Transport for NSW

TAP 3 - Hazelbrook Station
Landscape and Visual Impact Assessment

November 2018

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Terminology and Abbreviations

Table 1 Terminology Table

Terminology	Definition
Impact	The effect of a proposal, which can be adverse or beneficial, when measured against an existing condition.
Landscape character	The combined quality of built, natural and cultural aspects that make up an area and provide its unique sense of place.
Landscape character type	An area of landscape with similar properties or strongly defined spatial qualities, distinct from areas immediately adjacent.
Magnitude	The measurement of the scale, form and character of a development proposal when compared to the existing conditions. In the case of visual assessment, this also relates to how far the proposal is from the viewer. Combined with sensitivity, magnitude provides a measurement of impact.
Proposal site	The area that would be directly impacted by the Proposal.
Sensitivity	The sensitivity of a LCT or visual receiver and its capacity to absorb change. In the case of visual impact, this also relates to the type of viewer. Combined with magnitude, sensitivity provides a measurement of impact.
Sense of place	The feelings or perceptions people have for a place, often in relation to the characteristics that make a place special or unique.
Study area	Consists of land in the vicinity of, and including, the Proposal site. The study area is a wider area surrounding the proposal site as defined in this assessment, including land that has the potential to be indirectly impacted by the Proposal.
View	The sight or prospect of a landscape or scene.
Visibility	The state or fact of being visible or seen.

Table 2 Abbreviations Table

Abbreviations	Definition
AHD	Australian Height Datum
BMLEP	Blue Mountains Local Environmental Plan
GWH	Great Western Highway
LCT	Landscape Character Type
REF	Review of Environmental Factors
ZTV	Zone of Theoretical Visibility

1. Introduction

1.1 Purpose of this report

This Landscape and Visual Impact Assessment (LVIA) has been prepared by GHD on behalf of Transport for NSW (TfNSW). The LVIA investigates the impacts related to the proposed accessibility, security, and technology upgrades associated with TfNSW's Transport Access Program (TAP) at Hazelbrook Station (the Proposal).

The purpose of this report is to assist in the determination of the Proposal by undertaking landscape and visual impact assessment as part of the overall Review of Environmental Factors, with a view to making recommendations for managing identified landscape and visual issues that may arise from the Proposal.

The report comprises the following:

- an understanding of the landscape and visual attributes of the study area
- identification of sensitivities in relation to landscape and visual change associated with the Proposal
- assessment of potential landscape and visual impacts associated with the Proposal
- provision of recommendations for managing identified landscape and visual impacts arising from the Proposal.

1.2 Overview of the Proposal

The NSW Government is committed to facilitating and encouraging the use of public transport, such as trains, by upgrading stations to make them more accessible, and improving interchanges around stations with other modes of transport such as bicycles, buses and cars.

Hazelbrook Station does not currently meet key requirements of the *Disability Standards for Accessible Public Transport* (DSAPT) or the Commonwealth *Disability Discrimination Act 1992* (DDA).

The non-compliant access points and stairs to the Hazelbrook Station concourse and platforms do not facilitate access for people with a disability, reduced mobility, parents/carers with prams or customers with luggage. There are no lift facilities, and the amenities and tactile surfacing to stairs, platforms and interchange facilities are inadequate.

The Proposal would involve upgrade works to Hazelbrook Station, the commuter carpark and surrounding footpaths. The station is located 93 kilometres west of the Sydney Central Business District (CBD) in the suburb of Hazelbrook and is serviced by the BMT - Blue Mountains Line. Platform 1 provides train services east towards the CBD and Platform 2 provides train services west towards Katoomba, Mount Victoria and Lithgow. The Proposal is located within the Blue Mountains local government area between Railway Parade and the Great Western Highway, Hazelbrook.

The key features of the Proposal are summarised as follows:

The key features of the Proposal are summarised as follows:

- installation of a new lift, glazed awnings and a new lift landing from the existing footbridge to the platform
- modification to the existing levels within the commuter car park, Railway Parade pedestrian crossing (including new road humps) and footbridge to provide DDA compliant pedestrian routes to the proposed new lift

- regrade existing platform surfaces to provide DDA compliant pedestrian routes between new lift, station building, toilets and the boarding zone on the platform
- upgrade of two DDA compliant parking spaces to the commuter car park
- relocation of existing bike storage and construction of a retaining wall within the existing commuter car park
- new canopies around the lift and over the new family accessible toilet (FAT)
- installation of new corridor fencing
- removal of some plants and gardens within and surrounding the station to allow for works
- modification of existing station building layout to allow for new amenities and station services equipment room (SSER)
- ancillary works including adjustments to lighting and additional opal card readers, new anti-throw screens, handrails, electrical upgrades, minor drainage works, landscaping, improvements to station communications systems including closed circuit TV (CCTV) cameras, hearing loops, public announcement (PA) system, wayfinding signage, emergency help points and installation of tactile ground surface indicators (TGSIs)
- a new padmount and upgrade of low voltage system to account for new lift.

Subject to planning approval, construction is expected to commence in early 2019 and take around 18 months to complete.

1.3 Scope

This LVIA assesses the landscape character and visual impact of the TAP project for Hazelbrook Station as proposed by TfNSW. This includes landscape and visual effects of both construction and operational stages of the Proposal.

1.4 Limitations

2. Methodology

2.1 Standards and guidance

This landscape and visual impact assessment has been prepared in accordance with the following:

- Environmental Impact Assessment Guidance Note - Guidelines for landscape character and visual impact assessment (EIA-N04), Version 2 (Roads and Maritime, 2013)
- *Guidelines for Landscape and Visual Impact Assessment,* 3rd Edition (Landscape Institute and Institute of Environmental Management & Assessment, 2013).

2.2 Landscape and visual existing environment

2.2.1 Review of legislation and policy

A review of key planning designations, policies and guidance was undertaken in relation to landscape and visual amenity within the LVIA study area. The emphasis of the review was to identify elements outlined within legislation, policy and planning documents relevant to landscape and visual character and identity of the study area.

2.2.2 Desktop analysis of the Proposal, landscape and visual resources

Existing data was gathered and reviewed, including:

- Proposal design information and site photographs
- topography, land use, and vegetation maps
- Google Earth and Google Street View.

Using this data, a preliminary assessment of the landscape and visual environment was undertaken to inform the site inspection.

2.2.3 Zone of Theoretical Visibility assessment

Zone of Theoretical Visibility (ZTV) mapping is a computer-generated analysis which identifies land from which it is theoretically possible to view the components of the Proposal. These have been used primarily to guide the area of site analysis and representative viewpoint selection.

ESRI ArcGIS software was used to model the ZTV of the Proposal. A digital elevation model was produced using a combination of two metre contour intervals within the study area. The ZTV was run using the following parameters:

- a viewing height of 1.7 metres, which is the average within the typical viewing level range of an adult
- the indicative levels for the top of proposed lift shafts.

The GIS software then digitally determines the likely extent over which the feature would be visible or not visible. In interpreting the ZTV, the following issues must be considered:

- it only takes into account the landform and does not include land cover factors such as the presence of buildings and trees, therefore it represents the worst-case scenario of potential visual impact
- it does not take into account the effect of distance. The greater the distance from the Proposal, the lower the impact, as the development will take up a smaller portion of the view, and atmospheric conditions may reduce the visual prominence of the Proposal

- the ZTV is only accurate to the resolution of the elevation model.

2.2.4 Site Inspection

A site inspection was undertaken by a Landscape Architect on 10th August 2018. The purpose of the inspection was to:

- inspect the site and appreciate views to / from sensitive visual receivers
- inspect publically accessible locations identified in the desktop study as likely to provide views of the Proposal, including roads, footpaths, station entry points, and platforms
- identify sensitive visual receiver locations
- assess the landscape character of the study area and identify landscape sensitivities
- undertake site photography suitable for photomontage preparation

The co-ordinate location of each viewpoint was recorded during the site inspection.

2.2.5 Definition of existing landscape and visual environment

A landscape existing conditions assessment was undertaken to determine the existing natural and cultural features within the study area. This includes determination of key landscape and spatial elements, features and values. Key aspects considered include:

- land use and built form
- landform, topography and hydrology
- vegetation
- historical features.

A visual existing conditions assessment was also undertaken to establish the key views, viewsheds, and other visual features within the study area.

2.2.6 Landscape character types

Landscape character considers common landscape types defined by typical features and characteristics identified during the desktop assessment and site inspection. Defining landscape character types identifies areas sharing the same homogenous environmental or cultural qualities or pattern such as topography, vegetation, hydrology, land use and settlement, built form scale and character, cultural and recreational characteristics.

This approach has been used to establish the existing landscape character around the Proposal site and to provide a framework for measuring the impact of the Proposal. This assists in:

- defining landscape elements that contribute to defining character
- defining landscape character attributes
- identifying landscape value.

The assessment of the existing environment also considers factors which have influenced landscape change in the past and those that are likely to do so in the future.

2.2.7 Viewpoint selection

Assessment of visual impacts deals with the effects of change and development on the views available to people and their visual amenity. It assesses how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views as a result of the change or loss of existing elements of the landscape and/or the introduction of new elements.

Visual receivers have been considered in terms of the views they are likely to obtain from within the study area including consideration of any key vantage points, such as lookouts, where there is particular interest in the view. Visual receivers are identified based on:

- proximity of the receivers to the Proposal, as the most affected visual receivers are anticipated to be located closest to the Proposal, unless located at an elevated vantage point
- type of receiver, as different viewer types would have different perceptions of the change.

Based on the analysis of the existing landscape and visual environment, sensitive visual receivers were identified and viewpoint locations selected as representative locations for assessment.

2.3 Impact Assessment

2.3.1 Landscape effects

Landscape character refers to a distinct and recognisable pattern of elements that occur consistently in a particular type of landscape. Particular combinations of geology, landform, soils, vegetation, land use and human settlement create character, which makes each part of the landscape distinct and gives each its particular sense of place.

Assessment of landscape effects deals with the effect of change and development on landscape as a resource. The concern is with how the Proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character.

The consideration of potential impacts on landscape character is determined based on the sensitivity of the existing landscape to change and the magnitude of change that is likely to occur. The sensitivity of a landscape is judged on the extent to which it can accept change of a particular type and scale without adverse effects on existing landscape character. The level of sensitivity is determined on the basis of:

- the landscape's inherent values and any specific values that may apply such as landscape planning designations
- the landscape's ability to absorb changes associated with the Proposal.

The magnitude of change to landscape character depends on the nature, scale and duration of the change expected to occur. The magnitude of change also depends on the loss, change or addition of any feature to the existing landscape. It is based on that part of the landscape character type which is likely to be impacted to the greatest extent by the Proposal.

The sensitivity and magnitude of landscape effects address the following specific criteria:

- sensitivity of landscape to proposed change, based on the susceptibility to change, and the value of landscape (refer Table 3)
- magnitude of landscape effect, based on the size or scale of change, the geographical extent of effects, and the duration and reversibility of effects (refer Table 4).

A judgement is made on the overall level of significance of the landscape effect in relation to the existing conditions (refer Section 2.3.3).

Table 3 Sensitivity criteria (landscape)

Rating	Criteria
High	Landscape character elements in good or above average condition and/or that make a strong positive contribution to the landscape character. May include nationally important features. The type of development proposed could have a detrimental effect on the landscape character, condition or value. Mitigation measures are unlikely to reduce the impacts of the change.
Moderate	Landscape character elements in reasonably good condition and/or that make an average contribution to the local character, which may include locally important features. Any change caused by the proposed development would be unlikely to have a significant adverse effect on the landscape character, condition or value that could not be mitigated.
Low	Landscape character elements in average condition and/or that are not particularly distinctive local features. Development of this type is unlikely to have an adverse effect on the landscape character, condition or value. Mitigation measures would be effective in neutralising adverse effects.
Negligible	Elements in below average condition and/or that are not distinctive local features. Development of this type is very unlikely to have an adverse effect on the urban landscape character, condition or value. Mitigation measures would be effective in neutralising adverse effects and/or improve the urban landscape character.

Table 4 Magnitude of change criteria (landscape)

Rating	Criteria
High	A substantial/obvious change to the landscape character due to total loss of, or change to, elements, features or characteristics of the landscape. Would cause a landscape to be permanently changed and its quality diminished.
Moderate	Discernible changes in the landscape character due to partial loss of, or change to elements, features or characteristics of the landscape, however has potential to be partly mitigated. The change would be out of scale with the landscape character, and at odds with the local pattern and landform and would leave an adverse impact on the landscape character.
Low	Minor loss or alteration to one or more key landscape character elements, features or characteristics, or the introduction of components that may be new but may not be uncharacteristic within the existing landscape character.
Negligible	Almost imperceptible or no change in the landscape character as there is little or no loss of/or change to the elements, features or characteristics of the landscape.

2.3.2 Visual effects

The evaluation of potential impacts on visual amenity is based on the sensitivity of the viewpoint (and the visual receiver it represents) to change, and the magnitude of change that is likely to occur.

