Flood (PMF) event.

The *Narara Creek Flood Study Report* (Golder Associates, 2018) for the former Gosford City Council, provides the latest update in flood modelling for the Narara Creek Catchment, in which the Proposal Area is situated. For a 1 per cent Annual Exceedance Probability (AEP) event (i.e. 1 in 100 year flood), the modelling maps (refer Figure 6-8) depict that the western edge of the Proposal Area is subject to flood depth of less than 10 centimetres. To the north of the platform area, parts of the Proposal Area are subject to flood depths of between 40 centimetres to greater than one metre depth at the peak of the flood.

For a Probable Maximum Flood (PMF) (i.e. the largest flood that could conceivably occur at this location), the modelling map (refer Figure 6-9) shows that, with the exception of the raised platform, the entire Proposal area would be affected by water depths ranging from less than 10 centimetres to greater than one metre at the peak of the flood.

The locations for all of the three lift cores sit marginally outside of the areas identified as subject to a 1 per cent AEP flood event and are identified as low hazard flood risk, but all are captured by the modelling of a PMF event.

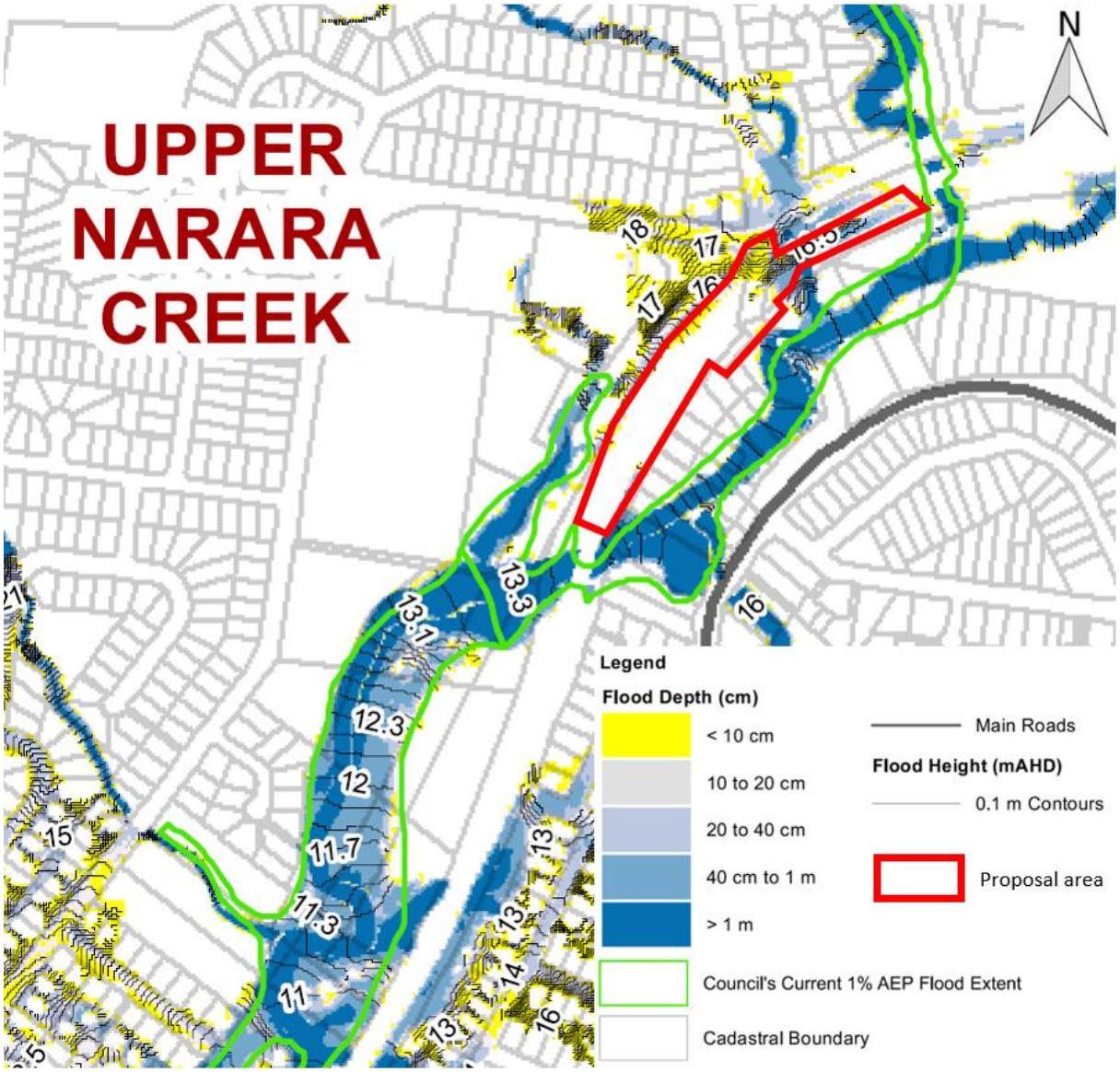

Figure 6-8 Extract from the Narara Creek Catchment Peak Flood Depth Plan depicting modelled flood depths in a 1 per cent AEP event with respect to the Proposal Area (indicated by the red polygon)