The sensitivity of each viewpoint is considered to be dependent on the:

- importance of the view, its existing scenic qualities and the presence of other existing man-made elements in the view
- type of visual receiver and their likely interest in the view.

The magnitude of change to views and visual amenity depends on the nature, scale and duration of the change that is expected to occur. The magnitude of a change also depends on the loss, change or addition of any feature in the field of view of the receiver including an assessment of the level to which the change contrasts with the existing view or expected view of the landscape. This includes the degree of any change to the backdrop to, or outlook from a viewpoint.

The assessment considers the likely impacts of the Proposal. The level of effects on a view depends on factors such as the extent of visibility, degree of obstruction of existing features, degree of contrast with the existing view, angle of view, duration of view and distance from the Proposal.

Steps undertaken to assess visual effects include:

- identify and map viewpoint locations
- undertake assessment of visual effects, comprising:
  - sensitivity of visual receivers to proposed change, based on: susceptibility of visual receivers to change, and value attached to views (refer Table 5)
  - magnitude of visual effect, based on: size or scale of change; geographical extent of effects, and duration and reversibility of effects (refer Table 6).

An assessment is undertaken of the overall level of significance of the visual effects in relation to the existing view (refer Section 2.3.3).

Table 5 Sensitivity criteria (visual)

Rating	Criteria
High	Occupiers of residential properties, at home or going to or from, with long viewing periods, within close proximity to the proposed development; Communities that place value upon the urban landscape and enjoyment of views of their setting.
Moderate	Outdoor workers who have a key focus on their work who may also have intermittent views of the study area; Viewers at schools, or similar, when outdoor play and recreation areas are located within close proximity but viewing periods are limited; Occupiers of residential properties with long viewing periods, at a distance from or screened from the study area.
Low	Road users in motor vehicles, trains or on transport routes that are passing through or adjacent to the study area and therefore have short term views; Viewers indoor at their place of work, schools or similar.
Negligible	Viewers from locations where there is screening by vegetation or structures where only occasional screened views are available and viewing times are short; Road users in motor vehicles, trains or on transport routes that are passing through/adjacent to the study area and have partially screened views and short viewing times.

Table 6 Magnitude of change criteria (visual)

Rating	Criteria
High	A substantial/obvious change to the existing view due to total loss of, or change to, elements, features or characteristics of the view. Would cause a view to be permanently changed and its quality diminished.
Moderate	Discernible changes in the existing view due to partial loss of, or change to elements, features or characteristics of the view, however has potential to be partly mitigated. The change would be out of scale with the existing view, and would leave an adverse impact on the view.
Low	Minor loss or alteration to one or more key view elements, features or characteristics, or the introduction of components that may be visible but may not be uncharacteristic within the existing view.
Negligible	Almost imperceptible or no change in the view as there is little or no loss of/or change to the elements, features or characteristics of the view.

2.3.3 Significance of impacts

The combination of sensitivity and magnitude determines the significance of the impact on the landscape character or representative viewpoint. Refer Table 7 for the matrix used to determine the significance of impact.

Table 7 Significance of impact matrix

Sensitivity	Magnitude of impact			
	High	Moderate	Low	Negligible
High	High Impact	High-Moderate	Moderate	Negligible
Moderate	High-Moderate	Moderate	Moderate-Low	Negligible
Low	Moderate	Moderate-Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

2.3.4 Panorama and photomontage

All photographic images were captured using a 50 millimetre fixed focal length lens on a 35 millimetre full frame format camera at a camera height of 1.6 metres. All photograph locations were recorded and mapped.

A series of seven viewpoint locations were chosen and existing views represented using a panorama technique. This technique involves the stitching together of a number of adjoining images using the Adobe Photoshop software program.

Of the seven viewpoint locations, two viewpoints were selected for the production of photomontage images to represent proposed views following the completion of the Proposal. The software used to model and render the photomontages was Autodesk 3D Studio Max. In order to achieve an accurate photomontage of the structure and surrounding landscape, two metre contours were used to model the surrounding landform.

Once the 3D model incorporating both the landscape and new Proposal elements were created, a virtual camera was placed in the software at the same location the photographs were taken. The film, focal lens and height of the virtual camera matches the real camera utilised to take the photographs. The photographs of the site were used in 3D Studio Max as a background to accurately match the 3D model with the Proposal elements to the perspective of the photographs. From the camera view, rendered images of the Proposal were produced to match the daylight exposure of the photographs. The rendered images were imported into Adobe Photoshop for post-production editing and collation of the photomontages. Refer to Appendix A for photomontages of the Proposal.

The final result is the 3D model of the Proposal shown in the correct 3D location in the photographs (refer Appendix A). The final images were produced to a high resolution, suitable for printing.

2.4 Mitigation measures

Potential mitigation measures may include:

- adopting alternative designs or revisions to the basic engineering and architectural design to prevent and/or minimise negative impacts
- remedial measures such as colour and textural treatment of structural features
- compensatory measures such as landscape design measures to compensate for unavoidable negative impacts and to attempt to generate long-term positive impacts.

2.5 Assumptions and Limitations

This methodology includes the following assumptions and limitations:

- there is no national guidance on the assessment of landscape and visual impacts specific to Australia, however, the industry typically refers to *Guidelines for Landscape and Visual Impact Assessment, Third Edition* (2013) and the *Environmental Impact Assessment Practice Note Guideline for Landscape Character and Visual Impact Assessment EIA-N04 (2013)*
- the assessment aims to be objective and describe any changes factually. While potential changes resulting from the Proposal are defined, the significance of these changes requires qualitative (subjective) judgements. This assessment's conclusion therefore combines objective measurement and professional interpretation. While this assessment aims to be objective, it is recognised that visual impact assessment can be subjective and individuals are likely to associate different visual experiences to the study area
- the assessment is based on the information provided to GHD at the time of writing
- existing conditions were assessed during the site inspection on 10th August 2018
- this assessment does not include landscape and visual impacts from lighting.

3. Proposal Description

3.1 The Proposal site

The Proposal site is located at Hazelbrook Station in the Blue Mountains along the Main Western Line. This rail line is an important connection between Sydney and Central and Western NSW, across the Blue Mountains. Adjoining stations are Woodford to the east and Lawson to the west. The Great Western Highway (GWH) follows the rail alignment to the north of the rail corridor.

Land immediately surrounding the station includes:

- the GWH along the northern edge, with
  - a small local park to the north
  - a residential area to the north-east
  - a commercial area to the north-west
- Railway Parade to the southern edge, with
  - a residential area to the south-east
  - a commercial area to the south-west.

Hazelbrook is part of a ribbon of close towns following the rail line and surrounded by the Blue Mountains National Park. The suburb of Hazelbrook straddles the north and south sides of the rail line and highway, with commercial areas on both sides. The more historical area is to the south associated with the rail corridor, whereas the shopping centre to the north is designed around easy access from the GWH, containing facilities such as a supermarket, cafes and restaurants.

Hazelbrook Station comprises a curved island platform with a centrally located heritage station on the platform. The rail line and station are situated within a cutting below Railway Parade. A pedestrian overpass forms a connection across the rail corridor and the GWH, providing access to the station on the northern end of the platform.

Hazelbrook Station is an express stop station for express train services to and from Sydney. Facilities include an off-street commuter carpark north of the station on Railway Parade, toilets, a ticket office, waiting room, bike racks, accessible parking, and bus connections. Current access to the platforms is provided via stairs.

Refer Figure 1 for Proposal location plan.

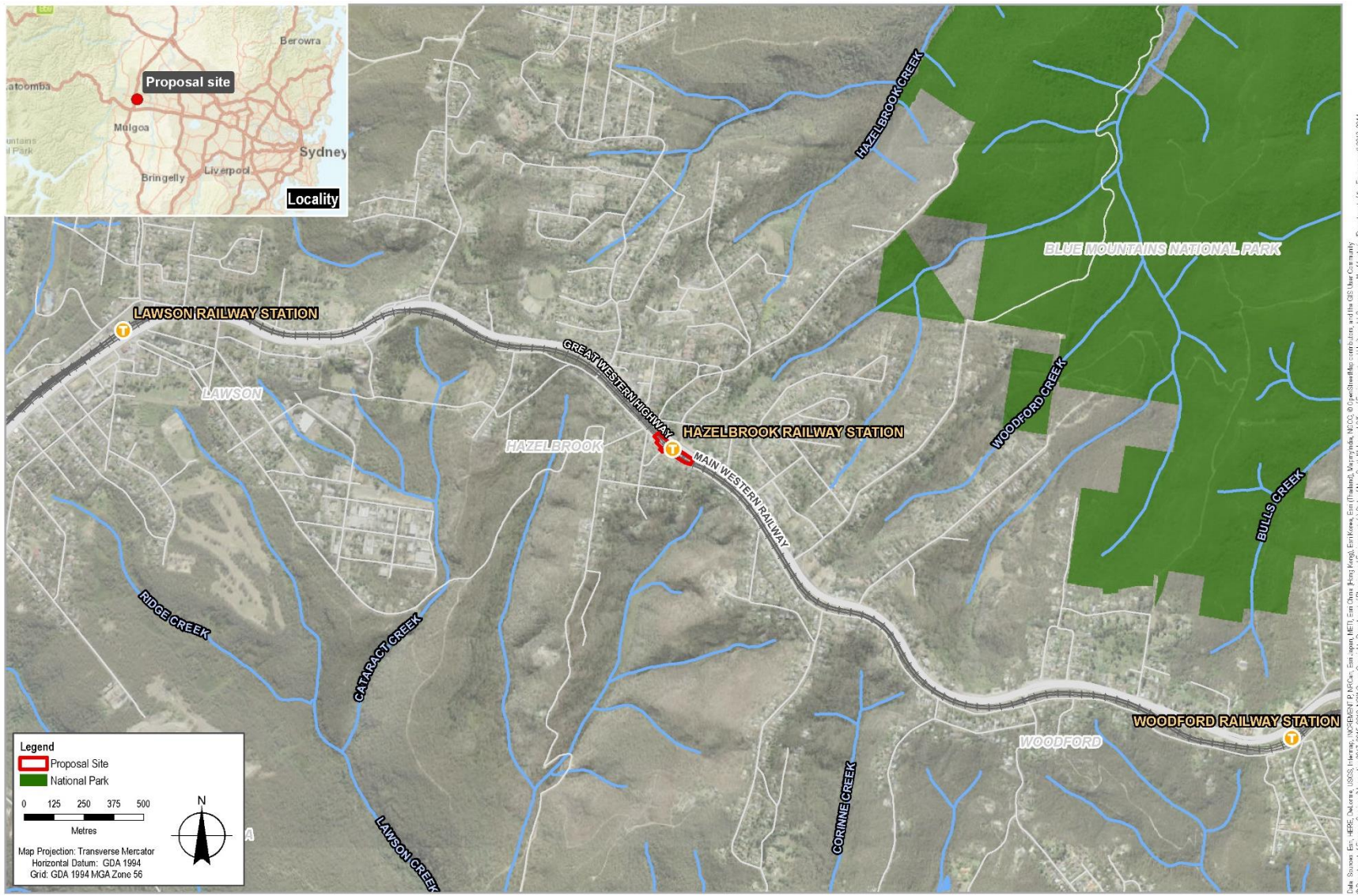


Figure 1 Proposal location plan

3.2 The Proposal

As part of the TAP initiative, TfNSW are proposing accessibility, security, and facilities upgrades to Hazelbrook Station to improve the public transport customer experience.

3.2.1 Operation phase

The Proposal includes the following key elements:

- one new lift to approximately 11 metres high from platform level (5.7 metres high from existing pedestrian overpass level), located to the northern end of the platform between the station building and pedestrian overpass
- a new extended walkway and lift landing connect the existing pedestrian overpass to the new lift, at the same level as the overpass. The extended walkway is approximately 18 metres long and seven metres wide with curved edges and a cutout allowing access to the existing stairs below. Elevated walkways wrap around both sides of the stairs and form a lift landing at the upper entry to the lift
- accessibility upgrades to the toilet facilities within the existing station building
- accessibility upgrades to the commuter car park and station pedestrian access on Railway Parade, including a new footpath, new pedestrian crossing and road hump, new accessible parking spaces and signage, relocated bike storage, and new bike racks
- new screens and balustrades to the new extended walkway and lift landing
- new 2.1 metre palisade style rail corridor fencing to the north and south sides of the rail corridor, extending 50 metres beyond the end of platform in each direction
- new privacy wall and glazed awning on the eastern side of the existing station building
- new glazed awnings to the new lift

Refer Figure 2 for the Proposal components.

3.2.2 Construction phase

The following activities are likely to be experienced during construction:

- removal of internal walls, fixtures and fittings within the existing station building, as well as demolition of an existing external brick privacy wall
- removal of one planter, a number of light poles, and an area of paving on the platform
- removal of pedestrian zebra crossing and a section of commuter carpark paving fronting Railway Parade
- removal and replacement of bike locker
- excavation of the existing platform for new lift pit
- establishment of a site compound
- construction of the operation phase Proposal components identified in section 3.2.1.

Tree removal would be limited to one small tree in the garden bed on the station platform.

The construction timeframe is expected to be a period of approximately 18 months, with work undertaken Monday to Friday between 7:00am and 6:00pm, and Saturday between 8:00am and 1:00pm with no work on Sunday or Public Holidays. However a number of possessions (track closures over a weekend period) would be required to undertake the construction works.

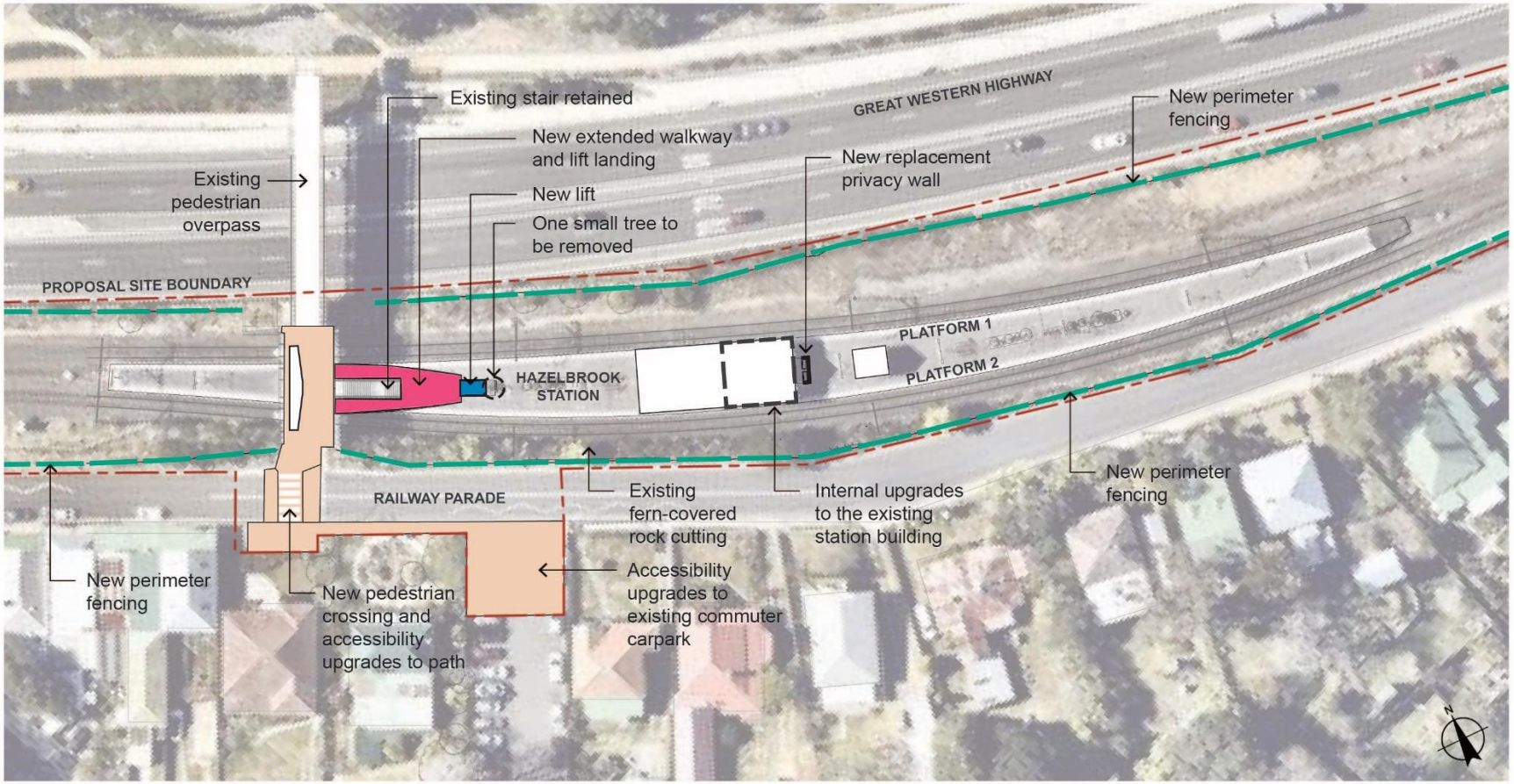
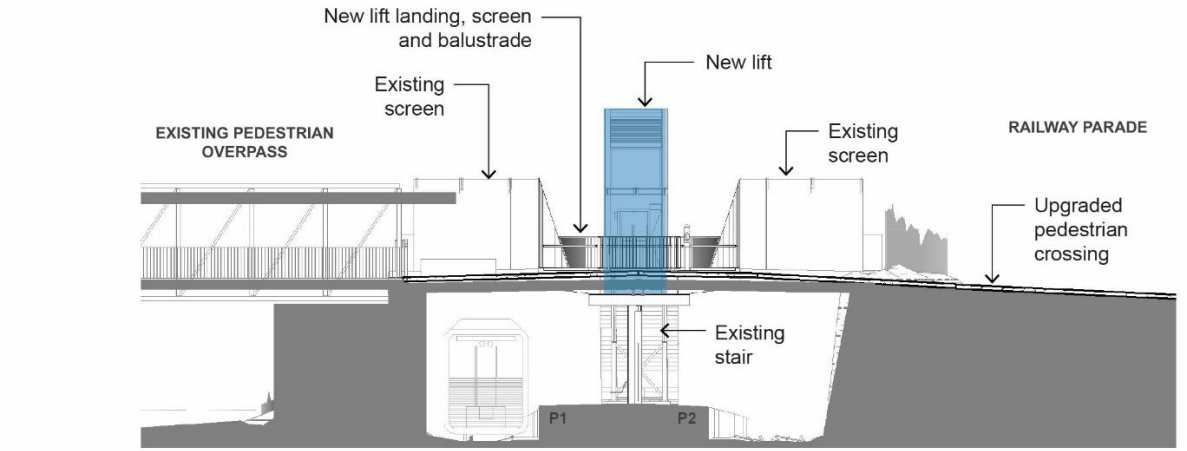
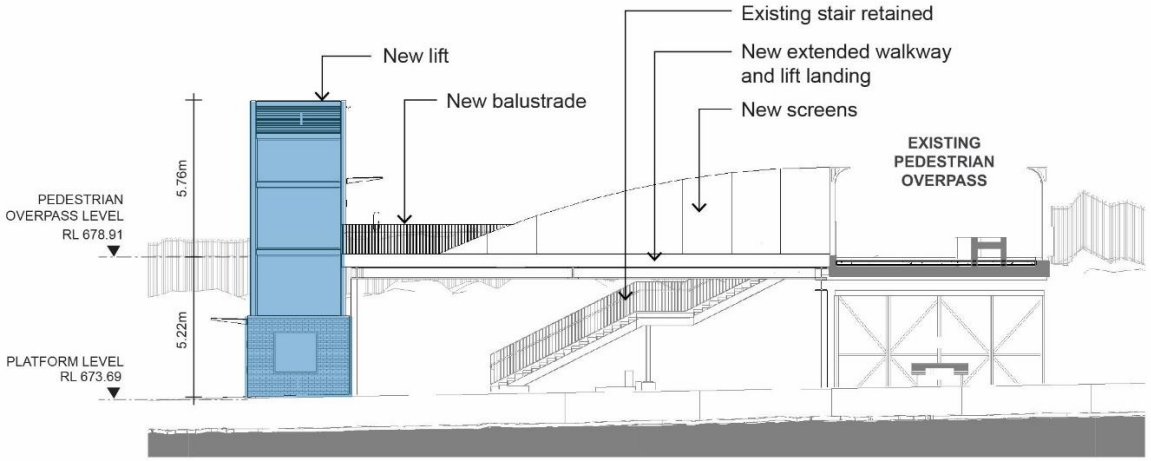


Figure 2 Proposal components plan



CROSS SECTION THROUGH PEDESTRIAN OVERPASS LOOKING EAST



ELEVATION VIEW FROM STATION PLATFORM 1 LOOKING SOUTH TOWARDS RAILWAY PARADE

Figure 3 Proposal components elevations

PROPOSED PALISADE PERIMETER RAIL CORRIDOR FENCE

4. Existing Environment

The following section provides an overview of relevant legislation and policy objectives, land use and built form, topography, hydrology and vegetation, and key views and viewsheds in the vicinity of the Proposal site. These features all contribute to the landscape character and visual amenity of the study area. Landscape character types will subsequently be defined and described.

4.1 Study Area

The study area for the LVIA has been defined as land within 600 metres of the Proposal site. This study area has been determined based on the following:

- an analysis of the ZTV mapping (refer Section 2.2.3)
- a desktop study examining aerial photographs and topographic maps considering both landform and land cover
- a site inspection examining the existing visual catchment
- previous studies of a similar nature.

4.2 Legislation and Policy

The following section identifies legislation and policy objectives relevant to the Proposal. These have been used to inform the assessment of both landscape and visual impact.

4.2.1 Blue Mountains Local Environmental Plan 2015

The study area is located within the Blue Mountains local government area and therefore falls under the *Blue Mountains Local Environmental Plan 2015* (BMLEP). This plan identifies a number of aims relevant to the landscape and visual amenity of the study area.

Particular aims of the BMLEP relevant to this study include:

- *'to maintain the unique identity and values of the "City within a World Heritage National Park"'*
- *'to conserve and enhance, for current and future generations, the ecological integrity, environmental heritage and environmental significance of the Blue Mountains'*
- *'to identify and conserve the distinct Aboriginal and European cultural heritage of the built forms and landscapes of the Blue Mountains'*
- *'to identify and retain the diverse built and landscape elements that contribute to the character and image of the Blue Mountains'.*

Land use zones

Refer to Figure 4 for land uses within the study area.

The following have specific aims relevant to landscape and visual amenity:

Zone R2 Low Density Residential

- *'to ensure that development maintains and improves the character of residential areas in a manner that minimises impacts on existing amenity and environmental quality'*

- *'to allow a range of non-residential land uses that are consistent with the predominant scale and height of adjoining buildings and do not unreasonably detract from the amenity of adjacent residents'*

R3 Medium Density Residential

- *'to ensure that residential development contributes to the streetscape and has a scale and character that is consistent with adjoining residential land uses and minimises any adverse impact on the amenity of residents'*

B1 Neighbourhood Centre

- *'to ensure that development contributes to the creation of a distinct village identity'*
- *'to ensure that non-residential uses are compatible with residential uses and do not unreasonably affect residential amenity as a result of factors such as operating hours, noise, loss of privacy and pedestrian and vehicular traffic'*
- *'to promote high quality urban design of built forms'*

B2 Local Centre

- *'to promote the unique character of each of the towns and villages of the Blue Mountains'*
- *'to promote high quality urban design of built forms'*

RE1 Public Recreation

- *'to protect and enhance the natural environment for recreational purposes'*
- *'to enhance the quality of life of residents and visitors and improve the amenity of the villages in the Blue Mountains through the provision and management of open space'*

E2 Environmental Conservation

- *'to protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values'*

E4 Environmental Living

- *'to provide for low-impact residential development in areas with special ecological, scientific or aesthetic values'*

Height of buildings

BMLEP includes limitations to the height of buildings within the study area. Objectives of building height limitations include:

- *'to ensure that the bulk of development is not excessive and relates well to the local context'*
- *'to ensure an appropriate height transition between new buildings and heritage items'*

The maximum height of buildings in Hazelbrook is nine metres in the vicinity of the shopping centre. All other areas are eight metres aside from a pocket of period housing to the east of the commuter car park with a height limit of 6.5 metres.

Hazelbrook Village Precincts

A number of Village Precincts have been defined within Hazelbrook with objectives outlined in BMLEP to guide their urban and built form character. Village Precincts and relevant objectives include the following:

B2-HB01 (shopping centre)

- *'to accommodate permanent residents in shop top housing that promote housing choice, incorporate high levels of residential amenity and encourage passive surveillance of streets and other public places'*
- *'to encourage increases in floor space that benefit from the precinct's prominent visibility and accessibility, incorporate building designs that are consistent or compatible with the scale and architectural character of modern buildings in the precinct and protect the visual amenity and privacy of neighbouring residential properties'*

R3-HB03 (Addington Road)

- *'to promote high levels of residential amenity for both future residents and occupants of existing neighbouring properties'*
- *'to maintain and enhance the distinctive existing pattern of detached cottages surrounded by gardens and freestanding garages by conserving existing trees that provide visually significant streetscape features and complementing and extending the established pattern of tall canopy trees that are located primarily along property boundaries'*
- *'to promote new residential development that is consistent or compatible with the general scale, bulk and architectural character of existing single storey timber-framed cottages'*
- *'to encourage restoration of traditional architectural forms and details for existing early 20th century cottages'*

B1-HB04 (Railway Parade)

- *'to maintain and enhance the Victorian and early 20th century heritage significance of the precinct and the streetscape through retention of original and early fabric with sympathetic additions'*

Period housing area

Areas with period housing protection are located within the study area as shown as 'Conservation Area' in Figure 4.