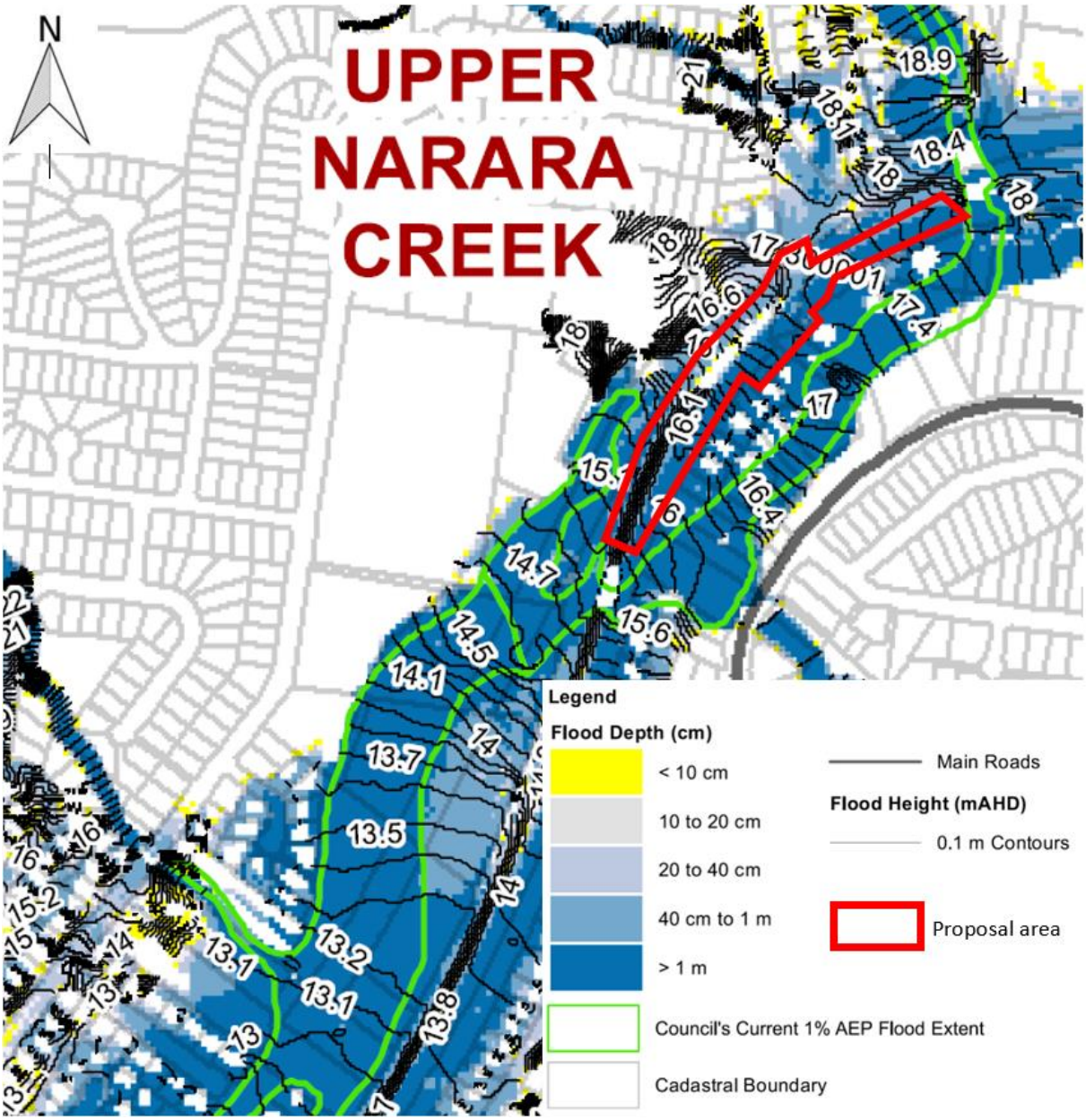

Figure 6-9 Extract from the Narara Creek Catchment Peak Flood Depth Plan depicting modelled flood depths in a PMF event with respect to the Proposal Area (indicated by the red polygon)

Depth to ground water has been confirmed by borehole investigation adjacent the stair to the western car park. Groundwater was encountered at approximately 3.8m below ground level (Cardno, 2020).

6.9.2. Potential impacts

Construction phase

Potential for soil erosion and sedimentation is discussed in Section 6.8. Uncontrolled runoff through disturbed areas during construction may contribute to reduced water quality

downslope of the station. However, the slope of the area is low and proposed excavated areas confined.

The maximum depth of excavation needed to install the lift pit would be two and a half metres. Therefore, the likelihood of intercepting groundwater is low. However, if groundwater is encountered during excavations an aquifer interference approval would be obtained in accordance with the requirements of the *Water Management Act 2000*.

Pollutants such as fuel, chemicals or wastewater from accidental spills could potentially reach nearby stormwater drains and flow into downstream waterways, impacting on water quality and ecological values. These risks can be managed through the implementation of appropriate refuelling and spill response procedures. Additionally, appropriate controls would be detailed in the CEMP and established to ensure the drainage points are adequately protected during construction activities. Soil disturbance during construction work also has the potential to impact on local water quality and downstream ecological values as a result of erosion and run off sedimentation.

Operation phase

The Proposal would not affect hydrology or water quality during operation. Most of the work would be located in existing paved areas. Existing stormwater management measures would remain in place and are not proposed to be upgraded.

To mitigate the risk to human life from the operation of the lift during a flood event, the lift floor level and access to the lift would be designed in accordance with TfNSW standards.

6.9.3. Mitigation measures

Site-specific erosion and sediment control plans would be prepared, implemented and maintained as outlined in Section 6.8. Construction activities would be undertaken in compliance with the 'Blue Book', *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004).

The use of non-potable sources of water for construction would be considered, if appropriate.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.10. Bushfire risk

An assessment of the sites hazard potential was carried out through review of the CCC online mapping tools and fact sheets and the NSW Rural Fire Service (RFS) online bush fire prone land tool.

6.10.1. Existing environment

The vast majority of the former Gosford LGA area, which includes the Proposal area, is identified as bushfire prone. The majority of the Proposal area is identified as being within a Bushfire Prone Land (Vegetation Buffer) area and adjacent to Bushfire Prone Land (Vegetation Category 1 and Category 2) areas in the mapping layers for bushfire prone land available on the CCC Online Mapping tool (Figure 6-10). Similarly, the NSW Rural Fire Service (RFS) online bush fire prone land tool identifies the Proposal area as being Bushfire Prone Land.