Objectives of this protection include:

- *'conserving the traditional streetscape and character of residential areas incorporating Victorian, Edwardian, Federation, Inter-war or Art Deco building styles that contribute to the town character of the Blue Mountains'*
- *'preserving housing stock erected before 1946 if such buildings contribute to the traditional streetscape character of the Blue Mountains'*
- *'ensuring that new development complements the traditional streetscape character of the surrounding area'*

Heritage conservation

A number of areas with heritage conservation protections are present within the study area. These include the following:

- Railway Parade Conservation Area
- Hazelbrook Railway Station (H007)
- Commercial group of buildings (H016)
- Other individual cottages

Relevant objectives of the heritage conservation protection include:

- *'to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views'*

Refer to Figure 4 showing location of heritage conservation within the study area.

Railway Parade Conservation Area

The Railway Parade Conservation Area extends along the ridgeline along Railway Parade. It contains a small group of single-story shops, including a very good example of a timber weatherboard cottage. This elevated streetscape edge creates a prominent local view, dominated by 19th and early 20th century residences that form a consistent and cohesive group despite their architecture varying from the simple symmetrical Victorian cottage to substantial Inter-War bungalows.

Hazelbrook Railway Station

The heritage significance includes both the station building and the station itself, including the associated lamp room and platform. Hazelbrook Station was constructed in 1902 when the rail line was duplicated. It was part of a group of stations constructed at this time, and is recognised as a good representative example of a Federation free classical style railway station. The lamp building, which is an integral part of the original station group, complements the design of the main station building.

4.2.2 Blue Mountains Development Control Plan 2015

The *Blue Mountains Development Control Plan 2015* (BMDCP) includes comprehensive guidance for the development of land within the Blue Mountains. Included is a section specific to Hazelbrook, which specifies controls for land identified in the BMLEP as Hazelbrook Village Precincts.

4.2.3 Other relevant projects / policy

Hazelbrook Village Centre Public Domain Masterplan

The *Hazelbrook Village Centre Public Domain Masterplan* includes a masterplan and urban design strategy for the Hazelbrook Village, including guidance for materiality, artwork, signage, and planting.

The relevant overarching objective of the plan is to:

- *'enrich the identity of the village centre to better reflect the village's history and character'.*

TfNSW Sustainable Design Guidelines

Relevant principles outlined in the Sustainable Design Guidelines in the Urban Design category include the following:

- *'Principle 4: Integrate the project with the surroundings area'*
- *'Principle 5: Maximise the amenity of the public domain'*
- *'Principle 6: Protect and enhance heritage features and significant trees'*
- *'Principle 7: Maximise positive view opportunities'*
- *'Principle 8: Design an efficient and functional transport solution which enhances and contributes to local amenity and prosperity'*

TfNSW Around the Tracks: urban design for heavy and light rail

Relevant principles outlined in *Around the Tracks: urban design for heavy and light rail* include the following:

- *'Principle 1: Draw on a comprehensive site and context analysis to inform the design direction'*
- *'Principle 4: Integrate the project with the surrounding area'*
- *'Principle 5: Maximise the amenity of the public domain'*
- *'Principle 6: Protect and enhance heritage features and significant trees'*
- *'Principle 7: Maximise positive view opportunities'*

TfNSW Managing Heritage: issues in rail projects guidelines

Relevant principles outlined in *Managing Heritage: issues in rail projects guidelines* include the following:

- *'respect the building's context and location – the early context or setting contributes to a building's significance and is often part of the heritage curtilage. If the building is deprived of any of its early context, significance may be lost. New elements in the historic setting should be sympathetic and respectful'*
- *'ensure new buildings fit into the streetscape – analyse the context and respond to it in a positive way. Articulate larger elements, such as lift towers and overbridges to break down their bulk and scale. Respect original roof forms of platform buildings and respond to them with appropriate new forms. Choose materials for new elements that are compatible with the surrounds''*
- *'maintain views – identify and maintain significant views and create new vistas or views if appropriate'*

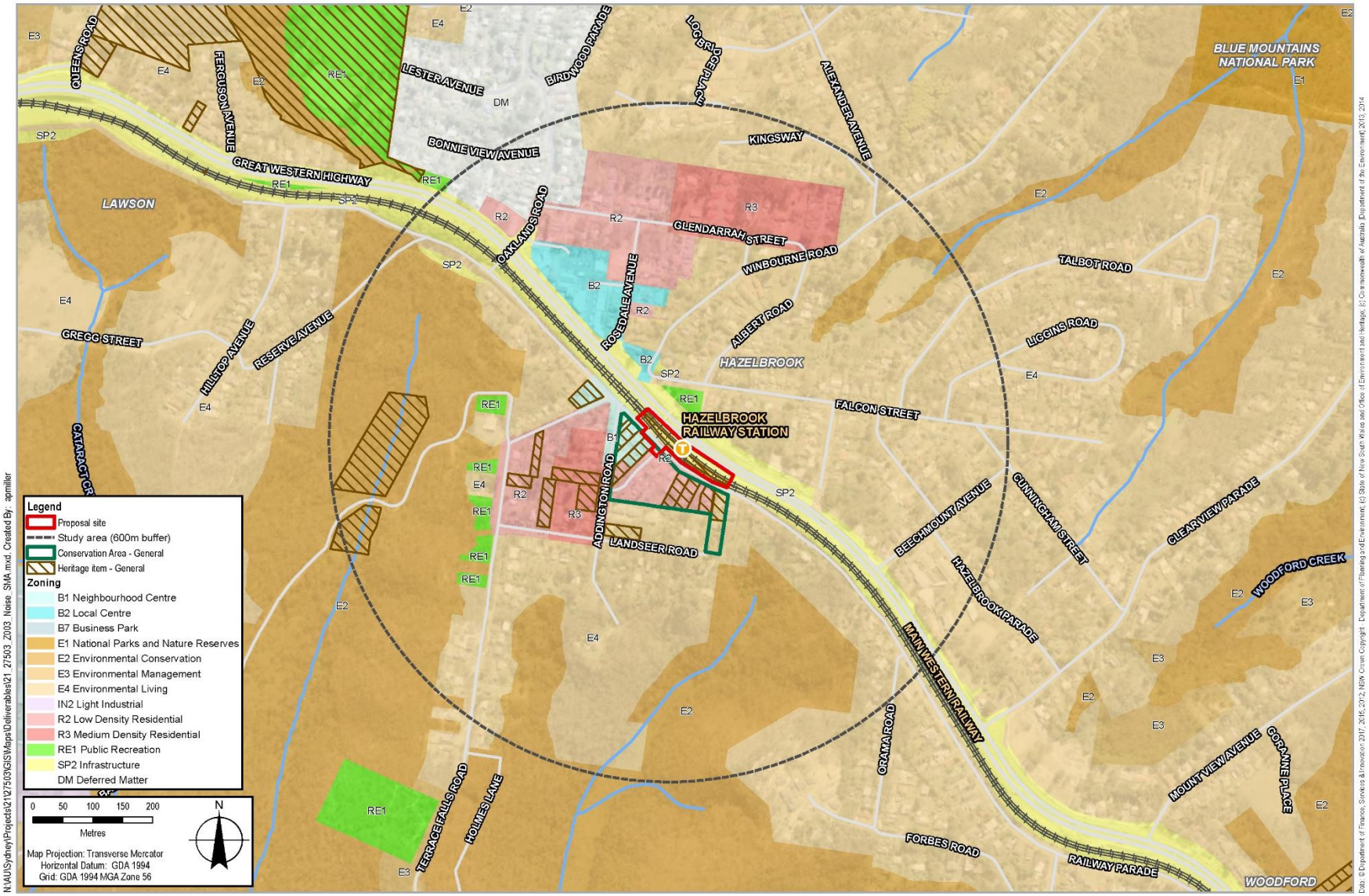


Figure 4 Land use and heritage plan

4.3 Landscape and visual existing environment

Outlined below is a general description of the study area.

4.3.1 Land use and built form

Hazelbrook Station is located within the suburb of Hazelbrook, one of a number of small Blue Mountains villages developed on a ridgeline alongside the railway and surrounded by the Blue Mountains National Park. Hazelbrook, established after the opening of Hazelbrook Station in 1894, has grown to a population of approximately 5,000 today.

Hazelbrook consists of a smaller village associated with the railway heritage on the southern side of the rail line, with a small row of shops and residential area constrained by steep terrain. A local shopping centre is present to the northern side with facilities such as a supermarket, cafes and restaurants, with a more extensive residential area beyond. Gloria Park further to the west along the GWH provides active recreational facilities and a playground.

Key features of Hazelbrook are associated with the surrounding natural assets, including waterfalls and pools within the conservation areas. These can be accessed by walking tracks which typically connect to adjoining villages. Aboriginal sites are also present in the area, with Aboriginal Wells next to the GWH near Gloria Park, and rock carvings nearby.

Roads and built form tend to follow the high points of the terrain, with buildings often sited in gullies, on peaks, or on sloping terrain. Building heights in Hazelbrook currently do not exceed two storeys. Key transport corridors through the study area include the GWH with shared path, and the railway line.

4.3.2 Topography and hydrology

The Blue Mountains are part of the Great Dividing Range and consist of an uplifted plateau with layers of sedimentary rock, resulting scenic gorges, deep valleys and cliffs. The Blue Mountains form the western edge of the Sydney Basin.

Hazelbrook is situated amongst steep and undulating terrain. The rail line is situated atop a major ridgeline, with smaller ridges extending beyond to the north and south. The landform drops away relatively quickly on both sides of the rail line, with steep gullies formed along drainage lines.

Hazelbrook has an elevation of 674 metres AHD. High points within the study area include Hazelbrook shopping centre at approximately 680 metres AHD, and Hazelbrook village south of the station at around the same elevation. Railway Parade reaches a high point at the entry to Hazelbrook Station at the pedestrian overpass bridge. The lowest points in the study area are approximately 604 metres AHD within the deep drainage lines to the south of the study area flowing into Bedford Creek, and to the north-east flowing into Woodford Creek.

Hazelbrook Station and platforms are located at an elevation of approximately 674 metres AHD. The rail line and station are situated approximately 5 metres lower than Railway Parade in a cutting. The GWH is lower than the rail line, and the residential area to the north of the GWH lower again, separated by a large retaining wall along the GWH shared path edge.

Refer Figure 5 for topography and hydrology within the study area.

4.3.3 Vegetation

The climate of the Blue Mountains is generally cool, with mild to warm summers and cool dry winters. Natural vegetation communities vary with landform and elevation, with eucalypt forest to the higher ridges, heath vegetation to cliffs, and temperate rainforests and hanging swamps

to sheltered gorges. The diversity of species is well known, with many plants not found anywhere else in the world.

A number of conservation areas are present within the study area, containing the following natural vegetation communities:

- Hinterland Sandstone Gully Forest
- Coastal Sandstone Ridgetop Woodland
- Blue Mountains Ridgetop Forest
- Blue Mountains – Shoalhaven Hanging Swamp

The urban areas of Hazelbrook contain street trees, domestic garden planting, and parkland landscape consistent with an urban setting. Similar to other villages in the Blue Mountains, urban vegetation tends to compliment the heritage values of the village, together with the cool climate. Therefore deciduous trees, decorative flowering plants and shrubs are common.

Tall mature eucalypts are also present scattered within the urban areas, as well as a group of mature radiata pines in a residential area north of the rail corridor.