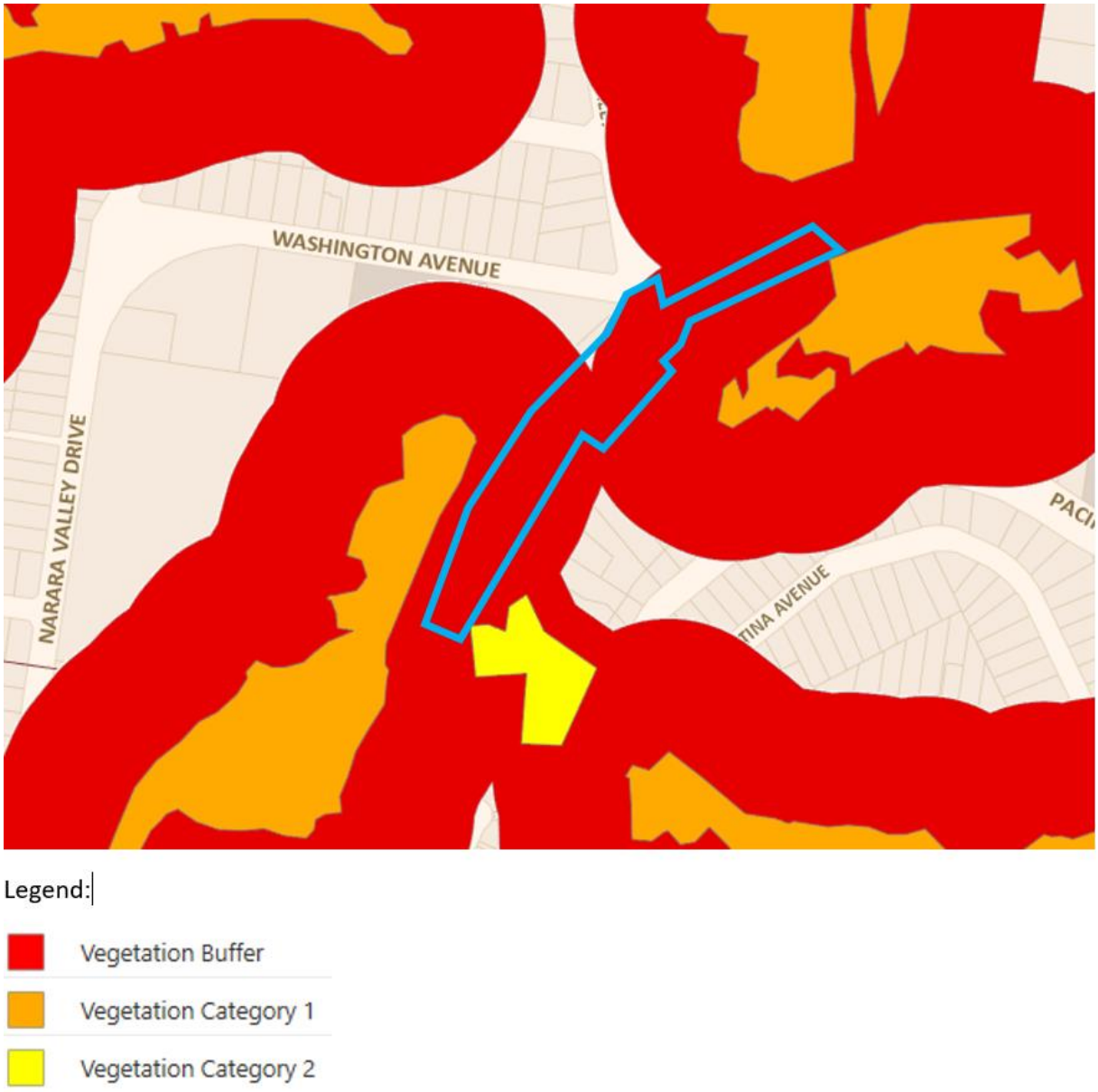

Figure 6-10 Extract from the CCC online maps (CCC, 2020) depicting bushfire prone land with respect to the Proposal Area (indicated by the blue polygon).

6.10.2. Potential impacts

The yellow Category 2 areas in Figure 6-10 are considered to be low fire risk vegetation, while the orange Category 1 areas are high fire risk vegetation. Bushfire has the potential to impact both the construction and operation phase of the Proposal. During construction, fire may occur at the station or in association with the construction compound. This may lead to damage and/or destruction of key equipment and resources to be used for the Proposal and in ongoing operation of the station. Smoke generated by fires may also impact worker health and safety. Fire hazards would be appropriately addressed through Occupational Health and Safety requirements and emergency response plans.

During operation the Proposal would not increase the potential bushfire hazard. As is the accepted practice, in the event of a fire the lifts should not be used. The other accessibility upgrades would improve movement and safety for commuters to the station.

6.10.3. Mitigation measures

Mitigation measures are recommended, including as part of the CEMP, the incorporation of site-specific procedures to prevent and respond to bush fire incidents.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.11. Waste

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

- asphalt and concrete
- surplus building materials
- excavated spoil
- building material wastes (including metals, timbers, plastics, packaging)
- electrical wiring and conduit waste (from electrical connections and utility relocation)
- hazardous wastes (chemicals)
- demolition waste (asphalt, steel, concrete slabs and relocated services
- general waste, including food scraps generated by construction workers.

Efforts to minimise the volume of surplus materials would be undertaken during planning and design of construction activities. Waste management would be undertaken in accordance with the WARR Act. A Waste Management Plan (WMP) would be prepared as part of the CEMP and would include measures to minimise waste, outline methods of disposal, reuse and recycling and monitoring, as appropriate.

Waste management targets in accordance with the ISCA IS Rating Tool v1.2 (2017) would be developed for the Proposal and would include reuse and recycling.

A hazardous materials survey in accordance with AS2601:2001 Demolition of Structures would be undertaken by an appropriately qualified scientist prior to the demolition of any structures. Any removal of any hazardous material is to be undertaken in accordance with applicable EPA and SafeWork NSW guidelines.

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

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.12. Air quality

The main influences on air quality in Niagara Park are from vehicle emissions, domestic wood heating, local industries and bushfire. Sensitive receivers in the vicinity of the Proposal include residential properties in Niagara Park and customers at Niagara Park Station.

Impacts to air quality during construction are expected from:

- increased vehicle activity around the station
- operation of construction plant and equipment
- dust from demolition and excavation for the works

Impacts would be localised and temporary and are not expected to affect sensitive receivers provided that measures to protect local air quality and minimise generation of dust are implemented.

Removal of any potentially hazardous materials would be completed in accordance with applicable EPA and WorkCover guidelines, to minimise risk to human health or the environment.

The Proposal would not result in any change to air quality during operation as the land use remains the same.

The Transport Access Program aims to improve accessibility to public transport and transfer between modes of transport. The Proposal would contribute to the long-term positive impacts on air quality associated with increased use of public transport and reduced reliance on private vehicles.

Refer to Section 7.2 for a full list of proposed mitigation measures.

6.13. Sustainability

The design of the Proposal would be based on the principles of sustainability, including targeting for an 'Excellent' rating under the ISCA Infrastructure Sustainability Rating Tool v1.2. Refer to Section 3.2.3 for more information regarding the application of the ISCA IS Rating Scheme.

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

6.14. Climate change

The dynamic nature of our climate system indicates a need to focus attention on how to adapt to the changes in climate and understand the limitation of adaptation.

The assessment included analysis of the Australian Bureau of Meteorology Climate Change Projections. The projections relevant to the Proposal are made for the East Coast South Cluster. The key messages for the East Coast South Cluster are expected increases in average temperatures, more hot days and warm spells, decreases in winter rainfall, increased intensity of rainfall events, mean sea level will continue to rise, and harsher fire weather conditions (BOM, 2019).

To address the impacts of increasing temperatures and more hot days, the following measures should be reviewed for feasibility during detailed design:

- lift design to consider roofing, cladding materials and insulation/glazing to reduce heat loads, potential cooling systems, and protections for electrical equipment

- avoid use of metal outdoor furniture
- provide shade to shelter customers from extreme heat events.
- provide sufficient protections for electrical systems (such as for proposed lifts) to meet expectations of future temperature increases
- Incorporate appropriate fire protection measures.

Climate change could lead to an increase in the intensity of rainfall events, with a 1 per cent AEP flood event expected to occur more frequently. As identified in Section 6.9, the site is flood prone. The detail design of the lift pits and lifts within the commuter car parks would need to consider flood planning levels to ensure the potential impacts of extreme rainfall and flooding events are mitigated to provide for the safe operation of Niagara Park Station.

The proposed inclusion of a canopy over the BAZ, would provide significant benefits of shelter to customers from both extreme heat and rainfall events.

6.15. Greenhouse gas emissions

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

The detailed design process would involve an AS 14064-2 (Greenhouse Gases -project level) compliant carbon footprint exercise in accordance with the *Greenhouse Gas Inventory Guide for Construction Projects* (TfNSW, 2013). The carbon footprint would to be used to inform decision making in design and construction, if the estimated greenhouse gas emissions are determined to be greater than the carbon dioxide equivalent value established by the National Greenhouse and Energy Reporting threshold.

Due to the small scale of the Proposal and the short-term temporary nature of the individual construction work, it is considered that greenhouse gas emissions resulting from the construction of the Proposal would be minimal. Furthermore, greenhouse gas emissions generated during construction would be kept to a minimum through the implementation of the standard mitigation measures detailed in Section 7.2.

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

6.16. Cumulative impacts

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

A search of the DPIE Major Projects Register and Central Coast Council Development Application Register on 14 April 2020 identified that no major development applications or development applications are listed for the Proposal area, or in proximity, at this time.

TfNSW currently has other projects in planning, construction and nearing completion within the Central Coast area including upgrades at Waratah, Wyee and proposed upgrade to Ourimbah Station.

Other TfNSW projects in and around the Central Coast area which may create cumulative impacts include station upgrades at Narara, Ourimbah and Lisarow, and signalling modifications associated with the New Intercity Fleet project, and road upgrade works to the Pacific Highway between Narara and Lisarow. The construction of these projects would be managed by TfNSW to ensure the community is informed of all work, and to coordinate work. Required rail shutdowns work would, where possible, occur simultaneously and be coordinated with any other construction activities in the area, to minimise cumulative construction impacts such as traffic and noise.

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

Based on this assessment, it is anticipated that the cumulative impacts would be negligible, with the implementation of consultation with relevant stakeholders and associated mitigation measures in Chapter 7.

The potential cumulative impacts associated with the Proposal would be further considered as the design develops and as further information regarding the location and timing of potential developments is released. Environmental management measures would be developed and implemented as appropriate.

7. Environmental management

This chapter of the REF identifies how the environmental impacts of the Proposal would be managed through environmental management plans and mitigation measures.

7.1. Environmental management plans

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

The CEMP would incorporate but not be limited to the following key sub plans:

- Construction Noise and Vibration Management Plan (CNVMP)
- Construction Traffic Management Plan (CTMP)
- Erosion and Sediment Control Plan

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

7.2. Mitigation measures

Mitigation measures for the Proposal are listed in Table 7-1. These proposed measures would minimise the potential adverse impacts of the Proposal identified in Chapter 6, should the Proposal proceed.

Table 7-1 Proposed mitigation measures

No.	Mitigation measure
	General
1.	A Construction Environmental Management Plan (CEMP) would be prepared by the Construction Contractor in accordance with the relevant requirements of *Guideline for Preparation of Environmental Management Plans,* Department of Infrastructure, Planning and Natural Resources, 2004) for approval by TfNSW, prior to the commencement of construction and following any revisions made throughout construction.
2.	A project risk assessment including environmental aspects and impacts would be undertaken by the Construction Contractor prior to the commencement of construction and documented as part of the CEMP.
3.	An Environmental Controls Map (ECM) would be developed by the Construction Contractor in accordance with TfNSW's *Guide to Environmental Controls Map* (TfNSW, 2019e) for approval by TfNSW, prior to the commencement of construction and following any revisions made throughout construction.
4.	Prior to the commencement of construction, all contractors would be inducted on the key project environmental risks, procedures, mitigation measures and conditions of approval.