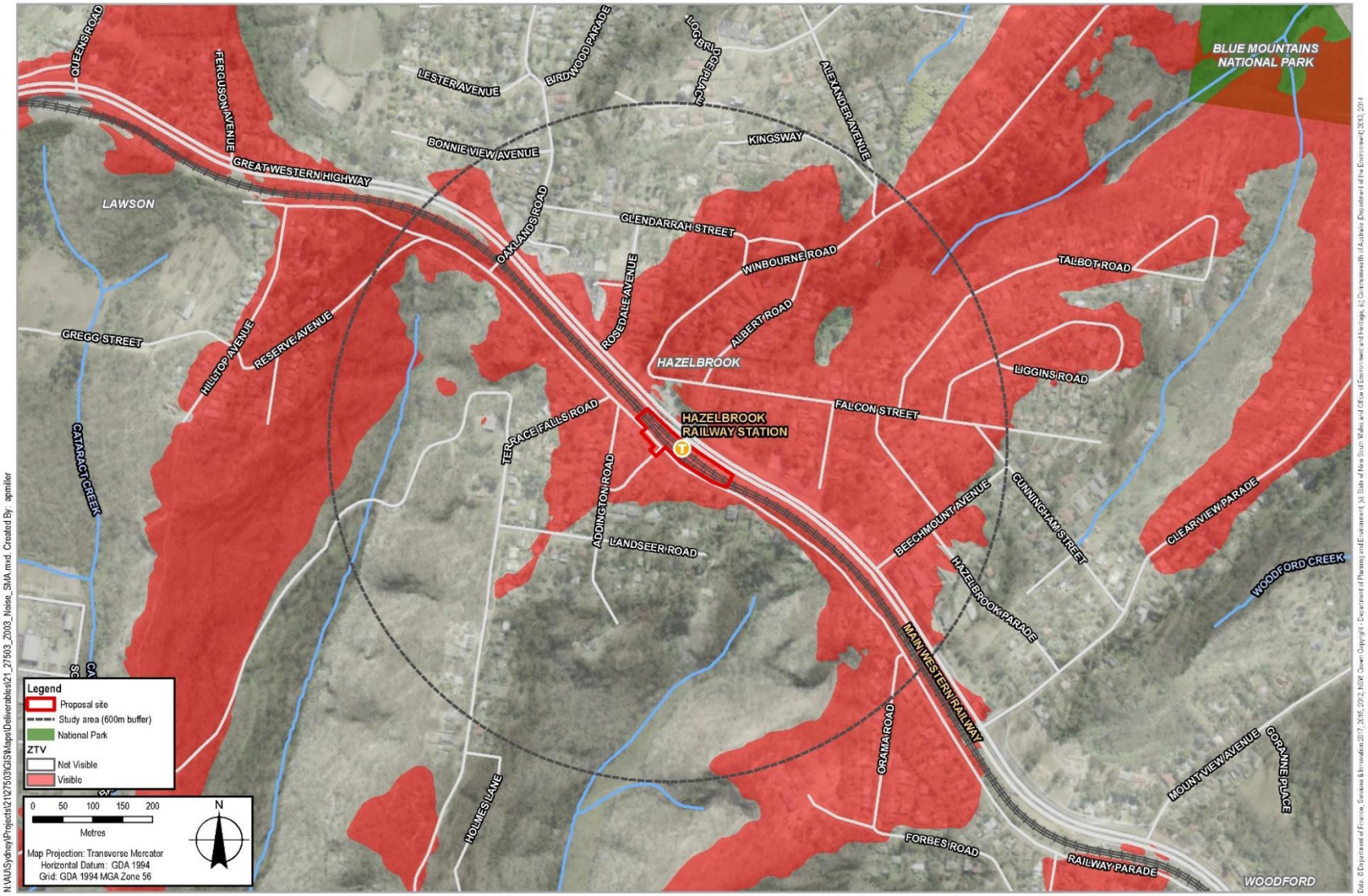
4.3.4 Key views and viewsheds

Key views are typically achieved from elevated locations within the study area. Of particular note are the following:

- distant views of the Blue Mountains to the north from the elevated locations along Railway Parade east of the station, including from the commuter carpark entry
- distant views of the Blue Mountains and GWH to the north-west from the pedestrian overpass bridge and from the platforms
- likely private views from elevated residential properties located on the edge of conservation areas.

Visually prominent features within the study area include the pedestrian overpass bridge, particularly when viewed from the station platforms and from the northern side of the rail line. The elevated streetscape along Railway Parade provides a continuous backdrop to the station precinct when viewed from the north. Also of note are the large retaining walls associated with the GWH.

Figure 5 illustrates the ZTV mapping of the Proposal showing areas of theoretical visibility. The site inspection confirmed that the presence of large mature trees, particularly exotics such as conifers and pines, combined with built form elements such as houses and the GWH retaining walls, shield the majority of southerly views towards the Proposal from the residential area to the north-east of the GWH. Similarly, no views were achieved south-west beyond Railway Parade due to the presence of built form and vegetation. The viewshed for the Proposal is therefore largely confined to a portion of the GWH and shared path; possibly parts of the local shopping centre and church fronting onto the GWH; a portion of Railway Parade including residential properties, businesses, and the commuter carpark entry; and the pedestrian overpass bridge and station platforms.



Note: This ZTV is representative only and illustrates the zone in which the lift shaft would be theoretically visible without taking into account the presence of vegetation or buildings.

Figure 5 ZTV, topography, and hydrology plan

4.4 Landscape Character Types

Based on the assessment of natural and cultural influences shaping the landscape, Landscape Character Types (LCT's) have been defined representing broadly homogenous characteristics and urban patterns.

The following LCT's have been identified for the study area:

- LCT1 Village commercial
- LCT2 Local commercial
- LCT3 Community facilities
- LCT4 Local park
- LCT5 Residential
- LCT6 Transport infrastructure
- LCT7 Conservation area

Refer Figure 6 for landscape character types plan.

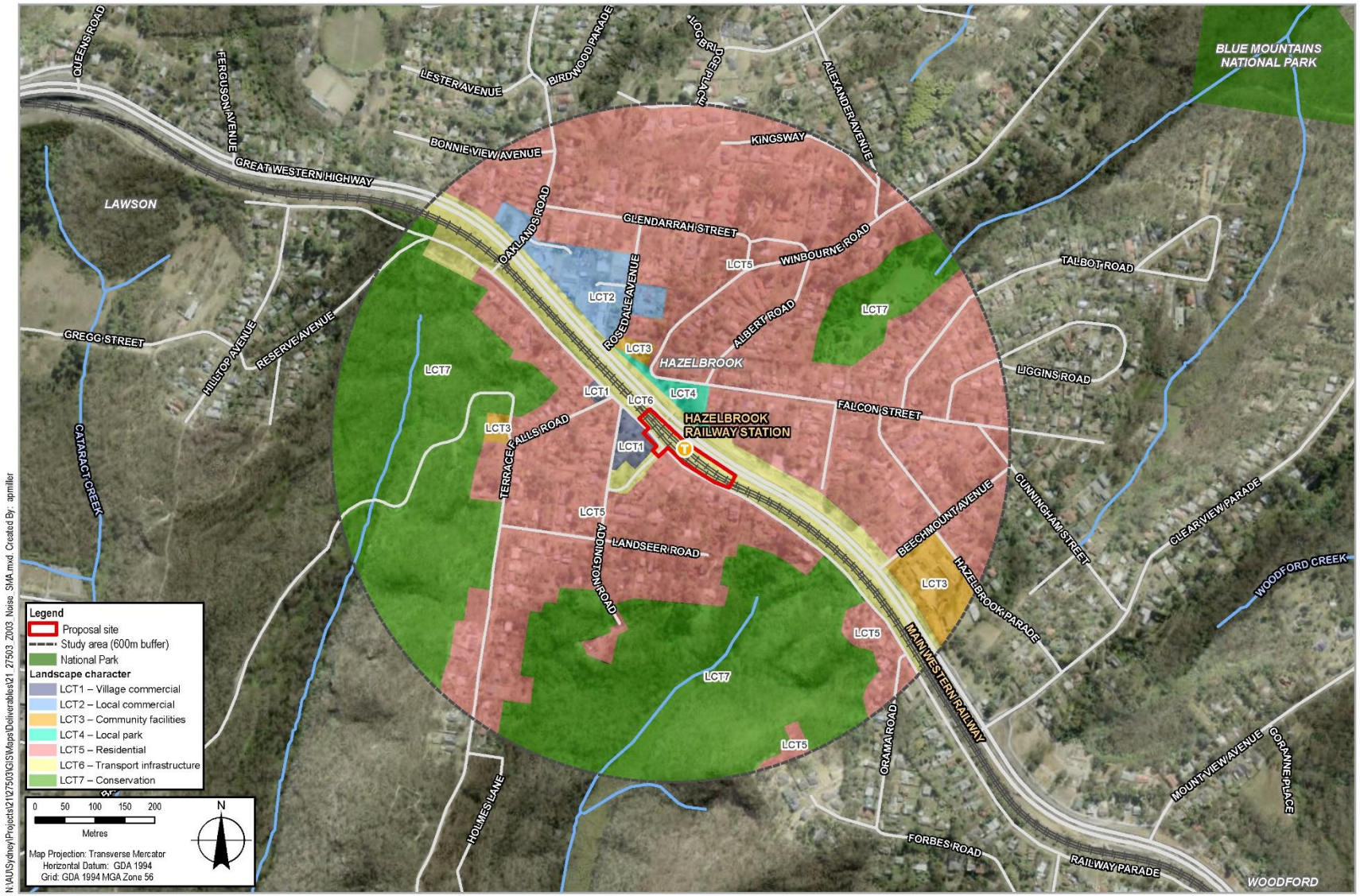


Figure 6 Landscape character types plan

4.4.1 Landscape character type 1: Village commercial

LCT1 includes a small commercial area located to the southern side of Railway Parade west of the station. This includes a small section of adjoining shops near Addington Road, including a café and antique shop, as well as a number of businesses in converted residential properties, including an antiques store near Terrace Falls Road, a solicitor's office, and the Selwood House Vet Hospital. This section of Railway Parade slopes up towards the entrance to the station where it declines again towards the east.

Key characteristics of LCT1 include the following:

- a row of single storey commercial terrace shops with no setbacks, and an awning and outdoor dining area along the streetscape
- a number of detached houses of commercial use set back between five and ten metres
- all properties looking north towards the rail line across Railway Parade
- Railway Parade is a local street with one traffic lane in each direction and a footpath to the southern side. Narrow verges prevent street tree planting, yet allow open views to the north. A pedestrian zebra crossing is present at the station entry
- a combination of architectural styles and materials, including timber cottage with corrugated roof, and brick bungalow with tiled roof.

A number of properties have local heritage value, including Selwood House. All aside from the antique shop near Terrace Falls Road are within the Railway Parade Conservation Area.

Photograph 1 and Photograph 2 show images with LCT1 characteristics.

Photograph 1 Terrace shops on Railway Parade

Photograph 2 'Selwood House' Vet Hospital

4.4.2 Landscape character type 2: Local commercial

LCT2 is located to the north of the study area on the GWH and includes the local shopping centre consisting of restaurants, cafes, supermarket, small goods stores, gym, pharmacy and medical centre. LCT2 also includes the service station and car parking areas. Terrain in this area is relatively elevated, and although the majority of the shops are arranged around the off-street car park, a few shops and restaurants face onto the GWH. LCT2 provides a wide variety of services and easy access from the GWH.

Key characteristics of LCT2 include:

- rows of single storey terrace shops arranged around a central off-street car park
- two storey shops looking onto the GWH

- small two-storey mall consisting of a series of concrete buildings with verandah and gabled corrugated roofs. Pedestrian access is via the central car park. A Chinese restaurant on the upper level overlooks the GWH
- single storey Foodworks brick supermarket
- although limitied vegetation present, a number of large mature eucalypts form a backdrop to LCT2.

There are no significant landscape characteristics of LCT2 protected under legislation or identified within planning policy.

Photograph 3 to Photograph 6 show places with LCT2 characteristics.

Photograph 3 Single storey shops with eucalypts behind

Photograph 4 Two storey shops looking onto the GWH

Photograph 5 Shopping mall

Photograph 6 Foodworks supermarket

4.4.3 Landscape character type 3: Community facilities

LCT3 consists of community facilities including Hazelbrook Public School located to the south on the GWH, Hazelbrook Uniting Church located next to LCT2, and the Hazelbrook Bushfire Centre on Baths Road.

Key characteristics of LCT3 include the following:

- provision for community function or gathering place
- the Hazelbrook Uniting Church is a brick building with tiled roof, situated on elevated terrain looking south towards the GWH
- the Hazelbrook Public School contains a number of brick buildings and recreation areas, and is situated on elevated terrain generally looking north, with the car parking facilities on the GWH boundary.

There are no significant landscape characteristics of LCT3 protected under legislation or identified within planning policy.

Photograph 7 and Photograph 8 show places with LCT3 characteristics.

Photograph 7 Uniting Church

Photograph 8 Hazelbrook Public School

4.4.4 Landscape character type 4: Local park

LCT4 comprises of Memory Park, a local park and plaza space at an important transition point for pedestrians and cyclists between the areas north of the GWH, and the pedestrian overpass bridge. The park was redeveloped as part of the GWH upgrade in 2014.

Key characteristics of LCT4 include the following:

- steep terrain, with stairs and ramps connecting between terraces
- benches and seating walls throughout the park, and a secondary path is provided at a lower level to the shared path
- sunken shaded grass area with picnic setting, decorative sandstone wall and cypress pines arranged in an arc commemorating local soldiers who died in the war
- interpretive signage outlining the history of the park
- pedestrian overpass and ramps are visually dominant
- mature tulip trees and other formal planting associated with the war memorial

Although LCT4 is not protected under legislation, recognised in planning policy, and has recently been redeveloped, it is expected there is community value associated with LCT4 relating to its history as a gathering place particularly for remembrance.

Photograph 9 and Photograph 10 show places with LCT4 characteristics.

Photograph 9 Memory Park plaza

Photograph 10 Memory Park lawn

4.4.5 Landscape character type 5: Residential

LCT5 includes all residential areas within the study area on the north and south sides of the rail corridor. Topography varies, however LCT5 is generally situated on the flatter parts of sloping terrain on either side of the main ridgeline. Key characteristics of LCT5 include the following:

- single and double storey predominantly detached dwellings, with a small number of flats on the southern side of the rail line. Built form typically on sloping terrain
- housing styles vary, with period housing on the southern side of the rail line clustered around the station. Architectural styles include 19th and early 20th century Victorian cottages and Inter-War bungalows
- materiality includes timber cottages with corrugated roofs, more modern brick houses with tiled roofs, and a number of weatherboard cottages
- houses typically contain decorative gardens to the street frontage often complementing decorative architectural features and fencing
- local streets are narrow with irregular street trees and no footpaths. Often no front fences are present particularly on the northern side of the GWH.

Parts of LCT5 are protected under the BMLEP, including heritage areas on the southern side of the Railway Parade as shown in Figure 4 and discussed in Section 4.2. Heritage value is related to individual items as well as combined value for the contributions to townscape character and the streetscape of Railway Parade. Photograph 11 to Photograph 14 show places with LCT5 characteristics.

Photograph 11 Cottage on Railway Parade

Photograph 12 Cottage on Addington Road

Photograph 13 Streetscape along Railway Parade, from GWH

Photograph 14 Falcon Street looking towards the GWH

4.4.6 Landscape character type 6: Transport infrastructure

LCT6 includes Hazelbrook Station and commuter carpark, the rail corridor, and the GWH, located along the Blue Mountains main continuous natural ridgeline.

Key characteristics of LCT6 include the following:

- linear transport corridor with gentle curve following the landform
- the linear corridors are designed for efficiency of transport movement and therefore localised filling and cutting has occurred in the form of retaining walls and embankments, as the corridors conform to the ridgeline. An exposed sandstone cutting is present along the southern side of the station platform, as the station sits below Railway Parade. The GWH is positioned lower than the station, with a planted batter providing the transition. A series of large retaining walls are present forming an edge between the highway and the residential area beyond
- pedestrian overpass bridge (Campbell Bridge) forms an important connection between the north and south sides of LCT6, as well as access to the station. A new bridge was implemented as part of the GWH upgrade in 2014. Decorative throw screens are present at the station entry point referencing local flora and terrain
- distant views over the GWH from Platform 1 to the south-east towards the Blue Mountains National Park, as well as from the pedestrian overpass bridge
- the GWH is a broad expansive road corridor with two lanes in each direction with a central median barrier with pedestrian access on the northern side only in the form of a shared path. This shared path provides an important pedestrian and cycling connection to the station, between local facilities, and between adjoining towns. A section of this path has a vehicular barrier and balustrade
- typical of Blue Mountains railway stations, small garden beds with decorative planting are present on the station platform and entry
- vertical road and rail elements are present along the corridor, including overhead line elements, lighting, signage, and electrical poles. Black mesh fencing to 1.2 metres in height is present along the rail corridor boundary
- a pedestrian and vehicular underpass is present at Oaklands Road beneath the rail corridor, with decorative murals
- vegetation along the rail corridor is limited, informal and sporadic, with no trees on the higher elevations in the vicinity of the station precinct. Batters contain native grasses and small shrubs. However dense tree planting is present on the southern side of the rail corridor outside of the station precinct, west of Terrace Views Road and east of the Railway Parade conservation area
- both the rail and road corridors provide highly scenic journeys for travellers, and are key tourist routes
- refer to section 3.1 for a description of Hazelbrook Station.

Landscape values associated with LCT6 include a local heritage protection associated with Hazelbrook Station as outlined in Section 4.2.1. The commuter carpark and pedestrian zebra crossing are also within the Railway Parade and period housing conservation areas.

The rail line and GWH are also valued from an historical perspective. The GWH was a key transport route across the Blue Mountains pioneered by Gregory Blaxland, Charles Wentworth and William Lawson in 1813, providing access to required land in Central and Western NSW. At the station itself, the exposed sandstone cutting with ferns provides landscape character and

sense of place as it references the natural geology of the area, climate, and history of the rail line development.

Photograph 15 to Photograph 19 illustrate the characteristics of LCT6.

Photograph 15 Hazelbrook Station, looking south-east

Photograph 16 Station entry from Railway Parade

Photograph 17 Commuter carpark looking towards Railway Parade

Photograph 18 Pedestrian overpass bridge looking north from station platform

Photograph 19 GWH looking north-west towards station

4.4.7 Landscape character type 7: Conservation

LCT7 includes the conservation areas to the lower elevations associated with steep terrain and drainage lines, predominantly to the south-west of the study area. LCT7 also includes Baths Road, a local road connecting Lawson to Hazelbrook via the Hazelbrook Baths.

Key characteristics of LCT7 include:

- dense forested vegetation including natural vegetation communities outlined in section 4.3.3
- narrow sealed local road (Baths Road) following the topography, with bushland on either side
- bushland walking tracks just beyond the study area.

Landscape values associated with LCT7 include a local heritage protection associated with the Old Hazelbrook Baths. Other values are likely to be associated with the natural values inherent within the vegetation and landscape setting, including the walking tracks themselves.

4.5 Sensitive visual receivers and viewpoints

Based on the landscape and visual existing environment analysis, sensitive visual receivers were identified and viewpoint locations selected for assessment.

4.5.1 Sensitive visual receivers

Sensitive visual receivers within the Proposal viewshed include the following:

- residents on Railway Parade
- businesses on Railway Parade and fronting onto the GWH
- shared path users on the GWH, including children commuting to Hazelbrook Primary School, and commuters accessing the pedestrian overpass bridge
- pedestrians on Railway Parade
- pedestrian overpass bridge users
- commuters using Hazelbrook Station
- visitors to the upper section of Memory Park
- road users on Railway Parade and the GWH.

4.5.2 Viewpoint locations

Table 8 and Figure 7 identify representative viewpoints for assessment of views from the most sensitive visual receivers.

Table 8 Viewpoint locations

Viewpoint	Location	Description
VP1	Railway Parade (west)	This view represents residents, road users and pedestrians furthest to the west of the Proposal along Railway Parade.
VP2	Railway Parade and Terrace Falls Road	This view represents residents, road users and pedestrians west of the Proposal along Railway Parade.
VP3	44 Railway Parade	This view represents residents, road users, pedestrians and commuter car park users, along Railway Parade.
VP4	Railway Parade (east)	This view represents residents, road users, and pedestrians along Railway Parade.
VP5	GWH (east)	This view represents shared path users on the GWH.
VP6	GWH (pedestrian overpass)	This view represents shared path users on the GWH and those accessing the pedestrian overpass bridge.
VP7	GWH (west)	This view represents a small number of businesses, shared path and road users on the GWH, particularly those accessing the local shopping centre.

Figure 7 Viewpoint location plan

5. Impact Assessment

5.1 Landscape impact assessment

This section includes an assessment of impacts to landscape character from the Proposal. Refer to Figure 6 for location of LCTs.

5.1.1 Landscape character type 1: Village commercial

Refer to Table 9 below for LCT impact assessment.

Table 9 LCT1 impact assessment

Landscape character type 1	
Anticipated change to landscape character	Introduction of new lift, extended walkway and lift landing with screening and balustrade, and new perimeter fencing of greater height and contemporary style to the rail corridor boundary. These anticipated changes are within the adjoining LCT6, yet visible from LCT1. Changes with LCT1 include an upgrade to the station access on Railway Parade, including a new raised pedestrian zebra crossing, lighting, and upgraded footpath to the streetscape in front of Selwood House Vet Hospital and The Winston Centre solicitors office.
Sensitivity to change	**Moderate** - individual elements of LCT1 have high local heritage value, specifically Selwood House, a rare intact example of a Victorian cottage sitting on top of the hill, recognised as an important element in the townscape. Additionally, LCT1 is valued as a heritage conservation area which recognises the relationship between heritage items and their combined contribution to the streetscape address.
Magnitude of change	**Low -** as although the Proposal will not alter key physical characteristics of LCT1, the location of Selwood House on the hill, and in particular the character of the elevated streetscape when viewed from a distance, are defining characteristics of LCT1 and will be somewhat affected by the Proposal. The historical relationship between Railway Parade development and the station itself is also a consideration, which may be partially affected by the introduction of the proposed black palisade fencing at a greater height than existing.
Significance of impact	**Moderate-Low**

5.1.2 Landscape character type 2: Local commercial

No impact as the Proposal has affected no change to the elements that define the landscape character type as described in section 4.4.

5.1.3 Landscape character type 3: Community facilities

No impact as the Proposal has affected no change to the elements that define the landscape character type as described in section 4.4.

5.1.4 Landscape character type 4: Local park

No impact as the Proposal has affected no change to the elements that define the landscape character type as described in section 4.4.

5.1.5 Landscape character type 5: Residential

Refer to Figure 6 for location of LCT5 and Table 10 for LCT impact assessment.

Table 10 LCT5 impact assessment

Landscape character type 5	
Anticipated change to landscape character	Introduction of new lift, extended walkway and lift landing with screening and balustrades, and new black palisade style rail corridor fencing to a greater height than existing. These anticipated changes are within the adjoining LCT6, yet visible from LCT5. Upgrades to the commuter carpark entry on Railway Parade are anticipated changes to the edge of LCT5.
Sensitivity to change	**Moderate** - elements of LCT5 have high local heritage value including the Railway Parade Group, a collection of houses on Railway Parade valued historically as an early part of the Hazelbrook township, aesthetically as an important and cohesive group of federation houses located near the top of the hill, and representative of the early character of Hazelbrook. Additionally, parts of LCT5 specifically along Railway Parade, are valued heritage conservation areas, which recognises the relationship between heritage items and their combined contribution to the streetscape address.
Magnitude of change	**Low -** as although the Proposal will not alter key physical characteristics of LCT5, the character of the elevated heritage streetscape when viewed from a distance forms part of the defining characteristics of LCT5 which will be somewhat affected by the Proposal. The historical relationship between Railway Parade and the station itself is also a consideration, which may be partially affected by the introduction of the proposed black palisade fencing which will create a visual barrier between the streetscape and station precinct.
Significance of impact	**Moderate-Low**

5.1.6 Landscape character type 6: Transport infrastructure

Refer to Table 11 for LCT impact assessment.

Table 11 LCT6 impact assessment

Landscape character type 6	
Anticipated change to landscape character	Introduction of one new 11 metre high lift shaft to the station platform between the pedestrian overpass bridge and existing station building; one new extended walkway and lift landing with screens and balustrades between the lift shaft and existing pedestrian overpass; a replacement privacy wall and glazed awning on the eastern end of the existing station building; upgrades to the existing pedestrian overpass and station entry including new pavement surfacing, signage and lighting; upgrades to the commuter carpark including new pavement and relocated bike storage; new palisade style rail corridor fencing extending 50 metres beyond the platform; removal of one garden bed and small tree on the station platform.
Sensitivity to change	**Moderate -** LCT6 contains items within the station precinct of local heritage value. The rail line and station are historically significant and valued for their role in the development of Hazelbrook as a township. However, the type of development proposed is within the same use type as the existing, and the station building exterior is proposed to remain predominantly unaffected.

Landscape character type 6	
Magnitude of change	**Moderate** - although the Proposal is introducing new features characteristic of the existing landscape character type, the new lift will be significantly higher than other elements in LCT6 and relatively isolated away from the pedestrian overpass. The new extended walkway and lift landing also introduced a new geometry and relatively large element to the space.
Significance of impact	**Moderate**

5.1.7 Landscape character type 7: Conservation

No impact as the Proposal has affected no change to the elements that define the landscape character type as described in section 4.4.

5.2 Visual impact assessment

The following section assesses the visual impact of the Proposal from the following viewpoint locations:

- VP1: Railway Parade (west)
- VP2: Railway Parade and Terrace Falls Road
- VP3: 44 Railway Parade
- VP4: Railway Parade (east)
- VP5: GWH (east)
- VP6: GWH (pedestrian overpass)
- VP7: GWH (west)

Refer to Figure 7 for the location of viewpoints, and Table 12 to Table 18 for description and visual assessment.

This assessment is based on the Proposal in operation, after construction is complete.