No.	Mitigation measure
5.	Site inspections to monitor environmental compliance and performance would be undertaken during construction at appropriate intervals.
6.	Service relocation would be undertaken in consultation with the relevant authority. Contractors would mark existing services on the ECM to avoid direct impacts during construction.
7.	Any modifications to the Proposal, if approved, would be subject to further assessment and approval by TfNSW. This assessment would need to demonstrate the Proposal, as modified, is not likely to significantly affect the environment.
	Traffic and transport
8.	Prior to the commencement of construction, a Construction Traffic Management Plan (CTMP) would be prepared as part of the CEMP and would include at a minimum: • ensuring adequate road signage at construction work sites to inform motorists and pedestrians of the work site ahead to ensure that the risk of road accidents and disruption to surrounding land uses is minimised • maximising safety and accessibility for pedestrians and cyclists • ensuring adequate sight lines to allow for safe entry and exit from the site • ensuring access to railway stations, businesses, entertainment premises and residential properties (unless affected property owners have been consulted and appropriate alternative arrangements made) • managing impacts and changes to on and off-street parking and requirements for any temporary replacement provision • parking locations for construction workers away from stations and busy residential areas and details of how this will be monitored for compliance • routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses • details for rail replacement bus stops if required, including appropriate signage to direct patrons, in consultation with the relevant bus operators. Particular provisions would also be considered for the accessibility impaired • measures to manage traffic flows around the area affected by the Proposal, including as required regulatory and direction signposting, line marking and variable message signs and all other traffic control devices necessary for the implementation of the CTMP. Consultation with the relevant roads authorities would be undertaken during preparation of the CTMP. The performance of all project traffic arrangements must be monitored during construction.
9.	Communication would be provided to the community and local residents to inform them of changes to parking, pedestrian access and/or traffic conditions including vehicle movements and anticipated effects on the local road network relating to site works.
10.	Road Occupancy Licences for temporary road closures would be obtained, where required
11.	Vehicle and pedestrian access would be maintained throughout construction to ensure that pedestrian connectivity is not impacted as a part of the work and that suitable and safe paths are provided.
12.	Fencing and barriers would be installed around the construction site and construction zones to ensure safe and easy navigation of pedestrians and cyclists.
13.	Investigate opportunities to minimise impacts to parking and pedestrian movements through scheduling of construction activities.

No.	Mitigation measure
	Landscape and visual amenity
14.	An Urban Design Plan (UDP) would be prepared by the Construction Contractor, in consultation with the relevant council, and submitted to TfNSW for endorsement by the Precincts and Urban Design team, prior to finalisation of the detailed design. The UDP, at a minimum, would address the following: • the appropriateness of the proposed design with respect to the existing surrounding landscape, built form, behaviours and use-patterns (including consideration of Crime Prevention Through Environmental Design principles). This is to include but not be limited to: ○ connectivity with surrounding local and regional movement networks including street networks, other transport modes and active transport networks. Existing and proposed paths of travel for pedestrians should be shown ○ integration with surrounding local and regional open space and or landscape networks. Existing and proposed open space infrastructure/landscape elements should be shown ○ integration with surrounding streetscape including street wall height, active frontages, awnings, street trees, entries, vehicle cross overs etc ○ integration with surrounding built form (existing or desired future) including building height, scale, bulk, massing and land-use ○ design detail that is sensitive to the amenity and character of heritage items located within or adjacent to the Proposal site.
15.	A Public Domain Plan (PDP) would be prepared by the Construction Contractor, in consultation with the relevant council, and submitted to TfNSW for endorsement by the Precincts and Urban Design team, prior to finalisation of the detailed design. The PDP, at a minimum, would address the following: • materials, finishes, colour schemes and maintenance procedures including graffiti control for new walls, barriers and fences • landscape treatments and street tree planting to integrate with surrounding streetscape • opportunities for public art created by local artists to be incorporated, where considered appropriate, into the Proposal • total water management principles to be integrated into the design where considered appropriate • design measures included to meet ISCA v1.2 • identification of design and landscaping aspects that will be open for stakeholder input, as required.
16.	All permanent lighting would be designed and installed in accordance with the requirements of standards relevant to *AS 1158 Road Lighting* and *AS 4282 Controlling the Obtrusive Effects of Outdoor Lighting.*
17.	Worksite compounds would be screened with shade cloth (or similar material, where necessary) to minimise visual impacts from key viewing locations.
18.	Temporary hoardings, barriers, traffic management and signage would be removed when no longer required.
19.	During construction, graffiti would be removed in accordance with TfNSW's Standard Requirements.
20.	During detailed design investigate opportunities to minimise permanent fencing and adopt a recessive dark colour for new fencing (e.g. dark grey, charcoal).

No.	Mitigation measure
21.	Select appropriate materials and colours for the proposed lift shafts to complement the background landscape.
	Noise and vibration
22.	Prior to commencement of works, a Construction Noise and Vibration Management Plan (CNVMP) would be prepared and implemented in accordance with the requirements of the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009), *Construction Noise and Vibration Strategy* (TfNSW, 2019a) and the Noise and Vibration Impact Assessment for the Proposal (Pulse, 2020). The CNVMP would take into consideration measures for reducing the source noise levels of construction equipment by construction planning and equipment selection where practicable.
23.	The CNVMP would outline measures to reduce the noise impact from construction activities. Reasonable and feasible noise mitigation measures which would be considered, include: • regularly training workers and contractors (such as at the site induction and toolbox talks) on the importance of minimising noise emissions and how to use equipment in ways to minimise noise • avoiding any unnecessary noise when carrying out manual operations and when operating plant • ensuring spoil is placed and not dropped into awaiting trucks • avoiding/limiting simultaneous operation of noisy plant and equipment within discernible range of a sensitive receiver where practicable • switching off any equipment not in use for extended periods e.g. heavy vehicles engines would be switched off whilst being unloaded • avoiding deliveries at night/evenings wherever practicable • no idling of delivery trucks • keeping truck drivers informed of designated vehicle routes, parking locations and acceptable delivery hours for the site • minimising talking loudly; no swearing or unnecessary shouting, or loud stereos/radios onsite; no dropping of materials from height where practicable, no throwing of metal items and slamming of doors.
24.	The CNVMP would include measures to reduce the construction noise and vibration impacts from mechanical activities. Reasonable and feasible noise mitigation options which would be considered, include: • maximising the offset distance between noisy plant and adjacent sensitive receivers and determining safe working distances • using the most suitable equipment necessary for the construction works at any one time • directing noise-emitting plant away from sensitive receivers • regularly inspecting and maintaining plant to avoid increased noise levels from rattling hatches, loose fittings etc • using non-tonal reversing/movement alarms such as broadband (non-tonal) alarms or ambient noise-sensing alarms for all plant used regularly onsite (greater than one day), and for any out of hours works • use of quieter and less vibration emitting construction methods where feasible and reasonable.
25.	Works would generally be carried out during standard construction hours (i.e. 7.00 am to 6.00 pm Monday to Friday; 8.00 am to 1.00 pm Saturdays). Any works outside these hours may be undertaken if approved by TfNSW and the community is notified prior to these works

No.	Mitigation measure
	commencing. An Out of Hours Work application form would need to be prepared by the Construction Contractor and submitted to the TfNSW Environment and Planning Manager for any works outside standard hours.
26.	As per the *Construction Noise and Vibration Strategy* (TfNSW, 2019a), construction activities with special audible characteristics (high noise impact, intensive vibration, impulsive or tonal noise emissions) would be limited to standard hours, starting no earlier than 8am; and to continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block, unless otherwise approved by TfNSW.
27.	Work would be conducted behind temporary hoardings/screens wherever practicable. The installation of construction hoarding would take into consideration the location of residential receivers to ensure that 'line of sight' is broken, where feasible.
28.	Vibration resulting from construction and received at any structure outside of the Proposal area would be managed in accordance with: • for structural damage vibration –British Standard BS 7385-2:1993 *Evaluation and measurement for vibration in buildings Part 2* and German Standard DIN 4150:Part 3 – 1999: *Structural Vibration in Buildings: Effects on Structures* • for human exposure to vibration the acceptable vibration - values set out in the *Environmental* Noise *Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006) which includes British Standard *BS 7385-2:1993 Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz).*
29.	Property conditions surveys would be completed prior to any vibration intensive work (such as piling or jack hammering) being carried out at or within the minimum distances set out in the NVIA (Pulse 2020) and the TfNSW *Construction Noise and Vibration Strategy*.
30.	Affected pre-schools, schools, universities and other identified sensitive receivers are to be consulted in relation to noise mitigation measures to identify any noise sensitive periods, e.g. exam periods. As much as reasonably possible noise intensive construction works in the vicinity of affected educational buildings are to be minimised.
	Aboriginal heritage
31.	All construction staff would undergo an induction in the recognition of Aboriginal cultural heritage material. This training would include information such as the importance of Aboriginal cultural heritage material and places to the Aboriginal community, as well as the legal implications of removal, disturbance and damage to any Aboriginal cultural heritage material and sites.
32.	If unforeseen Aboriginal objects are uncovered during construction, the procedures contained in TfNSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2019c) would be followed, and works within the vicinity of the find would cease immediately. The Construction Contractor would immediately notify the TfNSW Project Manager and TfNSW Environment and Planning Manager so they can assist in co-ordinating next steps which are likely to involve consultation with an Aboriginal heritage consultant, the OEH and the Local Aboriginal Land Council. If human remains are found, work would cease, the site secured and the NSW Police and the OEH notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit would be obtained prior to works recommencing at the location.
	Non-Aboriginal heritage
33.	In the event that any unanticipated archaeological deposits are identified within the project site during construction, the procedures contained in TfNSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2019c) would be followed, and works within the vicinity of the find would

No.	Mitigation measure
	cease immediately. The Construction Contractor would immediately notify the TfNSW Project Manager and the TfNSW Environment and Planning Manager so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and OEH. Where required, further archaeological work and/or consents would be obtained for any unanticipated archaeological deposits prior to works recommencing at the location.
34.	A heritage induction would be provided to workers prior to construction, informing them of the guidelines to follow if unanticipated heritage items or deposits are located during construction.
	Biodiversity
35.	Construction of the Proposal must be undertaken in accordance with TfNSW's *Vegetation Management (Protection and Removal) Guideline* (TfNSW, 2019f) and TfNSW's *Fauna Management Guideline* (TfNSW, 2019g).
36.	All workers would be provided with an environmental induction prior to commencing work onsite. This induction would include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity.
37.	Erosion control measures would include areas adjacent to the construction compound as "no-go areas" to limit the extent of ground disturbance and protect vegetation around the site. Work areas would be flagged and clearly marked by temporary fencing. Site inductions are to be provided to ensure all site workers and visitors are aware of no-access area. Opportunity for low maintenance soft landscaping within the Proposal area be explored through the preparation of the Public Domain Plan and Urban Design Plan.
38.	Tree protection would be undertaken in line with *AS 4970-2009 Protection of Trees on Development Sites* and would include exclusion fencing of TPZs.
39.	In the event of any trees become damaged during construction, the Construction Contractor would immediately notify the TfNSW Project Manager and TfNSW Environment and Planning Manager to coordinate the response which may include contacting an arborist to inspect and provide advice on remedial action, where possible.
40.	Should the detailed design or onsite works determine the need to remove or trim any additional trees, which have not been identified in the REF, the Construction Contractor would be required to complete TfNSW's Tree Removal Application Form and submit it to TfNSW for approval.
41.	Weed control measures, consistent with TfNSW's *Weed Management and Disposal Guideline* (TfNSW, 2019d), would be developed and implemented as part of the CEMP to manage the potential dispersal and establishment of weeds during the construction phase of the project. This would include the management and disposal of weeds in accordance with the *Biosecurity Act 2015.*
42.	Opportunity for low maintenance soft landscaping within the Proposal area be explored through the preparation of the Public Domain Plan and Urban Design Plan.
	Socio-economic
43.	Social Procurement and Workforce criteria for the Proposal would be established to encourage the Construction Contractor to purchase goods and services locally, helping to ensure the local community benefits from the construction of the Proposal.
44.	Feedback through the submissions process would be encouraged to facilitate opportunities for the community and stakeholders to have input into the project, where practicable.
45.	A Community Liaison Management Plan would be prepared prior to construction to identify all potential stakeholders and best practice methods for consultation with these groups during