5.2.1 Viewpoint location 1

Table 12 VP1 description and visual assessment

Viewpoint location 1 (VP1): Railway Parade (west)	
 **Photograph of existing view towards the Proposal**	
Description of existing view	VP1 is located on the southern side of Railway Parade, approximately 280 metres north-west of the Proposal in the location where the footpath terminates and begins on the northern side of Railway Parade heading west. VP1 is representative of sensitive receivers including residences located on the southern side of Railway Parade, pedestrians using the footpath, and road users. Due to the sloping terrain, residential properties in this location are set approximately one metre lower than Railway Parade and oriented towards the bushland which adjoins their properties to the south. Therefore, views similar to VP1 are likely to be achieved when residents are entering and leaving their properties. VP1 is a long perspective view looking south-east along Railway Parade. Mature canopy and large shrub vegetation is present on the left of the view along the rail corridor boundary, as well as rail corridor fencing and a low retaining wall. Front garden vegetation is present to the right of the view. Towards the centre, the narrow footpath, electrical poles and roadway form a horizon at the peak of the hill at the station entry. A number of overhead line elements appear in the view on the horizon near the station. The pedestrian overpass throw screens can be seen on the horizon to the centre of the view.
Anticipated change to view	VP1 is in the direction of the northern end of the station therefore the new lift shaft would appear behind the pedestrian overpass in the view. As the top of the lift shaft is 5.7 metres higher than the pedestrian overpass (from pavement level), this is likely to be an additional small feature within the view. In addition, new palisade style rail corridor fencing may also be seen in the same location as the existing fence.
Sensitivity to change	The sensitivity of receivers represented by VP1 to the proposed change is considered to be **Moderate**. There is currently no designated value attached to the view. However, the most sensitive receiver type is residents who would experience this view frequently, and likely only when entering and leaving their residence due to the typical house orientation and location.
Magnitude of change	The magnitude of change for VP1 is considered to be **Negligible**. This is due to the anticipated minor addition of the lift shaft and replacement of rail corridor fencing which is already present in the view and at a distance. The lift shaft is likely to appear as a relatively small feature which may be difficult to discern, and not uncharacteristic within the existing features of the view.
Significance of impact	The significance of impact for VP1 is therefore **Negligible.**

5.2.2 Viewpoint location 2

Table 13 VP2 description and visual assessment

Viewpoint location 2 (VP2): Railway Parade and Terrace Falls Road	
 **Photograph of existing view towards the Proposal**	
Description of existing view	VP2 is located on the southern side of Railway Parade, approximately 100 metres from the Proposal, on the corner of Terrace Falls Road. VP2 is representative of sensitive receivers including the Hazelbrook Cottage Antique Centre and adjoining residence as well as pedestrians using the footpath, and road users of the Terrace Falls Road and Addington Road intersections with Railway Parade. VP2 is a view looking south-east along Railway Parade towards the station entry at the top of the hill. The rail corridor infrastructure appears in the left of the view, comprising overhead line elements and wires, rail corridor fencing and the pedestrian overpass. Road elements dominate the central portion of the view including the roadway, footpath, signage, lighting and electrical poles. A large shrub is visible on the right, with the village shops behind adjacent to Addington Road. A large shrub is also present towards the centre of the view.
Anticipated change to view	VP2 is in the direction of the northern end of the station therefore the new lift shaft would appear behind the pedestrian overpass within the view. As the top of the lift shaft would be 5.7 metres higher than the pedestrian overpass (from pavement level), the lift shaft would be an additional feature in the view. Proposed new replacement palisade style rail corridor fencing to a height of 2.1 metres (approximately one metre higher than existing) will also be a noticeable change within the view.
Sensitivity to change	The sensitivity of receivers represented by VP2 to the proposed change is considered to be **Moderate**. There is currently no designated value attached to the view. However, the most sensitive receiver type are residents who would experience this view frequently, when entering and leaving their residence only, due to house orientation and vegetation screening present.
Magnitude of change	The magnitude of change to VP2 is considered to be **Low**. This is due to the additional features of the view, the lift shaft and new perimeter fencing, within the existing view characteristics. The lift shaft is likely to appear as a moderately sized visible new feature in the view, with the existing shrub in the view visually offsetting its noticeability. The proposed fence may be less visually transparent than the existing, appearing more visually prominent due to the darker colour, increased height and more visually stronger style.
Significance of impact	The significance of impact for VP2 is therefore **Moderate-Low.**

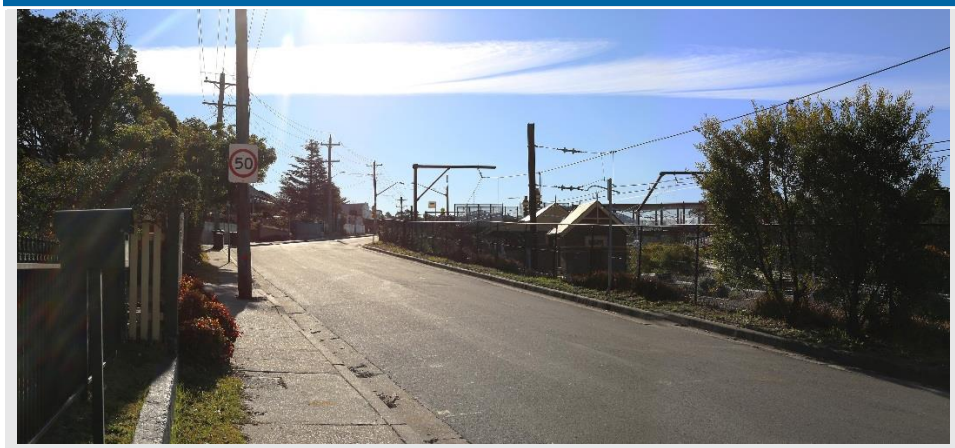
5.2.3 Viewpoint location 3

Table 14 VP3 description and visual assessment

Viewpoint location 3 (VP3): 44 Railway Parade	
 **Photograph of existing view towards the Proposal**	
Description of existing view	VP3 is located on the southern side of Railway Parade, approximately 30 metres south of the Proposal adjacent to the commuter carpark entry. No street trees area present in this location. VP3 is representative of sensitive visual receivers including residents along Railway Parade, pedestrians, commuters using the commuter carpark, and road users. A similar view would also be attained from the front entry of Selwood House Vet Hospital. VP3 is looking north across Railway Parade towards the pedestrian overpass and station entry. The pedestrian overpass forms a strong horizontal built form element across the view with decorative screening elements visible. The corrugated roof and chimney of the existing station building are to the right of the view. To the foreground, the transparent black mesh rail corridor fencing is present with ferns and groundcovers behind. Light poles on the platform are just visible. Large exotic and native canopy trees can be seen in the background on the north side of the GWH, with one large eucalypt punctuating the horizon.
Anticipated change to view	VP3 is looking north towards the proposed new lift shaft, extended walkway and lift landing. The lift shaft would be a new vertical element to the centre of the view and extending beyond the height of all other built elements. New screens and balustrades to the edge of the extended walkway and lift landing would also be visible between the lift and pedestrian overpass. New black palisade style rail corridor fencing will appear in the same location as the existing fence, extending approximately one metre higher than existing, to 2.1 metres. This will appear more visually prominent and less transparent than existing, due to the increase in height and introduction of more vertical elements. Refer Appendix A for photomontage.
Sensitivity to change	The sensitivity of receivers represented by VP3 is considered to be **High.** This is due to the type of sensitive receiver being residents at home. The houses are elevated above street level and oriented towards the rail corridor. Residents may experience long viewing periods frequently, from their homes or verandahs and when entering and leaving their homes. The view from these properties is recognised within an objective of the local Railway Parade Conservation Area as outlined in section 4.2.1, as well as the heritage station itself within the view.
Magnitude of change	The magnitude of change to VP3 is considered to be **Moderate**. Although the new lift shaft in the view would be somewhat characteristic with other existing built form elements such as the pedestrian overpass, the height of the shaft and vertical nature would interrupt the established horizon. Similarly, the new palisade fence will reduce the amount of sky within the view, and the heritage station and pedestrian overpass bridge will reduce in visibility, with the fence appearing more prominent.
Significance of impact	The significance of impact for VP3 is therefore **High-Moderate**.

5.2.4 Viewpoint location 4

Table 15 VP4 description and visual assessment

Viewpoint location 4 (VP4): Railway Parade (east)	
 **Photograph of existing view towards the Proposal**	
Description of existing view	VP4 is located on the southern side of Railway Parade, approximately 120 metres from the Proposal and on the footpath in front of number 49 Railway Parade. No street trees area present in this location. VP4 is representative of sensitive visual receivers including residences along Railway Parade, pedestrians, and road users. VP4 is a streetscape view looking north-east towards the Proposal. Front fences and gardens of residential properties appear in the left of the view with the narrow footpath and roadway towards the centre. The existing station buildings are visible in the middle ground below the road level and behind the rail corridor fencing. The pedestrian overpass can be seen behind the station buildings forming a built form horizon line. Linear vertical infrastructure elements appear dominant features in this view, including the overhead line elements and electrical poles.
Anticipated change to view	VP4 is looking north towards the location of the proposed new lift shaft, extended walkway and lift landing. The lift shaft will be a new vertical element in the view, appearing towards the centre and extending beyond the height of the station and pedestrian overpass. New 2.1 metre high palisade style rail corridor fencing will appear to the foreground of the view in the same location as the existing fencing. This will appear more visually prominent, less transparent, and appear as a strong visual barrier between railway parade and the station.
Sensitivity to change	The sensitivity of receivers represented by VP4 is considered to be **High.** This is due to the type of sensitive receiver being residents at home. The houses are elevated above street level and oriented towards the rail corridor. Residents may experience long viewing periods frequently, from their homes or verandahs and when entering and leaving their homes. The view from these properties is recognised within an objective of the local Railway Parade Conservation Area as outlined in section 4.2.1, as well as the heritage station itself within the view.
Magnitude of change	The magnitude of change to VP4 is considered to be **Low**. The new lift shaft within the view would be a visible, tall vertical element, however due to its location behind the existing station buildings and in the context of the pedestrian overpass and other vertical rail infrastructure elements already in the view, the change is characteristic of the type and scale of components already within the view.
Significance of impact	The significance of impact for VP4 is therefore **Moderate**.

5.2.5 Viewpoint location 5

Table 16 VP5 description and visual assessment

Viewpoint location 5 (VP5): GWH (east)	
 **Photograph of existing view towards the Proposal**	
Description of existing view	VP5 is located on the shared path on the northern side of the GWH, approximately 190 metres east of the Proposal. In this location the GWH is elevated above the adjoining residential area to the north, with the level difference preventing any physical connectivity to the shared path. VP5 represents views from shared path users and GWH motorists. VP5 is a long view looking west along the GWH. The rail corridor can be seen elevated above the road corridor along the left of the view and towards the horizon. The station appears towards the centre of the view. Forming the left horizon are the residences along Railway Parade and their mature garden trees, as well as the regular overhead line elements associated with the rail line. The pedestrian overpass forms a gateway element and the central horizon of the view. The right of the view features irregular middle-ground vegetation, signage, electrical and light poles. Road barriers are present in the foreground.
Anticipated change to view	VP5 is looking east towards the station. The anticipated change to the view would include the new lift shaft to the right of the main station building and in front of the pedestrian overpass. The extended walkway, lift landing and associated screens and balustrades may also be visible in the view. Replacement rail corridor fencing to a height of 2.1 metres (approximately one metre higher than the existing) will also be a change to the view, however in the same location as the existing fence. The lift shaft will be the most visible element due to its height and scale, projecting beyond the height of the pedestrian overpass. Within this view, the lower portion of the lift may be partially shielded by existing vegetation.
Sensitivity to change	The sensitivity of receivers represented by VP5 is considered to be **Low**. This is due to the type of sensitive receivers and their experience of this view, which would be relatively short, and experienced when travelling between locations when attention is likely to not be focused on this particular view. No specific value is attached to this view or elements of it, nor is indicated within relevant policy documents reviewed.
Magnitude of change	The magnitude of change to VP5 is considered to be **Low**. The new lift shaft within the view will be visible, however due to its location within the context of other transport infrastructure features such as the existing station buildings and pedestrian overpass, overhead line elements, and adjoining GWH, the anticipated change is characteristic of the type of components already within the view.
Significance of impact	The significance of impact for VP5 is therefore **Low**.