No.	Mitigation measure
	construction. The plan would also encourage feedback and facilitate opportunities for the community and stakeholders to have input into the project, where practicable.
46.	Contact details for a 24-hour construction response line, Project Infoline and email address would be provided for ongoing stakeholder contact throughout the construction phase.
47.	The community would be kept informed of construction progress, activities and impacts in accordance with the Community Liaison Management Plan to be developed prior to construction.
	Soils and water
48.	Prior to commencement of works, a site-specific Erosion and Sediment Control Plan would be prepared in accordance with the *'Blue Book' Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) and updated throughout construction so it remains relevant to the activities. The Erosion and Sediment Control Plan measures would be implemented prior to commencement of works and maintained throughout construction.
49.	Erosion and sediment control measures would be established prior to any clearing, grubbing and site establishment activities and would be maintained and regularly inspected (particularly following rainfall events) to ensure their ongoing functionality. Erosion and sediment control measures would be maintained and left in place until the works are complete and areas are stabilised.
50.	Vehicles and machinery would be properly maintained and routinely inspected to minimise the risk of fuel/oil leaks. Construction plant, vehicles and equipment would also be refuelled offsite, or in a designated refuelling area.
51.	All fuels, chemicals and hazardous liquids would be stored away from drainage lines, within an impervious bunded area in accordance with Australian Standards, EPA Guidelines and TfNSW's *Chemical Storage and Spill Response Guidelines* (TfNSW, 2019h).
52.	Adequate water quality and hazardous materials procedures (including spill management procedures, use of spill kits and procedures for refuelling and maintaining construction vehicles/equipment) would be implemented in accordance with relevant EPA guidelines and the TfNSW *Chemical Storage and Spill Response Guidelines* (TfNSW, 2019h) during the construction phase. All staff would be made aware of the location of the spill kits and be trained in how to use the kits in the case of a spill.
53.	In the event of a pollution incident, works would cease in the immediate vicinity and the Construction Contractor would immediately notify the TfNSW Project Manager and TfNSW Environment and Planning Manager. The EPA would be notified by TfNSW if required, in accordance with Part 5.7 of the POEO Act.
54.	The existing drainage systems would remain operational throughout the construction phase.
55.	Should groundwater be encountered during excavation works, groundwater would be managed in accordance with the requirements of the *Waste Classification Guidelines* (EPA, 2014) and TfNSW's *Water Discharge and Reuse Guideline* (TfNSW, 2019i).
56.	Further investigations of acid sulfate soils should be undertaken prior to construction.
57.	The use of non-potable sources of water for construction to be considered, if appropriate.
	Waste and contamination
58.	The CEMP must address waste management and would at a minimum: • identify all potential waste streams associated with the works and outline methods of disposal of waste that cannot be reused or recycled at appropriately licensed facilities • detail other onsite management practices such as keeping areas free of rubbish

No.	Mitigation measure
	• specify controls and containment procedures for hazardous waste and asbestos waste • outline the reporting regime for collating construction waste data.
59.	An appropriate Unexpected Finds Protocol, considering asbestos containing materials and other potential contaminants, would be included in the CEMP. Procedures for handling asbestos containing materials, including licensed contractor involvement as required, record keeping, site personnel awareness and waste disposal to be undertaken in accordance with WorkCover requirements, the PoEO Act, WARR Act and other relevant guidelines.
60.	All spoil to be removed from site would be tested to confirm the presence of any contamination. Any contaminated spoil would be disposed of at an appropriately licensed facility.
61.	All spoil must be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste (*EPA, 2014) prior to reuse or disposal.
62.	Any concrete washout would be established and maintained in accordance with TfNSW's *Concrete Washout Guideline* – (TfNSW, 2019j) with details included in the CEMP and location marked on the ECM.
	Air quality
63.	Air quality management and monitoring for the Proposal would be undertaken in accordance with TfNSW's *Air Quality Management Guideline* (TfNSW, 2019k).
64.	Methods for management of emissions would be incorporated into project inductions, training and pre-start/toolbox talks.
65.	Plant and machinery would be regularly checked and maintained in a proper and efficient condition. Plant and machinery would be switched off when not in use, and not left idling.
66.	Vehicle and machinery movements during construction would be restricted to designated areas and sealed/compacted surfaces where practicable.
67.	To minimise the generation of dust from construction activities, the following measures would be implemented: • apply water (or alternate measures) to exposed surfaces (e.g. unpaved roads, stockpiles, hardstand areas and other exposed surfaces) • cover stockpiles when not in use • appropriately cover loads on trucks transporting material to and from the construction site and securely fix tailgates of road transport trucks prior to loading and immediately after unloading • prevent mud and dirt being tracked onto sealed road surfaces.
	Sustainability, climate change and greenhouse gases
68.	Detailed design and construction of the Proposal is to be undertaken in accordance with the ISCA Infrastructure Sustainability Rating Scheme (v1.2).
69.	The detailed design process would undertake an AS 14064-2 (Greenhouse Gases - project level) compliant carbon footprinting exercise in accordance with TfNSW's *Carbon Estimate and Reporting Tool Manual* (TfNSW, 2019l). The carbon footprint would to be used to inform decision making in design and construction.
70.	The detailed design process will consider the following mitigations for climate change: • lift design to consider future temperature increases including insulation/glazing, cooling, and protections on electrical equipment

No.	Mitigation measure
	• provision of shade along the platform waiting areas to shelter customers from extreme heat and rainfall events. • avoid use of metal outdoor furniture • provide sufficient protections for electrical systems (such as for proposed lifts) to meet expectations of future temperature increases.
71.	The CEMP environmental risk assessment is to include site-specific procedures addressing the risks of both bushfire and high intensity rainfall events and flooding.
72.	A hazardous materials survey in accordance with AS2601:2001 Demolition of Structures would be undertaken by an appropriately qualified scientist prior to the demolition of any structures. Any removal of any hazardous material is to be undertaken in accordance with applicable EPA and SafeWork NSW guidelines.
	Cumulative
73.	Consultation with relevant stakeholders including construction contractors of nearby TfNSW construction work (and any other relevant work) would be undertaken to ensure that cumulative impacts such as traffic and noise generation are minimal.

8. Conclusion

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

The Proposal would provide the following benefits:

- improved and equitable access to Niagara Park Station for customers resulting from the installation of lift access from both the eastern and western commuter car parks to the footbridge and to the island platform
- provision of a DDA compliant accessible parking space and a formalised kiss and ride space in both the eastern and western commuter car parks
- improved amenity and safety for customers at the station resulting from improved lighting, public address system, card readers, and CCTV
- provision of a DDA compliant accessible pathway linking Niagara Park Station to bus services.

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

- minor temporary changes to vehicle and pedestrian movements to, from and around the station during construction
- up to 14 formal commuter parking spaces to be removed across the commuter car parks at the station
- moderate temporary impacts to the visual character due to construction activities, including hoardings and the establishment and use of a construction compound
- moderate visual impacts during construction of the Proposal from selected viewpoints due to the proximity of the residential receivers to the station
- temporary noise and vibration impacts during construction. These impacts were assessed as variable and dependent on the construction stage and hours of work. Impacts would be mitigated through the implementation of a range of mitigate measures proposed in the NVIA (Pulse Acoustic 2020) and the CNVS (TfNSW, 2019k).

The Proposal does not involve the removal of any trees, and the construction and operation of the Proposal are assessed as highly unlikely to result in any significant impact on threaten flora and fauna species. This REF has considered and assessed these impacts in accordance with clause 228 of the EP&A Regulation and the requirements of the EPBC Act (refer to Appendix A and Appendix B).

Based on the assessment contained in this REF, it is considered that the Proposal is not likely to significantly affect the environment. Accordingly, an EIS is not required, nor is the approval of the Minister for Planning and Public Spaces.

The Proposal has also taken into account the principles of ESD and sustainability (refer to Section 4.3 and Section 6.13). These would be considered further during the detailed design, construction and operational phases of the Proposal. This would ensure the Proposal is delivered to maximum benefit to the community, is cost effective and minimises any adverse impacts on the environment.

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Appendix A Consideration of matters of National Environmental Significance

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

Matters of NES	Impacts
Any impact on a World Heritage property? There are no World Heritage properties in the vicinity of the Proposal Area	Nil
Any impact on a National Heritage place? There are no National Heritage places in the vicinity of the Proposal Area	Nil
Any impact on a wetland of international importance? There are no wetlands of international importance within the Proposal Area or in the vicinity of the Proposal Area.	Nil
Any impact on a listed threatened species or communities? No threatened species were identified within the Proposal Area during the site visit. The site does not contain any substantial vegetation and no threatened ecological communities are present within the Proposal Area.	Nil
Any impacts on listed migratory species? It is unlikely that the development of the Proposal would significantly affect any migratory species as no migratory bird species were observed and there is no vegetation in the Proposal Area to provide habitat for any listed migratory species.	Nil
Does the Proposal involve a nuclear action (including uranium mining)? The Proposal does not involve a nuclear action.	Nil
Any impact on a Commonwealth marine area? There are no Commonwealth marine areas in the vicinity of the Proposal.	Nil
Does the Proposal involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources? The Proposal is for a transport facility and does not relate to coal seam gas or mining.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land? Proposal would not be undertaken on or near Commonwealth Land.	Nil

Appendix B Consideration of clause 228

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

Factor	Impacts
(a) Any environmental impact on a community? During the construction phase of the Proposal, there would be some temporary impacts to the community resulting from increased traffic, noise and reduced visual amenity. Mitigation measures outlined in Section 7.2, would be implemented to manage and minimise negative impacts during construction. The operation of the Proposal would result in improved accessibility to and within the Niagara Park Station precinct.	Short-term, minor, negative Long-term, positive
(b) Any transformation of a locality? The locality is a low-density residential suburb bisected by the Central Coast & Newcastle Rail Line and the Pacific Highway transportation corridors works associated with the Proposal to upgrade the station would not transform the locality.	Nil
(c) Any environmental impact on the ecosystem of the locality? The Proposal would not remove any trees. The Proposal area comprises a highly modified environment. Environmental impacts are anticipated to be minor and would not be expected to result in adverse impacts to the ecosystems of the locality.	Nil
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? There would be some minor temporary impacts during construction particularly in relation to noise, traffic, access and visual amenity. The introduction of the lifts will alter the aesthetic of the location but is not anticipated to result in any significant adverse impacts.	Minor, negative
(e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? The Proposal would be a positive contribution to the area as it provides equitable access to the station platform and improves amenity of the station for all customers.	Positive
(f) Any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? The Proposal area does not contain any significant vegetation or habitat and is highly modified. The Proposal would not have any impact on the habitat of protected fauna.	Nil
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The Proposal is unlikely to have any impact on endangering any species of animal, plant or other form of like, whether living on land, in water or in the air.	Nil

Factor	Impacts
(h) Any long-term effects on the environment? The Proposal is unlikely to have any long-term effects on the environment.	Nil
(i) Any degradation of the quality of the environment? The Proposal is unlikely to have any degradation of the quality of the environment.	Nil
(j) Any risk to the safety of the environment? The Proposal is unlikely to cause any pollution or safety risks to the environment provided the recommended mitigation measures are implemented.	Nil
(k) Any reduction in the range of beneficial uses of the environment? The Proposal is unlikely to have any reduction in the range of beneficial uses of the environment.	Nil
(l) Any pollution of the environment? The Proposal is unlikely to cause any pollution of the environment provided the recommended mitigation measures are implemented.	Nil
(m) Any environmental problems associated with the disposal of waste? The Proposal is unlikely to cause any environmental problems associated with the disposal of waste. All waste would be managed and disposed of with a site-specific Waste Management Plan prepared as part of the Construction Environmental Management Plan. Mitigation measures would be implemented to ensure waste is reduced, reused or recycled where practicable.	Nil
(n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The Proposal is unlikely to increase demands on resources that are, or are likely to become, in short supply.	Nil
(o) Any cumulative environmental effect with other existing or likely future activities? Cumulative effects of the Proposal are described in Section 6.13, Where feasible, environmental management measures would be co-ordinated to reduce any cumulative construction impacts. The Proposal is unlikely to have any significant adverse long-term impacts.	Nil
(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The Proposal would not affect or be affected by any coastal processes or hazards.	Nil