5.2.6 Viewpoint location 6

Table 17 VP6 description and visual assessment

Viewpoint location 6 (VP6): GWH (pedestrian overpass)	
 **Photograph of existing view towards the Proposal**	
Description of existing view	VP6 is located on the shared path on the northern side of the GWH, approximately 40 metres north of the Proposal. This is the location in which a set of stairs connect the pedestrian overpass to the shared path. The view is from the ground level at the base of the stairs. This is a transition point for pedestrians accessing the station from the south-east residential area. VP6 is representative of views from the shared path users and GWH motorists. VP6 is a view looking south-west across the GWH and station platforms to Railway Parade. To the right of the view the pedestrian overpass and stair can be seen connecting to the platform, with a portion of the station building visible to the left. In front of the platform, the rail corridor fencing extends across the view with a few large wattle shrubs behind. To the foreground, the GWH vehicular barriers are present. A number of Railway Parade buildings appear in the view including Selwood House roof which is situated close to the peak of the hill. An opening in the streetscape is visible to the left of Selwood House where the commuter carpark is located. The skyline is irregular with vertical elements including the mature pine at Selwood House, and transport infrastructure elements such as electrical poles on Railway Parade, overhead line elements associated with the rail corridor, and light poles on the platform.
Anticipated change to view	The anticipated change to VP6 would include the addition of the new lift shaft to the centre of the view in front of the mature pine tree on Railway Parade. A new extended walkway and lift landing would be seen connecting the pedestrian overpass to the lift shaft. Associated new balustrades and screens would also appear in the view. The existing view of the Selwood House roof would be largely shielded by the new Proposal elements. A new palisade style perimeter fence approximately one metre higher than the existing would appear across the centre of the view, appearing more visually prominent than the existing. A small tree on the platform just visible in this view is also proposed to be removed. Refer to Appendix A for photomontage.
Sensitivity to change	The sensitivity of receivers represented by VP6 is considered to be **Low**. This is due to the type of sensitive receivers and their experience of this view, which would be relatively short and experienced when travelling between destinations, when attention is likely to not be focused on the view. No specific value is attached to this view, nor is indicated within relevant policy documents reviewed. However, a significant number of elements within the view are locally valued for their heritage character.
Magnitude of change	The magnitude of change to VP6 is considered to be **Moderate**. This is due to the loss of view of the Selwood House roof, and the scale, extent, and vertical nature of the change to view.
Significance of impact	The significance of impact for VP6 is therefore **Moderate-Low.**

5.2.7 Viewpoint location 7

Table 18 VP7 description and visual assessment

Viewpoint location 7 (VP7): GWH (west)	
 **Photograph of existing view towards the Proposal**	
Description of existing view	VP7 is located on the shared path on the northern side of the GWH, approximately 215 metres north-west of the Proposal, adjacent to the pharmacy on the corner of the GWH and vehicular entry to the shopping centre. VP7 is representative of views experienced from patrons of the Kebab and Pizza shop, pedestrians and shared path users, and road users on the GWH, Rosedale Avenue and the shopping centre carpark entry/exit. VP7 is a view directed east along the GWH towards Hazelbrook Station. To the left foreground, the outdoor dining area of the Kebab and Pizza shop is visible as well as the shop fronts and signage. To the centre of the view, the pedestrian overpass creates a strong yet transparent horizontal element across the view forming the horizon. Memory Park and the pedestrian ramp are visible to the left as well as Rosedale Avenue. To the right of the view, Railway Parade village shops can be seen on the hill slopes with mature exotic trees behind. The rail corridor fencing can be seen to the right of the view following the GWH. Vegetation forms a green backdrop to the pedestrian overpass. The station itself is largely obscured behind the sandstone bridge pier, and also hidden from view by the overpass itself. Typical road and rail infrastructure also features in the view, including the roadway and traffic, signage, lighting, overhead line elements and electrical poles.
Anticipated change to view	The anticipated change to VP7 would include the addition of the new lift shaft which would appear behind the pedestrian overpass, extending to a height of 5.7 metres (from pavement level) above the bridge. This new element would be located to the centre left of the bridge, to the right of the existing sandstone pier. New rail corridor fencing approximately one metre higher than the existing may also be a noticeable change to the right middle ground of the view.
Sensitivity to change	The sensitivity of receivers represented by VP7 is considered to be **Low**. This is due to the type of sensitive receivers and their experience of this view, which would be relatively short, experienced primarily when travelling between destinations, when attention is likely not to be focused on the view. Outdoor diners are likely to experience the longest viewing duration, however diners already experience views of the combined transport corridors. No specific value is attached to this view, nor is indicated within relevant policy documents reviewed. However, elements within the view are locally valued for their heritage character.
Magnitude of change	The magnitude of change to VP7 is considered to be **Low**. The scale of change, although anticipated to be noticeable, is within the characteristics of the existing view.
Significance of impact	The significance of impact for VP7 is therefore **Low**.

5.3 Summary of impacts

The following Table 19 and Table 20 provide a summary of landscape and visual impacts for the Proposal.

Table 19 Summary of landscape impacts

LCT	Description	Sensitivity to change	Magnitude of change	Overall Rating
LCT1	Village commercial	Moderate	Low	**Moderate-Low**
LCT2	Local commercial	N/A	N/A	**No Impact**
LCT3	Community facilities	N/A	N/A	**No Impact**
LCT4	Local park	N/A	N/A	**No impact**
LCT5	Residential	Moderate	Low	**Moderate-Low**
LCT6	Transport infrastructure	Moderate	Moderate	**Moderate**
LCT7	Conservation	N/A	N/A	**No Impact**

Table 20 Summary of visual impacts

LCT	Location	Sensitivity to change	Magnitude of change	Overall Rating
VP1	Railway Parade (west)	Moderate	Negligible	**Negligible**
VP2	Railway parade and Terrace Falls Road	Moderate	Low	**Moderate-Low**
VP3	44 Railway Parade	High	Moderate	**High-Moderate**
VP4	Railway Parade (east)	High	Low	**Moderate**
VP5	GWH (east)	Low	Low	**Low**
VP6	GWH (pedestrian overpass)	Low	Moderate	**Moderate-Low**
VP7	GWH (west)	Low	Low	**Low**

5.4 Landscape and visual impacts during construction

Construction works will result in temporary landscape and visual impacts which may extend beyond the Proposal site. Landscape and visual impacts associated with construction activities are generally of greater magnitude than those associated with operation, however are temporary in nature.

Landscape and visual impacts during construction resulting from those activities outlined in Section 3.2.2 may include:

- the presence of a crane required for lift construction
- the presence of an excavator, crane truck, piling rig, concrete truck, and concrete pump
- temporary safety screens between the work being undertaken and the public domain, platform and concourse
- presence of construction traffic and workers
- temporary parking areas
- importation and storage of construction equipment and plant

- materials stockpiling and the presence of incomplete structures
- construction activities to the existing pedestrian overpass, lift and stair, which may be visible above safety screens from street level.

6. Mitigation Measures

The following section recommends mitigation measures that respond to issues arising within the assessment that have potential to adversely impact on:

- the character of the landscape within which the Proposal is located
- views to the Proposal.

Mitigation measures address the most visual elements of the Proposal as well as referencing any relevant considerations drawn from the legislation and policy review.

6.1 Mitigation recommendations

6.1.1 General recommendations

General considerations for the detailed design phase include:

- utilise design strategies to minimise the visual prominence of new Proposal components affecting views to and from Railway Parade conservation area, for example maximise the transparency of the lift shaft, new screening to the extended walkway and lift landing, and utilise light grey or similar colour finish to the new balustrades to the lift landing. Consider maintaining the existing height of the proposed perimeter fencing (1.2 metres), and reduce the visual prominence of the proposed fencing by utilising a light grey or similar colour finish as opposed to black
- ensure Proposal design, siting and materiality is of high quality and sympathetic to the existing heritage context of the station precinct and Railway Parade, and contributes positively to the existing landscape character values
- incorporate new landscape planting to soften the visual impact of additional paving areas and perimeter fencing. Consider additional planting to 1.5 metres high to the batter slope north of the platforms within the rail corridor, to improve visual amenity of VP6 and surrounds. Ensure any new landscape planting enhances the public realm and aligns with Crime Prevention Through Environmental Design principles
- ensure landscape and urban design contributes positively to the existing landscape character and principles outlined in the *Sustainable Design Guidelines, Around the Tracks: urban design for heavy and light rail, Managing Heritage: issues in rail projects guidelines, Hazelbrook Village Centre Public Domain Masterplan,* and *Blue Mountains Development Control Plan 2015* specific to Hazelbrook Village Precincts.

6.1.2 Construction activity and storage

General considerations for the construction phase include:

- take all practical measures to ensure construction equipment, stockpiles, and other visible elements are located away from key views to or from the sensitive visual receivers identified in this assessment. Should such equipment or stockpiles be located in a visually prominent location for any reasonable period of time, incorporate screening measures and practices to ensure sites are kept tidy.

6.1.3 Retention of visually important vegetation

General considerations for the retention of visually important vegetation include:

- as the Proposal design progresses, the extent of disturbance on visually important buffer vegetation along the rail corridor boundary must be considered, and practical measures should be given to enable retention of this vegetation wherever possible
- ensure the retention and protection of the existing fern-covered rock cutting on the southern side of the station to retain the positive landscape character and visual amenity attributes it provides within the station precinct (refer Figure 2 for location).

6.1.4 Signage and poles

General considerations for the signage and poles include:

- avoid locating permanent signage which may impede or reduce the character and amenity of views, for example along Railway Parade
- minimise the number of services poles required within the public realm and station precinct by utilising built form mounting and combining services on shared poles
- ensure design and materiality of services components such as poles, signage and lighting contribute positively to the heritage context

7. Conclusion

This LVIA has been undertaken to understand the potential effects of the accessibility, security and technology upgrades proposed at Hazelbrook Station as part of the TAP program. At the time of writing, the Proposal was in the concept design phase.

Hazelbrook is one of a chain of small villages within the Blue Mountains National Park. The rail line and GWH follows the main western ridge, and urban development is constrained by steep slopes. A heritage area within Hazelbrook is clustered around the south side of the station, with a more extensive residential area and shopping centre to the north, with easier access from the GWH. Landscape values in the area include the nearby natural features such as waterfalls and bushland, heritage associated with the village particularly along Railway Parade and within the station precinct, and distant views towards the Blue Mountains from elevated locations.

A total of seven landscape character types were identified within the 600 metre study area, including village commercial, local commercial, community facilities, local park, residential, transport infrastructure and conservation. Of these, three landscape character types were found to have Moderate or Moderate-Low impact, associated with the heritage values and character of the station and Railway Parade precinct. The remaining landscape character types were found to have No Impact. Overall, this assessment found there to be no significant landscape character impacts arising from the Proposal.

Sensitive visual receivers in the study area include residents, businesses, pedestrian and shared path users, road users, and commuters. Seven viewpoint locations were chosen to assess the visual impact of the Proposal on sensitive receivers within the study area. Visual impacts were assessed using panoramas of the existing view, and photomontages were created illustrating the proposed view of the Proposal from two viewpoint locations. The assessment found that the Proposal generally has Negligible to Moderate-Low visual impacts on all viewpoint locations aside from viewpoints three and four, which were found to have High-Moderate and Moderate impacts respectively. The most significant impact is from viewpoint location three representing views from residential houses in close proximity to the Proposal. These residences are within the heritage conservation area and located on a higher elevation of Railway Parade, with existing distant views across the station precinct towards the Blue Mountains. Mitigation measures proposed for the construction and operational stages should be incorporated into the design to reduce impacts.

8. References

Blue Mountains City Council, NSW, *Blue Mountains Local Environmental Plan 2015*

Blue Mountains City Council, NSW, *Development Control Plan 2015*

Blue Mountains City Council, NSW, *Hazelbrook Village Centre Public Domain Masterplan*

DesignInc for TfNSW, *Hazelbrook Station Architectural Accessibility Upgrade,* Preliminary Issue for Pricing, 25.07.2018

Landscape Institute and Institute of Environmental Management & Assessment, UK (2013), *Guidelines for Landscape and Visual Impact Assessment, Third Edition.*

Roads and Maritime Services, Australia (2013), *Environmental Impact Assessment Practice Note - Guidelines for Landscape Character and Visual Impact Assessment, EIA-NO4 Version 2.0.*

TfNSW, *Around the Tracks: urban design for heavy and light rail*, December 2016 (interim issue)

TfNSW, *Managing Heritage: issues in rail projects guidelines,* December 2015

TfNSW, *Sustainable Design Guidelines Version 4.0, May 2017*

Appendices

Appendix A – Photomontages

Appendix A includes photomontages of the proposed view from VP3 and VP6.

Existing View

Photomontage of Project

Project: TAP3 Hazelbrook Station

PHOTOMONTAGE VIEWPOINT 3

Location:	Railway Parade
Coordinates:	264 124, 6 265 522 (GDA 1994 MGA Zone 56)
View Direction:	North-west
Lens Size:	50 mm
Date of Photography:	10th August 2018
Date of Photomontage:	12th November 2018
Issue:	0

Existing View

Photomontage of Project

NOTE: Photmontage of proposal contains 3D model (lift shaft) extending beyond base photograph

Project: TAP3 Hazelbrook Station

PHOTOMONTAGE VIEWPOINT 6

Location:	Great Western Highway Shared Path
Coordinates:	264 146, 6 265 588 (GDA 1994 MGA Zone 56)
View Direction:	South-west
Lens Size:	50 mm
Date of Photography:	10th August 2018
Date of Photomontage:	12th November 2018
Issue:	0

Existing View

Photomontage of Proposal

Project: TAP3 Kingswood Station

PHOTOMONTAGE VIEWPOINT 2

Location:	Park Avenue
Coordinates:	288 936, 6 262 313 (GDA 1994 MGA Zone 56)
View Direction:	South-west
Lens Size:	50 mm
Date of Photography:	10th August 2018
Date of Photomontage:	19th October 2018
Issue:	0

Existing View

Photomontage of Proposal

Project: TAP3 Kingswood Station

PHOTOMONTAGE VIEWPOINT 7

Location:	Great Western Highway
Coordinates:	288 879, 6 262 239 (GDA 1994 MGA Zone 56)
View Direction:	North
Lens Size:	50 mm
Date of Photography:	10th August 2018
Date of Photomontage:	19th October 2018
Issue:	0

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Document Status

Revision	Author	Reviewer		Approved for Issue		
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